

BALLAST TYPES

CLIPPERS

COMPUTER TYPES

DIODES AND RECTIFIERS see Clippers

ELECTROMETER TYPES

HYDROGEN DIODES

HYDROGEN THYRATRONS

INDICATOR TYPES

PHOTOTUBES

POWER PENTODES

POWER TRIODES

TELEPHONE TYPES

THYRATRONS



INDUSTRIAL TUBES

TRANSMITTING TYPES

VACUUM PULSE MODULATORS

VOLTAGE AMPLIFIER PENTODES

VOLTAGE AMPLIFIER TRIODES

VOLTAGE REFERENCE TYPES

VOLTAGE REGULATORS

TUNG-SOL[®]



TUNG-SOL
ELECTRIC INC.

Ballast Types *not*

6345 Special, long life ballast tube. Threshold voltage 11.2 volts. Current range 140 to 160 milliamperes. Frequency range 50 to 400 cycles.

Clippers *not*

3B29 High vacuum, diode rectifier. Used as
★ half-wave, high voltage rectifier or diode clipper. Capable of handling 8 amperes peak plate current as clipper.

576A High current, high vacuum diode clipper.
★ Handles 12 amperes as clipper. Can also be used as rectifier.

583 Small, hard-glass, high vacuum, high voltage diode clipper. Can also be used as rectifier.

6339 External anode, diode clipper or rectifier for liquid or air cooling. Clipper ratings 8 amps at 10 Kv.

7454 Gas filled clipper, designed to work with 12.5 megawatt switch tube in radar modulator circuits.

7455 Gas filled clipper, designed to work with 33 megawatt switch tube in radar modulator circuits.

Computer Types *not*

5687 Same as 5687WA except not ruggedized and no Military Q.A.

5687WA Miniature Medium Mu double triode.
★ Sections are electrically independent with common heater connection permitting 6.3 or 12.6V supply. Ruggedized, high permeance, high emission and possibility of interface formation minimized. Ideal for triggered applications involving long periods of standby cutoff service.

5963 Miniature Medium Mu triode for frequency-divider circuits in computers and other on-off control applications requiring long periods of operation under cutoff conditions.

5964 Miniature Medium Mu triode designed for frequency-divider circuits in computers and other on-off applications requiring long periods of operation under cutoff conditions.

6418 Subminiature Filament type pentode designed for use as a power amplifier in portable and wearable equipment.

★ INDICATES MILITARY QUALIFICATION APPROVAL

7236 Low Mu double triode intended for long life as a power amplifier in computer service. Has the ability to pass large currents with a low voltage drop.

7719 Miniature single indirectly heated high permeance triode intended for computer applications. Cathode material is chosen to minimize possibility of interface impedance.

Diodes and Rectifiers

not
See Clippers
A

1Y2 High voltage, half-wave, Vacuum rectifier for operation in R-F or 60-cycle power supplies. Rated 1.5 milliamperes average current at peak inverse voltage of 38KV. Will operate in air or oil immersed.

1Z2 Miniature high voltage vacuum rectifier.
★ Used as RF flyback or 60 cycle rectifier. Requires no filament preheating.

3B24WA Rugged, high voltage, half-wave vacuum rectifier. Employs bonded thorium filament. Center-tapped filament permits use on 2.5 or 5 volts.

3B25 High voltage, moderate current, xenon filled, half-wave rectifier. Hard glass envelope. Operates over wide temperature range.

3B28 High voltage, moderate current, half-wave xenon filled rectifier. Used on high voltage circuits. Operates over a wide temperature range. Has hard glass envelope.

4B32 Largest high voltage, half-wave, xenon filled rectifier. Used in high voltage circuits. Operates over a wide temperature range. Has hard glass envelope.

5AT4A High current, moderate voltage, full-wave high vacuum rectifier. Used in high current DC power supplies. Has very low internal voltage drop.

5R4WGA Ruggedized highest voltage full-wave high vacuum rectifier. Used in moderate current power supplies. Withstands high altitudes and 900 g. Hard glass bulb, shock mounted in skirted base.

5R4WGB Reliable, ruggedized highest voltage full-wave high vacuum rectifier. Used in moderate current power supplies. Withstands high altitudes and 900 g. shock. Hard glass bulb, shock mounted in skirted base. Electrically stabilized and subjected to tight test procedures.

6H6WGT Ruggedized dual diode with octal base. Used as detector, discriminator or rectifier. Has separate sections permitting use as a voltage doubler or one full- or two half-wave rectifiers. A low current, low voltage tube.

6X4W/6X4WA Miniature ruggedized, stable, long-life full-wave rectifier for use where a high degree of reliability is desired.

6X5WGT Ruggedized full-wave high vacuum rectifier designed for service in storage battery or AC operated receivers.

25Z6WGT Ruggedized power rectifier. Two separate sections permit use as voltage doubler, full-wave rectifier or half-wave rectifier. Has low-loss phenolic base.

26Z5W Miniature ruggedized heater-cathode type double diode suitable for use in half or full wave rectifier applications as a voltage doubler.

5517 Miniature, gas filled, cold cathode, half-wave rectifier with a starting electrode. Used for photoflash work and where standby filament is a disadvantage. A low current, high voltage tube.

5726 Miniature twin diode designed for dependable operation under conditions usually found in mobile and aircraft application. Heaters designed to minimize failure under severe on-off operation.

5726/6AL5W Miniature ruggedized twin diode for general purpose applications such as clipper and clamper circuits, where the two sections may be used in different parts of the circuitry.

5829WA Ruggedized subminiature cathode type double diode capable of operation up to 400 Mc. Inter-sectional shielding with separate lead assures electrically independent operation.

5896 Subminiature twin diode with separate cathodes. Suited for service as a detector, AGC rectifier or low-current power rectifier. Each section has resonant frequency of about 900 Mc.

6110 Ruggedized Subminiature 400 Mc twin diode. Designed for use as a low-current power supply rectifier.

6202 Miniature full wave rectifier for power supplies not exceeding 50 ma DC current requirements. Ruggedized and can stand many thousand cycles of intermittent operation. Can be used in applications which are subjected to altitudes of 60,000 feet.

6663 Miniature high permeance twin diode suitable for low current applications including FM discriminator circuits and in clipping, clamping, switching and isolation circuits. Designed for use in mobile communications equipment.

8008XE High voltage, hard glass, xenon filled, half-wave rectifier. Superior to mercury vapor type 8008 as it can be mounted in any position and is not subject to mercury splash problems. Directly interchangeable with 8008.

Electrometer Types *not*

7851 Miniature screen grid tetrode electrometer tube. Its distinguishing high triode Mu makes it useful as a high gain current amplifier where input signals are as in the order of micro-micro-amperes.

Hydrogen Diodes *yes*

7789 Hydrogen filled, high voltage rectifier. PIV 15 KV, 0.4 amps average, 2.5 volt heater.

7790 Hydrogen filled, high voltage rectifier. PIV 20 KV, 1.0 amps average, 5 volt heater.

7791 Hydrogen filled, high voltage rectifier. PIV 25 KV, 2.0 amps average, 5 volt heater.

7792 Hydrogen filled, high voltage rectifier. PIV 25 KV, 2.0 amps average, 11 volt heater.

7793 Hydrogen filled, high voltage rectifier. PIV 25 KV, 4.0 amps average, 5 volt heater.

Hydrogen Thyratrons *also*

See Thyratrons *yes*

1257 Largest hydrogen filled zero bias thyatron with adjustable hydrogen reservoir. Used as radar modulator or for magnetron processing. Can handle 33 megawatts peak pulse power.

1258 Miniature hydrogen filled, zero bias thyatron with hard glass bulb. Used as radar modulator. Usable at high frequencies. Can handle 10 KW peak pulse power.

5948 Large hydrogen filled, zero bias, thyatron with hydrogen reservoir. Used as radar modulator. Can handle 12½ megawatts peak pulse power.

5948A Fast warmup, large hydrogen filled, zero bias thyatron with hydrogen reservoir. Used as radar modulator. Can handle 12½ megawatts peak pulse power.

5949 Hydrogen filled, zero bias thyatron with hydrogen reservoir. Used as radar modulator. Has giant, 5-pin base. Can handle 6¼ megawatts peak pulse power.

5949A Fast warmup, hydrogen filled, zero bias thyatron with hydrogen reservoir. Used as radar modulator. Has plug-in base. Can handle 6¼ megawatts peak pulse power.

7190 Ruggedized, miniature, zero bias, hydrogen thyatron. For generation of pulse voltages. Handles 10 KW peak pulse power. Small button, 7-pin, miniature base.

7191 Ruggedized, miniature, zero bias hydrogen thyatron. For generation of pulse voltages. Handles 10 KW peak pulse power. Small button 7-pin, miniature base. Anode connector at top of bulb, for high altitude use.

7192 Ruggedized, miniature, zero bias, hydrogen thyatron. For generation of pulse voltages. Handles 10 KW peak pulse power. Connections are made by means of flexible leads.

7240 Ruggedized, miniature, zero bias, hydrogen thyatron. For generation of pulse voltages. Handles 10 KW peak pulse power. Small button, 7-pin, miniature base. 28-volt heater.

7559 Zero bias, hydrogen thyatron passes high currents in "crowbar" protective circuits. Rated 25 KV at 1500 amperes peak.

8253 Hydrogen filled, zero bias, fast warmup thyatron with internally connected hydrogen reservoir. Ring-disk type construction reduces size, and lead inductance. Handles 3.3 megawatts peak pulse power. Upgraded plug-in replacement for 5C22, 6587 and 6587A.

7568 Zero bias, hydrogen thyatron passes high currents in "crowbar" protective circuits. Rated 25 KV at 800 amperes peak.

7590 Hydrogen filled, zero bias, fast warmup thyatron with externally connected hydrogen reservoir. Passes high currents in "crowbar" protective circuits. Rated 30KV at 1000 amperes peak.

7605 Zero bias, hydrogen thyatron passes high currents in "crowbar" protective circuits. Rated 30 KV at 3000 amperes peak.

8036 Ceramic-metal, zero bias, hydrogen filled thyatron for high power switching. Handles 6.5 megawatt peak pulse power. Electrical equivalent of 5949/1907 glass tube. Flange mounting for maximum support and minimum height.

8191 Very small, ceramic-metal, hydrogen filled, zero-bias thyatron. Handles 135KW peak pulse power. More rugged and smaller than equivalent glass tubes of same electrical ratings.

8192 Small, ceramic-metal, hydrogen filled, zero bias thyatron. Handles 450 KW peak pulse power. For generation of pulse voltages in radar modulators. More rugged and smaller than equivalent glass tubes of same electrical ratings.

Indicator Types *not*

6977 Subminiature filamentary, high-vacuum, indicator triode with a fluorescent anode. Designed to replace neon lamps in electronic computers and business machines. Advantageous for use in transistorized circuits where its high input impedance and small signal requirements do not load the transistor circuit.

7323 Subminiature, red glow, indicating thyatron. Used as relay tube and indicator. Features low filament power and minute triggering requirements for use in transistor circuits. Companion tube to 8216 which has blue-green gaseous glow.

7400 Small, indicating, cold cathode thyatron. End-on viewed, disc shaped cathode glows brightly when conducting. Also used in relay circuits. Low level trigger requirements for transistor circuits.

7401 Subminiature, indicating, cold cathode thyatron. End-on viewed, disc shaped cathode glows brightly when conducting. Also used in relay circuits. Low level trigger requirements for transistor circuits.

