New Jersey Semi-Conductor Products, Inc.

20 STERN AVE.
SPRINGFIELD, NEW JERSEY 07081
U.S.A.

TELEPHONE: (973) 376-2922
(212) 227-6005
FAX: (973) 376-8960

BLW91

U.H.F. POWER TRANSISTOR

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 ¼" capstan envelope with a ceramic cap. All leads are isolated from the stud.

QUICK REFERENCE DATA

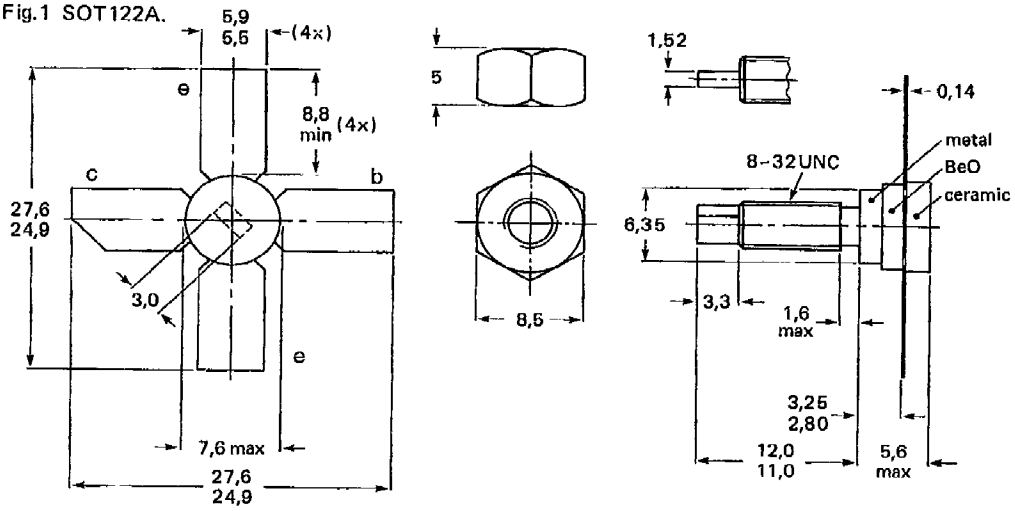
R.F. performance up to T_h = 25 °C in an unneutralized common-emitter class-B circuit

mode of operation	V_{CE} V	f MHz	P_L W	G_p dB	η %
c.w.	28	470	10	>9	>60

MECHANICAL DATA

Dimensions in mm

Fig.1 SOT122A.



Torque on nut: min. 0,75 Nm (7,5 kg cm)
max. 0,85 Nm (8,5 kg cm)

Diameter of clearance hole in heatsink: max. 4,2 mm.
Mounting hole to have no burrs at either end.
De-burring must leave surface flat; do not chamfer or countersink either end of hole.

When locking is required an adhesive is preferred instead of a lock washer.

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.

RATINGS

Limiting values in accordance with the Absolute Maximum System

Collector-emitter voltage (peak value); $V_{BE} = 0$	V_{CESM}	max.	60 V
open base	V_{CEO}	max.	30 V
Emitter-base voltage (open collector)	V_{EBO}	max.	4 V
Collector current			
d.c. or average	I_C; $I_{C(AV)}$	max.	1,5 A
(peak value); f > 1 MHz	I_{CM}	max.	3,5 A
Total power dissipation up to $T_{mb} = 35$ °C	P_{tot}	max.	30 W
R.F. power dissipation (f > 1 MHz); $T_{mb} = 25$ °C	P_{rf}	max.	32,5 W
Storage temperature	T_{stg}		−65 to + 150 °C
Operating junction temperature	T_j	max.	200 °C

