

VHF LINEAR PUSH-PULL POWER TRANSISTOR

Push-pull npn silicon planar epitaxial transistor primarily intended for use in linear VHF television transmitters (vision or sound amplifiers).

Features

- Internally matched input for wideband operation and high power gain
- Implanted emitter ballasting resistors for an optimum temperature profile
- Gold metallization ensures excellent reliability

The transistor has a 5-lead rectangular flange envelope with a ceramic cap. All leads are isolated from the flange.

QUICK REFERENCE DATA

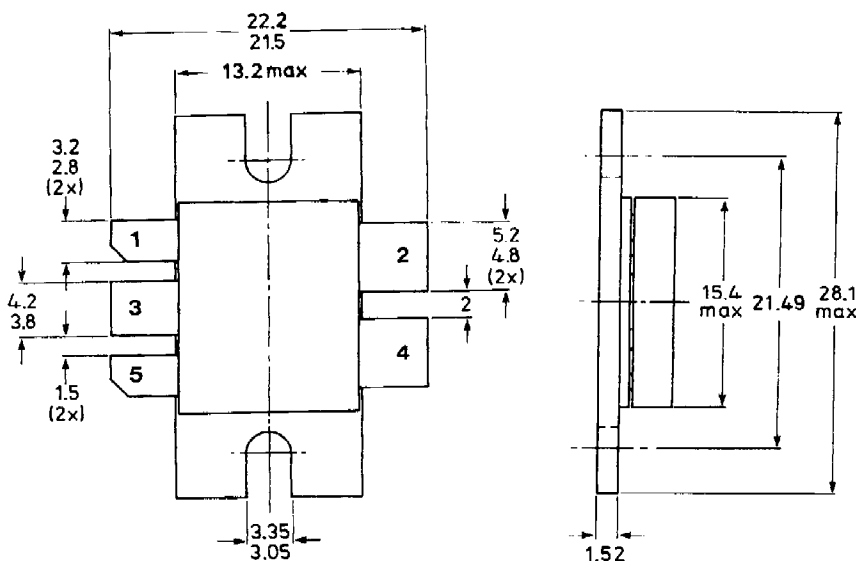
RF performance at $T_h = 25^\circ\text{C}$ in a common-emitter class-AB push-pull test circuit.

mode of operation	f MHz	V _{CE} V	I _{C(ZS)} A	PL W	G _p dB	η_C %	gain compression dB
CW class-AB	224.25	35	2 x 0.2	225	> 8.0	> 50	≤ 1.0 *

* Assuming a 3rd order amplitude transfer characteristic, 1 dB gain compression corresponds with 30% sync input/25% sync output compression in television service (negative modulation, CCIR system).

MECHANICAL DATA

SOT179 (see Fig.1).



MECHANICAL DATA

Pinning:

- 1 = Collector (No. 2)
- 2 = Base (No. 2)
- 3 = Emitter
- 4 = Base (No. 1)
- 5 = Collector (No. 1)

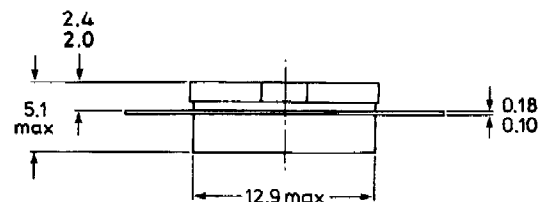
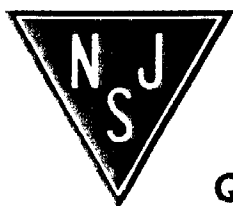


Fig.1 SOT179.

Torque on screw: min. 0.60 Nm
max. 0.75 Nm

Recommended screw: cheese head 4-40 UNC/2A

Heatsink compound must be applied sparingly and evenly distributed.



