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BLV36

VHF LINEAR PUSH-PULL POWER TRANSISTOR

Two NPN silicon planar epitaxial transistor sections in one envelope to be used as a push-pull amplifier. This device is primarily intended for use in linear VHF television transmitters and transposers (vision or sound amplifier).

Features

- Internally matched input for wideband operation and high power gain
- Internal midpoint (RF ground) reduces negative feedback and improves power gain
- Increased input and output impedance (compared with single-ended transistors) simplify wideband matching
- Length of external emitter leads is not critical
- Diffused emitter balancing resistors for an optimum temperature profile
- Gold metallization ensures excellent reliability

The envelope is an 8-lead flange type with a ceramic cap. All leads are isolated from the flange.

QUICK REFERENCE DATA

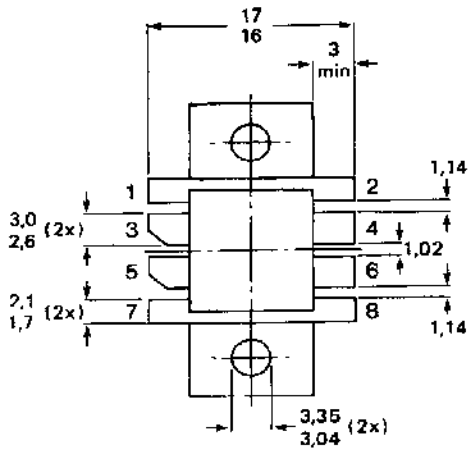
RF performance in push-pull amplifier

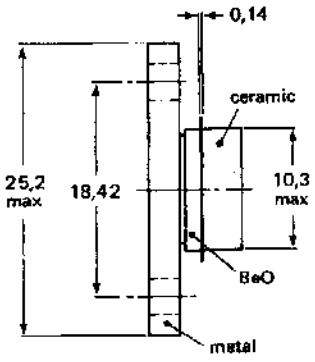
mode of operation	V_{CE} V	$I_{C(ZS)}$ A	f MHz	P_L W	T_h °C	G_p dB	η_c %	gain compression dB
CW; class-AB	28	2 × 0.25	224.25	115	25	⩾ 11.0 typ. 13.0	⩾ 48 typ. 55	⩽ 1.0*

* 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

SOT161 (see Fig.1).



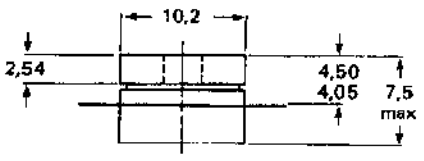


MECHANICAL DATA

Fig.1 SOT161.

Pinning

1 = Emitter
2 = Emitter
3 = Collector (No.2)
4 = Base (No.2)
5 = Collector (No.1)
6 = Base (No.1)
7 = Emitter
8 = Emitter



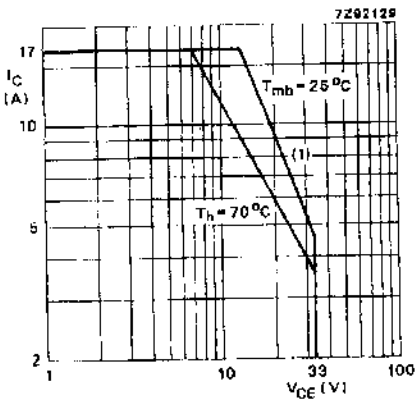
Torque on screw: min. 0.60 Nm
max. 0.75 Nm

Recommended screw: cheese-head 4-40 UNC/2A
Heatsink compound must be sparingly applied and evenly distributed.

RATINGS

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

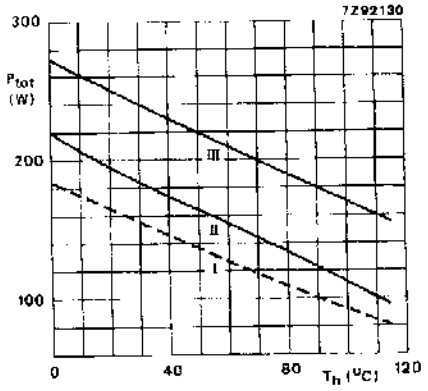
Collector-emitter voltage (peak value); (peak value); $V_{BE} = 0$	V_{CESM}	max.	65 V
open base	V_{CEO}	max.	33 V
Emitter-base voltage (open collector)	V_{EBO}	max.	4 V
Collector current per transistor section DC or average	I_C, $I_{C(AV)}$	max.	8.5 A
(peak value); f > 1 MHz	I_{CM}	max.	17.5 A
Total DC power dissipation; $T_{mb} = 25\ ^oC$	$P_{tot(DC)}$	max.	218 W*
RF power dissipation f > 1 MHz; $T_{mb} = 25\ ^oC$	$P_{tot(RF)}$	max.	270 W*
Storage temperature range	T_{stg}		−65 to +150 °C
Operating junction temperature	T_j	max.	200 °C



(1) Second breakdown limit.

Fig.2 DC SOAR.

Conditions for Figs 2 and 3:
$R_{th\ mb\text{-}h}$ = 0.25 K/W; Total device*.



I Continuous DC operation
II Continuous RF operation; (f > 1 MHz)
III Short-time operation during mismatch; (f > 1 MHz)

Fig.3 Power/temperature derating curves.

THERMAL RESISTANCE

(dissipation = 180 W; $T_{mb} = 25\ ^oC$)**

From junction to mounting base (DC dissipation)	$R_{th\ j\text{-}mb(DC)}$	=	0.85 K/W
From junction to mounting base (RF dissipation)	$R_{th\ j\text{-}mb(RF)}$	=	0.64 K/W
From mounting base to heatsink	$R_{th\ mb\text{-}h}$	=	0.25 K/W

* Dissipation of either transistor section shall not exceed half rated power.
** Both transistor sections equally loaded.

CHARACTERISTICS

Apply to either transistor section unless otherwise specified. T_j = 25 °C.

Collector-emitter breakdown voltage			
V_{BE} = 0; I_C = 25 mA	$V_{(BR)CES}$	>	65 V
open base; I_C = 100 mA	$V_{(BR)CEO}$	>	33 V
Emitter-base breakdown voltage			
open collector; I_E = 10 mA	$V_{(BR)EBO}$	>	4 V
Collector cut-off current			
V_{BE} = 0; V_{CE} = 33 V	I_{CES}	<	10 mA
Second-breakdown energy; L = 25 mH; f = 50 Hz			
R_{BE} = 10 Ω	E_{SBR}	>	10 mJ
DC current gain*		typ.	45
I_C = 3.5 A; V_{CE} = 25 V	h_{FE}	15 to	100
Transition frequency at f = 100 MHz*			
$-I_E$ = 3.3 A; V_{CB} = 25 V	f_T	typ.	575 MHz
$-I_E$ = 10 A; V_{CB} = 25 V	f_T	typ.	600 MHz
Collector capacitance at f = 1 MHz			
$I_E = i_e$ = 0; V_{CB} = 25 V	C_c	typ.	155 pF
Feedback capacitance at f = 1 MHz			
I_C = 50 mA; V_{CE} = 25 V	C_{re}	typ.	88 pF
Collector-flange capacitance	C_{cf}	typ.	2 pF