

Amperex

AX1583A

ABRIDGED DATA

Radial beam tetrodes for laser pulsing, pulsed RF amplifier or oscillator service

| | |
|---|-----------|
| Anode dissipation | 500 Wmax |
| Anode voltage | 30 kVmax |
| Frequency for full ratings | 75MHzmax |
| Frequency at reduced ratings | 120MHzmax |
| Output power (class C unmodulated) | 1.1 kW |
| Typical pulse output power (Laser service, 10% duty cycle) | 8.9 kW |

GENERAL ELECTRICAL

| | |
|-------------------------------|--------------------|
| Filament | thoriated tungsten |
| Filament voltage | 5.0 V |
| Filament current | 14.1 A |
| Peak usable cathode current | 2.5 A |
| Inter-electrode capacitances: | |
| Input | 12 pF |
| Output | 5.0 pF |
| Grid to anode | 0.11 pF |

MECHANICAL

| | |
|-------------------|---------------------------|
| Overall length | 151mm(5.945 inches) max |
| Overall diameter | 87mm(3.425 inches) max |
| Net weight | 230g(8ounces) approx |
| Mounting position | Vertical, base up or down |
| Base | Giant 5 pin |

Accessories

| | |
|-----------------|--------------------|
| Anode connector | 40624/S25671 |
| Chimney | 40666/S25672 |
| Sockets | 40211-01, or SK410 |

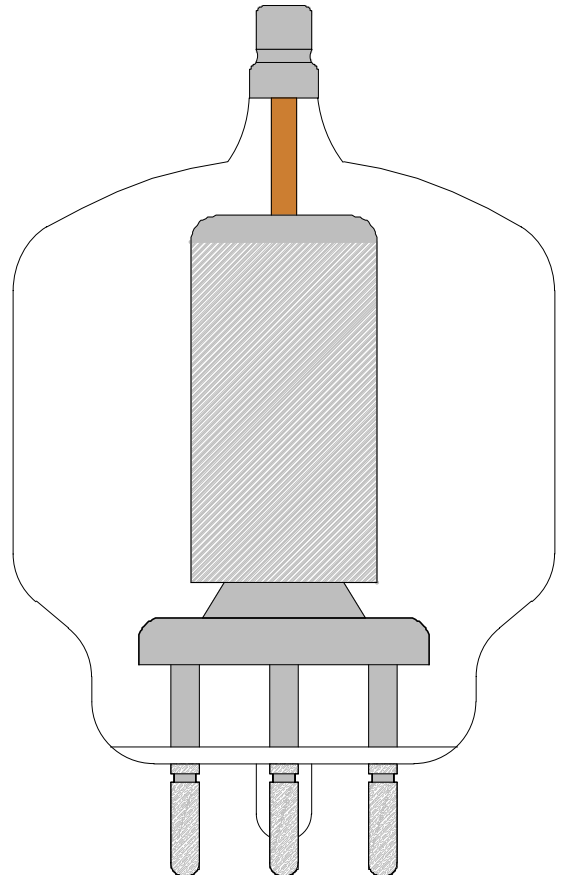
COOLING

In case where the maximum permissible temperatures are likely to be exceeded, as would normally be the case at frequencies above 30 Mhz with full ratings, a low-velocity airflow has to be directed onto the anode seal and the bottom of the envelope. The cooling will be facilitated by the use of a blower and a glass chimney type 40666/S25672. A heat dissipating anode connector is also necessary to provide proper cooling, use the 40624/S25671.

| | |
|---------------------------|------------|
| Anode seal temperature | 220 °C max |
| Base pin seal temperature | 180 °C max |

MAXIMUM RATINGS (Absolute values)

| | |
|--------------------------------|------------|
| Anode voltage | 30 kVmax |
| Anode dissipation (see note 1) | 500 Wmax |
| Screen voltage | 2000 V max |
| Screen dissipation | 35 Wmax |
| Grid voltage (negative value) | 1000 V max |
| Grid dissipation | 10 Wmax |
| Cathode current (mean) | 450 mAmax |



