

UHF power transistor

BLU11/SL

DESCRIPTION

N-P-N silicon planar epitaxial transistor primarily intended for use in mobile transmitters in the 470 MHz band.

FEATURES

- multi-base structure and emitter-ballasting resistors for an optimum temperature profile.
- gold metallization ensures excellent reliability.
- the device can be applied at a P_L of max. 1,5 W when it is mounted on a printed wiring board (see Fig.6) without an external heatsink.

The transistor has a 4-lead envelope with a ceramic cap (SOT-122D). All leads are isolated from the mounting base.

QUICK REFERENCE DATA

R.F. performance in a common-emitter class-B circuit.

MODE OF OPERATION	T °C	V _{CE} V	f MHz	P _L W	G _p dB	η _c %
narrow band; c.w.	T _{mb} = 25	12,5	470	2,5	> 10	> 55
	T _a = 25 ⁽¹⁾	12,5	470	1,5	> 12	> 55

Note

1. Device mounted on a printed wiring board (see Fig.6).

PIN CONFIGURATION

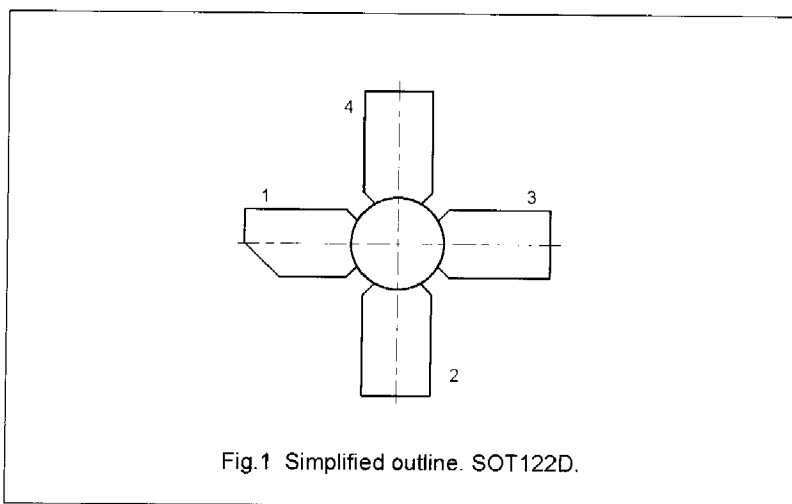


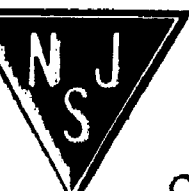
Fig.1 Simplified outline. SOT122D.

PINNING - SOT122D.

PIN	DESCRIPTION
1	collector
2	emitter
3	base
4	emitter

PRODUCT SAFETY This device incorporates beryllium oxide, the dust of which is toxic. The device is entirely safe provided that the BeO disc is not damaged.