7813 Subminiature, cold-cathode, self-indicating thyatron. End-on viewed cathode, disk shaped cathode glows brightly when conducting. Low level triggering requirements. Special 'keep alive' grid enables tube to fire after long periods of inoperation without delay.

8216 Subminiature, blue-green glow, indicating thyatron. Used as relay tube and indicator. Features low filament power and minute triggering requirements for use in transistor circuits. Companion tube to 7323 which has red gaseous glow.

Phototubes *not*

8049 A vacuum photo-diode of the cesium-antimony type having a typical S-4 response. Its design features make it extremely useful for operation at low light levels and in low-voltage applications. It has an exceptionally low knee on the saturation characteristic that improves progressively as the light level is decreased.

Power Pentodes

3A4 Miniature Power amplifier pentode for use in compact, lightweight, portable equipment. Employs a large filament which enables it to supply high peak currents required in RF power applications. In RF amplifier service it will deliver a PO of about 1.2 Watts at 10 MC. *RSIN*

RSIN
3V4WA Miniature ruggedized power amplifier
★ pentode designed for military equipment application.

6AR6 Beam power pentode amplifier for applications requiring high peak plate currents at negative grid potentials.

6L6WGB Ruggedized beam pentode used
★ primarily in audio power output stages. Micanol barrier base absorbs less moisture and reduces the chance of voltage breakdown between adjacent pins.

26E6WG Ruggedized single-ended beam pentode used in AF power output applications requiring approximately five watts. The 26.5V heater makes this type ideal for airborne applications where power supplies of this type are normally available.

5881 Ruggedized Beam pentode. Has high overload capabilities and low-loss barrier type base provides advantages in certain applications.

6000 Single ended beam power pentode
★ amplifier for RF applications to 100 MC. Its 26.5V heater makes it suitable for vehicular or aircraft use.

RSIN
6098/6AR6WA Ruggedized single-ended
★ beam pentode for applications requiring relatively high peak plate currents at negative grid potentials.

6327 Beam power pentode designed for radar deflection amplifier service. Top cap connection for plate lead and button stem provides adequate insulation for operation at 60,000 ft. provided the maximum bulb temperature is not exceeded.

RSIN
6550 Pentode power amplifier for audio service. Its 35 watt dissipation rating provides for push-pull amplifier designs up to 100 watts output.

7189 Miniature Power pentode designed for use as a power amplifier in high fidelity audio equipment. Intended for use in amplifiers of over 20 Watt capabilities.

7591 Beam power pentode designed for use as an audio frequency power output tube. Has high power sensitivity and efficiency and is especially designed for applications where high power output is required.

7867 Beam Power Pentode with high power sensitivity and high efficiency for audio output stages. Capable of handling high power at a very low harmonic distortion level.

Power Triodes

REG
6AS7G Low-mu, high current twin triode. Used as passing, or series regulator tube in regulated DC power supplies.

2399 Specially processed and tested, medium-mu, high current, twin triode. Used as series regulator or passing tube in regulated DC power supplies for computers.

★ INDICATES MILITARY QUALIFICATION APPROVAL

REG
5998 Medium-mu, high current twin triode. Used as a passing, or series regulator tube in regulated DC power supplies.

6080 Low-mu, high current twin triode. Used
★ as passing, or regulator tube in regulated DC power supplies.

6080WA Reliable, ruggedized, low-mu, high
★ current twin triode. Used as passing, or regulator tube in regulated, DC power supplies.

6080WB Hard glass, twin power triode for
★ use in high ambient temperature and under sustained vibration. Non-char, glass-bonded mica base wafer.

REG
6082 Twin low-mu, high current triodes in a single tube. Used as a passing or regulator tube in regulated DC power supplies. 26.5 volt heater.

6082WA 26.5-volt version of 6080WA.

6082WB 26.5-volt version of 6080WB.
★

REG
6336A Ruggedized, long-life, low-mu twin triode. Used in regulated, DC power supplies. Passes large currents over a wide voltage range. Uses a hard glass bulb and graphite anodes.

6394A Ruggedized, long-life high power, low-mu, twin triodes in a single tube. Used in series regulated DC power supplies. Passes large current over a wide voltage range. Has hard glass bulb and has 26 volt heater.

6520 Low-mu, high current, twin balanced and insulated triodes in a single tube. Used as a passing or regulator tube in regulated DC power supplies, for tight current regulation.

6528 Rugged, long life, high current,
★ medium-mu. Used as a series regulator in DC power supplies. Provides low internal drop and high control sensitivity. Has hard glass envelope.

6877 Reliable, hard glass, miniature, low-mu triode. Used as passing or regulator tube in regulated DC power supplies.

7105 6080WA with 12.6 volt heater.

REG
7241 Rugged, low-mu, high current triode. Massive cathodes to pass more than one ampere at 100 watts plate dissipation. For passing or series regulator use in regulated DC power supplies.

7242 Rugged, medium-mu, high current triode. Passes large currents over wide voltage range with low intrinsic voltage drop when operated "wide open". Used as passing or series regulator in regulated DC power supplies.

7802 Medium-mu, high current, twin triode used as passing or regulator tube in regulated DC power supplies. Similar to 6080 but higher mu and higher transconductance.

REG
7802WA Reliable, ruggedized, medium-mu, high current twin triode for use as passing or regulator tube in regulated DC power supplies.

7802WB Hard glass, medium-mu twin triode for use as passing or regulator tube in regulated DC power supplies. For use in high ambient temperature and under sustained vibration. Non-char, glass-bonded mica base wafer.

8193 Reliable, hard glass, miniature, medium-mu triode. Capable of handling 100 milliamperes as passing tube in regulated D-C power supplies.

Telephone Types *not*

313C Cold cathode thyratron. Used as a
★ relay in switching and selective ringing telephone circuits.

338A Argon filled, heater type, three element
★ thyratron. Used as grid controlled rectifier in telephone equipment. Has small, 5-pin base.

407A Miniature high frequency twin triode. Used in carrier telephone circuits. Useful range from audio frequencies through UHF. Has two 20 volt heaters. A low hum, low noise tube.

426A Cold cathode, gas filled thyratron. Used as trigger or relay tube in telephone circuits. Has bracket base.

5842/417A Low noise, high gain, wideband,
★ miniature triode. Used as grounded grid or cascode amplifier in IF and RF circuits. Also wideband impedance matching tube in AF circuits.

5847/404A Low noise, high gain, wideband,
★ miniature pentode. Used as IF amplifier or broadband AF amplifier.

6028/408A Miniature, sharp cut off, RF pentode. Used in telephone carrier equipment. Useful as high frequency, wide band amplifier. Similar to 6AK5 but with 20 volt heater. A low hum, low noise tube.

Thyratrons *yes* *Also* See Hydrogen Thyratrons

2D21 Miniature, xenon filled, shield grid thyratron. Used as a pulse modulator, grid controlled rectifier, and relay or switching tube. Works directly from high impedance input such as a phototube.

3C23 Mercury vapor and argon filled, high
★ current thyratron. Used as a grid controlled rectifier. Withstands wide temperature range. Uses medium, 4-pin base.

6D4 Miniature, argon filled thyratron. Used ★ principally as an r-f noise generator. Also used in relay and sawtooth oscillator circuits. Small size and wide ambient temperature range for use in compact, portable equipment.

323B Mercury vapor and argon filled, high ★ current thyratron. Used as grid controlled rectifier. Withstands wide temperature range. Uses medium, 5-pin base.

393A Mercury vapor and argon filled, high ★ current thyratron. Used as grid controlled rectifier. Withstands wide temperature range. Uses octal base.

394A Mercury vapor and argon filled, medium ★ current thyratron. Used as a grid controlled rectifier. Withstands wide temperature range.

395A Small, cold cathode thyratron. Used as ★ trigger tube or in relay service. Absence of filament power and minute triggering current requirements well suit this tube for use in transistorized or battery operated equipment.

2050 Xenon filled, shield grid thyratron. Used as grid controlled rectifier, or as relay tube. Used in welder controls.

2050W Ruggedized, xenon filled, shield grid ★ thyratron. Used as grid controlled rectifier, or as relay tube. Used in welder controls. Withstands shock and vibration over a wide temperature range.

5594 Highest voltage, xenon filled thyratron. Used as a grid controlled rectifier or as a relay tube. Used in welder controls. Withstands wide temperature range.

5643 Subminiature, xenon filled, shield grid ★ thyratron. Used as switching tube, counter or relay. Small size and weight for use in compact, portable equipment.

5663 Miniature, shield grid, xenon filled thyratron. Used as a relay tube or grid-controlled rectifier.

5696 Miniature, xenon filled, shield grid thyratron. Used as a relay tube.

5727/2D21W Rugged reliable, miniature ★ shield grid thyratron.

5823 Miniature, three-element thyratron. ★ Used as a grid controlled rectifier or relay tube.

6012 Xenon filled, shield grid thyratron. Has ★ 0.5 ampere average current rating.

6590 Subminiature, three element thyratron designed for pulse service. 10-ampere peak pulse current. Meets high environmental test conditions.

6901 Mercury vapor and gas filled, high current, three element thyratron. Used as grid controlled rectifier. Operates over wide temperature range. Uses octal base.

7410 High current, xenon thyratron designed ★ for use as grid-controlled rectifier. Operating range -55°C to $+165^{\circ}\text{C}$.

Transmitting Types *yes*

not held monthly
✓ **2E22** Pentode power amplifier oscillator designed ★ primarily for class C amplifier or oscillator service in portable equipment.

6146 VHF, beam power tube for fixed or mobile use. Functions as modulator, or as oscillator, frequency multiplier or RF amplifier at frequencies up to 175 MC. Approximately 67 watts input CCS or 90 watts input ICAS up to 60 MC when used as Class C amplifier.

6146W Rugged version of 6146. Meets high environmental test conditions.

6159 VHF, beam power tube for fixed or mobile use. Used as frequency multiplier, modulator, oscillator or RF amplifier up to 175 MC. As Class C amplifier has approximately 67 watts input CCS or 90 watts input ICAS to 60 MC. Heater voltage 26.5 volts.

6159W Rugged version of 6159. Meets high environmental test conditions.

6252 UHF twin tetrode used as modulator, or as oscillator, frequency multiplier or RF amplifier up to 600 MC. Approximately 90 watts input CCS or 112 watts input ICAS up to 250 MC when used as Class C amplifier. Has internal cross-neutralization capacitors.

6360 Twin tetrode designed for Class C amplifier and oscillator, frequency multiplier and modulator use up to 200 megacycles. Dual voltage heater suitable for mobile service. Total anode dissipation 14 watts ICAS.

6883 VHF, beam power tube for fixed or mobile use. Functions as modulator, or as oscillator, frequency multiplier or RF amplifier at frequencies up to 175 MC. Approximately 67 watts input CCS or 90 watts input ICAS up to 60 MC when used as Class C amplifier. 12.6 volt, 0.625 ampere heater.

6907 UHF twin tetrode used as modulator, or oscillator, frequency multiplier or RF amplifier up to 600 MC. Approximately 90 watts input CCS or 112 watts input ICAS up to 250 MC when used as Class C amplifier.

7212 Rugged, VHF, beam power tube used in fixed or mobile equipment as modulator, oscillator, frequency multiplier or RF amplifier to 175 MC. Approximately 67 watts CCS or 90 watts ICAS up to 60 MC when used as Class C amplifier.

Vacuum Pulse Modulators *yes*

3D21WA Rugged, reliable, beam power tetrode designed for pulse service. Will handle 10 amperes peak current to 4 kilovolts. Heater operates on 6.3 or 12.6 volts.

