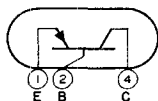


TRANSISTOR

2N109



Germanium p-n-p type used in large-signal audio-frequency amplifier applications. It is used in class B push-pull power-output stages of battery-operated portable radio receivers and audio amplifiers and in class A

high-gain driver stages. JEDEC No. TO-40 package; outline 15, Outlines Section.

MAXIMUM RATINGS

COLLECTOR-TO-BASE VOLTAGE (with emitter open) . . . . .	-25 max	volts
COLLECTOR-TO-EMITTER VOLTAGE . . . . .	-25 max	volts
EMITTER-TO-BASE VOLTAGE (with collector open) . . . . .	-12 max	volts
COLLECTOR CURRENT . . . . .	-70 max	ma
EMITTER CURRENT . . . . .	70 max	ma
TRANSISTOR DISSIPATION:		
At ambient temperatures up to 25°C . . . . .	150 max	mW
At ambient temperature of 55°C . . . . .	50 max	mW
At ambient temperature of 71°C . . . . .	20 max	mW
AMBIENT-TEMPERATURE RANGE:		
Operating . . . . .	-65 to 71	°C
Storage . . . . .	-65 to 85	°C

CHARACTERISTICS

Collector-Cutoff Current (with collector-to-base volts = -25 and emitter current = 0) . . . . .	-14	µA
Emitter-Cutoff Current (with emitter-to-base volts = -12 and collector current = 0) . . . . .	-14	µA

In Common-Emitter Circuit

DC Forward Current-Transfer Ratio (with collector-to-emitter volts = -1 and collector ma = -50) . . . . .	75
-----------------------------------------------------------------------------------------------------------	----

TYPICAL OPERATION IN CLASS B PUSH-PULL AF AMPLIFIER CIRCUIT

Values are for two transistors except as noted

DC Collector-to-Emitter Supply Voltage . . . . .	-4.5	-9	volts
DC Base-to-Emitter Voltage . . . . .	-0.15	-0.15	volt
Peak Collector Current (approx.) per transistor . . . . .	-35	-40	ma
Maximum-Signal DC Collector Current (approx.) per transistor . . . . .	-11.5	-13	ma
Zero-Signal DC Collector Current (approx.) per transistor . . . . .	-2	-2	ma
Signal-Source Impedance per base . . . . .	375	375	ohms
Load Impedance per collector . . . . .	100	200	ohms
Signal Frequency . . . . .	1	1	kc
Circuit Efficiency at maximum rated output . . . . .	60	69	per cent
Power Gain . . . . .	30	33	db
Total Harmonic Distortion . . . . .	10 max	10 max	per cent
Maximum-Signal Power Output . . . . .	75	160	mW

