New Jersey Semi-Conductor Products, Inc.

20 STERN AVE.
SPRINGFIELD, NEW JERSEY 07081
U.S.A.

TELEPHONE: (973) 376-2922
(212) 227-6005
FAX: (973) 376-8960

UHF linear push-pull power transistor

BLV62

FEATURES

- Internal matching for an optimum wideband capability and high gain
- Poly-silicon emitter-ballasting resistors for an optimum temperature profile
- Gold metallization ensures excellent reliability.

DESCRIPTION

Two npn silicon planar epitaxial sections in push-pull structure, intended for use in linear television transmitters (vision or sound).

The device is encapsulated in a 4-lead SOT262A2 flange envelope with 2 ceramic caps. The common emitter is connected to the flange.

PINNING - SOT262A2

PIN	DESCRIPTION
1	collector 1
2	collector 2
3	base 1
4	base 2
5	emitter

QUICK REFERENCE DATA

RF performance at T_h = 25 °C in a common emitter test circuit.

MODE OF OPERATION	f (MHz)	V_{CE} (V)	P_L (W)	G_p (dB)	η_c (%)	ΔG_p (dB) (note 1)
c.w. class-AB	860	28	150	> 8.5 typ. 9.5	> 45 typ. 50	< 1 typ. 0.5

Note

1. 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).

PIN CONFIGURATION

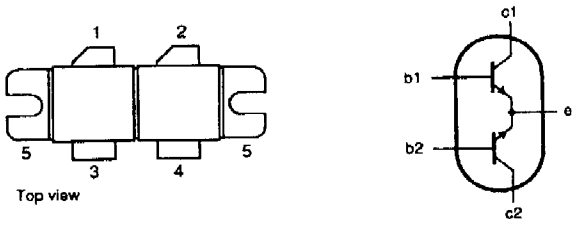


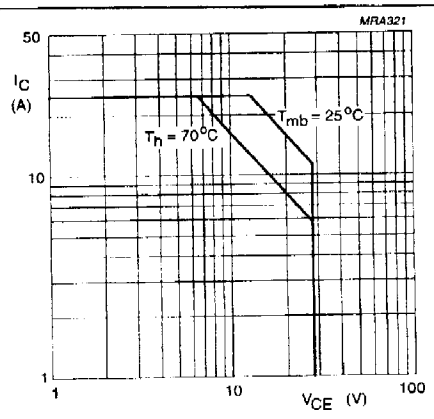
Fig.1 Simplified outline and symbol.

LIMITING VALUES (per transistor section unless otherwise specified)
In accordance with the Absolute Maximum System (IEC 134).

SYMBOL	PARAMETER	CONDITIONS	MIN.	MAX.	UNIT
V_{CBO}	collector-base voltage	open emitter	–	60	V
V_{CEO}	collector-emitter voltage	open base	–	28	V
V_{EBO}	emitter-base voltage	open collector	–	3	V
I_C, $I_{C(AV)}$	collector current	DC or average value	–	12.5	A
P_{tot}	total power dissipation	DC operation; T_{mb} = 25 °C (note 1)	–	320	W
T_{stg}	storage temperature range		−65	150	°C
T_j	junction operating temperature		–	200	°C

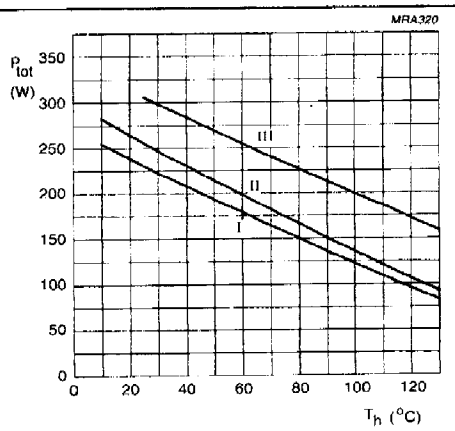
Note

1. Total device, both sections equally loaded.



Total device, both sections equally loaded.

Fig.2 DC SOAR.