6293 Beam power tube designed for use as pulse modulator. Maximum pulse rating 3 amperes.

6293W Rugged version of 6293. Meets high environmental test conditions.

7403 Hard glass, reliable beam power, pulse modulator tube. Rated for 10 ampere peak current to 4 kilovolts. Non-char, glass-bonded mica base wafer.

Voltage Amplifier Pentodes *not*

1AD4 Subminiature filament type sharp-cut-off pentode designed for RF and AF applications in portable equipment.

1AH4 Subminiature filament type, fully ★ shielded, pentode designed for service in RF applications requiring economy of space, weight and battery drain.

1L4 Miniature RF sharp-cutoff pentode. Internally shielded. Used in compact, lightweight portable receivers; also of interest in FM receivers and other circuits not requiring AVC.

5A6 Miniature filamentary pentode RF Power ★ Amplifier for service where moderate amounts of RF power are desired in portable equipment. Will deliver 3 Watts of RF power with low driving power at 70 MC.

6AH6WA Miniature heater-cathode, high ★ transconductance, sharp-cutoff pentode. Designed for use as a wide band or IF amplifier in mobile and aircraft applications.

6AK6 Miniature power amplifier pentode intended for use in lightweight equipment and can be used singly or in push-pull.

6AK5WB Miniature ruggedized sharp-cutoff ★ pentode voltage amplifier. Characterized by low heater power requirements, high transconductance and input impedance, and low inter-electrode capacitances and lead inductances.

not
6AJ5 Miniature sharp-cutoff pentode voltage
★ amplifier characterized by low heater
power requirements, high transconductance,
low capacitances and high input
impedance. Its low triode-Mu adapts it
to service where the plate and screen
supply potentials are low or to applica-
tions as a small power amplifier.

6AS6 Miniature sharp cutoff voltage ampli-
fier pentode characterized by an efficient
heater, low capacitances and high trans-
conductance. Suppressor grid has a sep-
arate base connection to be used as an
additional control grid in gating, switch-
ing or mixer service.

6AU6WA/6AU6WB Miniature ruggedized
★ sharp-cutoff pentode amplifier. Has high
transconductance and low grid-plate ca-
pacitance and is intended for use as a
voltage amplifier over the AF, IF and RF
frequency ranges.

5636 Subminiature dual-control Pentode ca-
★ pable of operation over a range of fre-
quencies from AF to UHF and use as
converter, modulator, phantastron and
gating service, as well as single control
usage such as AF, IF & RF Amp., mixers.
Ruggedized structure makes it especially
suitable for airborne communication
equipment applications.

5639 Subminiature ruggedized pentode de-
★ signed for use in broad band amplifier
applications such as radar and video
ampl. applications.

5654 Miniature sharp-cutoff, RF pentode de-
signed for dependable operation under
conditions of shock and vibration usually
found in mobile and aircraft applications.

5654/6AK5W Miniature ruggedized sharp-
★ cutoff pentode characterized by low
heater power requirements, high trans-
conductance and input impedance, and
low interelectrode capacitances and lead
inductances.

5672 Subminiature filament type pentode
★ power amplifier designed for use in wear-
able and portable equipment.

5678 Subminiature filament type pentode for
★ service in RF applications requiring econ-
omy of space, weight and battery drain.

5702WA Ruggedized Subminiature heater
★ cathode type 400 Mc sharp cut-off pen-
tode.

5702WB Subminiature heater-cathode type
★ sharp-cutoff pentode capable of operation
in the VHF region. Ruggedized.

5725/6AS6W Miniature ruggedized sharp-
★ cutoff pentode voltage amplifier. Sep-
arate grid base pin connection makes
dual control applications such as a con-
verter, modulator, phantastron and gating
service possible as well as single con-
trol usage such as AF, IF and RF ampli-
fiers, mixers, etc.

not
5725 Miniature sharp-cutoff pentode voltage
amplifier. Separate grid base pin connec-
tion makes dual control applications such
as a converter, modulator, phantastron
and gating service possible as well as
single control usage such as AF, IF and
RF amplifiers, mixers, etc.

5749 Miniature remote cut-off amplifier pen-
tode designed for reliable life under
conditions of intermittent operation as an
RF or IF amplifier.

5749/6BA6W Miniature ruggedized remote
★ cutoff pentode voltage amplifier. Ex-
tremely low grid-plate capacitance and
high transconductance permits efficient
operation in RF and IF amplifiers.

5784WA Ruggedized subminiature heater
★ cathode pentode capable of operation in
VHF region. Control and suppressor grids
may be used as independent control elec-
trodes for circuits such as gated ampli-
fiers, mixers and gain controlled amplifiers.

5840 Subminiature sharp-cutoff pentode de-
★ signed for use in HF circuits. Capable
of maintaining emission in on-off applica-
tions after long periods of operation
under cutoff condition.

5875 Subminiature filament type sharp-
cutoff pentode designed for radiosonde
applications.

5899 Subminiature semi-remote pentode for
★ use as wide-band high frequency ampli-
fier. Also suitable for AGC applications.

5902 Subminiature heater-cathode type beam
★ pentode of ruggedized construction for
audio power amplifier service in equip-
ment with low supply voltages. Capable
of about 1 watt output in the audio
range.

6088 Subminiature power amplifier pentode
★ of low current design for use in portable
and wearable equipment.

6136 Miniature sharp-cutoff pentode for use
as a high-gain RF or IF amplifier. Rug-
gedized and can stand thousands of
cycles of on-off operation.

6205 Subminiature sharp-cutoff pentode de-
★ signed for use in HF circuits. Will main-
tain its emission capabilities after long
periods of operation under cutoff con-
ditions.

6206 Subminiature semi-remote pentode de-
★ signed for use as a wide-band, high fre-
quency amplifier.

6245 Subminiature ruggedized heater-cath-
ode type sharp-cutoff pentode capable
of operation in UHF region.

6485 Miniature heater-cathode, high GM,
sharp cutoff pentode for use as a wide
band or IF amplifier. Maintains emission
and freedom from cathode interface re-
sistance after long periods of operation
under cut-off conditions.

not
6660 Miniature remote-cutoff pentode for
use as wide band HF amplifier. Has low
grid-plate capacitance and high trans-
conductance. Can stand appreciable on-
off cycling.

6661 Sharp-cutoff pentode for use as wide-
band HF amplifier capable of withstand-
ing appreciable on-off cycling.

6662 Miniature remote-cutoff pentode for use
as a wide-band HF amplifier. Capable of
withstanding appreciable on-off cycling.

6669 Miniature beam-power pentode for use
as an AF power amplifier. Capable of
withstanding appreciable on-off cycling.

6968 Miniature sharp-cutoff pentode used as
a wide-band HF amplifier. Has controlled
cutoff characteristic for triode operation.
Construction allows intermittent opera-
tion with long periods of cut-off in on-
off control applications.

Voltage Amplifier Triodes

not

2C51 Miniature two independent and shielded,
★ medium Mu, indirectly heated cathode
type triodes for use in amplifier, mixer,
oscillator and multivibrator and clamp
circuits. Useful range from low fre-
quencies through VHF.

65C7GTY High amplification factor twin
★ triode amplifier. Primary application is
as a phase inverter and audio amplifier.

65L7WGT Two independent high Mu triodes;
★ designed primarily for phase inverter
service.

65N7WGT/65N7WGTA Medium Mu triode used
★ as a combined vertical oscillator and
vertical deflection amplifier.

65U7GTY High Mu twin triode amplifier. Has
★ a low loss phenolic base, minimum gas
and leakage currents, and is specially
tested for plate current balance between
sections.

12AT7WA Miniature ruggedized, high trans-
★ conductance twin triode with heater
center tap to permit either 6.3 or 12.6V
operation. Especially adaptable for use as
combined HF oscillator and mixer, or as
a grounded grid RF amplifier.

12AX7WA Miniature ruggedized double triode.
★ Similar to 12AX7 and designed for use
in military equipment.

12AY7 Miniature two independent medium
Mu indirectly heated cathode type triodes
for use in high gain audio amplifier
service where hum, noise and micro-
phonics are critical.

5676 Subminiature, filament type triode oscil-
★ lator for 100 to 350 Mc applications.

not

5670 Miniature ruggedized medium MU
★ twin triode. Sections are electrically independent and may be used as an amplifier, mixer, and in multivibrator circuits over a frequency range of AF through VHF. May also be used as an oscillator resonant line oscillator when the two triode sections are connected in parallel.

5703WA/WB Subminiature Heater-Cathode
★ type medium Mu triode. Capable of operation as an oscillator, Class C amplifier, or frequency multiplier under conditions of high temperature, mechanical vibration or shock.

5718 Subminiature Medium Mu triode. Can
★ be used as HF oscillator or a general purpose amplifier. PO 0.9 Watts can be obtained at frequency of 500 MC.

5719 Subminiature High Mu triode designed
★ for use as an audio-frequency voltage amplifier. Can be employed at relatively low signal levels because of its low microphonic characteristics.

5744WA Ruggedized Subminiature heater
★ cathode type high Mu triode for use as a frequency converter or oscillator in the UHF region. Also useful in general purpose AF voltage amplifier service.

5744WB Subminiature Heater-Cathode type
★ high Mu triode. Can be operated as a frequency converter or oscillator in the UHF region. Also used as a general purpose audio freq. amplifier. Designed for conditions of high temp., mechanical vibration or shock.

5751 Miniature ruggedized high Mu twin
★ triode with section being electrically independent. Heater center tap permits operation from 6.3 or 12.6V supply. Adaptable to low level input applications where HV gain and low heater power are important. Also used as voltage amplifier, phase inverter and multivibrator.

5814A Miniature ruggedized medium Mu twin
★ triode where sections are electrically independent. Heater center tap permits operation from 6.3 or 12.6V supply. Used as voltage amplifier, oscillator-mixer combination, multivibrator or phase inverter.

5814WA Miniature ruggedized medium Mu
twin triode where sections are electrically independent. Heater center tap permits operation from 6.3 or 12.6V supply. Used as voltage amplifier, oscillator-mixer combination, multivibrator or phase inverter.

6021 Subminiature ruggedized medium Mu
★ twin triode. Used as UHF and VHF oscillator and mixer. Especially suited for use in airborne equipment.

6111 Subminiature medium Mu twin triode
★ designed for general purpose amplifier applications. May also be used as a combined oscillator and mixer in HF circuits.

★ INDICATES MILITARY QUALIFICATION APPROVAL

not

6188/6SU7WGT Ruggedized High Mu twin
★ triode amplifier. Has a low loss phenolic base, minimum gas and leakage currents, and is specially tested for plate current balance between sections.

6189/12AU7A Miniature ruggedized medium
★ mu twin triode. Sections are electrically independent. Used as AF Voltage amplifier, phase inverter, oscillator, multivibrator, combined oscillator-mixer and resistance coupled amplifier.

6201 Miniature Twin Triode for use as a
grounded-grid amplifier or frequency converter in VHF applications. Ruggedized and can stand thousands of cycles of intermittent operation.

6679 Miniature High Mu twin triode used
as a grounded-grid amplifier or a frequency converter at frequencies below 300 MC. Can withstand thousands of cycles of intermittent operation.

6680 Miniature Medium-Mu twin triode. Suited
for general purpose amplifier and phase-inverter circuits as well as for numerous multivibrator and oscillator applications.

6681 Miniature High Mu twin triode used in
resistance-coupled voltage amplifiers, phase inverters, multivibrators and other applications where high voltage gain is desired. Can withstand appreciable on-off cycling.

7370 Miniature Medium Mu double triode.
Electrically independent sections with common heater connection. Characterized by high perveance and high emission capabilities.

