

VHF linear power transistor

BLV33

FEATURES

- Diffused emitter ballasting resistors for an optimum temperature profile
- Gold sandwich metallization ensures excellent reliability.

APPLICATIONS

- Primarily intended for use in linear VHF amplifiers for television transmitters and transposers.

DESCRIPTION

NPN silicon planar epitaxial transistor encapsulated in a 1/16" 4 fslead SOT147 capstan package with ceramic cap. All leads are isolated from the stud.

PINNING - SOT147

PIN	SYMBOL	DESCRIPTION
1	c	collector
2	e	emitter
3	b	base
4	e	emitter

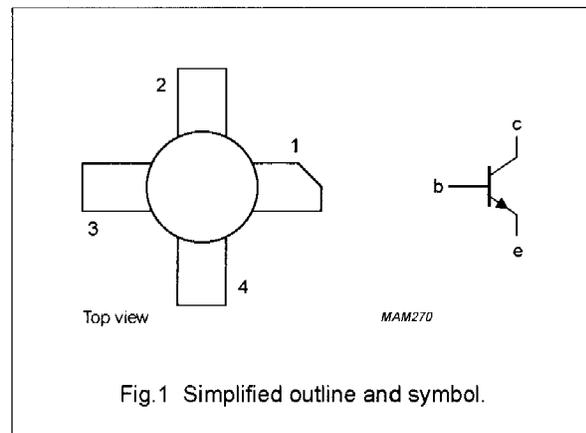


Fig. 1 Simplified outline and symbol.

QUICK REFERENCE DATA

RF performance in a common emitter push-pull test circuit.

MODE OF OPERATION	f <sub>vision</sub> (MHz)	V <sub>CE</sub> (V)	I <sub>c</sub> , I <sub>c(zs)</sub> (A)	T <sub>h</sub> (°C)	d <sub>im</sub> <sup>(1)</sup> (dB)	P <sub>o sync</sub> <sup>(1)</sup> (W)	G <sub>p</sub> (dB)	sync compr. <sup>(2)</sup> sync in/sync out (%)
CW, class-A	224.25	25	3.2	70	-55	>16.5	>9	
				25	-55	typ. 26	typ. 9.7	
CW, class-AB	224.25	28	0.1	70		typ. 90	typ. 6.5	30/25

Notes

1. Three-tone test method (vision carrier -8 dB, sound carrier -7 dB, sideband signal -16 dB), zero dB corresponds to peak sync level.
2. Television service (negative modulation, C.C.I.R. system).

WARNING

Product and environmental safety - toxic materials

This product contains beryllium oxide. The product is entirely safe provided that the BeO disc is not damaged. All persons who handle, use or dispose of this product should be aware of its nature and of the necessary safety precautions. After use, dispose of as chemical or special waste according to the regulations applying at the location of the user. It must never be thrown out with the general or domestic waste.



NJ Semi-Conductors reserves the right to change test conditions, parameter limits and package dimensions without notice. Information furnished by NJ Semi-Conductors is believed to be both accurate and reliable at the time of going to press. However, NJ Semi-Conductors assumes no responsibility for any errors or omissions discovered in its use. NJ Semi-Conductors encourages customers to verify that datasheets are current before placing orders.

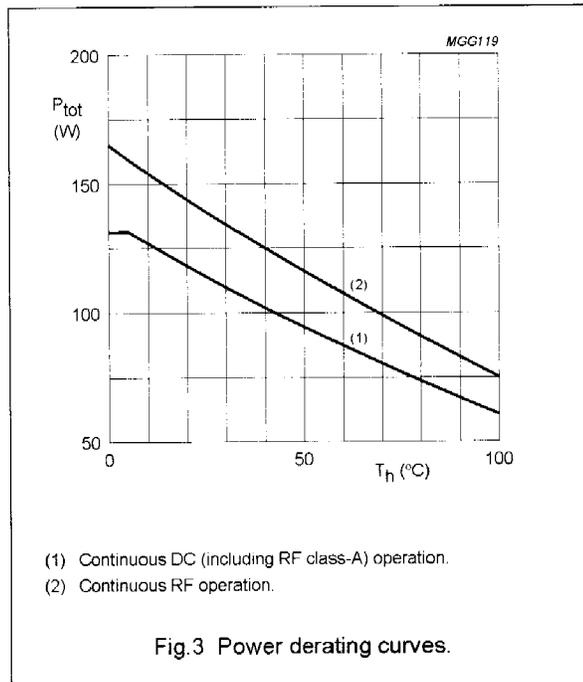
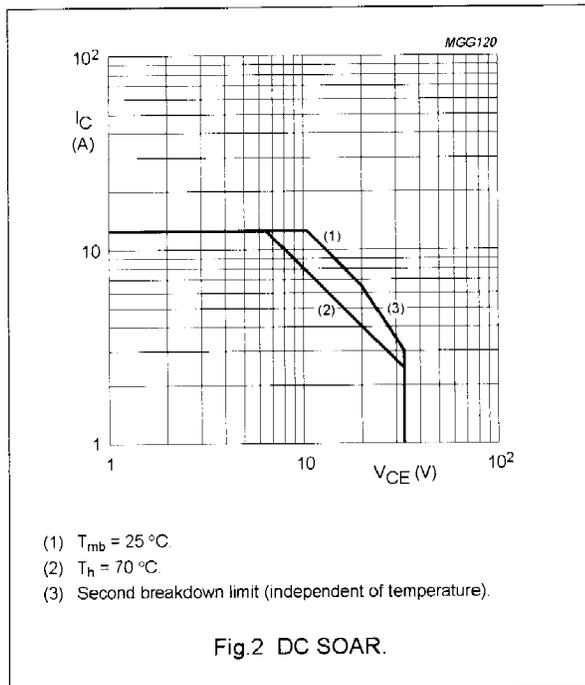
**LIMITING VALUES**

