BLY91A

V.H.F. POWER TRANSISTOR

N-P-N epitaxial planar transistor intended for use in class A, B and C operated mobile, industrial and military transmitters with a supply voltage of 28 V. The transistor is resistance stabilized. Every transistor is tested under severe load mismatch conditions. It has a $\frac{1}{4}$" capstan envelope with a moulded cap. All leads are isolated from the stud.

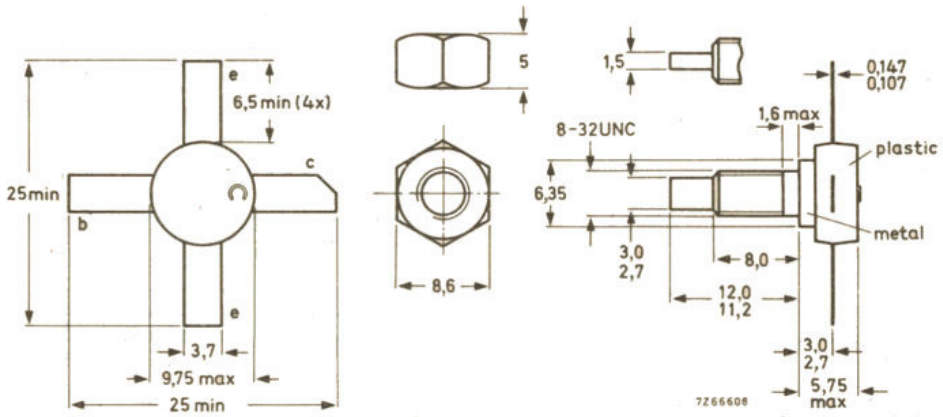
QUICK REFERENCE DATA

R.F. performance up to T_{mb} = 25 °C in an unneutralised common-emitter class B circuit

Mode of operation	V_{CC} (V)	f (MHz)	P_S (W)	P_L (W)	I_C (A)	G_p (dB)	η (%)	$\overline{z}_i$ (Ω)	$\overline{Y}_L$ (mA/V)
c.w.	28	175	< 0.50	8	< 0.44	> 12	> 65	1.8+j0.7	18−j20

MECHANICAL DATA Dimensions in mm

SOT-48



Torque on nut: min. 7.5 kg cm (0.75 Newton metres)
max. 8.5 kg cm (0.85 Newton metres)

Diameter of clearance hole in heatsink: max. 4.17 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 instead of a lock washer is preferred.

Temperatures

Storage temperature	T_{stg}	−30 to +200		°C
Operating junction temperature	T_j	max.	200	°C

THERMAL RESISTANCE

From junction to mounting base	$R_{th\ j\text{-}mb}$	=	9.4	°C/W
From mounting base to heatsink	$R_{th\ mb\text{-}h}$	=	0.6	°C/W

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

Voltages

Collector-base voltage (open emitter) peak value	V_{CBOM}	max.	65	V
Collector-emitter voltage (open base)	V_{CEO}	max.	36	V
Emitter-base voltage (open collector)	V_{EBO}	max.	4	V

Currents

Collector current (average)	$I_{C(AV)}$	max.	0.75	A
Collector current (peak value) f > 1 MHz	I_{CM}	max.	2.25	A

Power dissipation

Total power dissipation up to T_h = 25 °C f > 1 MHz	P_{tot}	max.	17.5	W

CHARACTERISTICS T_j = 25 °C unless otherwise specified

Collector cut-off current

I_B = 0; V_{CE} = 28 V	I_{CEO}	<	5	mA

Breakdown voltages

Collector-base voltage open emitter; I_C = 1 mA	$V_{(BR)CBO}$	>	65	V
Collector-emitter voltage open base, I_C = 10 mA	$V_{(BR)CEO}$	>	36	V
Emitter-base voltage open collector; I_E = 1 mA	$V_{(BR)EBO}$	>	4	V

Transient energy

L = 25 mH; f = 50 Hz

open base	E	>	0.5	mWs
$-V_{BE}$ = 1.5 V; R_{BE} = 33 Ω	E	>	0.5	mWs

D.C. current gain

I_C = 500 mA; V_{CE} = 5 V	h_{FE}	>	5	

Transition frequency

I_C = 400 mA; V_{CE} = 20 V	f_T	typ.	500	MHz

Collector capacitance at f = 1 MHz

$I_E = I_e$ = 0; V_{CB} = 30 V	C_c	typ.	10	pF
		<	15	pF

Feedback capacitance at f = 1 MHz

I_C = 50 mA; V_{CE} = 30 V	C_{re}	typ.	7.5	pF

Collector-stud capacitance

	C_{cs}	typ.	2	pF