Voltage Reference Types *yes*

0G3 Miniature, cold cathode gas discharge
tube. Maintains a constant DC voltage of 85 volts over a current range from 1 to 10 milliamperes.

5651 Miniature cold cathode, gas discharge
tube. Maintains a constant DC voltage of 86 volts, over a current range of 1.5 to 3.5 ma.

5651WA Ruggedized, reliable miniature cold
★ cathode, gas discharge tube. Maintains a constant DC voltage of 86 volts, over a current range of 1.5 to 3.5 ma. Operates in ambient temperature range to +150°C.

5783 Subminiature, cold cathode, gas discharge
tube. Maintains constant DC voltage of 86 volts over current range from 1.5 to 3.5 milliamperes. Holds fluctuations below 5 millivolts over current range.

5783WA Rugged, reliable subminiature, cold
★ cathode, gas discharge tube. Maintains constant DC voltage of 86 volts over current range from 1.5 to 3.5 milliamperes. Holds fluctuations below 5 millivolts over current range.

Voltage Regulators *yes*

0A2 Miniature, cold cathode, glow discharge
tube. Maintains constant DC output of 150 volts independent of load and line voltage variations.

0B2 Miniature, cold cathode, glow discharge
★ tube. Maintains a constant DC output voltage of 108 volts independent of load current and line voltage variations.

0B2WA Reliable, ruggedized, miniature, cold
★ cathode, glow discharge tube. Maintains a constant DC output voltage of 108 volts independent of load current and line voltage variations.

03CW Ruggedized cold cathode, glow discharge
★ tube. Maintains a constant DC output voltage of 105 volts, independent of load current and line voltage variations.

0D3W Ruggedized cold cathode, glow discharge
★ tube. Maintains a constant DC output voltage of 150 volts, independent of load current and line voltage variations.

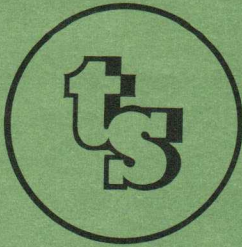
5787WA Reliable, subminiature, cold cathode,
glow discharge voltage regulator. Maintains constant 98 volt dc output over operating range of 5 to 25 milliamperes. Operating temperature range -55 to +150° Centigrade.

6073 Ruggedized, miniature, cold cathode,
glow discharge voltage regulator. Maintains constant 150-volt DC output voltage independent of load current and line voltage variations.

6074 Ruggedized, miniature cold cathode,
glow discharge voltage regulator. Maintains constant 108-volt DC output voltage independent of load current and line voltage variations.

6542 Subminiature ruggedized, cold cathode,
★ glow discharge tube. Maintains a constant DC output voltage of 150 volts, independent of load current and line voltage variations.

7099 Subminiature, low current cold cathode
glow discharge tube. Maintains constant DC output voltage of approximately 155 volts over current range from 0.075 to 0.300 milliamperes.



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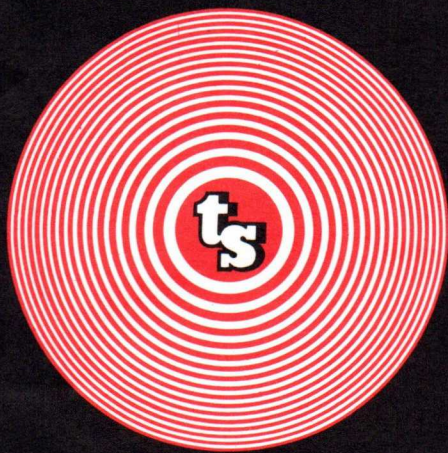
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Tung-Sol INDUSTRIAL Tubes

BALLAST TYPES □ CLIPPERS □ COMPUTER TYPES □ DIODES AND RECTIFIERS (see Clippers)
ELECTROMETER TYPES □ HYDROGEN DIODES □ HYDROGEN THYRATRONS □ INDICATOR TYPES
POWER PENTODES □ POWER TRIODES □ TELEPHONE TYPES THY-
RATRONS □ TRANSMITTING TYPES □ VOLTAGE AMPLIFIER PEN-
TODES □ VOLTAGE AMPLIFIER TRIODES □ VOLTAGE REFERENCE
TYPES □ VOLTAGE REGULATORS □ PULSE AMPLIFIERS—VACUUM



Ballast Types

6345 Special, long life ballast tube. Threshold voltage 11.2 volts. Current range 140 to 160 milliamperes. Frequency range 50 to 400 cycles.

Clippers

7454 Gas filled clipper, designed to work with 12.5 megawatt switch tube in radar modulator circuits.

7455 Gas filled clipper, designed to work with 33 megawatt switch tube in radar modulator circuits.

Computer Types

5687 Same as 5687WA except not ruggedized and no Military Q.A.

7236 Low Mu double triode intended for long life as a power amplifier in computer service. Has the ability to pass large currents with a low voltage drop.

7719 Miniature single indirectly heated high permeance triode intended for computer applications. Cathode material is chosen to minimize possibility of interface impedance.

Diodes and Rectifiers

See Clippers

1A3 A Seven pin miniature HF diode designed ★ for use as a detector rectifier.

1Z2 Miniature high voltage vacuum rectifier. ★ Used as RF flyback or 60 cycle rectifier. Requires no filament preheating.

3B25 High voltage, moderate current, xenon filled, half-wave rectifier. Hard glass envelope. Operates over wide temperature range.

3B28 High voltage, moderate current, half-wave xenon filled rectifier. Used on high voltage circuits. Operates over a wide temperature range. Has hard glass envelope.

6H6WGT Ruggedized dual diode with octal ★ base. Used as detector, discriminator or rectifier. Has separate sections permitting use as a voltage doubler or one full- or two half-wave rectifiers. A low current, low voltage tube.

6X4W/6X4WA Miniature ruggedized, stable, ★ long-life full-wave rectifier for use where a high degree of reliability is desired.

25Z6WGT Ruggedized power rectifier. Two ★ separate sections permit use as voltage doubler, full-wave rectifier or half-wave rectifier. Has low-loss phenolic base.

26Z5W Miniature ruggedized heater-cathode ★ type double diode suitable for use in half or full wave rectifier applications as a voltage doubler.

5726 Miniature ruggedized twin diode for general purpose applications such as clipper and clamper circuits, where the two sections may be used in different parts of the circuitry.

5829WA Ruggedized subminiature cathode ★ type double diode capable of operation up to 400 Mc. Inter-sectional shielding with separate lead assures electrically independent operation.

6202 Miniature full wave rectifier for power supplies not exceeding 50 ma DC current requirements. Ruggedized and can stand many thousand cycles of intermittent operation. Can be used in applications which are subjected to altitudes of 60,000 feet.

Electrometer Types

5886 Subminiature filamentary pentode electrometer. Operation as a triode offers unusually high ratio of transconductance to control grid current for single stage units. As a pentode, its high amplification factor affords considerable gain in electrometer stages of multi-stage circuits.

Ceramic Hydrogen Diodes

Compact rugged diodes for rectifier, clipper or charging diode service. Tubes will withstand severe current and voltage surges.

CH 1193 Rectifier ratings: peak inverse voltage 26 kv. Average current 1.5 amps. May be used in pulse clipper applications.

8373 Rectifier ratings: peak inverse voltage 12 kv, average current 0.25 amps; clipper ratings: peak inverse voltage 12 kv, peak current 60 amps.

8374 Rectifier ratings: peak inverse voltage 15 kv, average current 0.50 amps; clipper ratings: peak inverse voltage 15 kv, peak current 100 amps.

8375 Rectifier ratings: peak inverse voltage 20 kv, average current 1.0 amps; clipper ratings: peak inverse voltage 25 kv, peak current 200 amps.

8275/KU93 Rectifier ratings: peak inverse voltage 20 kv, average current 2.0 amps; clipper ratings: peak inverse voltage 30 kv, peak current 500 amps.

8376 Rectifier ratings: peak inverse voltage 25 kv, average current 2.0 amps; clipper ratings: peak inverse voltage 33 kv, peak current 750 amps.

8377 Rectifier ratings: peak inverse voltage 26 kv, average current 7.0 amps; clipper ratings: peak inverse voltage 33 kv, peak current 2000 amps.

Glass Hydrogen Diodes

7789 Hydrogen filled, high voltage rectifier. PIV 15 KV, 0.4 ampere average, 2.5 volt heater.

7790 Hydrogen filled, high voltage rectifier. PIV 20 KV, 1.0 ampere average, 5 volt heater.

7791 Hydrogen filled, high voltage rectifier. PIV 25 KV, 2.0 amperes average, 5 volt heater.

7792 Hydrogen filled, high voltage rectifier. PIV 25 KV, 2.0 amperes average, 11 volt heater.

7793 Hydrogen filled, high voltage rectifier. PIV 25 KV, 4.0 amperes average, 5 volt heater.

8434 Hydrogen filled, high voltage rectifier. PIV 25 KV, 1.8 amperes, 5.0 volt heater. Plug-in replacement for mercury vapor 6894/575A.

8435 Hydrogen filled, high voltage rectifier. PIV 20 KV, 1.8 amperes, 5.0 volt heater. Plug-in replacement for mercury vapor 6895/673.

Ceramic Hydrogen Thyratrons

Compact rugged devices for high power radar modulators and other high voltage switching applications. All are zero bias tubes and all are flange mounted for maximum support and minimum height.

CH 1180 Peak power delivered to load, 10 mw. Peak voltage 45 kv. Peak current 500 amps. Average current .50 amps. Heating factor 6.25×10^9 . Has keep alive electrodes.

CH 1191 Peak power delivered to load, 100 m.w. Peak voltage 50 kv. Peak current 4,000 amps., average current 8.0 amps. Heating factor 400×10^9 (*consult mfg.) Has keep alive electrodes.

CH 1198 Peak power delivered to load 60 m.w. Peak voltage 50 kv. Peak current 2400 amps. Average current 4.0 amps. Heating factor 55×10^9 . Has keep alive electrodes.

7322 Peak power delivered to load, 12.5 Mw, peak voltage 25 kv, peak current 1000 amps, average current 2.0 amps, heating factor 20×10^9 .

7390 Peak power delivered to load, 33.0 Mw, peak voltage 33 kv, peak current 2000 amps, average current 4.0 amps, heating factor 30×10^9 .

7390A 7390 with anode temperature indicator.

7621 Peak power delivered to load, 0.4 Mw, peak voltage 8 kv, peak current 100 amps, average current .10 amps, heating factor 2.7×10^9 .

7890 Peak power delivered to load, 48.0 Mw, peak voltage 40 kv, peak current 2400 amps, average current 4.0 amps, heating factor 55×10^9 .

8036 Peak power delivered to load, 6.25 Mw, peak voltage 25 kv, peak current 500 amps, average current .50 amps, heating factor 6.25×10^9 .

8191 Peak power delivered to load, 0.18 Mw, peak voltage 6 kv, peak current 60 amps, average current .05 amps, heating factor 1.2×10^9 .