TYPICAL OPERATING CONDITIONS

Laser series regulator

Screen voltage 1.0 kV, duty cycle 100%

| | | | |
|--|------|------|--------|
| Anode voltage (laser off) | 10 | 12 | 15 kV |
| Anode voltage (laser firing) (see note 1) | 4.5 | 5.0 | 5.5 kV |
| Grid bias voltage | -375 | -400 | -430 V |
| Grid voltage (laser firing) (see note 2) | -202 | -209 | -215 V |
| Anode current | 80 | 72 | 69 mA |
| Anode dissipation | 360 | 360 | 380 W |
| Power to load | 440 | 504 | 656 W |

Screen voltage 1.0 kV, duty cycle 10%

| | | | |
|--|------|------|--------|
| Anode voltage (laser off) | 10 | 12 | 15 kV |
| Anode voltage (laser firing) (see note 1) | 3.5 | 4.0 | 4.5 kV |
| Grid bias voltage | -375 | -400 | -430 V |
| Grid voltage (laser firing) (see note 2) | -68 | -82 | -100 V |
| Pulse duration | <0.5 | <0.5 | <0.5s |
| Anode current (pulse) | 971 | 863 | 778 mA |
| Anode dissipation (pulse) | 3400 | 3450 | 3500 W |
| Power to load (pulse) | 6300 | 6900 | 8944 W |

Screen voltage 400 V, duty cycle 100%

| | | | |
|--|------|------|--------|
| Anode voltage (laser off) | 10 | 12 | 15 kV |
| Anode voltage (laser firing) (see note 1) | 6.5 | 7.0 | 7.5 kV |
| Grid bias voltage | -200 | -217 | -243 V |
| Grid voltage (laser firing) (see note 2) | -103 | -108 | -113 V |
| Anode current | 61 | 56 | 53 mA |
| Anode dissipation | 395 | 395 | 395 W |
| Power to load | 212 | 282 | 395 W |

Screen voltage 400 V, duty cycle 10%

| | | | |
|--|------|------|--------|
| Anode voltage (laser off) | 10 | 12 | 15 kV |
| Anode voltage (laser firing) (see note 1) | 5.5 | 6.0 | 6.5 kV |
| Grid bias voltage | -200 | -217 | -243 V |
| Grid voltage (laser firing) (see note 2) | -18 | -25 | -30 V |
| Pulse duration | <0.5 | <0.5 | <0.5 s |
| Anode current (pulse) | 618 | 567 | 523 mA |
| Anode dissipation (pulse) | 3400 | 3400 | 3400 W |
| Power to load (pulse) | 2780 | 3400 | 4446 W |

NOTES

1. A range of voltages may appear across the tetrode, depending on the power supplied to the laser and the need to retain non-oscillating conditions in the circuit. This may make necessary the use of sophisticated averaging of anode dissipation, or alternatively the use of conservative ratings.

2. Grid pulse amplitude = grid voltage - grid bias voltage.

HEALTH AND SAFETY HAZARDS

Covimag/Amperex electronic devices are safe to handle and operate, provided that the precautions stated are observed. Covimag does not accept responsibility for damage or injury resulting from the use of electronic devices it produces. Equipment manufacturers and users must ensure that adequate precautions are taken. Appropriate warning labels and notices must be provided on equipments incorporating Covimag devices and in operating manuals.

High Voltage

Equipment must be designed so that personnel cannot come into contact with high voltage circuits. All high voltage circuits and terminals must be enclosed and fail-safe interlock switches must be fitted to disconnect the primary power supply and discharge all high voltage capacitors and other stored charges before allowing access. Interlock switches must not be bypassed to allow operation with access doors open.

