

UHF power transistor

BLW90

DESCRIPTION

N-P-N silicon planar epitaxial transistor suitable for transmitting applications in class-A, B or C in the u.h.f. and v.h.f. range for a nominal supply voltage of 28 V. The transistor is resistance stabilized and is guaranteed to withstand infinite VSWR at rated output power. High reliability is ensured by a **gold sandwich metallization**.

The transistor is housed in a 1/4" capstan envelope with a ceramic cap. All leads are isolated from the stud.

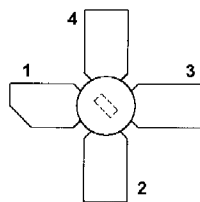
QUICK REFERENCE DATA

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

MODE OF OPERATION	V_{CE} V	f MHz	P_L W	G_p dB	η %
c.w.	28	470	4	> 11	> 55

PIN CONFIGURATION

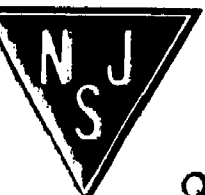
PINNING - SOT122A.



Top view

Fig.1 Simplified outline. SOT122A.

PIN	DESCRIPTION
1	collector
2	emitter
3	base
4	emitter



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RATINGS

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

Collector-emitter voltage

(peak value); $V_{BE} = 0$

open base

Emitter-base voltage (open collector)

Collector current

d.c. or average

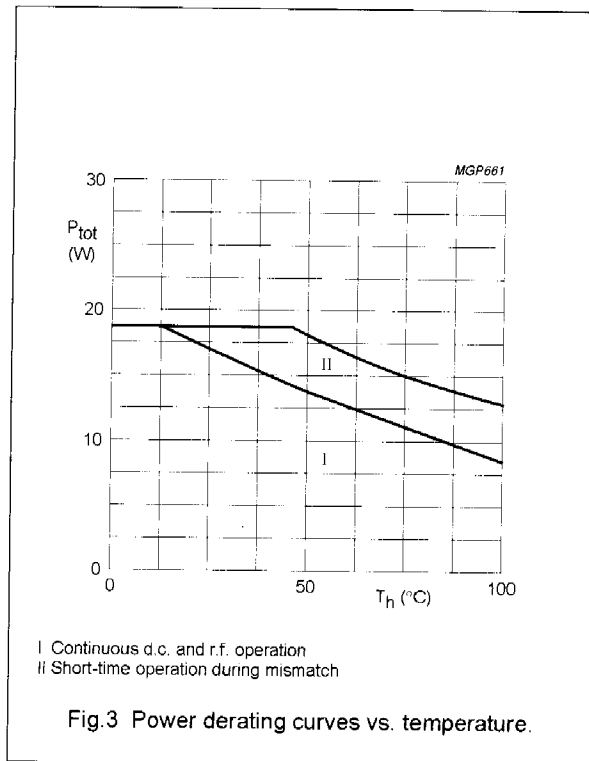
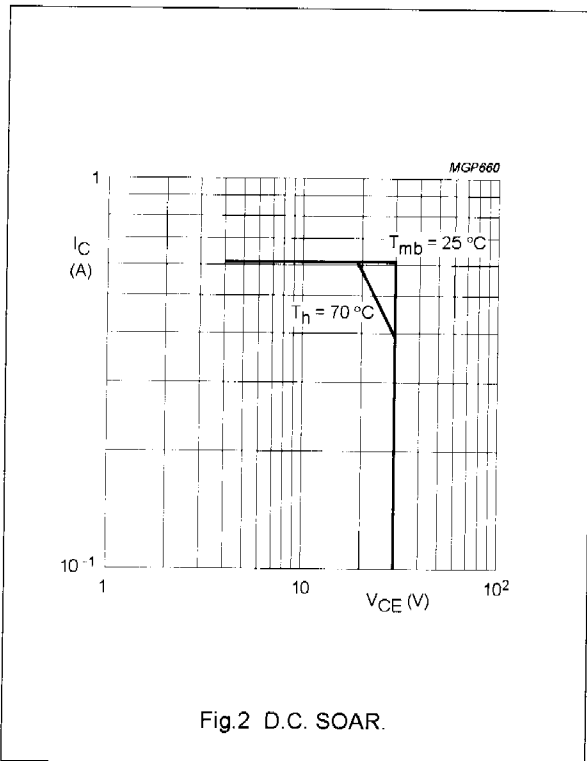
(peak value); $f > 1$ MHz

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

Storage temperature

Operating junction temperature

V_{CESM}	max.	60 V
V_{CEO}	max.	30 V
V_{EBO}	max.	4 V
$I_C; I_{C(AV)}$	max.	0,62 A
I_{CM}	max.	2,0 A
P_{tot}	max.	18,6 W
T_{stg}		-65 to +150 °C
T_J	max.	200 °C



THERMAL RESISTANCE

(dissipation = 6 W; $T_{mb} = 73,6$ °C, i.e. $T_h = 70$ °C)

From junction to mounting base

(d.c. and r.f. dissipation)