Glass Hydrogen Thyratrons

See Thyratrons

- 400B** Zero bias hydrogen thyatron used in energy diverter—Crowbar—protective circuits. Rated 400 amperes at 16 kilovolts dc.
- 405B** Zero bias hydrogen thyatron used in energy diverter—Crowbar—protective circuits. Rated 800 amperes at 16 kilovolts dc.
- 1257** Largest glass hydrogen filled zero bias ★ thyatron with adjustable hydrogen reservoir. Used as radar modulator or for magnetron processing. Can handle 33 megawatts peak pulse power.
- 1258** Miniature hydrogen filled, zero bias ★ thyatron with hard glass bulb. Used as radar modulator. Usable at high frequencies. Can handle 10 KW peak pulse power.
- 5948A** Fast warmup, large hydrogen filled, ★ zero bias thyatron with hydrogen reservoir. Used as radar modulator. Can handle 12½ megawatts peak pulse power.
- 5949A** Fast warmup, hydrogen filled, zero ★ bias thyatron with hydrogen reservoir. Used as radar modulator. Has plug-in base. Can handle 6¼ megawatts peak pulse power.
- 6587** Highly reliable, zero bias hydrogen thyatron with internally connected reservoir. Handles 2.5 megawatts as radar modulator.
- 7190** Ruggedized, miniature, zero bias, hydrogen thyatron. For generation of pulse voltages. Handles 10 KW peak pulse power. Small button, 7-pin, miniature base.
- 7191** Ruggedized, miniature, zero bias hydrogen ★ thyatron. For generation of pulse voltages. Handles 10 KW peak pulse power. Small button 7-pin, miniature base. Anode connector at top of bulb, for high altitude use.
- 7191A** Ruggedized, higher power and higher voltage version of 7191. Handles 20 kilowatts as radar modulator.
- 7192** Ruggedized, miniature, zero bias, hydrogen ★ thyatron. For generation of pulse voltages. Handles 10 KW peak pulse power. Connections are made by means of flexible leads.
- 7240** Ruggedized, miniature, zero bias, hydrogen ★ thyatron. For generation of pulse voltages. Handles 10 KW peak pulse power. Small button, 7-pin, miniature base. 28-volt heater.
- 7559** Zero bias, hydrogen thyatron passes high current in energy diverter—Crowbar—protective circuits. Rated 25 KV at 1500 amperes peak.
- 7568** Zero bias, hydrogen thyatron passes high current in energy diverter—Crowbar—protective circuits. Rated 25 KV at 800 amperes peak.
- 7590** Hydrogen filled, zero bias, fast warmup ★ thyatron with externally connected hydrogen reservoir. Passes high currents in energy diverter—Crowbar—protective circuits. Rated 30 KV at 1000 amperes peak.
- 7605** Zero bias, hydrogen thyatron passes high current in energy diverter—Crowbar—protective circuits. Rated 30 KV at 3000 amperes peak.

7871 Similar to 8253 but with adjustable reservoir, and 4 pin base. Grid connection made to flange.

7872 Similar to 8253 but with adjustable reservoir and 5 pin base. Grid connection made through base pin.

8080 Zero bias, short ionization time hydrogen thyatron specially designed for clamper service.

8253 Hydrogen filled, zero bias, fast warmup thyatron with internally connected hydrogen reservoir. Ring-disk type construction reduces size, and lead inductance. Handles 3.3 megawatts peak pulse power. Upgraded plug-in replacement for 5C22, 6587 and 6587A.

Indicator Types

6977 Subminiature filamentary, high-vacuum, ★ indicator triode with a fluorescent anode. Designed to replace neon lamps in electronic computers and business machines. Advantageous for use in transistorized circuits where its high input impedance and small signal requirements do not load the transistor circuit.

Power Pentodes

3V4WA Miniature ruggedized power amplifier ★ pentode designed for military equipment application.

6AR6 Beam power pentode amplifier for applications requiring high peak plate currents at negative grid potentials.

6L6WGB Ruggedized beam pentode used ★ primarily in audio power output stages. Micanol barrier base absorbs less moisture and reduces the chance of voltage breakdown between adjacent pins.

26A7GT Heater cathode type single ended ★ tube containing two beam power amplifiers with a common cathode. It is intended for use in the output stage of equipment where it is desired to operate plate, screen and heater from a 12 cell storage battery.

26E6WG Ruggedized single-ended beam ★ tube used in AF power output applications requiring approximately five watts. The 26.5V heater makes this type ideal for airborne applications where power supplies of this type are normally available.

5881 Ruggedized Beam pentode. Has high overload capabilities and low-loss barrier type base provides advantages in certain applications.

6000 Single ended beam power pentode ★ amplifier for RF applications to 100 MC. Its 26.5V heater makes it suitable for vehicular or aircraft use.

6098/6AR6WA Ruggedized single-ended ★ beam pentode for applications requiring relatively high peak plate currents at negative grid potentials.

6384 Hi temperature, Hi environmental, general ★ purpose pentode. Used as audio power tube, instrument amplifier, and series regulator. 30 watt plate dissipation. Preferred tube for military use.

6889 Top cap version of 6384 with higher voltage and higher altitude ratings.

6550 Pentode power amplifier for audio service. ★ Its 35 watt dissipation rating provides for push-pull amplifier designs up to 100 watts output.

Power Triodes

2399 Specially processed and tested, medium-mu, high current, twin triode. Used as series regulator or passing tube in regulated DC power supplies for computers.

5998 Medium-mu, high current twin triode. ★ Used as a passing, or series regulator tube in regulated DC power supplies.

6080 Low-mu, high current twin triode. Used as passing, or regulator tube in regulated DC power supplies.

6080WA Reliable, ruggedized, low-mu, high ★ current twin triode. Used as passing, or regulator tube in regulated, DC power supplies.

6080WB Hard glass, twin power triode for ★ use in high ambient temperature and under sustained vibration. Non-char, glass-bonded mica base wafer.

6082 Twin low-mu, high current triodes in a ★ single tube. Used as a passing or regulator tube in regulated DC power supplies. 26.5 volt heater.

6082WA 26.5-volt version of 6080WA. ★

6082WB 26.5-volt version of 6080WB. ★

6336A Ruggedized, long-life, low-mu twin triode. ★ Used in regulated, DC power supplies. Passes large currents over a wide voltage range. Uses a hard glass bulb and graphite anodes.

6528 Rugged, long life, high current, ★ medium-mu. Used as a series regulator in DC power supplies. Provides low internal drop and high control sensitivity. Has hard glass envelope.

6877 Reliable, hard glass, miniature, low-mu triode. Used as passing or regulator tube in regulated DC power supplies.

7241 Rugged, low-mu, high current triode. ★ Massive cathodes to pass more than one ampere at 100 watts plate dissipation. For passing or series regulator use in regulated DC power supplies.

7242 Rugged, medium-mu, high current triode. ★ Passes large currents over wide voltage range with low intrinsic voltage drop when operated "wide open". Used as passing or series regulator in regulated DC power supplies.

7802 Medium-mu, high current, twin triode used as passing or regulator tube in regulated DC power supplies. Similar to 6080 but higher mu and higher transconductance.

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7802 Medium-mu, high current, twin triode used as passing or regulator tube in regulated DC power supplies. Similar to 6080 but higher mu and higher transconductance.

7802WA Reliable, ruggedized, medium-mu, high current twin triode for use as passing or regulator tube in regulated DC power supplies.

7802WB Hard glass, medium-mu twin triode for use as passing or regulator tube in regulated DC power supplies. For use in high ambient temperature and under sustained vibration. Non-char, glass-bonded mica base wafer.

Pulse Amplifiers — Vacuum

3D21WA Rugged, reliable, beam power tetrode designed for pulse service. Will handle 10 amperes peak current to 4 kilovolts. Heater operates on 6.3 or 12.6 volts.

3D21WB Rugged, reliable, beam power tetrode designed for pulse service. Will handle 10 amperes peak current to 4 kilovolts. Heater operates on 6.3 or 12.6 volts.

6900 Medium mu twin triode in a T-6½ hard glass envelope. Designed for reliability in mobile service in pulse application.

6094 Beam power pentode for use in mobile equipment. Has ratings similar to 6AQ5 but in T-6½ hard glass envelope for reliability at high operating temperatures.

7248 High voltage tetrode for switching service. Used as radar modulator, and in high voltage switching and control circuits. Maximum hold-off and PIV of 125 KV with oil cooling.

7403 Hard glass, reliable beam power, pulse modulator tube. Rated for 10 ampere peak current to 4 kilovolts. Non-char, glass-bonded mica base wafer.

Pulse Amplifiers — Electron Multipliers

8428 Fast rise, high gain, short delay, 5 stage electron multiplier capable of delivering a 3 kilowatt peak pulse at a 1.1 per cent duty cycle.

8455 Fast rise, high gain, short delay, 5 stage electron multiplier capable of delivering a 5 kilowatt peak pulse at a 1.1 per cent duty cycle.

DT1527A Two stage, 50V peak pulse output at 1 amp load, 50 ohms.

Telephone Types

407A Miniature high frequency twin triode. Used in carrier telephone circuits. Useful range from audio frequencies through UHF. Has two 20 volt heaters. A low hum, low noise tube.

426A Cold cathode, gas filled thyratron. Used as trigger or relay tube in telephone circuits. Has bracket base.

6028/408A Miniature, sharp cut off, RF pentode. Used in telephone carrier equipment. Useful as high frequency, wide band amplifier. Similar to 6AK5 but with 20 volt heater. A low hum, low noise tube.

6388/433A Cold cathode, gas filled thyratron for use as trigger or relay tube in telephone equipment. Same as 426A without bracket base.

421A Medium-mu, high current twin triode. Used as a passing, or series regulator tube in regulated DC power supplies.

General Purpose Thyratrons

See also Glass and Ceramic Hydrogen Thyratrons

5643 Subminiature, xenon filled, shield grid thyratron. Used as switching tube, counter or relay. Small size and weight for use in compact, portable equipment.

6590 Subminiature, three element thyratron designed for pulse service. 10-ampere peak pulse current. Meets high environmental test conditions.

Transmitting Types

2E22 Pentode power amplifier oscillator device primarily for class C amplifier or oscillator service in portable equipment.

5675 UHF triode in pencil type construction. Designed for service as a local oscillator in receivers and transmitters at frequencies up to 3,000 Mc.

5876A Coaxial metal-glass pencil-type medium mu triode. Max. plate dissipation — 6.25 watts ccs. Operates at full ratings to 1700 mc/s and at reduced ratings to 3,000 mc/s.

5933WA Rugged, reliable r-f pentode. Replacement for 807 in military equipments.

6263/A Medium Mu triode of pencil tube construction with external plate radiator. It is designed for use in cathode drive service as an RF power amplifier and oscillator at frequencies up to 1700 MC. It can be used in mobile equipment and in aircraft transmitters at altitudes up to 60,000 ft. without pressurized chambers.

6264/A Very similar to the 6263/A but has a mu of 40. Especially useful as a frequency multiplier.

6562 Fixed tuned oscillator triode of pencil tube construction. It has two resonators integral with tube and is designed for radiosonde applications at 1680 MC.

7533 Tunable oscillator triode in pencil tube structure designed for battery powered 1680 MC radiosondes in which high efficiency, light weight, low battery drain and small frequency drift are important considerations.

8150 This is a double ended version of the 8149.

8236 High dissipation, high perveance pentode with full ratings up to 30 Mc. Typical ICAS operation is 60 watts dissipation, 200 watts input, 140 watts output.

Voltage Amplifier Pentodes

1AD4 Subminiature filament type sharp-cut-off pentode designed for RF and AF applications in portable equipment.

1AE4 Miniature with sharp cutoff designed for RF applications in portable equipment.

1AH4 Subminiature filament type, fully shielded, pentode designed for service in RF applications requiring economy of space, weight and battery drain.

5A6 Miniature filamentary pentode RF Power Amplifier for service where moderate amounts of RF power are desired in portable equipment. Will deliver 3 Watts of RF power with low driving power at 70 MC.

6AH6WA Miniature heater-cathode, high transconductance, sharp-cutoff pentode. Designed for use as a wide band or IF amplifier in mobile and aircraft applications.

