

PIONEER

VOLUME

100

50

ME

QUICK-CHANGE
COMPACT SWITCH

FM

AM

FM

FM

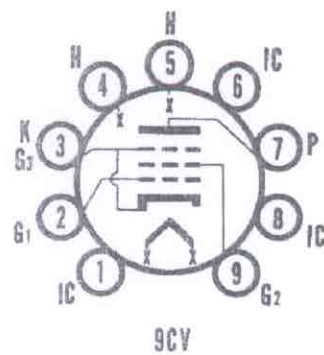
FM

FM

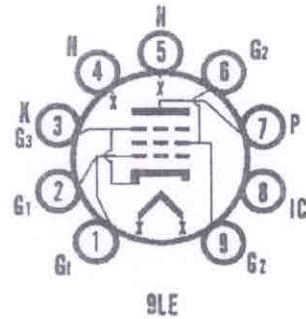
FM

SPECIFICATIONS OF THE SM-83

Music Power Output :	40 watts per channel
RMS Rated Power Output :	± 1 db. from 15 cps to 100,000 cps
Harmonic Distortion :	Less than 1% (at rated output)
Damping Factor :	13
Hum and Noise (at rated output):	
	Magnetic—more than 60 db
	Auxiliary—more than 80 db
Input and Audio Sensitivity :	Tape head—2mv Magnetic—3mv
	Mic—2mv Crystal (Ceramic)—25mv
Bass Control :	Auxiliary—150 mv Tape Play—200 mv
Treble Control :	Boost 13 db. Cut 13 db. at 50 cps
Filters :	Boost 13 db. Cut 13 db. at 10,000 cps
	High cut — 10 db. at 10,000 cps
	Low cut — 8 db. at 50 cps
Equalization :	Phono RIAA Tape—NARTB
Power Supply :	Silicon Diode Rectifier circuit
Power Requirements :	115/230 volts, 1.4/0.7 amp.
	145 watts (max.) 50~60 cps
Tubes :	12AX7/ECC83 X 3 6AN8 X 2
	7189A X 4, SE-05b X 2 (Silicon Diode)
Dimensions :	15 ¹⁵ / ₃₂ " W X 5 ³ / ₄ " (H) X 13 ⁷ / ₁₆ " (D)
Weight :	28 lbs. 11 oz.



TYPES 7189 7189A



MECHANICAL DATA

Bulb.....	T-6 1/2
Base.....	E9-1, Miniature Button 9-Pin
Outline.....	6-4
Basing.....	(7189A)-9LE, (7189)-9CV
Cathode.....	Coated Unipotential
Mounting Position.....	Any

ELECTRICAL DATA

HEATER CHARACTERISTICS

Heater Voltage.....	6.3 Volts
Heater Current.....	760 Ma
Maximum Heater Voltage Range ¹	5.7-6.9 Volts
Heater-Cathode Voltage (Design Maximum Values)	
Heater Negative with Respect to Cathode.....	100 Volts Max.
Heater Positive with Respect to Cathode.....	100 Volts Max.

DIRECT INTERELECTRODE CAPACITANCES

Grid No. 1 to Plate.....	0.5 μ f Max.
Input.....	10.8 μ f
Output.....	6.5 μ f
Grid No. 1 to Heater.....	0.25 μ f Max.

RATINGS (Design Maximum Values)¹

	Class AB ₁ Pentode Conn.	Class AB ₁ Ultra-linear Conn.
Plate Voltage.....	440	415 Volts Max.
Grid No. 2 Voltage (400V-7189A).....	330	... Volts Max.
Plate Dissipation.....	13.2	13.2 Watts Max.
Grid No. 2 Dissipation (Zero Signal).....	2.2	2.2 Watts Max.
Grid No. 2 Dissipation (Max. Signal).....	4.4	4.4 Watts Max.
Cathode Current.....	72	72 Ma Max.
Grid No. 1 Circuit Resistance		
Fixed Bias.....	0.3	0.3 Megohm Max.
Cathode Bias.....	1.0	1.0 Megohm Max.

CHARACTERISTICS AND TYPICAL OPERATION

	Pentode Conn.		Ultra-linear Conn.
	Single Tube Class A ₁	Class AB ₁ Push-pull	Class AB ₁ Push-pull
Plate Voltage.....	250	400	375 Volts
Grid No. 2 Voltage.....	250	300	Note 3 Volts
Grid No. 1 Voltage.....	-7.3	-15	... Volts
Cathode Resistor.....	...	...	220 Ohms
Grid Voltage (RMS) ⁴.....	...	10.5	12.5 Volts
Plate Current (Zero Signal).....	48	15	70 Ma
Plate Current (Max. Signal).....	...	105	81 Ma

SYLVANIA ELECTRONIC TUBES

111-3-11-59

SYLVANIA TYPES 7189, 7189A (Cont'd)

CHARACTERISTICS AND TYPICAL OPERATION (cont'd)

Grid No. 2 Current (Zero Signal).....	5.5	1.6	... Ma
Grid No. 2 Current (Max. Signal).....	...	25	... Ma
Transconductance.....	11.3K	...	... μ mhos
Amplification Factor.....	19.5	...	...
Plate Resistance.....	40K	...	... Ohms
Load Resistance (P to P).....	...	8K	11K Ohms
Max. Signal Power Output.....	...	24	16.5 Watts
Total Harmonic Distortion.....	...	4.0	3 Percent

NOTES:

- Design-Maximum Ratings are limiting values of operating and environmental conditions applicable to a bogey electron device of a specified type as defined by its published data, and should not be exceeded under the worst probable conditions.
The device manufacturer chooses these values to provide acceptable serviceability of the device, taking responsibility for the effects of changes in operating conditions due to variations in device characteristics.
The equipment manufacturer should design so that initially and throughout life no design-maximum value for the intended service is exceeded with a bogey device under the worst probable operating conditions with respect to supply-voltage variation, equipment component variation, equipment control adjustment, load variation, signal variation, and environmental conditions.
- Type 7189A Grid No. 2 is rated at 400 volts and Type 7189 Grid No. 2 is rated at 330 volts for pentode connected operation. Type 7189A is rated at 415 volts when used in an ultra-linear circuit.
- Grid No. 2 voltage is obtained from taps located at 43 percent of the output transformer windings.
- Per grid.
- Measured from Grid No. 1 to Grid No. 2.

APPLICATION

The Types 7189 and 7189A are beam power pentode audio amplifiers designed for service in the output stage of high quality audio amplifiers or other equipment requiring high power output at relative low distortion.
Type 7189A differs from Type 7189 in having a higher Grid No. 2 voltage rating and in specifying the internal connections to Pin No. 1 and No. 6.