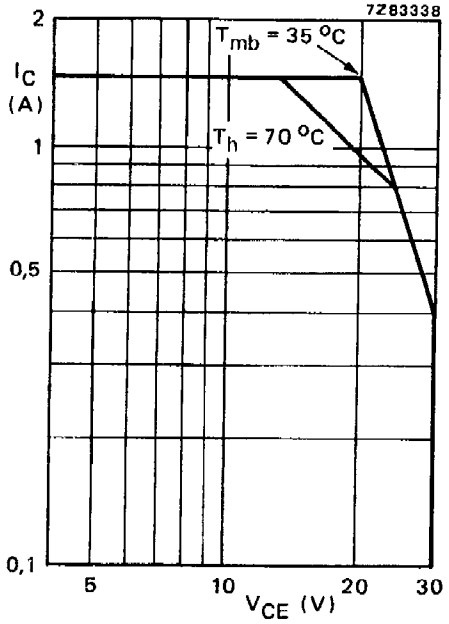


Fig. 2 D.C. SOAR.

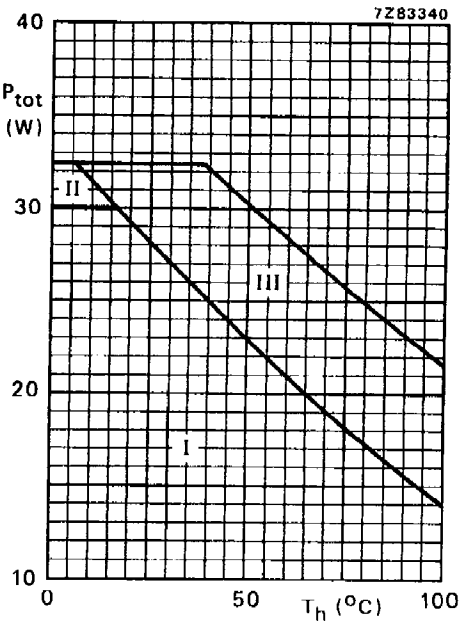


Fig. 3 Power derating curves vs. temperature.
I Continuous d.c. operation
II Continuous r.f. operation
III Short-time operation during mismatch

THERMAL RESISTANCE (dissipation = 10 W; $T_{mb} = 76$ °C, i.e. $T_h = 70$ °C)

From junction to mounting base (d.c. and r.f. dissipation)	$R_{th\ j\text{-}mb}$	=	6,2 K/W
From mounting base to heatsink	$R_{th\ mb\text{-}h}$	=	0,6 K/W

CHARACTERISTICS

T_j = 25 °C

Collector-emitter breakdown voltage V_{BE} = 0; I_C = 10 mA	$V_{(BR)CES}$	>	60 V
Collector-emitter breakdown voltage open base; I_C = 50 mA	$V_{(BR)CEO}$	>	30 V
Emitter-base breakdown voltage open collector; I_E = 4 mA	$V_{(BR)EBO}$	>	4 V
Collector cut-off current V_{BE} = 0; V_{CE} = 30 V	I_{CES}	<	4 mA
Second breakdown energy; L = 25 mH; f = 50 Hz open base	E_{SBO}	>	2 mJ
R_{BE} = 10 Ω	E_{SBR}	>	2 mJ
D.C. current gain * I_C = 0,6 A; V_{CE} = 5 V	h_{FE}	typ.	40 10 to 100
Collector-emitter saturation voltage * I_C = 2,0 A; I_B = 0,4 A	V_{CEsat}	typ.	1,0 V
Transition frequency at f = 500 MHz * $-I_E$ = 0,6 A; V_{CB} = 28 V	f_T	typ.	1,2 GHz
$-I_E$ = 2,0 A; V_{CB} = 28 V	f_T	typ.	1,0 GHz
Collector capacitance at f = 1 MHz $I_E = I_e$ = 0; V_{CB} = 28 V	C_c	typ.	17 pF
Feedback capacitance at f = 1 MHz I_C = 20 mA; V_{CE} = 28 V	C_{re}	typ.	8,5 pF
Collector-stud capacitance	C_{cs}	typ.	1,2 pF