6AK6 Miniature power amplifier pentode intended for use in lightweight equipment and can be used singly or in push-pull lead inductances.

6AK5WB Miniature ruggedized sharp-cutoff pentode voltage amplifier. Characterized by low heater power requirements, high transconductance and input impedance, and low inter-electrode capacitances and lead inductances.

6AJ5 Miniature sharp-cutoff pentode voltage amplifier characterized by low heater power requirements, high transconductance, low capacitances and high input impedance. Its low triode-Mu adapts it to service where the plate and screen supply potentials are low or to applications as a small power amplifier.

6AS6 Miniature sharp cutoff voltage amplifier pentode characterized by an efficient heater, low capacitances and high transconductance. Suppressor grid has a separate base connection to be used as an additional control grid in gating, switching or mixer service.

6AU6WB Miniature ruggedized sharp-cutoff pentode amplifier. Has high transconductance and low grid-plate capacitance and is intended for use as a voltage amplifier over the AF, IF and RF frequency ranges.

5636 Subminiature dual-control Pentode capable of operation over a range of frequencies from AF to UHF and use as converter, modulator, phantastron and gating service, as well as single control usage such as AF, IF & RF Amp., mixers. Ruggedized structure makes it especially suitable for airborne communication equipment applications.

5639 Subminiature ruggedized pentode designed for use in broad band amplifier applications such as radar and video ampl. applications.

5654 Miniature ruggedized sharp-cutoff pentode characterized by low heater power requirements, high transconductance and input impedance, and low interelectrode capacitances and lead inductances.

5672 Subminiature filament type pentode power amplifier designed for use in wearable and portable equipment.

5678 Subminiature filament type pentode for
★ service in RF applications requiring economy of space, weight and battery drain.

5702WB Subminiature heater-cathode type
★ sharp-cutoff pentode capable of operation in the VHF region. Ruggedized.

5725 Miniature ruggedized sharp-cutoff pentode voltage amplifier. Separate grid base pin connection makes dual control applications such as a converter, modulator, phantastron and gating service possible as well as single control usage such as AF, IF and RF amplifiers, mixers, etc.

5749 Miniature ruggedized remote cutoff pentode voltage amplifier. Extremely low grid-plate capacitance and high transconductance permits efficient operation in RF and IF amplifiers.

5784WA/WB Ruggedized subminiature heater cathode pentode capable of operation in VHF region. Control and suppressor grids may be used as independent control electrodes for circuits such as gated amplifiers, mixers and gain controlled amplifiers.

5875 Subminiature filament type sharp-cutoff pentode designed for radiosonde applications.

5879 Miniature for use in the input stage of audio amplifiers. Combines high gain with low level of microphonics, hum and other AF noises.

5902 Subminiature heater-cathode type beam pentode of ruggedized construction for audio power amplifier service in equipment with low supply voltages. Capable of about 1 watt output in the audio range.

5902WA Subminiature heater-cathode type beam pentode for audio power amplifier service in equipment with low supply voltages. Capable of about 1 watt output in the audio range. Ruggedized to withstand high temperature, vibration and shock.

6088 Subminiature power amplifier pentode of low current design for use in portable and wearable equipment.

6136 Miniature sharp-cutoff pentode for use as a high-gain RF or IF amplifier. Ruggedized and can stand thousands of cycles of on-off operation.

6485 Miniature heater-cathode, high GM, sharp cutoff pentode for use as a wide band or IF amplifier. Maintains emission and freedom from cathode interface resistance after long periods of operation under cut-off conditions.

6872 Subminiature heater-cathode type semi-remote cutoff pentode amplifier for use where AGC is desirable.

8517 Reliable subminiature pentode for Class "C" oscillator and frequency multiplier applications where long life and resistance to shock and vibration are essential.

Voltage Amplifier Triodes

6SL7WGT Two independent high Mu triodes; ★ designed primarily for phase inverter service.

6SU7GT High Mu twin triode amplifier. Has a low loss phenolic base, minimum gas and leakage currents, and is specially tested for plate current balance between sections.

12AX7WA Miniature ruggedized double triode.
★ Similar to 12AX7 and designed for use in military equipment.

5676 Subminiature, filament type triode oscillator for 100 to 350 Mc applications.

5703WB Subminiature Heater-Cathode type medium Mu triode. Capable of operation as an oscillator, Class C amplifier, or frequency multiplier under conditions of high temperature, mechanical vibration or shock.

5744WB Subminiature Heater-Cathode type high Mu triode. Can be operated as a frequency converter or oscillator in the UHF region. Also used as a general purpose audio freq. amplifier. Designed for conditions of high temp., mechanical vibration or shock.

5977 Subminiature heater-cathode type medium Mu triode for use as a general amplifier.

6021WA Subminiature ruggedized medium Mu twin triode. Used as UHF and VHF oscillator and mixer. Especially suited for use in airborne equipment. Ruggedized to withstand high temperature, vibration and shock.

6111WA Subminiature medium Mu twin triode designed for general purpose amplifier applications. May also be used as a combined oscillator and mixer in HF circuits. Ruggedized to withstand high temperature, vibration and shock.

6112WA Heater cathode type mu double triode capable of operation in the UHF region. Ruggedized to withstand high temperature, vibration and shock.

6188/6SU7WGT Ruggedized High Mu twin triode amplifier. Has a low loss phenolic base, minimum gas and leakage currents, and is specially tested for plate current balance between sections.

6286 Subminiature filamentary triode for use as an amplifier or oscillator.

6679 Miniature High Mu twin triode used as a grounded-grid amplifier or a frequency converter at frequencies below 300 MC. Can withstand thousands of cycles of intermittent operation.

Voltage Reference Types

5651 Miniature cold cathode, gas discharge tube. Maintains a constant DC voltage of 86 volts, over a current range of 1.5 to 3.5 ma.

5651WA Ruggedized, reliable miniature cold cathode, gas discharge tube. Maintains a constant DC voltage of 86 volts, over a current range of 1.5 to 3.5 ma. Operates in ambient temperature range to +150°C.

5783 Subminiature, cold cathode, gas discharge tube. Maintains constant DC voltage of 86 volts over current range from 1.5 to 3.5 milliamperes. Holds fluctuations below 5 millivolts over current range.

5783WA Rugged, reliable subminiature, cold cathode, gas discharge tube. Maintains constant DC voltage of 86 volts over current range from 1.5 to 3.5 milliamperes. Holds fluctuations below 5 millivolts over current range.

Voltage Regulators

03CW Ruggedized cold cathode, glow discharge tube. Maintains a constant DC output voltage of 105 volts, independent of load current and line voltage variations.

0D3W Ruggedized cold cathode, glow discharge tube. Maintains a constant DC output voltage of 150 volts, independent of load current and line voltage variations.

5787WA Reliable, subminiature, cold cathode, glow discharge voltage regulator. Maintains constant 98 volt dc output over operating range of 5 to 25 milliamperes. Operating temperature range -55 to +150° Centigrade.

6542 Subminiature ruggedized, cold cathode, glow discharge tube. Maintains a constant DC output voltage of 150 volts, independent of load current and line voltage variations.

8068 Double-ended beam pentode in T-12 bulb for use as series regulator in HV power supply applications.

7099 Subminiature cold cathode regulator. Maintains a constant output voltage of 155 volts over a current range of 0.075 to 0.300 ma.

Phototubes

TS-433E Cesium-antimony type, end view, photodiode with S-4 spectral response. Designed for saturation at low plate voltage.

DT-933A Cesium-antimony type, end view, photodiode with S-5 spectral response. Uses special ultraviolet glass. Designed for saturation at low plate voltage.

DT-933B Silver-cesium type, end view, photodiode with S-1 spectral response. Designed for saturation at low plate voltage.

DT-933C Cesium-telluride type, end view, photodiode having solar blind ultraviolet response peaking at about 2300 Å. Designed for saturation at low plate voltage.

TUNG-SOL*

Industrial Tubes

Ballast Types

Clippers

Computer Types

Diodes and Rectifiers

Electrometer Types

Ceramic Hydrogen Diodes

Ceramic Hydrogen Thyratrons

Glass Hydrogen Diodes

Glass Hydrogen Thyratrons

Indicator Types

Power Pentodes

Power Triodes

Pulse Amplifiers — Vacuum

Pulse Amplifiers — Electron Multipliers

Telephone Types

General Purpose Thyratrons

Transmitting Types

Voltage Amplifier Pentodes

Voltage Amplifier Triodes

Voltage Reference Types

Voltage Regulators

Phototubes



Ballast Types

6345 Special, long life ballast tube. Threshold voltage 11.2 volts. Current range 140 to 160 milliamperes. Frequency range 50 to 400 cycles.

Clippers

7454 Gas filled clipper, designed to work with 12.5 megawatt switch tube in radar modulator circuits.

7455 Gas filled clipper, designed to work with 33 megawatt switch tube in radar modulator circuits.

Computer Types

5687 Same as 5687WA except not ruggedized and no Military Q.A.

7236 Low Mu double triode intended for long life as a power amplifier in computer service. Has the ability to pass large currents with a low voltage drop.

7719 Miniature single indirectly heated high permeance triode intended for computer applications. Cathode material is chosen to minimize possibility of interface impedance.

Diodes and Rectifiers

See Clippers

1A3 A seven pin miniature HF diode designed ★ for use as a detector rectifier.

1Z2 Miniature high voltage vacuum rectifier. ★ Used as RF flyback or 60 cycle rectifier. Requires no filament preheating.

6H6WGT Ruggedized dual diode with octal ★ base. Used as detector, discriminator or rectifier. Has separate sections permitting use as a voltage doubler or one full- or two half-wave rectifiers. A low current, low voltage tube.

6X4WA Miniature ruggedized, stable, long-life ★ full-wave rectifier for use where a high degree of reliability is desired.

25Z6WGT Ruggedized power rectifier. Two ★ separate sections permit use as voltage doubler, full-wave rectifier or half-wave rectifier. Has low-loss phenolic base.

26Z5W Miniature ruggedized heater-cathode ★ type double diode suitable for use in half or full wave rectifier applications as a voltage doubler.

5726 Miniature ruggedized twin diode for general purpose applications such as clipper and clamper circuits, where the two sections may be used in different parts of the circuitry.

5829WA Ruggedized subminiature cathode ★ type double diode capable of operation up to 400 Mc. Inter-sectional shielding with separate lead assures electrically independent operation.

6202 Miniature full wave rectifier for power supplies not exceeding 50 ma DC current requirements. Ruggedized and can stand many thousand cycles of intermittent operation. Can be used in applications which are subjected to altitudes of 60,000 feet.

Electrometer Types

5886 Subminiature filamentary pentode electrometer. Operation as a triode offers unusually high ratio of transconductance to control grid current for single stage units. As a pentode, its high amplification factor affords considerable gain in electrometer stages of multi-stage circuits.

Ceramic Hydrogen Diodes

Compact rugged diodes for rectifier, clipper or charging diode service. Tubes will withstand severe current and voltage surges.

✓ **CH 1188** Rectifier Ratings: peak inverse voltage 26 kv, average current 4 amps; clipper ratings peak inverse voltage 40 kv, peak current 4,000 amps.

✓ **CH 1193** Rectifier ratings: peak inverse voltage 26 kv. Average current 1.5 amps. May be used in pulse clipper applications.

✓ **7793A** Rectifier ratings: peak inverse voltage 25 kv, average current 4.0 amps.

8373 Rectifier ratings: peak inverse voltage 12 kv, average current 0.25 amps; clipper ratings: peak inverse voltage 12 kv, peak current 60 amps.