Total device, both sections equally loaded.
(I) Continuous DC operation.
(II) Continuous RF operation.
(III) Short time operation during mismatch.

Fig.3 Power/temperature derating curve.

THERMAL RESISTANCE

SYMBOL	PARAMETER	CONDITIONS	MAX.	UNIT
$R_{th\ j\text{-}mb(DC)}$	from junction to mounting base	P_{tot} = 320 W; T_{mb} = 25 °C (note 1)	0.55	K/W
$R_{th\ j\text{-}mb(RF)}$	from junction to mounting base	P_{tot} = 350 W; T_{mb} = 25 °C (note 1)	0.5	K/W
$R_{th\ mb\text{-}h}$	from mounting base to heatsink	(note 1)	0.15	K/W

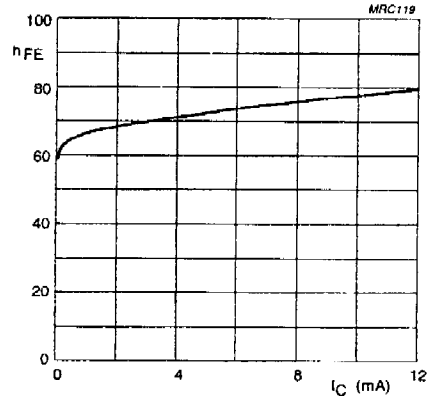
Note

1. Total device, both sections equally loaded.

CHARACTERISTICS

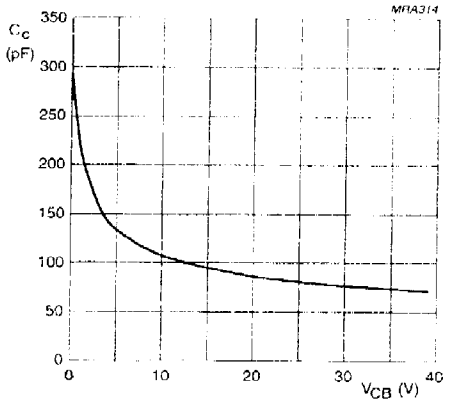
Values apply to either transistor section; T_j = 25 °C.

SYMBOL	PARAMETER	CONDITIONS	MIN.	TYP.	MAX.	UNIT
$V_{(BR)CBO}$	collector-base breakdown voltage	open emitter; I_C = 60 mA	60	–	–	V
$V_{(BR)CEO}$	collector-emitter breakdown voltage	open base; I_C = 150 mA	28	–	–	V
$V_{(BR)EBO}$	emitter-base breakdown voltage	open collector; I_E = 3 mA	3	–	–	V
I_{CES}	collector-emitter leakage current	V_{BE} = 0; V_{CE} = 28 V	–	–	30	mA
h_{FE}	DC current gain	V_{CE} = 25 V; I_C = 4.5 A	30	–	–	
Δh_{FE}	DC current gain ratio of both sections	V_{CE} = 25 V; I_C = 4.5 A	0.67	–	1.5	
C_c	collector capacitance	V_{CB} = 28 V; $I_E = I_e$ = 0; f = 1 MHz	–	81	–	pF
$C_{c\text{-}f}$	collector-flange capacitance	f = 1 MHz	–	5.7	–	pF



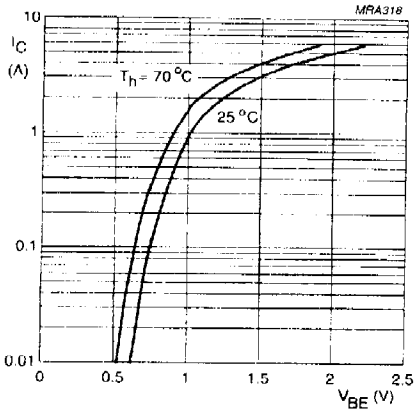
V_{CE} = 25 V.

Fig.4 DC current gain as a function of collector current, typical values.



$I_E = i_e = 0$; f = 1 MHz.

Fig.5 Collector capacitance as a function of collector-base voltage, typical values.



V_{CE} = 25 V.

Fig.6 Collector current as a function of base-emitter voltage, typical values.