

BLU45/12

U.H.F. POWER TRANSISTOR

N-P-N silicon planar epitaxial transistor in SOT-119 envelope primarily intended for use in mobile radio transmitters in the 470 MHz communications band.

Features

- multi-base structure and emitter-ballasting resistors for an optimum temperature profile.
- internal matching to achieve an optimum wideband capability and high power gain.
- gold metallization ensures excellent reliability.

The transistor has a 6-lead flange envelope with a ceramic cap. All leads are isolated from the flange.

QUICK REFERENCE DATA

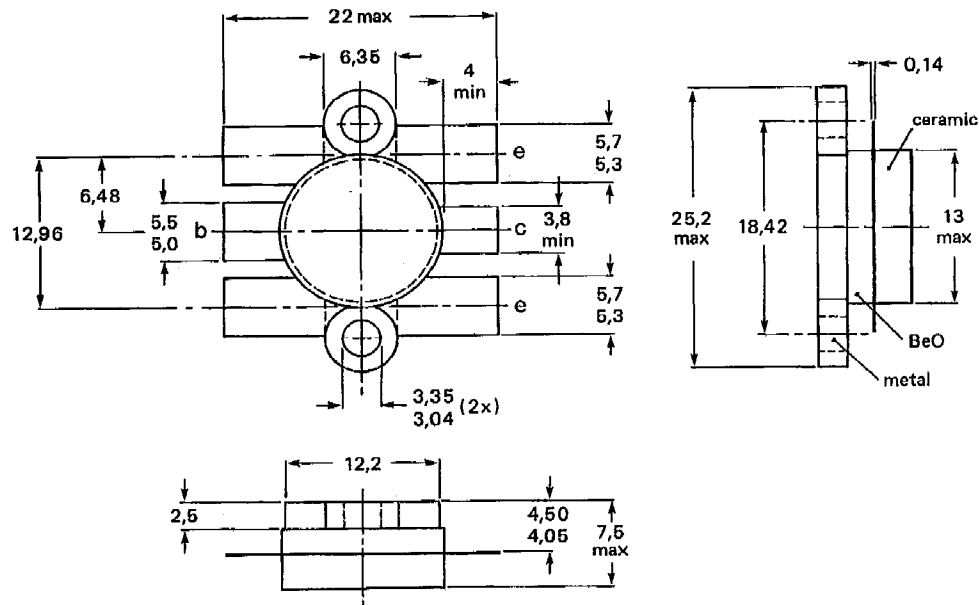
R.F. performance up to $T_h = 25^\circ\text{C}$ in a common-emitter class-B circuit

mode of operation	V_{CE} V	f MHz	P_L W	Gp dB	η_C %
narrow band; c.w.	12,5	470	45	> 4,8	> 55

MECHANICAL DATA

Dimensions in mm

SOT-119 (see Fig. 1).

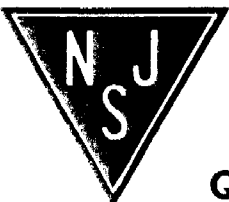


Torque on screw: min. 0,6 Nm (6 kg.cm)
max. 0,75 Nm (7,5 kg.cm)

Recommended screw: cheese-head 4-40 UNC/2A

Heatsink compound must be applied and evenly distributed.

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BLU45/12

RATINGS

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

Collector-base voltage (open emitter) peak value	V_{CBOM}	max.	36 V
Collector-emitter voltage (open base)	V_{CEO}	max.	16,5 V
Emitter-base voltage (open collector)	V_{EBO}	max.	4 V
Collector current d.c. or average	I_C	max.	9 A
(peak value); $f > 1$ MHz	I_{CM}	max.	27 A
Total power dissipation at $T_{mb} = 25$ °C; $f > 1$ MHz	P_{tot}	max.	87 W
Storage temperature	T_{stg}		-65 to + 150 °C
Operating junction temperature	T_j	max.	200 °C

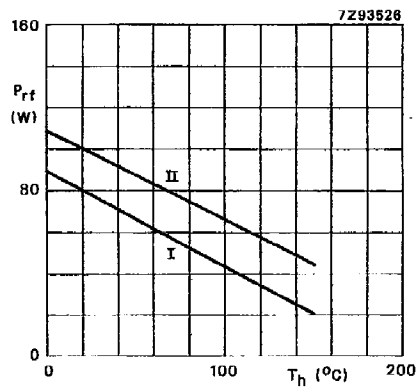


Fig. 2 Power/temperature derating curves.

- I Continuous operation ($f > 1$ MHz).
- II Short-time operation during mismatch ($f > 1$ MHz).

MAXIMUM THERMAL RESISTANCE

Dissipation = 54 W; $T_{amb} = 25$ °C

From junction to mounting base (r.f. operation)	$R_{th\ j-mb}$	max.	1,7 K/W
From mounting base to heatsink	$R_{th\ mb-h}$	max.	0,2 K/W

BLU45/12

CHARACTERISTICS

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

Collector-base breakdown voltage
open emitter; $I_C = 100\text{ mA}$

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

Collector-emitter breakdown voltage
open base; $I_C = 200\text{ mA}$

$V_{(BR)CEO}$ min. 16,5 V

Emitter-base breakdown voltage
open collector; $I_E = 20\text{ mA}$

$V_{(BR)EBO}$ min. 4 V

Collector cut-off current
 $V_{BE} = 0$; $V_{CE} = 16\text{ V}$

I_{CES} max. 44 mA

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

ESBR min. 15 mJ

D.C. current gain
 $V_{CE} = 10\text{ V}$; $I_C = 8\text{ A}$

h_{FE} min. 15
typ. 60

Collector capacitance at $f = 1\text{ MHz}$
 $I_E = i_e = 0$; $V_{CB} = 12,5\text{ V}$

C_c typ. 170 pF

Feedback capacitance at $f = 1\text{ MHz}$
 $I_C = 0$; $V_{CE} = 12,5$

C_{re} typ. 100 pF

Collector-flange capacitance

C_{cf} typ. 3 pF

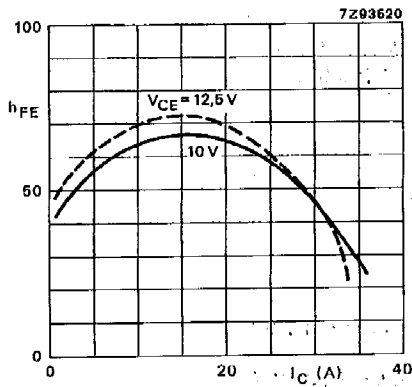


Fig. 3 D.C. current gain versus collector current; $T_j = 25\text{ }^\circ\text{C}$.

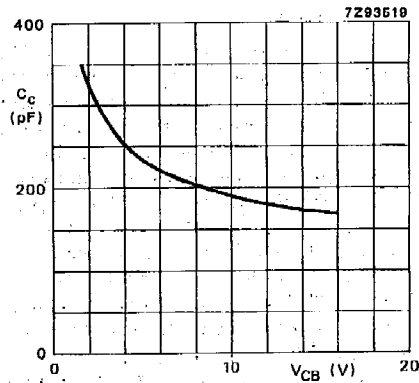


Fig. 4 Output capacitance versus V_{CB} ; $I_E = i_e = 0$; $f = 1\text{ MHz}$.