8374 Rectifier ratings: peak inverse voltage 15 kv, average current 0.50 amps; clipper ratings: peak inverse voltage 15 kv, peak current 100 amps.

8375 Rectifier ratings: peak inverse voltage 20 kv, average current 1.0 amps; clipper ratings: peak inverse voltage 25 kv, peak current 200 amps.

8275/KU93 Rectifier ratings: peak inverse voltage 20 kv, average current 2.0 amps; clipper ratings: peak inverse voltage 30 kv, peak current 500 amps.

8376 Rectifier ratings: peak inverse voltage 25 kv, average current 2.0 amps; clipper ratings: peak inverse voltage 33 kv, peak current 750 amps.

8377 Rectifier ratings: peak inverse voltage 26 kv, average current 7.0 amps; clipper ratings: peak inverse voltage 33 kv, peak current 2000 amps.

Glass Hydrogen Diodes

7789 Hydrogen filled, high voltage rectifier. PIV 15 KV, 0.4 ampere average, 2.5 volt heater.

7790 Hydrogen filled, high voltage rectifier. PIV 20 KV, 1.0 ampere average, 5 volt heater.

7791 Hydrogen filled, high voltage rectifier. PIV 25 KV, 2.0 amperes average, 5 volt heater.

7792 Hydrogen filled, high voltage rectifier. PIV 25 KV, 2.0 amperes average, 11 volt heater.

8434 Hydrogen filled, high voltage rectifier. PIV 20 KV, 1.8 amperes, 5.0 volt heater. Plug-in replacement for mercury vapor 6894/575A.

8435 Hydrogen filled, high voltage rectifier. PIV 20 KV, 1.8 amperes, 5.0 volt heater. Plug-in replacement for mercury vapor 6895/673.

Ceramic Hydrogen Thyratrons

Compact rugged devices for high power radar modulators and other high voltage switching applications. All are zero bias tubes and all are flange mounted for maximum support and minimum height.

✓ **CH 1180** Peak power delivered to load, 10 mw. Peak voltage 45 kv. Peak current 500 amps. Average current .50 amps. Heating factor 6.25×10^9 . Has keep alive electrodes.

✓ **CH 1191** Peak power delivered to load, 100 m.w. Peak voltage 50 k.v. Peak current 4,000 amps., average current 8.0 amps. Heating factor 400×10^9 (*consult mfg.) Has keep alive electrodes.

✓ **CH 1198** Peak power delivered to load 60 m.w. Peak voltage 50 kv. Peak current 2400 amps. Average current 4.0 amps. Heating factor 55×10^9 . Has keep alive electrodes.

7322 Peak power delivered to load, 12.5 Mw, peak voltage 25 kv, peak current 1000 amps, average current 2.0 amps, heating factor 20×10^9 .

7390 Peak power delivered to load, 33.0 Mw, ★ peak voltage 33 kv, peak current 2000 amps, average current 4.0 amps, heating factor 30×10^9 .

7390A 7390 with anode temperature indicator.

7621 Peak power delivered to load, 0.4 Mw, peak voltage 8 kv, peak current 100 amps, average current .10 amps, heating factor 2.7×10^9 .

7890 Peak power delivered to load, 48.0 Mw, ★ peak voltage 40 kv, peak current 2400 amps, average current 4.0 amps, heating factor 55×10^9 .

8036 Peak power delivered to load, 6.25 Mw, peak voltage 25 kv, peak current 500 amps, average current .50 amps, heating factor 6.25×10^9 .

8191 Peak power delivered to load, 0.18 Mw, peak voltage 6 kv, peak current 60 amps, average current .05 amps, heating factor 1.2×10^9 .

Glass Hydrogen Thyratrons

See Thyratrons

✓ **400B** Zero bias hydrogen thyatron used in energy diverter—Crowbar—protective circuits. Rated 400 amperes at 16 kilovolts dc.

✓ **405B** Zero bias hydrogen thyatron used in energy diverter—Crowbar—protective circuits. Rated 800 amperes at 16 kilovolts dc.

1257 Largest glass hydrogen filled zero bias
★ thyratron with adjustable hydrogen reservoir. Used as radar modulator or for magnetron processing. Can handle 33 megawatts peak pulse power.

1258 Miniature hydrogen filled, zero bias
★ thyratron with hard glass bulb. Used as radar modulator. Usable at high frequencies. Can handle 10 KW peak pulse power.

5948A Fast warmup, large hydrogen filled,
★ zero bias thyratron with hydrogen reservoir. Used as radar modulator. Can handle 12½ megawatts peak pulse power.

5949A Fast warmup, hydrogen filled, zero
★ bias thyratron with hydrogen reservoir. Used as radar modulator. Has plug-in base. Can handle 6¼ megawatts peak pulse power.

6587 Highly reliable, zero bias hydrogen
thyratron with internally connected reservoir. Handles 2.5 megawatts as radar modulator.

7190 Ruggedized, miniature, zero bias, hydro-
★ gen thyratron. For generation of pulse voltages. Handles 10 KW peak pulse power. Small button, 7-pin, miniature base.

7191 Ruggedized, miniature, zero bias hydro-
★ gen thyratron. For generation of pulse voltages. Handles 10 KW peak pulse power. Small button 7-pin, miniature base. Anode connector at top of bulb, for high altitude use.

7191A Ruggedized, higher power and higher
voltage version of 7191. Handles 20 kilowatts as radar modulator.

7192 Ruggedized, miniature, zero bias, hydro-
★ gen thyratron. For generation of pulse voltages. Handles 10 KW peak pulse power. Connections are made by means of flexible leads.

7240 Ruggedized, miniature, zero bias, hydro-
★ gen thyratron. For generation of pulse voltages. Handles 10 KW peak pulse power. Small button, 7-pin, miniature base. 28-volt heater.

7559 Zero bias, hydrogen thyratron passes
high current in energy diverter—Crowbar—protective circuits. Rated 25 KV at 1500 amperes peak.

7568 Zero bias, hydrogen thyratron passes
high current in energy diverter—Crowbar—protective circuits. Rated 25 KV at 800 amperes peak.

7590 Hydrogen filled, zero bias, fast warmup
★ thyratron with externally connected by-drogen reservoir. Passes high currents in energy diverter—Crowbar—protective circuits. Rated 30 KV at 1000 amperes peak.

7605 Zero bias, hydrogen thyratron passes
high current in energy diverter—Crowbar—protective circuits. Rated 30 KV at 3000 amperes peak.

7871 Similar to 8253 but with adjustable
reservoir, and 4 pin base. Grid connection made to flange.

7872 Similar to 8253 but with adjustable
reservoir and 5 pin base. Grid connection made through base pin.

8080 Zero bias, short ionization time hydro-
gen thyratron specially designed for clamper service.

8253 Hydrogen filled, zero bias, fast
warmup thyratron with internally connected hydrogen reservoir. Ring-disk type construction reduces size, and lead inductance. Handles 3.3 megawatts peak pulse power. Upgraded plug-in replacement for 5C22, 6587 and 6587A.

Indicator Types

6977 Subminiature filamentary, high-vacuum,
★ indicator triodes with a fluorescent anode. Designed to replace neon lamps in electronic computers and business machines. Advantageous for use in transistorized circuits where its high input impedance and small signal requirements do not load the transistor circuit. For side viewing.

8569 Subminiature filamentary, high-vacuum,
★ indicator triodes with a fluorescent anode. Designed to replace neon lamps in electronic computers and business machines. Advantageous for use in transistorized circuits where its high input impedance and small signal requirements do not load the transistor circuit. For end-on viewing.

Power Pentodes

3V4WA Miniature ruggedized power amplifier
★ pentode designed for military equipment application.

6AR6 Beam power pentode amplifier for ap-
plications requiring high peak plate currents at negative grid potentials.

6L6WGB Ruggedized beam pentode used
★ primarily in audio power output stages. Micanol barrier base absorbs less moisture and reduces the chance of voltage breakdown between adjacent pins.

26A7GT Heater cathode type single ended
★ tube containing two beam power amplifiers with a common cathode. It is intended for use in the output stage of equipment where it is desired to operate plate, screen and heater from a 12 cell storage battery.

26E6WG Ruggedized single-ended beam pen-
★ tode used in AF power output applications requiring approximately five watts. The 26.5V heater makes this type ideal for airborne applications where power supplies of this type are normally available.

5881 Ruggedized Beam pentode. Has high
overload capabilities and low-loss barrier type base provides advantages in certain applications.

6000 Single ended beam power pentode
★ amplifier for RF applications to 100 MC. Its 26.5V heater makes it suitable for vehicular or aircraft use.

6098/6AR6WA Ruggedized single-ended
★ beam pentode for applications requiring relatively high peak plate currents at negative grid potentials.

6384 Hi temperature, Hi environmental, gen-
★ eral purpose pentode. Used as audio power tube, instrument amplifier, and series regulator. 30 watt plate dissipation. Preferred tube for military use.

6889 Top cap version of 6384 with higher
voltage and higher altitude ratings.

6550 Pentode power amplifier for audio serv-
★ ice. Its 35 watt dissipation rating provides for push-pull amplifier designs up to 100 watts output.

7757 Beam power pentode for use in mobile
equipment for pulse and high voltage regulator service. Has top cap connection to plate. In T-6½ hard glass envelope for reliability at high operating temperatures.

Power Triodes

2399 Specially processed and tested, me-
dium-mu, high current, twin triode. Used as series regulator or passing tube in regulated DC power supplies for computers.

5998 Medium-mu, high current twin triode.
★ Used as a passing, or series regulator tube in regulated DC power supplies.

6080 Low-mu, high current twin triode. Used
as passing, or regulator tube in regulated DC power supplies.

6080WA Reliable, ruggedized, low-mu, high
★ current twin triode. Used as passing, or regulator tube in regulated, DC power supplies.

6080WB Hard glass, twin power triode for
★ use in high ambient temperature and under sustained vibration. Non-char, glass-bonded mica base wafer.

6082 Twin low-mu, high current triodes in a
★ single tube. Used as a passing or regulator tube in regulated DC power supplies. 26.5 volt heater.

6082WA 26.5-volt version of 6080WA.
★

6082WB 26.5-volt version of 6080WB.
★

6336A Ruggedized, long-life, low-mu twin tri-
★ ode. Used in regulated, DC power supplies. Passes large currents over a wide voltage range. Uses a hard glass bulb and graphite anodes.

6336B Ruggedized 6336A to withstand vibra-
★ tion.

6528 Rugged, long life, high current,
★ medium-mu. Used as a series regulator in DC power supplies. Provides low internal drop and high control sensitivity. Has hard glass envelope.

6528A Ruggedized 6528 to withstand vibra-
★ tion.

6877 Reliable, hard glass, miniature, low-mu
triode. Used as passing or regulator tube in regulated DC power supplies.

7241 Rugged, low-mu, high current triode.
Massive cathodes to pass more than one ampere at 100 watts plate dissipation. For passing or series regulator use in regulated DC power supplies.

7242 Rugged, medium-mu, high current tri-
ode. Passes large currents over wide voltage range with low intrinsic voltage drop when operated "wide open". Used as passing or series regulator in regulated DC power supplies.

7802WA Reliable, ruggedized, medium-mu, high current twin triode for use as passing or regulator tube in regulated DC power supplies.

7802WB Hard glass, medium-mu twin triode for use as passing or regulator tube in regulated DC power supplies. For use in high ambient temperature and under sustained vibration. Non-char, glass-bonded mica base wafer.