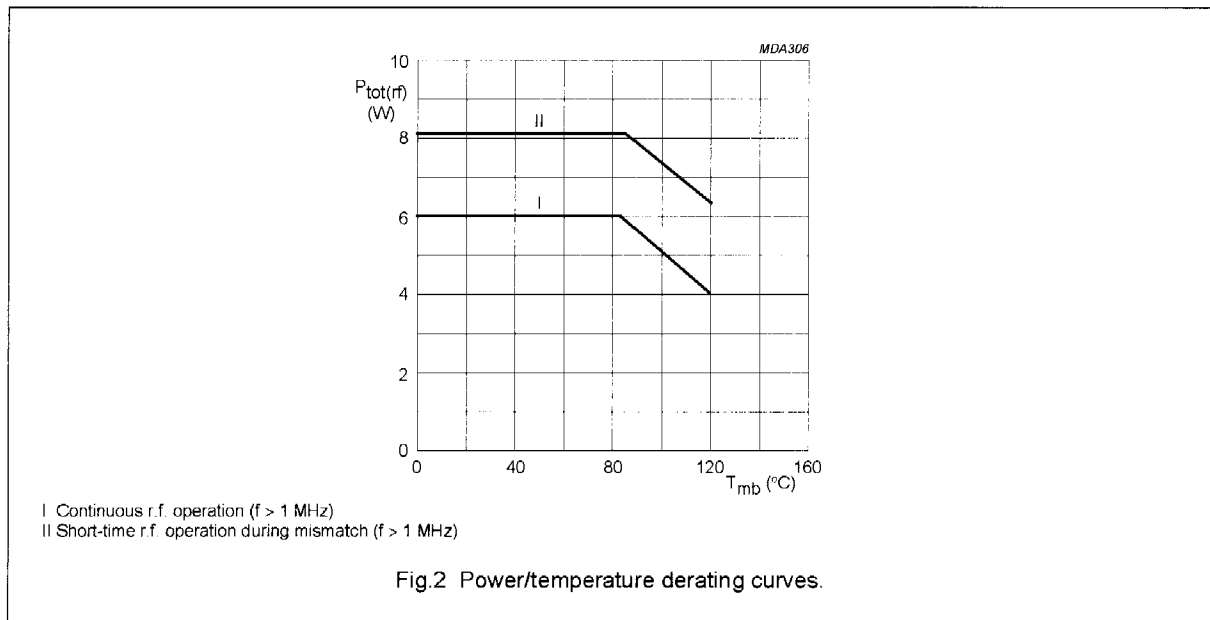
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RATINGS

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

Collector-base voltage (open emitter)	V_{CBO}	max.	36 V
Collector-emitter voltage (open base)	V_{CEO}	max.	16 V
Emitter-base voltage (open collector)	V_{EBO}	max.	3 V
Collector current			
d.c. or average	$I_C; I_{C(AV)}$	max.	0,4 A
(peak value), $f > 1$ MHz	I_{CM}	max.	1,2 A
Total power dissipation			
at $T_{mb} \leq 90$ °C; $f > 1$ MHz	$P_{tot(rf)}$	max.	6 W
Storage temperature	T_{stg}		-65 to +150 °C
Operating junction temperature	T_j	max.	200 °C



THERMAL RESISTANCE

Dissipation = 4,5 W

From junction to ambient⁽¹⁾

at $T_a = 25$ °C; $f > 1$ MHz (r.f. operation)

$R_{th\ j-a} (rf)$ max. 50 K/W

From junction to mounting base

at $T_{mb} = 25$ °C; $f > 1$ MHz (r.f. operation)

