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UHF power transistor

BLW80

DESCRIPTION

N-P-N silicon planar epitaxial transistor intended for transmitting applications in class-A, B or C in the u.h.f. and v.h.f. range for nominal supply voltages up to 13,5 V.

The resistance stabilization of the transistor provides protection against device damage at severe load mismatch conditions.

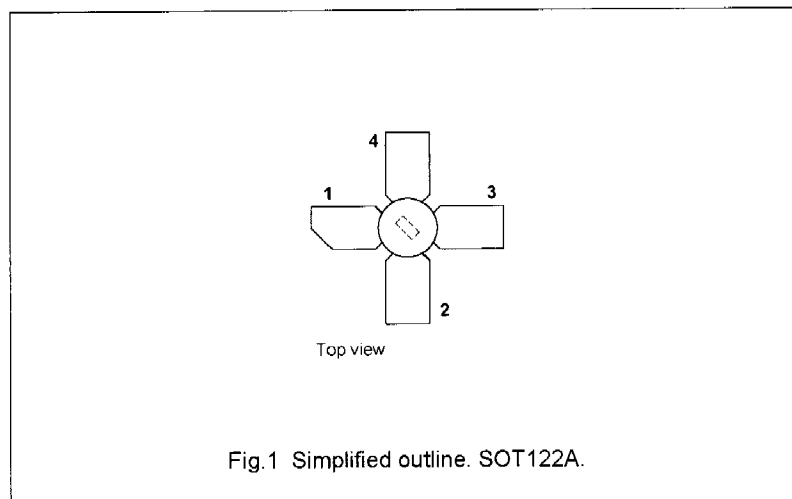
The transistor is housed in a 1/4" capstan envelope with a ceramic cap.

QUICK REFERENCE DATA

R.F. performance up to $T_n = 25^\circ\text{C}$ in an unneutralized common-emitter class-circuit.

MODE OF OPERATION	V_{CE} V	f MHz	P_L W	G_p dB	η %	\bar{z}_i Ω	\bar{Y}_L mS
c.w.	12,5	470	4	> 8,0	> 60	$2,1 + j2,3$	$57 - j56$
c.w.	12,5	175	4	typ. 15,0	typ. 60	$2,0 - j2,2$	$51 - j48$

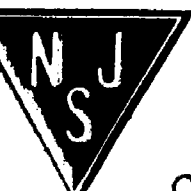
PIN CONFIGURATION



PINNING - SOT122A.

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-emitter voltage ($V_{BE} = 0$)

peak value

V_{CESM} max 36 V

Collector-emitter voltage (open base)

V_{CEO} max 17 V

Emitter-base voltage (open collector)

V_{EBO} max 4 V

Collector current (d.c.)

I_C max 1 A

Collector current (peak value); $f > 1$ MHz

I_{CM} max 3 A

Total power dissipation (d.c. and r.f.) up to $T_{mb} = 25$ °C

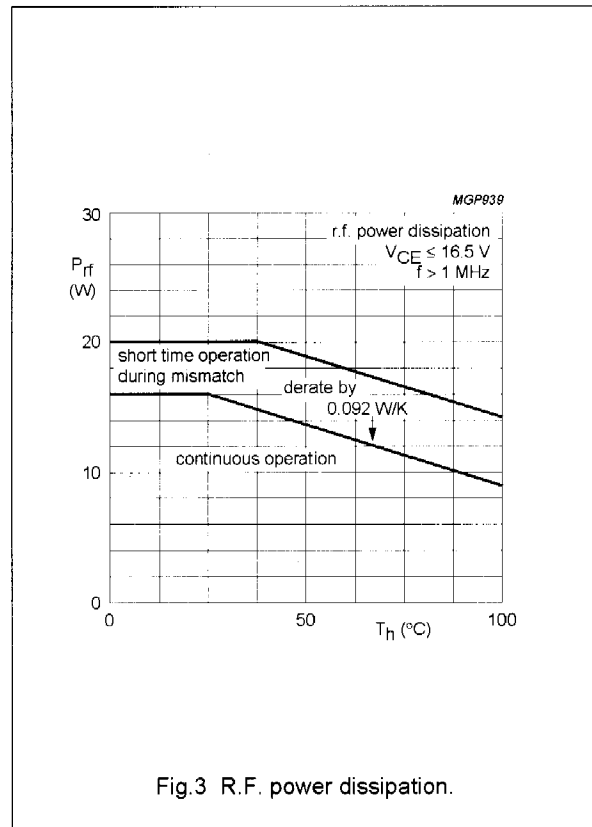
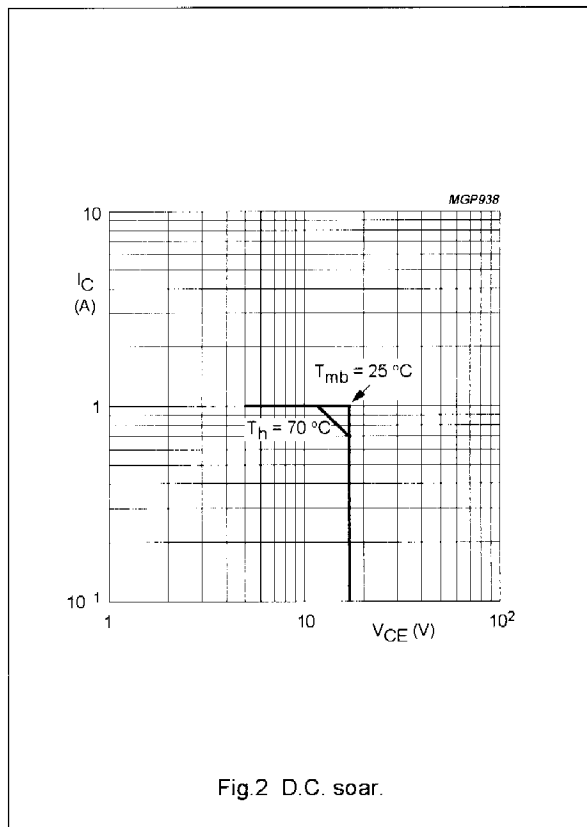
P_{tot} max 17 W

