

**UHF power transistor**

**BLT53**

**FEATURES**

- Emitter-ballasting resistors for an optimum temperature profile
- Gold metallization ensures excellent reliability
- Withstands full load mismatch.

**DESCRIPTION**

NPN silicon planar epitaxial transistor encapsulated in a 4-lead SOT122D studless envelope with a ceramic cap. It is designed for common emitter, class-B operation in portable radio transmitters in the 470 MHz communications band. All leads are isolated from the mounting flange.

**PINNING - SOT122D**

PIN	DESCRIPTION
1	collector
2	emitter
3	base
4	emitter

**QUICK REFERENCE DATA**

RF performance at  $T_{mb} = 25\text{ }^{\circ}\text{C}$  in a common emitter test circuit.

MODE OF OPERATION	f (MHz)	$V_{CE}$ (V)	$P_L$ (W)	$G_p$ (dB)	$\eta_c$ (%)
c.w. class-B	470	7.5	8	> 6	> 60

**WARNING**

**Product and environmental safety - toxic materials**

This product contains beryllium oxide. The product is entirely safe provided that the BeO disc is not damaged. All persons who handle, use or dispose of this product should be aware of its nature and of the necessary safety precautions. After use, dispose of as chemical or special waste according to the regulations applying at the location of the user. It must never be thrown out with the general or domestic waste.

**PIN CONFIGURATION**

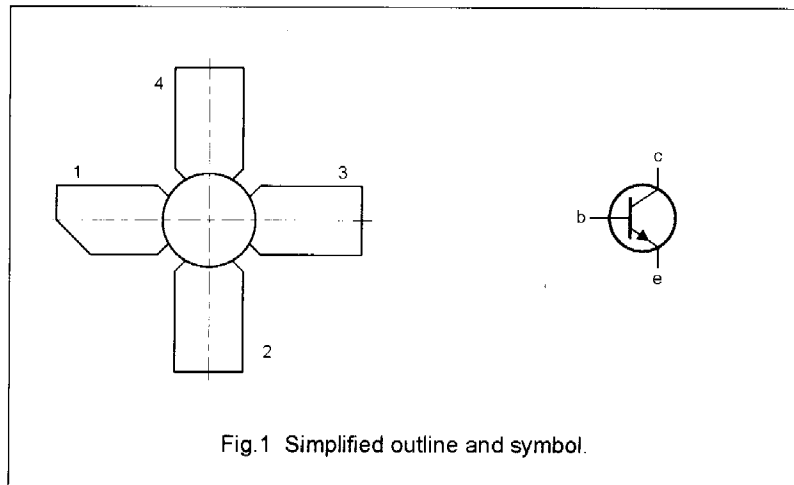
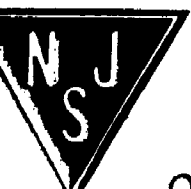


Fig.1 Simplified outline and symbol.