From mounting base to heatsink

$R_{th\ j-mb}$	=	9,0 K/W
$R_{th\ mb-h}$	=	0,6 K/W

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

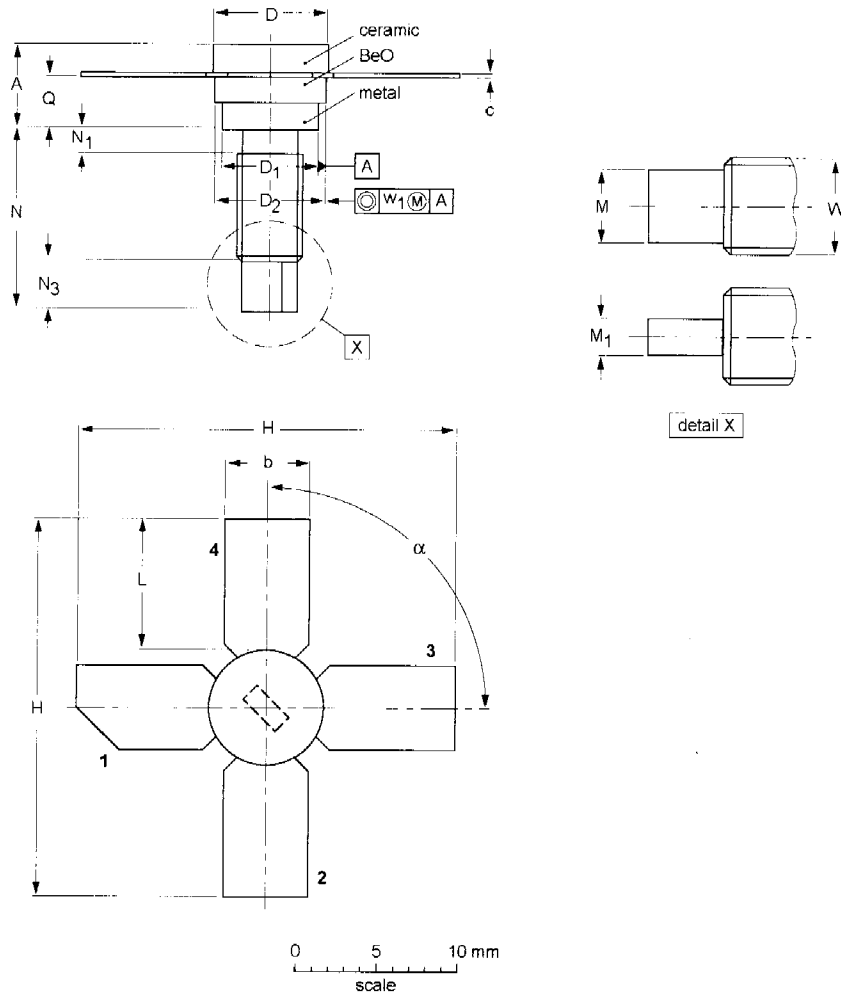
Collector-emitter breakdown voltage $V_{BE} = 0$; $I_C = 4\text{ mA}$	$V_{(BR)CES}$	>	60 V
Collector-emitter breakdown voltage open base; $I_C = 20\text{ mA}$	$V_{(BR)CEO}$	>	30 V
Emitter-base breakdown voltage open collector; $I_E = 2\text{ mA}$	$V_{(BR)EBO}$	>	4 V
Collector cut-off current $V_{BE} = 0$; $V_{CE} = 30\text{ V}$	I_{CES}	<	2 mA
Second breakdown energy; $L = 25\text{ mH}$; $f = 50\text{ Hz}$ open base	E_{SBO}	>	1 mJ
$R_{BE} = 10\ \Omega$	E_{SBR}	>	1 mJ
D.C. current gain ⁽¹⁾ $I_C = 0,3\text{ A}$; $V_{CE} = 5\text{ V}$	h_{FE}	typ.	40 10 to 100
Collector-emitter saturation voltage ⁽¹⁾ $I_C = 1,0\text{ A}$; $I_B = 0,2\text{ A}$	V_{CEsat}	typ.	0,9 V
Transition frequency at $f = 500\text{ MHz}$ ⁽¹⁾ $-I_E = 0,3\text{ A}$; $V_{CB} = 28\text{ V}$	f_T	typ.	1,2 GHz
$-I_E = 1,0\text{ A}$; $V_{CB} = 28\text{ V}$	f_T	typ.	0,9 GHz
Collector capacitance at $f = 1\text{ MHz}$ $I_E = I_e = 0$; $V_{CB} = 28\text{ V}$	C_C	typ.	8,4 pF
Feedback capacitance at $f = 1\text{ MHz}$ $I_C = 20\text{ mA}$; $V_{CE} = 28\text{ V}$	C_{re}	typ.	3,6 pF
Collector-stud capacitance	C_{cs}	typ.	1,2 pF

Note1. Measured under pulse conditions: $t_p \leq 200\ \mu\text{s}$; $\delta \leq 0,02$.

PACKAGE OUTLINE

Studded ceramic package; 4 leads

SOT122A



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 4.74	5.85 5.58	0.18 0.14	7.50 7.23	6.48 6.22	7.24 6.93	27.56 25.78	9.91 9.14	3.18 2.66	1.66 1.39	11.82 11.04	1.02	3.86 2.92	3.38 2.74	8-32 UNC	0.381	90°

OUTLINE VERSION	REFERENCES			EUROPEAN PROJECTION
	IEC	JEDEC	EIAJ	
SOT122A				