In accordance with the Absolute Maximum Rating System (IEC 134).

SYMBOL	PARAMETER	CONDITIONS	MIN.	MAX.	UNIT
$V_{CESM}$	collector-emitter voltage	$V_{BE} = 0$	-	65	V
$V_{CEO}$	collector-emitter voltage	open base	-	33	V
$V_{EBO}$	emitter-base voltage	open collector	-	4	V
$I_C$	collector current (DC)		-	12.5	A
$I_{C(AV)}$	average collector current		-	12.5	A
$I_{CM}$	peak collector current	$f > 1 \text{ MHz}$	-	20	A
$P_{tot}$	total power dissipation (DC)	$T_{mb} = 25 \text{ }^\circ\text{C}$	-	132	W
$P_{rf}$	RF power dissipation	$f > 1 \text{ MHz}; T_{mb} = 25 \text{ }^\circ\text{C}$	-	165	W
$T_{stg}$	storage temperature		-65	+150	$^\circ\text{C}$
$T_j$	operating junction temperature		-	200	$^\circ\text{C}$

**THERMAL CHARACTERISTICS**

SYMBOL	PARAMETER	CONDITIONS	VALUE	UNIT
$R_{th \text{ j-mb(dc)}}$	thermal resistance from junction to mounting base (DC dissipation)	$P_{diss} = 80 \text{ W}; T_{mb} = 82 \text{ }^\circ\text{C}; T_h = 70 \text{ }^\circ\text{C}$	1.46	K/W
$R_{th \text{ j-mb(rf)}}$	thermal resistance from junction to mounting base (RF dissipation)	$P_{diss} = 80 \text{ W}; T_{mb} = 82 \text{ }^\circ\text{C}; T_h = 70 \text{ }^\circ\text{C}$	1.17	K/W
$R_{th \text{ mb-h}}$	thermal resistance from mounting base to heatsink	$P_{diss} = 80 \text{ W}; T_{mb} = 82 \text{ }^\circ\text{C}; T_h = 70 \text{ }^\circ\text{C}$	0.15	K/W



