12FR8

Diode—
Medium-Mu Triode—
Remote-Cutoff Pentode

9-PIN MINIATURE TYPE

For Automobile Radio Receivers Operating Directly from 6-Cell Storage Batteries

GENERAL DATA

Electrical:

Heater, for Unipotential Cathodes:		
Voltage range (DC)	10 to 15.9	volts
For longest life, it is recommended that the heater be operated within the voltage range of 11 to 14 volts.		
Current (Approx.) at 12.6 volts	0.32	amp
Direct Interelectrode Capacitances:[a]		
Triode Unit:		
Grid to plate	1.7	μμf
Grid to cathode and heater	2.6	μμf
Plate to cathode and heater	2	μμf
Pentode Unit:		
Grid No.1 to plate	0.015 max.	μμf
Grid No.1 to cathode & grid No.3 & internal shield, grid No.2, and heater	8.5	μμf
Plate to cathode & grid No.3 & internal shield, grid No.2, and heater	5.5	μμf
Pentode grid No.1 to triode grid	0.012 max.	μμf
Pentode grid No.1 to diode plate	0.004 max.	μμf
Triode grid to diode plate	0.17 max.	μμf
Triode plate to diode plate	0.8	μμf

Characteristics, Class A_1 Amplifier:

With heater voltage of 12.6 volts

	Triode Unit	*Pentode Unit*	
Plate Voltage	12.6	12.6	volts
Grid-No.2 Voltage	–	12.6	volts
Grid-No.1 Voltage developed across a 2.2-megohm grid-No.1 resistor	-0.6	-0.8	volt
Amplification Factor	10	–	
Plate Resistance (Approx.)	–	0.4	megohm
Transconductance	1200	2700	μmhos
Plate Current	1	1.9	ma
Grid-No.2 Current	–	0.7	ma
Grid-No.1 Voltage (Approx.) for transconductance (μmhos) = 30	–	-2.8	volts
Grid Voltage (Approx.) for plate μa = 10	-3.5	–	volts

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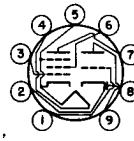
Mechanical:

Operating Position	Any
Maximum Overall Length	2-7/16"
Maximum Seated Length	2-3/16"
Length, Base Seat to Bulb Top (Excluding tip)	1-13/16" ± 3/32"
Diameter	0.750" to 0.875"
Bulb	T6-1/2
Base	Small-Button Noval 9-Pin (JEDEC No.E9-1)
Basing Designation for BOTTOM VIEW	9KU

Pin 1 – Triode Grid
Pin 2 – Triode and Diode Cathode
Pin 3 – Pentode Grid No.1
Pin 4 – Heater
Pin 5 – Pentode Grid No.3, Cathode, Internal Shield, Heater
Pin 6 – Pentode Grid No.2
Pin 7 – Pentode Plate
Pin 8 – Diode Plate
Pin 9 – Triode Plate



AMPLIFIER — Class A_1

Maximum Ratings, *Design-Center Values:*

	Triode Unit	*Pentode Unit*	
PLATE VOLTAGE	16 max.	16 max.	volts
GRID-No.2 (SCREEN-GRID) SUPPLY VOLTAGE	–	16 max.	volts
GRID-No.2 VOLTAGE	–	16 max.	volts
PEAK HEATER-CATHODE VOLTAGE:			
Heater negative with respect to cathode	16 max.	–	volts
Heater positive with respect to cathode	16 max.	–	volts

Maximum Circuit Values:

	Triode Unit	*Pentode Unit*	
Grid-No.1-Circuit Resistance	10 max.	10 max.	megohms

DIODE UNIT

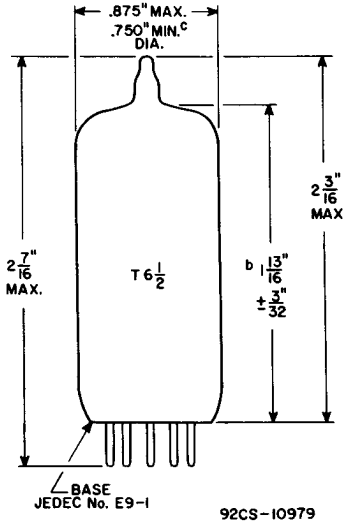
Maximum Ratings, *Design-Center Values:*

PLATE CURRENT	5 max.	ma

Characteristics, Instantaneous Test Condition:

Plate Current for plate volts = 10	2	ma

[a] Without external shield.



[b] MEASURED FROM BASE SEAT TO BULB-TOP LINE AS DETERMINED BY RING GAUGE OF 7/16" INSIDE DIAMETER.

[c] APPLIES IN ZONE STARTING 0.375" FROM SEAT.