Storage temperature

T_{stg} -65 to +150 °C

Operating junction temperature

T_j max 200 °C



THERMAL RESISTANCE

From junction to mounting base

$R_{th\ j-mb}$ = 10,3 K/W

From mounting base to heatsink

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

CHARACTERISTICS

$T_j = 25\text{ }^\circ\text{C}$

Breakdown voltages

Collector-emitter voltage

$V_{BE} = 0; I_C = 10\text{ mA}$

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

Collector-emitter voltage

open base; $I_C = 50\text{ mA}$

$V_{(BR)CEO} > 17\text{ V}$

Emitter-base voltage

open collector; $I_E = 4\text{ mA}$

$V_{(BR)EBO} > 4\text{ V}$

Collector cut-off current

$V_{BE} = 0; V_{CE} = 17\text{ V}$

$I_{CES} < 4\text{ mA}$

D.C. current gain ⁽¹⁾

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

$h_{FE} > 10$
typ 35

Collector-emitter saturation voltage ⁽¹⁾

$I_C = 1,5\text{ A}; I_B = 0,3\text{ A}$

V_{CEsat} typ 0,75 V

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

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

f_T typ 1,75 GHz

$I_C = 1,5\text{ A}; V_{CE} = 12,5\text{ V}$

f_T typ 1,25 GHz

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

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

C_C typ 14 pF

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

$I_C = 40\text{ mA}; V_{CE} = 12,5\text{ V}$

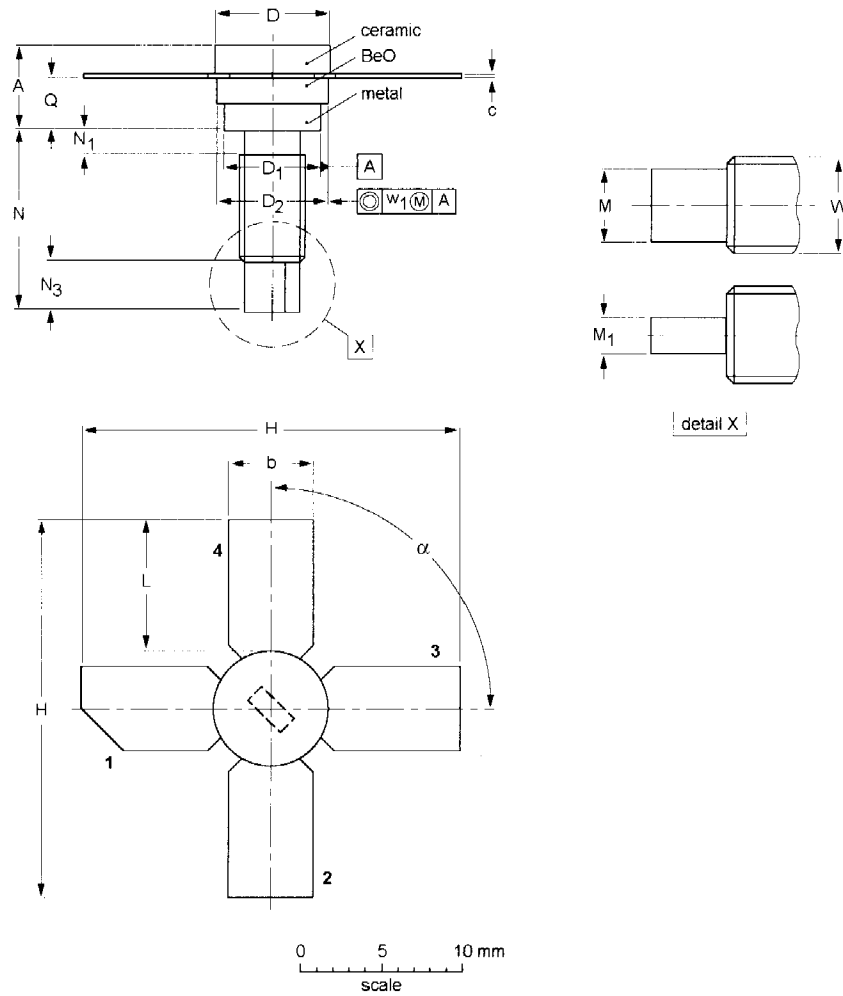
C_{re} typ 7,1 pF

Collector-stud capacitance

C_{cs} typ 1,2 pF

Note

1. Measured under pulse conditions: $t_p \leq 200\text{ }\mu\text{s}$; $\delta \leq 0,02$.



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

UNIT	A	b	c	D	D_1	D_2	H	L	M_1	M	N	N_1 max.	N_3	Q	W	w_1	α
mm	5.97	5.85	0.18	7.50	6.48	7.24	27.56	9.91	3.18	1.66	11.82		3.86	3.38	8-32		90°
	4.74	5.58	0.14	7.23	6.22	6.93	25.78	9.14	2.66	1.39	11.04	1.02	2.92	2.74	UNC	0.381	