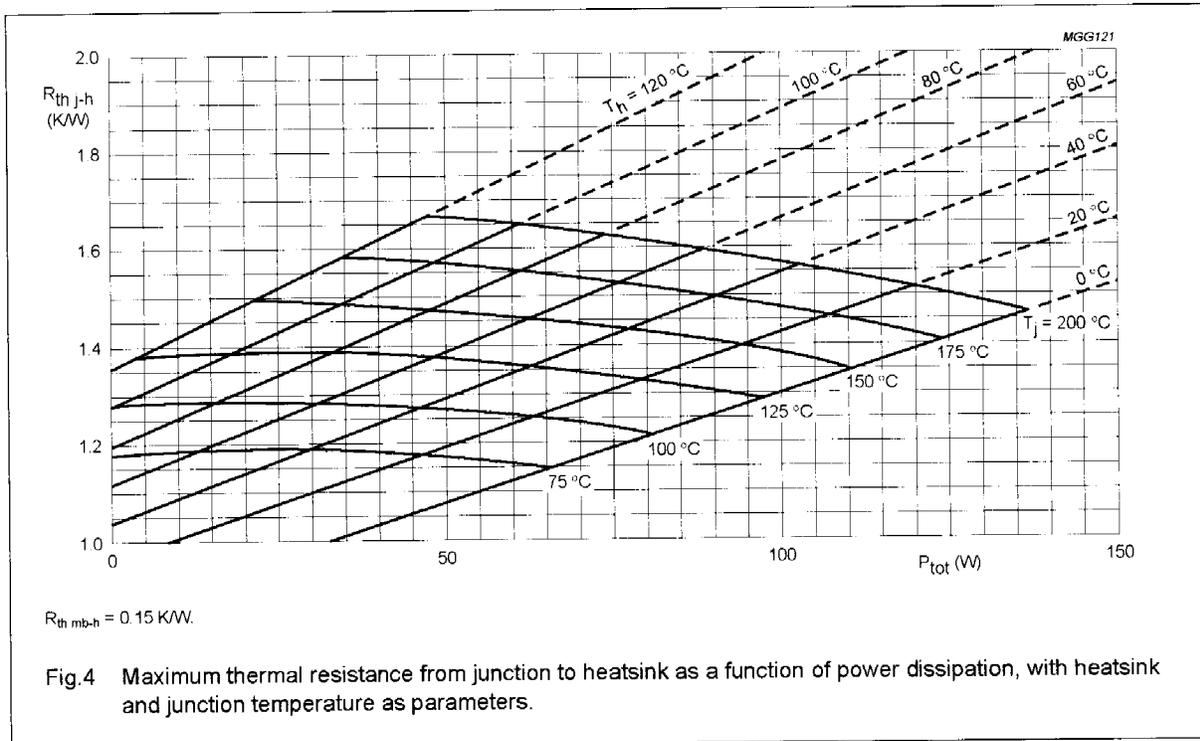


Fig.4 Maximum thermal resistance from junction to heatsink as a function of power dissipation, with heatsink and junction temperature as parameters.

**Example**

Nominal class-A operation:  $V_{CE} = 25\ \text{V}$ ;  $I_C = 3.2\ \text{A}$ ;  $T_h = 70^\circ\text{C}$ .

Figure 4 shows:

$R_{th\ j-h} = \text{max. } 1.60\ \text{K/W}$

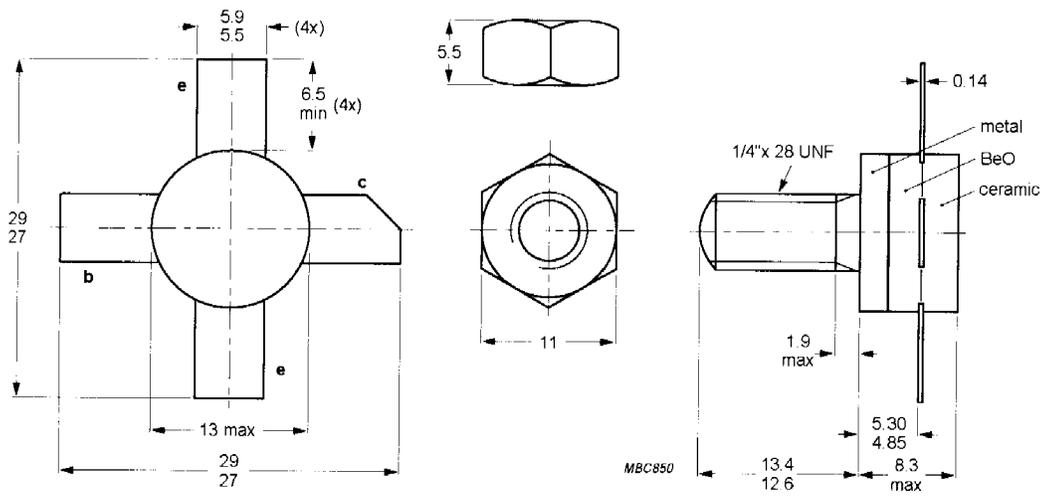
$T_j = \text{max. } 198^\circ\text{C}$ .

Typical device:

$R_{th\ j-h} = \text{typ. } 1.50\ \text{K/W}$

$T_j = \text{typ. } 190^\circ\text{C}$ .

PACKAGE OUTLINE



Dimensions in mm.

Torque on nut: min. 2.3 Nm; max. 2.7 Nm.

Diameter of clearance hole in heatsink: max. 6.4 mm.

Mounting hole to have no burrs at either end.

De-burring must leave surface flat; do not chamfer or countersink either end of hole.

When locking is required an adhesive is preferred instead of a lock washer.

Fig.22 SOT147.