

UHF power transistor

BLU99 BLU99/SL

DESCRIPTION

N-P-N silicon planar epitaxial transistor primarily intended for use in mobile radio transmitters in the u.h.f. band. The transistor is also very suitable for application in the 900 MHz mobile radio band.

FEATURES

- multi-base structure and diffused emitter-ballasting resistors for an optimum temperature profile;
- gold metallization ensures excellent reliability.

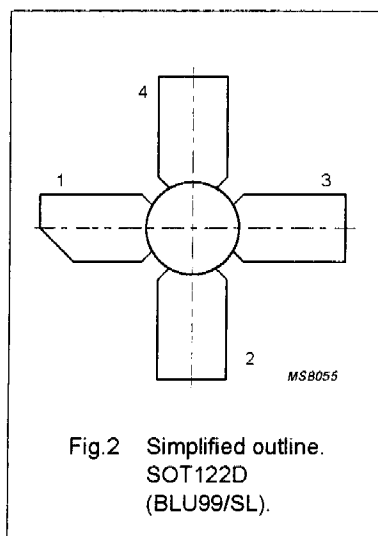
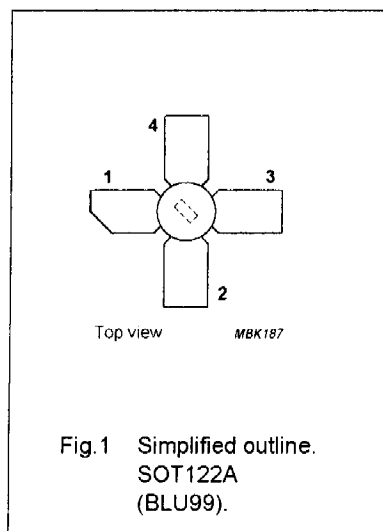
The BLU99 has a 4-lead stud envelope with a ceramic cap (SOT122A). All leads are isolated from the stud. The BLU99/SL is a studless version (SOT122D).

QUICK REFERENCE DATA

R.F. performance at $T_h = 25^\circ\text{C}$ in a common-emitter class-B circuit.

MODE OF OPERATION	V_{CE} V	f MHz	P_L W	G_p dB	η_c %
narrow band; c.w.	12,5	470	5	> 10,5	> 60
	12,5	900	4	typ. 7,0	typ. 60

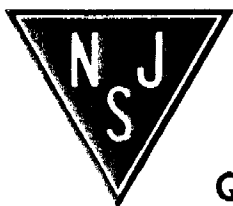
PIN CONFIGURATION



PINNING - SOT122A; 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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Quality Semi-Conductors