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RATINGS (per transistor section unless otherwise specified)

Limiting values in accordance with the Absolute Maximum System (IEC 134)

Collector-emitter voltage $V_{BE} = 0$; peak value	V_{CESM}	max.	70 V
Collector-emitter voltage open base	V_{CEO}	max.	40 V
Emitter-base voltage (open collector)	V_{EBO}	max.	4.0 V
Collector current DC or average	$I_C; I_{C(AV)}$	max.	10 A
peak ($f > 1$ MHz)	I_{CM}	max.	30 A
DC power dissipation (both sections)* $T_{mb} = 25\text{ }^\circ\text{C}; f > 1$ MHz	P_{tot}	max.	290 W
RF power dissipation (both sections)* $T_{mb} = 25\text{ }^\circ\text{C}; f > 1$ MHz	P_{tot}	max.	450 W
Storage temperature range	T_{stg}		-65 to +150 $^\circ\text{C}$
Operating junction temperature	T_j	max.	200 $^\circ\text{C}$

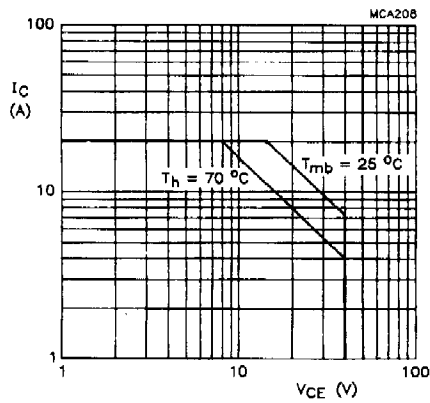
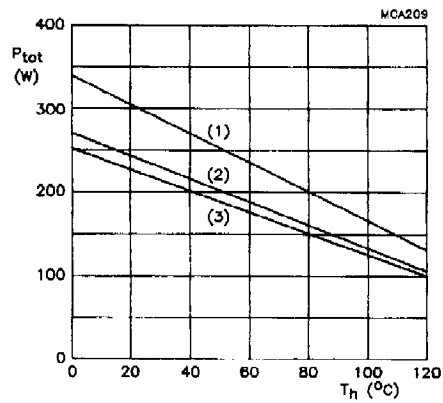


Fig.2 DC SOAR.



- (1) short-time operation
- (2) continuous RF operation ($f > 1$ MHz)
- (3) continuous DC operation

Fig.3 Power/temperature derating curves.

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THERMAL RESISTANCE (total device, both sections equally loaded)

DC dissipation = 2×112 W, $T_{mb} = 25$ °C

From junction to mounting base (DC)	$R_{th\ j-mb(DC)}$	max.	0.6 K/W
From junction to mounting base (RF)	$R_{th\ j-mb(RF)}$	max.	0.54 K/W
From mounting base to heatsink	$R_{th\ mb-h}$	max.	0.2 K/W

CHARACTERISTICS

Applicable to either transistor section unless otherwise specified; $T_j = 25$ °C.

Collector-emitter breakdown voltage $V_{BE} = 0$; $I_C = 60$ mA	$V_{(BR)CES}$	min.	70 V
Collector-emitter breakdown voltage open base; $I_C = 120$ mA	$V_{(BR)CEO}$	min.	40 V
Emitter-base breakdown voltage open collector; $I_E = 12$ mA	$V_{(BR)EBO}$	min.	4.0 V
Collector cut-off current $V_{CE} = 40$ V; $V_{BE} = 0$	I_{CES}	max.	25 mA
DC current gain $I_C = 6$ A; $V_{CE} = 30$ V	h_{FE}		15 to 80
DC current gain ratio of both sections: $I_C = 6$ A; $V_{CE} = 30$ V	Δh_{FE}		0.67 to 1.5
Collector capacitance at $f = 1$ MHz $I_E = I_E = 0$; $V_{CB} = 30$ V	C_c	typ.	170 pF
Collector-flange capacitance	C_{cf}	typ.	4.0 pF