

BFS23A

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 TO-39 metal envelope with the collector connected to the case.

QUICK REFERENCE DATA

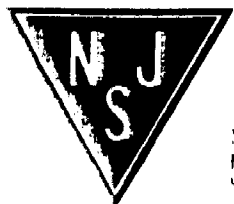
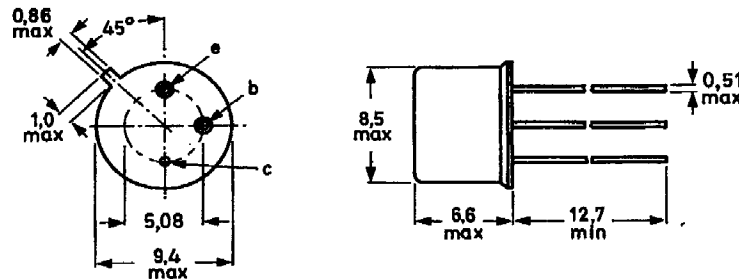
R.F. performance up to  $T_{mb} = 25^{\circ}\text{C}$  in an unneutralized common-emitter class-B circuit

mode of operation	$V_{CE}$ V	f MHz	$P_L$ W	$G_p$ dB	$\eta$ %	$\bar{z}_i$ $\Omega$	$\bar{Y}_L$ mS
c.w.	28	175	4	> 10	> 65	$2,3 + j1,6$	$8,9 - j18,1$

MECHANICAL DATA

Dimensions in mm

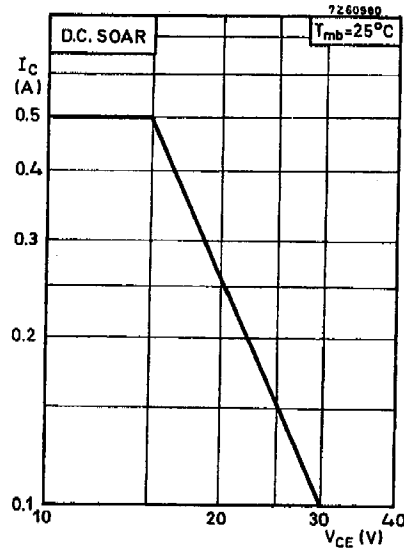
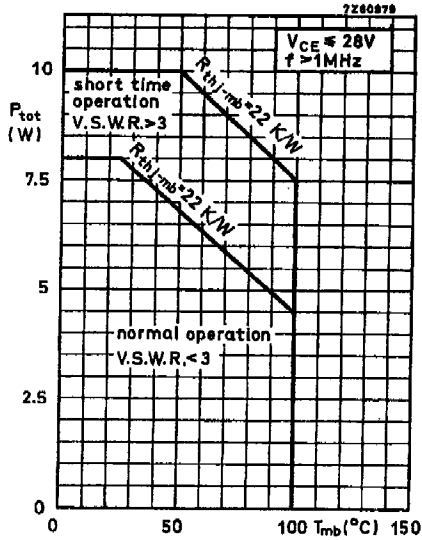
Fig.1 TO-39/1; collector connected to case.



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

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
Collector current (average)	$I_{C(AV)}$ max.	0.5	A
Collector current (peak value) $f > 1$ MHz	$I_{CM}$ max.	1.5	A
Total power dissipation up to $T_{mb} = 25^\circ\text{C}$ $f > 1$ MHz	$P_{tot}$ max.	8	W



Storage temperature

$T_{stg}$  -65 to +200  $^\circ\text{C}$

Operating junction temperature

$T_j$  max. 200  $^\circ\text{C}$

## THERMAL RESISTANCE

From junction to mounting base

$R_{th\ j-mb} = 22$  K/W

From mounting base to heatsink  
with a boron nitride washer  
for electrical insulation

$R_{th\ mb-h} = 2.5$  K/W

V.H.F. power transistor

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**CHARACTERISTICS**

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

Collector cut-off current

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

Breakdown voltages

Collector-base voltage  
open emitter,  $I_C = 1\text{ mA}$   $V_{(BR)CBO} > 65\text{ V}$

Collector-emitter voltage  
open base,  $I_C = 10\text{ mA}$   $V_{(BR)CEO} > 36\text{ V}$

Emitter-base voltage  
open collector;  $I_E = 1\text{ mA}$   $V_{(BR)EBO} > 4\text{ V}$

Transient energy

$L = 25\text{ mH}; f = 50\text{ Hz}$   
open base  $E > 0.5\text{ ms}$   
 $-V_{BE} = 1.5\text{ V}; R_{BE} = 33\ \Omega$   $E > 0.5\text{ ms}$

D. C. current gain

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

Transition frequency

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

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

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

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

$I_C = 25\text{ mA}; V_{CE} = 30\text{ V}$   $-C_{re}$  typ. 7.5 pF