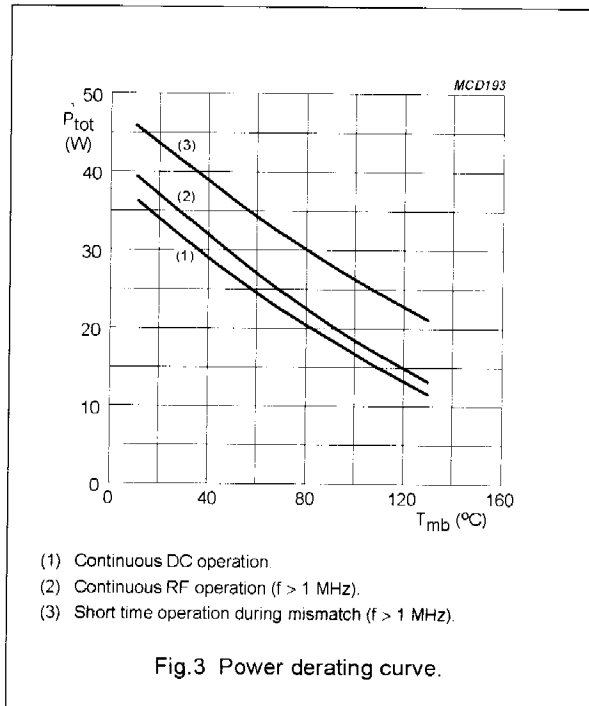
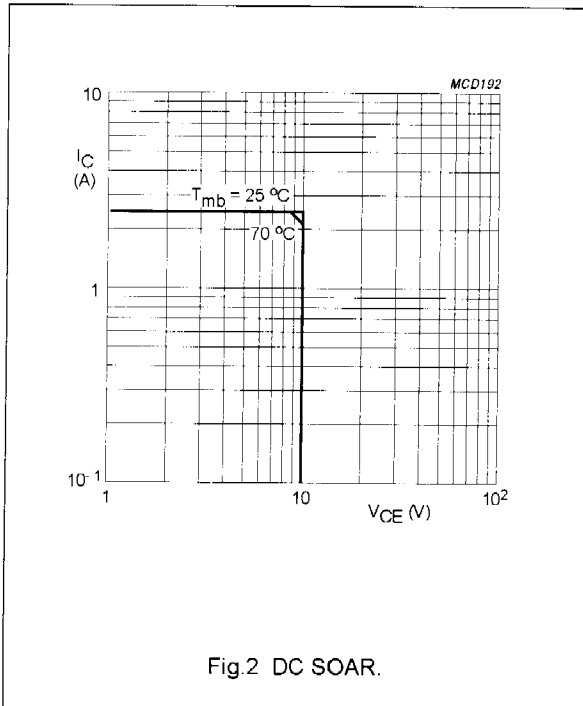


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### LIMITING VALUES

In accordance with the Absolute Maximum System (IEC 134).

SYMBOL	PARAMETER	CONDITIONS	MIN.	MAX.	UNIT
$V_{CBO}$	collector-base voltage	open emitter	-	20	V
$V_{CEO}$	collector-emitter voltage	open base	-	10	V
$V_{EBO}$	emitter-base voltage	open collector	-	3	V
$I_C, I_{C(AV)}$	collector current	DC or average value	-	2.5	A
$I_{CM}$	collector current	peak value $f > 1$ MHz	-	7.5	A
$P_{tot}$	total power dissipation	RF operation; $T_{mb} = 25$ °C	-	35.5	W
$T_{stg}$	storage temperature range		-65	150	°C
$T_J$	junction operating temperature		-	200	°C



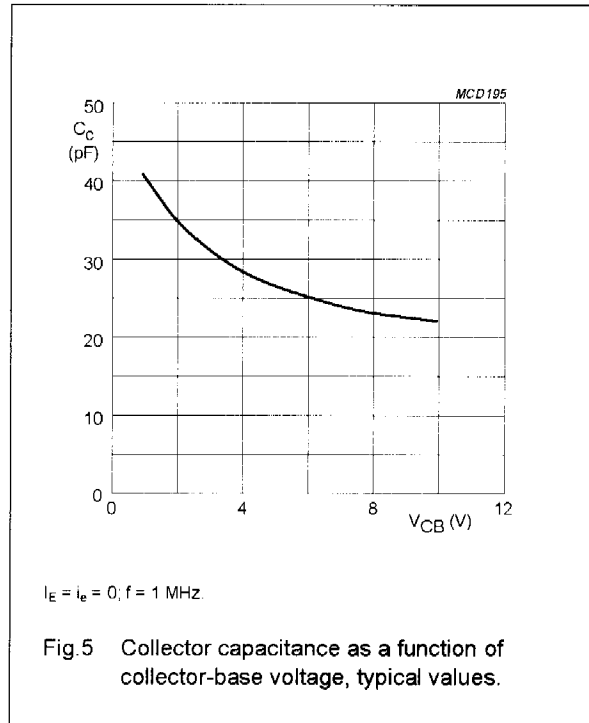
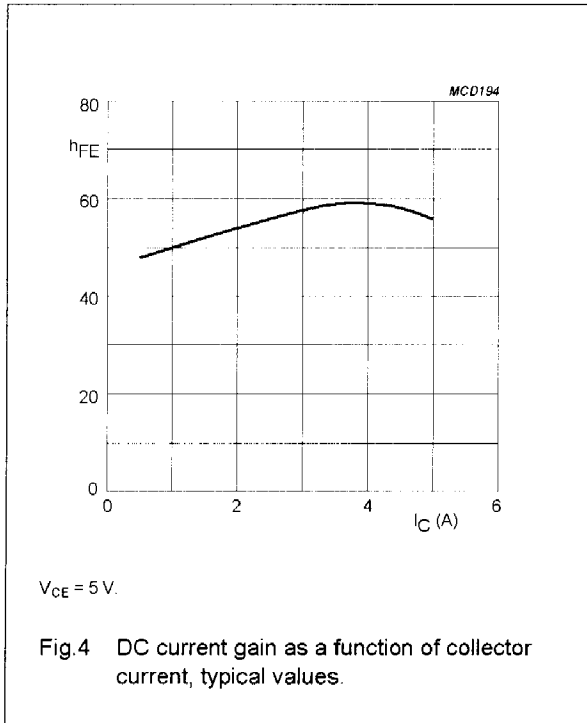
### THERMAL RESISTANCE