$R_{th\ j-mb} (rf)$ max. 15 K/W

Note

1. Device mounted on a printed wiring board (see Fig.6).

CHARACTERISTICS

$T_j = 25\text{ }^\circ\text{C}$ unless otherwise specified

Collector-base breakdown voltage

open emitter; $I_C = 5\text{ mA}$

$V_{(BR)CBO}$ min. 36 V

Collector-emitter breakdown voltage

open base; $I_C = 10\text{ mA}$

$V_{(BR)CEO}$ min. 16 V

Emitter-base breakdown voltage

open collector; $I_E = 0,5\text{ mA}$

$V_{(BR)EBO}$ min. 3 V

Collector cut-off current

$V_{BE} = 0$; $V_{CE} = 16\text{ V}$

I_{CES} max. 2,5 mA

Second breakdown energy

$L = 25\text{ mH}$; $f = 50\text{ Hz}$; $R_{BE} = 10\text{ }\Omega$

E_{SBR} min. 0,55 mJ

D.C. current gain

$I_C = 0,3\text{ A}$; $V_{CE} = 10\text{ V}$

h_{FE} min. 25

Collector capacitance at $f = 1\text{ MHz}$

$I_E = i_e = 0$; $V_{CB} = 12,5\text{ V}$

C_c typ. 4 pF

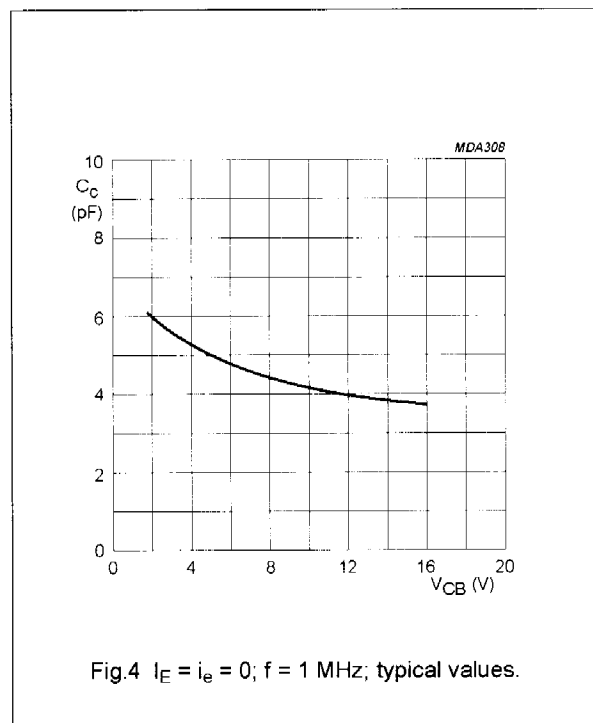
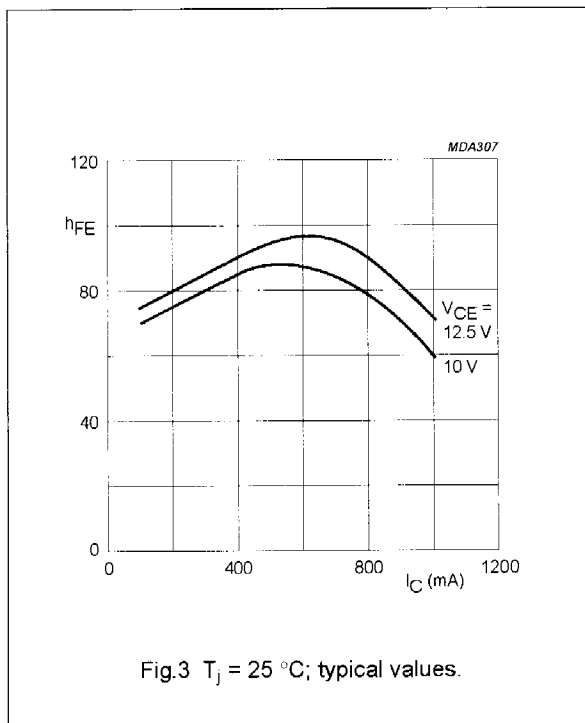
Feedback capacitance at $f = 1\text{ MHz}$

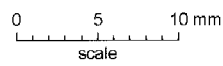
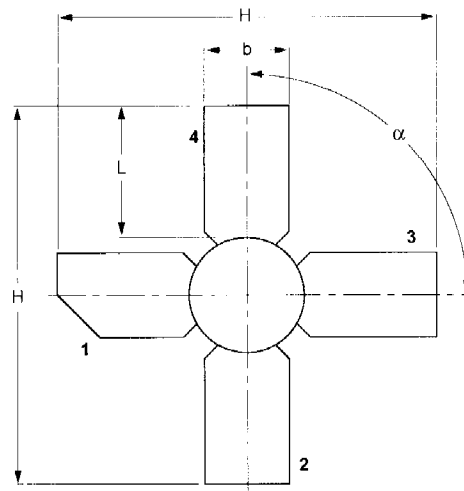
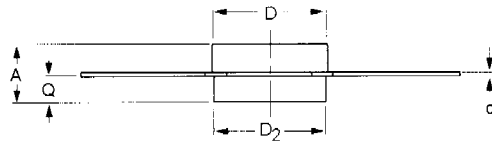
$I_C = 0$; $V_{CE} = 12,5\text{ V}$

C_{re} typ. 2,5 pF

Collector-mounting base capacitance

C_{c-mb} typ. 1,2 pF





DIMENSIONS (millimetre dimensions are derived from the original inch dimensions)

UNIT	A	b	c	D	D_2	H	L	Q	α
mm	4.17	5.85	0.18	7.50	7.24	27.56	9.91	1.58	90°
	3.27	5.58	0.14	7.23	6.98	25.78	9.14	1.27	