DESCRIPTION AND RATING

The 6386 is a miniature medium-mu twin triode in which each section exhibits a remote-cutoff characteristic. It is designed primarily for use as a cascode radio-frequency amplifier, intermediate-frequency amplifier, or mixer in circuits to which it is desired to apply automatic-gain-control. When used in cascode applications, the performance of the 6386 is characterized by high gain, low noise figure, and low higher-order harmonic distortion.

The 6386 is a special-quality tube intended for use in critical industrial and military applications in which operational dependability is of primary importance. Features of the tube include a high degree of mechanical strength and a heater-cathode construction capable of withstanding many-thousand cycles of intermittent operation. When used in on-off control applications, the tube will maintain its emission capabilities after long periods of operation under cutoff conditions.

GENERAL

ELECTRICAL
Cathode—Coated Unipotential
Heater Voltage, AC or DC ........................................ 6.3 ± 10% Volts
Heater Current ..................................................... 0.35 Amperes
Direct Interelectrode Capacitances*
  Grid to Plate, Each Section ................................. 1.2 µf
  Input, Each Section ................................. 2.0 µf
  Output, Each Section ................................. 1.1 µf
  Heater to Cathode, Each Section ......................... 2.6 µf
  Grid to Grid ........................................ 0.003 µf
  Plate to Plate ........................................ 0.11 µf

*Without external shield.

MECHANICAL
Mounting Position—Any
Envelope—T-6½, Glass
Base—E9-1, Small Button 9-Pin

TERMINAL CONNECTIONS
Pin 1—Heater
Pin 2—Cathode (Section 2)
Pin 3—Grid (Section 2)
Pin 4—Plate (Section 2)
Pin 5—Internal Shield†
Pin 6—Plate (Section 1)
Pin 7—Grid (Section 1)
Pin 8—Cathode (Section 1)
Pin 9—Heater
† It is recommended that Pin 5 be grounded.

PHYSICAL DIMENSIONS

[Diagram showing physical dimensions]
MAXIMUM RATINGS

DESIGN-CENTER VALUES, EACH SECTION
Plate Voltage ........................................... 300 Volts
Plate Dissipation ........................................ 1.5 Watts
DC Cathode Current .................................... 18 Milliamperes
Heater-Cathode Voltage‡
  Heater Positive with Respect to Cathode .................. 90 Volts
  Heater Negative with Respect to Cathode .................. 90 Volts
‡ When the GL-6386 is used as a cascade amplifier and the two sections are connected in series, the heater-cathode voltage of the grounded-grid stage may be as high as 250 volts maximum with the heater negative with respect to the cathode.

CHARACTERISTICS AND TYPICAL OPERATION

CLASS A1 AMPLIFIER, EACH SECTION
Plate Voltage ........................................... 100 Volts
Cathode-Bias Resistor .................................... 200 Ohms
Amplification Factor ..................................... 17
Plate Resistance, approximate 4250 Ohms
Transconductance ........................................ 4000 Micromhos
Plate Current ............................................ 9.6 Milliamperes
Grid Voltage, approximate
  \[ Gm = 100 \text{ Micromhos} \] .......................... \[ -16 \text{ Volts} \]

CASCODE AMPLIFIER—SEE CIRCUIT DIAGRAM
Plate-Supply Voltage ..................................... 300 200 Volts
Plate Load Resistor ..................................... 10000 0 Ohms
Voltage-Divider Supply Voltage .......................... 250 200 Volts
Grid-Supply Voltage ..................................... -5 -2 Volts
Cascade Transconductance ................................ 4000 Micromhos
Cascade Plate Current ................................... 10.5 Milliamperes
Third Harmonic Distortion
  \[ E_{sig} = 1.0 \text{ Volts, Peak} \] ..................... 0.5 .. Percent

SPECIAL TESTS AND RATINGS

Inoperatives Control
  Minimum continuous operating time under life-test conditions or equivalent for all tubes prior to characteristics testing ................................. 46 Hours

Heater-Cycling Rating
  Cycles of Intermittent Operation, minimum..................... 2000 Cycles
  \[ E_f = 7.5 \text{ volts cycled for one minute on and one minute off.} \ E_b = E_c = 0 \text{ volts.} \ E_hk = 135 \text{ volts} \]
  with heater positive with respect to cathode.

Shock Rating
  Impact Acceleration in Any Direction ..................... 600 G
  Forces as applied by the Navy-type, High Impact (flyweight) Shock Machine for Electronic Devices or its equivalent.

Fatigue Rating
  Vibrational Acceleration in Any Direction ................ 2.5 G
  Vibrational forces for a period of at least 100 hours at a frequency of 25 cycles per second.
TYPICAL CIRCUIT FOR CASCODE OPERATION

C - BYPASS CAPACITOR

ELECTRONIC COMPONENTS DIVISION
GENERAL ELECTRIC
Schenectady 5, N. Y.