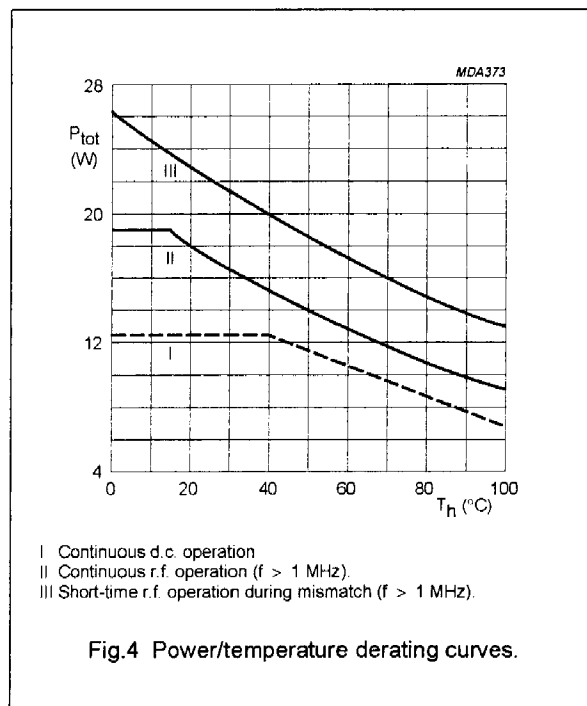
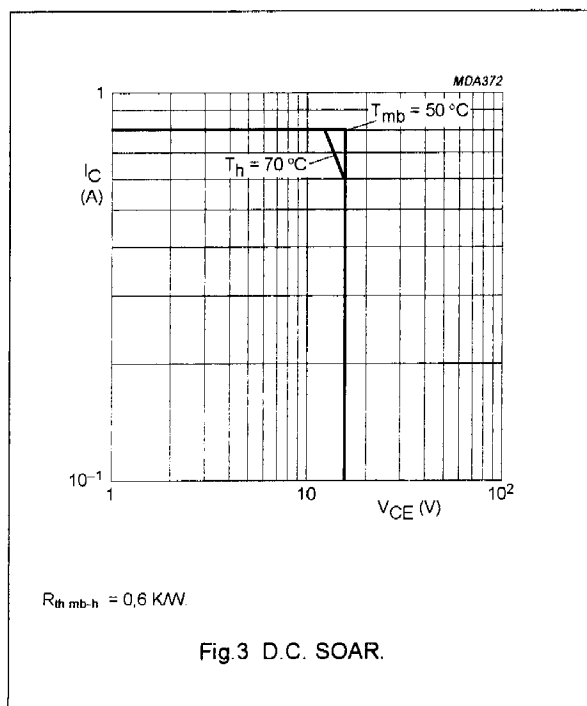
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RATINGS

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.	0,8 A
peak value; $f > 1$ MHz	I_{CM}	max.	2,5 A
D.C. power dissipation up to $T_{mb} = 50^\circ\text{C}$	$P_{tot(d.c.)}$	max.	12,5 W
R.F. power dissipation			
$f > 1$ MHz; $T_{mb} = 25^\circ\text{C}$	$P_{tot(r.f.)}$	max.	19 W
Storage temperature	T_{stg}		-65 to $+150^\circ\text{C}$
Operating junction temperature	T_j	max.	200°C



THERMAL RESISTANCE

(dissipation = 9 W; $T_{mb} = 25^\circ\text{C}$)

From junction to mounting base

(d.c. dissipation)

$$R_{th j-mb(dc)} = 10 \text{ K/W}$$

From junction to mounting base

(r.f. dissipation)

$$R_{th j-mb(rf)} = 7,5 \text{ K/W}$$

From mounting base to heatsink

$$R_{th mb-h} = 0,6 \text{ K/W}$$

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CHARACTERISTICS

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

Collector-base breakdown voltage

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

$V_{(BR)CBO} > 36\text{ V}$

Collector-emitter breakdown voltage

open base; $I_C = 20\text{ mA}$

$V_{(BR)CEO} > 16\text{ V}$

Emitter-base breakdown voltage

open collector; $I_E = 1\text{ mA}$

$V_{(BR)EBO} > 3\text{ V}$

Collector cut-off current

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

$I_{CES} < 5\text{ mA}$

Second breakdown energy; $L = 25\text{ mH}$; $f = 50\text{ Hz}$

$R_{BE} = 10\text{ }\Omega$

$E_{SBR} > 1\text{ mJ}$

D.C. current gain⁽²⁾

$I_C = 0,6\text{ A}$; $V_{CE} = 10\text{ V}$

$h_{FE} > 25$
typ. 100

Transition frequency at $f = 500\text{ MHz}$ ⁽¹⁾

$I_C = 0,6\text{ A}$; $V_{CE} = 12,5\text{ V}$

f_T typ. 4,0 GHz

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

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

C_c typ. 7,5 pF

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

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

C_{re} typ. 5 pF

Collector-stud capacitance

C_{cs} typ. 1,2 pF

Notes

1. Measured under pulse conditions: $t_p = 50\text{ }\mu\text{s}$; $\delta < 0,01$.
2. Measured under pulse conditions: $t_p = 300\text{ }\mu\text{s}$; $\delta < 0,01$.