X-Ray Radiation

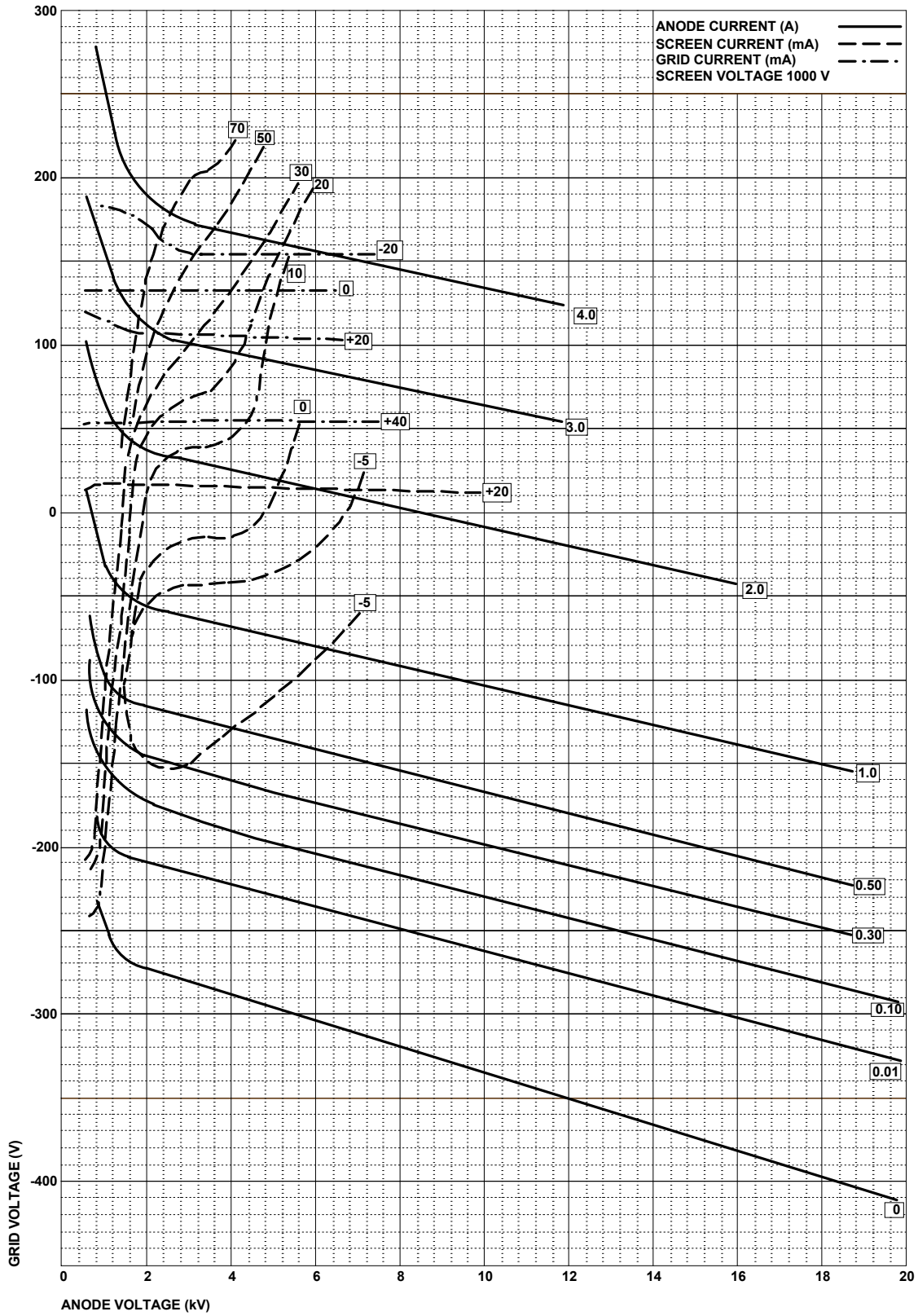
This device, when operating at voltages above 5 kV, produces progressively more dangerous X-rays as the voltage is increased; the radiation varies greatly during life. The device envelope provides only limited protection and further shielding may be required. A metal equipment cabinet with overlapping joints will usually provide sufficient shielding, but if there is any doubt an expert in this field should perform an X-ray survey of the equipment.