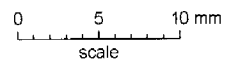
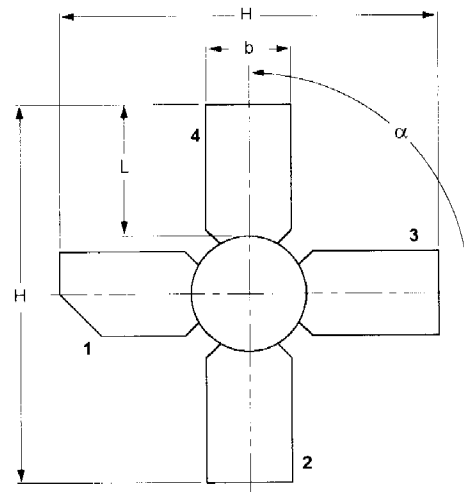
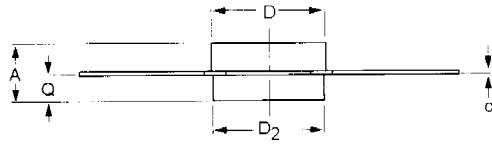
SYMBOL	PARAMETER	CONDITIONS	MAX.	UNIT
$R_{th\ j-mb(RF)}$	from junction to mounting base	$P_{tot} = 35.5$ W; $T_{mb} = 25$ °C	4.9	K/W

**CHARACTERISTICS**

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

SYMBOL	PARAMETER	CONDITIONS	MIN.	TYP.	MAX.	UNIT
$V_{(BR)CBO}$	collector-base breakdown voltage	open emitter; $I_C = 20\text{ mA}$	20	-	-	V
$V_{(BR)CEO}$	collector-emitter breakdown voltage	open base; $I_C = 40\text{ mA}$	10	-	-	V
$V_{(BR)EBO}$	emitter-base breakdown voltage	open collector; $I_E = 4\text{ mA}$	3	-	-	V
$I_{CES}$	collector-emitter leakage current	$V_{BE} = 0$ ; $V_{CE} = 10\text{ V}$	-	-	1	mA
$h_{FE}$	DC current gain	$V_{CE} = 5\text{ V}$ ; $I_C = 1.2\text{ A}$	25	-	-	
$f_T$	transition frequency	$V_{CE} = 7.5\text{ V}$ ; $I_E = 1.6\text{ A}$	-	3.9	-	GHz
$C_c$	collector capacitance	$V_{CB} = 7.5\text{ V}$ ; $I_E = I_e = 0$ ; $f = 1\text{ MHz}$	-	24	-	pF
$C_{re}$	feedback capacitance	$V_{CE} = 7.5\text{ V}$ ; $I_C = 0$ ; $f = 1\text{ MHz}$	-	17	-	pF
$C_{c-mb}$	collector-mounting base capacitance	$f = 1\text{ MHz}$	-	1.2	-	pF





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

UNIT	A	b	c	D	D <sub>2</sub>	H	L	Q	$\alpha$
mm	4.17	5.85	0.18	7.50	7.24	27.56	9.91	1.58	90°
	3.27	5.58	0.14	7.23	6.98	25.78	9.14	1.27	