Pulse Amplifiers — Vacuum

3D21WA Rugged, reliable, beam power tetrode designed for pulse service. Will handle 10 amperes peak current to 4 kilovolts. Heater operates on 6.3 or 12.6 volts.

3D21WB Rugged, reliable, beam power tetrode designed for pulse service. Will handle 10 amperes peak current to 4 kilovolts. Heater operates on 6.3 or 12.6 volts.

7248 High voltage tetrode for switching service. Used as radar modulator, and in high voltage switching and control circuits. Maximum hold-off and PIV of 125 KV with oil cooling.

7403 Hard glass, reliable beam power, pulse modulator tube. Rated for 10 ampere peak current to 4 kilovolts. Non-char, glass-bonded mica base wafer.

Pulse Amplifiers — Electron Multipliers

8428 Fast rise, high gain, short delay, 5 stage electron multiplier capable of delivering a 3 kilowatt peak pulse at a 1.1 per cent duty cycle.

8455 Fast rise, high gain, short delay, 5 stage electron multiplier capable of delivering a 5 kilowatt peak pulse at a 1.1 per cent duty cycle.

Telephone Types

407A Miniature high frequency twin triode. Used in carrier telephone circuits. Useful range from audio frequencies through UHF. Has two 20 volt heaters. A low hum, low noise tube.

426A Cold cathode, gas filled thyatron. Used as trigger or relay tube in telephone circuits. Has bracket base.

6028/408A Miniature, sharp cut off, RF pentode. Used in telephone carrier equipment. Useful as high frequency, wide band amplifier. Similar to 6AK5 but with 20 volt heater. A low hum, low noise tube.

6388/433A Cold cathode, gas filled thyatron for use as trigger or relay tube in telephone equipment. Same as 426A without bracket base.

General Purpose Thyatrons

See also Glass and Ceramic Hydrogen Thyatrons

323B Mercury vapor and argon filled, high current thyatron. Used as grid controlled rectifier. Withstands wide temperature range. Uses medium, 5-pin base.

5643 Subminiature, xenon filled, shield grid thyatron. Used as switching tube, counter or relay. Small size and weight for use in compact, portable equipment.

6590 Subminiature, three element thyatron designed for pulse service. 10-ampere peak pulse current. Meets high environmental test conditions.

Transmitting Types

2E22 Pentode power amplifier oscillator designed primarily for class C amplifier or oscillator service in portable equipment.

5675 UHF triode in pencil type construction. Designed for service as a local oscillator in receivers and transmitters at frequencies up to 30000 Mc.

5933WA Rugged, reliable r-f pentode. Replacement for 807 in military equipments.

6263/A Medium Mu triode of pencil tube construction with external plate radiator. It is designed for use in cathode drive service as an RF power amplifier and oscillator at frequencies up to 1700 MC. It can be used in mobile equipment and in aircraft transmitters at altitudes up to 60,000 without pressurized chambers.

6264/A Very similar to the 6263/A but has a mu of 40. Especially useful as a frequency multiplier.

6562 Fixed tuned oscillator triode of pencil tube construction. It has two resonators integral with tube and is designed for radiosonde applications at 1680 MC.

7533 Tunable oscillator triode in pencil tube structure designed for battery powered 1680 MC radiosondes in which high efficiency, light weight, low battery drain and small frequency drift are important considerations.

8150 This is a double ended version of the 8149.

8236 High dissipation, high permeance pentode with full ratings up to 30 Mc. Typical ICAS operation is 60 watts dissipation, 200 watts input, 140 watts output.

Voltage Amplifier Pentodes

1AD4 Subminiature filament type sharp-cut-off pentode designed for RF and AF applications in portable equipment.

1AE4 Miniature with sharp cutoff designed for RF applications in portable equipment.

1AH4 Subminiature filament type, fully shielded, pentode designed for service in RF applications requiring economy of space, weight and battery drain.

5A6 Miniature filamentary pentode RF Power Amplifier for service where moderate amounts of RF power are desired in portable equipment. Will deliver 3 Watts of RF power with low driving power at 70 MC.

6AH6WA Miniature heater-cathode, high transconductance, sharp-cutoff pentode. Designed for use as a wide band or IF amplifier in mobile and aircraft applications.

6AK6 Miniature power amplifier pentode intended for use in lightweight equipment and can be used singly or in push-pull, lead inductances.

6AK5WB Miniature ruggedized sharp-cutoff pentode voltage amplifier. Characterized by low heater power requirements, high transconductance and input impedance, and low inter-electrode capacitances and lead inductances.

6AJ5 Miniature sharp-cutoff pentode voltage amplifier characterized by low heater power requirements, high transconductance, low capacitances and high input impedance. Its low triode-Mu adapts it to service where the plate and screen supply potentials are low or to applications as a small power amplifier.

6AS6 Miniature sharp cutoff voltage amplifier pentode characterized by an efficient heater, low capacitances and high transconductance. Suppressor grid has a separate base connection to be used as an additional control grid in gating, switching or mixer service.

6AU6WA/6AU6WB Miniature ruggedized sharp-cutoff pentode amplifier. Has high transconductance and low grid-plate capacitance and is intended for use as a voltage amplifier over the AF, IF and RF frequency ranges.

5636 Subminiature dual-control Pentode capable of operation over a range of frequencies from AF to UHF and use as converter, modulator, phantastron and gating service, as well as single control usage such as AF, IF & RF Amp., mixers. Ruggedized structure makes it especially suitable for airborne communication equipment applications.

5639 Subminiature ruggedized pentode designed for use in broad band amplifier applications such as radar and video ampl. applications.

5654 Miniature ruggedized sharp-cutoff pentode characterized by low heater power requirements, high transconductance and input impedance, and low interelectrode capacitances and lead inductances.

5672 Subminiature filament type pentode power amplifier designed for use in wearable and portable equipment.

5678 Subminiature filament type pentode service in RF applications requiring economy of space, weight and battery drain.

5702WA Ruggedized subminiature heater cathode type 400 Mc sharp cut-off pentode.

5702WB Subminiature heater-cathode type sharp-cutoff pentode capable of operation in the VHF region. Ruggedized.

5725 Miniature ruggedized sharp-cutoff pentode voltage amplifier. Separate grid base pin connection makes dual control applications such as a converter, modulator, phantastron and gating service possible as well as single control usage such as AF, IF and RF amplifiers, mixers, etc.

5749 Miniature ruggedized remote cutoff pentode voltage amplifier. Extremely low grid-plate capacitance and high transconductance permits efficient operation in RF and IF amplifiers.

5784WA/WB Ruggedized subminiature heater cathode pentode capable of operation in VHF region. Control and suppressor grids may be used as independent control electrodes for circuits such as gated amplifiers, mixers and gain controlled amplifiers.

5875 Subminiature filament type sharp-cutoff pentode designed for radiosonde applications.

5879 Miniature for use in the input stage of audio amplifiers. Combines high gain with low level of microphonics, hum and other AF noises.

5902 Subminiature heater-cathode type beam pentode of ruggedized construction for audio power amplifier service in equipment with low supply voltages. Capable of about 1 watt output in the audio range.

5902WA Subminiature heater-cathode type beam pentode for audio power amplifier service in equipment with low supply voltages. Capable of about 1 watt output in the audio range. Ruggedized to withstand high temperature, vibration and shock.

6088 Subminiature power amplifier pentode of low current design for use in portable and wearable equipment.

6136 Miniature sharp-cutoff pentode for use as a high-gain RF or IF amplifier. Ruggedized and can stand thousands of cycles of on-off operation.

6485 Miniature heater-cathode, high GM, sharp cutoff pentode for use as a wide band or IF amplifier. Maintains emission and freedom from cathode interface resistance after long periods of operation under cut-off conditions.

6872 Subminiature heater-cathode type semi-remote cutoff pentode amplifier for use where AGC is desirable.

8517 Reliable subminiature pentode for Class "C" oscillator and frequency multiplier applications where long life and resistance to shock and vibration are essential.

Voltage Amplifier Triodes

6SL7WGT Two independent high Mu triodes; designed primarily for phase inverter service.

6SU7GT High Mu twin triode amplifier. Has a low loss phenolic base, minimum gas and leakage currents, and is specially tested for plate current balance between sections.

12AX7WA Miniature ruggedized double triode. Similar to 12AX7 and designed for use in military equipment.

5676 Subminiature, filament type triode oscillator for 100 to 350 Mc applications.

5703 Heater cathode type medium mu triode, designed as an oscillator, class C amplifier or frequency multiplier in the UHF region.

5703WA/WB Subminiature Heater-Cathode type medium Mu triode. Capable of operation as an oscillator, Class C amplifier, or frequency multiplier under conditions of high temperature, mechanical vibration or shock.

5744WA Ruggedized subminiature heater cathode type high Mu triode for use as a frequency converter or oscillator in the UHF region. Also useful in general purpose AF voltage amplifier service.

5744WB Subminiature Heater-Cathode type high Mu triode. Can be operated as a frequency converter or oscillator in the UHF region. Also used as a general purpose audio freq. amplifier. Designed for conditions of high temp., mechanical vibration or shock.

5977 Subminiature heater-cathode type medium mu triode for use as a general amplifier.

6021WA Subminiature ruggedized medium Mu twin triode. Used as UHF and VHF oscillator and mixer. Especially suited for use in airborne equipment. Ruggedized to withstand high temperature, vibration and shock.

6111WA Subminiature medium Mu twin triode designed for general purpose amplifier applications. May also be used as a combined oscillator and mixer in HF circuits. Ruggedized to withstand high temperature, vibration and shock.

6112WA Heater cathode type mu double triode capable of operation in the UHF region. Ruggedized to withstand high temperature, vibration and shock.

6188/6SU7WGT Ruggedized High Mu twin triode amplifier. Has a low loss phenolic base, minimum gas and leakage currents, and is specially tested for plate current balance between sections.

6286 Subminiature filamentary triode for use as an amplifier or oscillator.

6679 Miniature High Mu twin triode used as a grounded-grid amplifier or a frequency converter at frequencies below 300 MC. Can withstand thousands of cycles of intermittent operation.

Voltage Reference Types

5651 Miniature cold cathode, gas discharge tube. Maintains a constant DC voltage of 86 volts, over a current range of 1.5 to 3.5 ma.

5651WA Ruggedized, reliable miniature cold cathode, gas discharge tube. Maintains a constant DC voltage of 86 volts, over a current range of 1.5 to 3.5 ma. Operates in ambient temperature range to +150°C.

5783 Subminiature, cold cathode, gas discharge tube. Maintains constant DC voltage of 86 volts over current range from 1.5 to 3.5 milliamperes. Holds fluctuations below 5 millivolts over current range.

5783WA Rugged, reliable subminiature, cold cathode, gas discharge tube. Maintains constant DC voltage of 86 volts over current range from 1.5 to 3.5 milliamperes. Holds fluctuations below 5 millivolts over current range.

Voltage Regulators

03CW Ruggedized cold cathode, glow discharge tube. Maintains a constant DC output voltage of 105 volts, independent of load current and line voltage variations.

0D3W Ruggedized cold cathode, glow discharge tube. Maintains a constant DC output voltage of 150 volts, independent of load current and line voltage variations.

5787WA Reliable, subminiature, cold cathode, glow discharge voltage regulator. Maintains constant 98 volt dc output over operating range of 5 to 25 milliamperes. Operating temperature range -55 to +150° Centigrade.

6542 Subminiature ruggedized, cold cathode, glow discharge tube. Maintains a constant DC output voltage of 150 volts, independent of load current and line voltage variations.

8068 Double-ended beam pentode in T-12 bulb for use as series regulator in HV power supply applications.

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