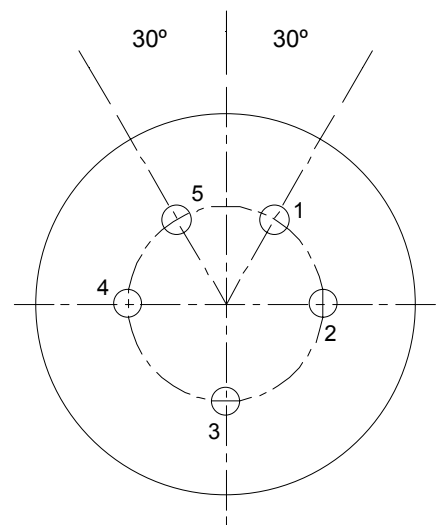
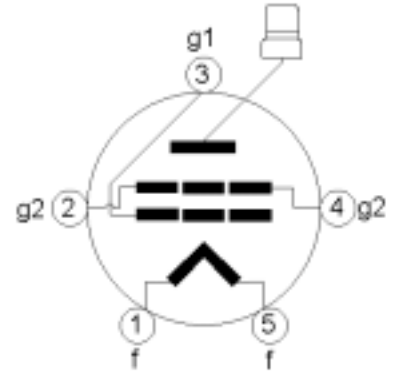
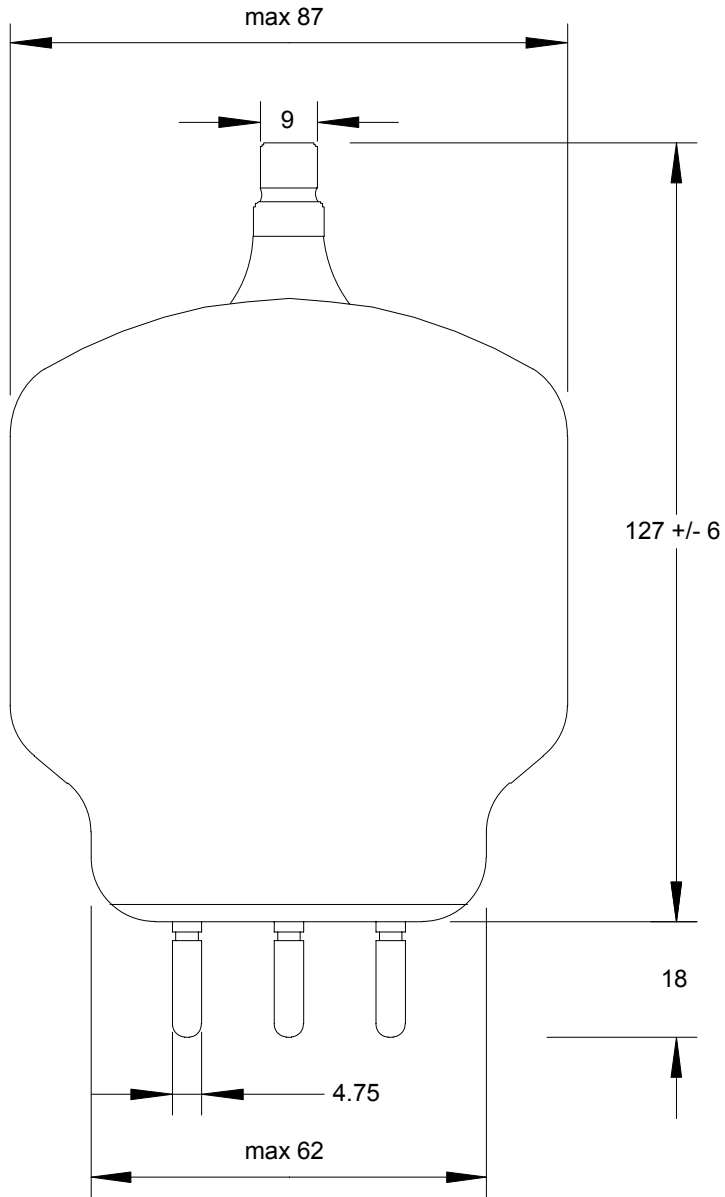
Implosion

This tube stores potential energy by virtue of its vacuum. The energy level is low, but there is some hazard from flying fragments if the tube is dropped or subjected to violent impact. The tube must be stored and transported in its approved pack. During installation or replacement the tube must not be scratched or damaged in any way likely to reduce the strength of the glass envelope.

TYPICAL CONSTANT CURRENT CHARACTERISTICS

AX1583A





All dimensions are in mm