

**UHF power transistor**

**BLV97CE**

**FEATURES**

- Internal input matching to achieve high power gain
- Ballasting resistors for an optimum temperature profile
- Gold metallization ensures excellent reliability

**DESCRIPTION**

NPN silicon planar epitaxial transistor in a SOT171 envelope, intended for common emitter, class-AB operation in radio transmitters for the 960 MHz communications band. The transistor has a 6-lead flange envelope, with a ceramic cap. All leads are isolated from the flange.

**QUICK REFERENCE DATA**

RF performance up to  $T_h = 25^\circ\text{C}$  in a common emitter class-AB circuit.

MODE OF OPERATION	f (MHz)	V <sub>CE</sub> (V)	P <sub>L</sub> (W)	G <sub>p</sub> (dB)	$\eta_c$ (%)
c.w. class-AB	960	24	35	> 7	> 50

**PINNING - SOT171A**

PIN	SYMBOL	DESCRIPTION
1	e	emitter
2	e	emitter
3	b	base
4	c	collector
5	e	emitter
6	e	emitter

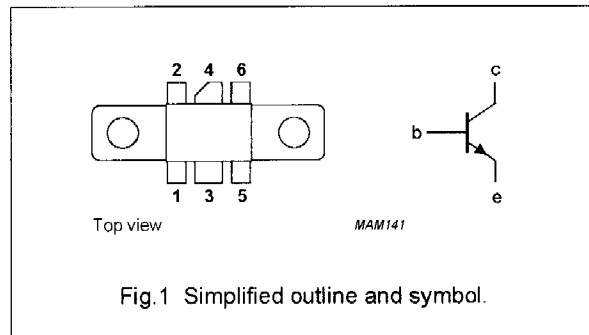
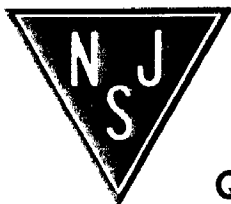


Fig.1 Simplified outline and symbol.

**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.



NJ Semi-Conductors reserves the right to change test conditions, parameter limits and package dimensions without notice. Information furnished by NJ Semi-Conductors is believed to be both accurate and reliable at the time of going to press. However, NJ Semi-Conductors assumes no responsibility for any errors or omissions discovered in its use. NJ Semi-Conductors encourages customers to verify that datasheets are current before placing orders.

**Quality Semi-Conductors**

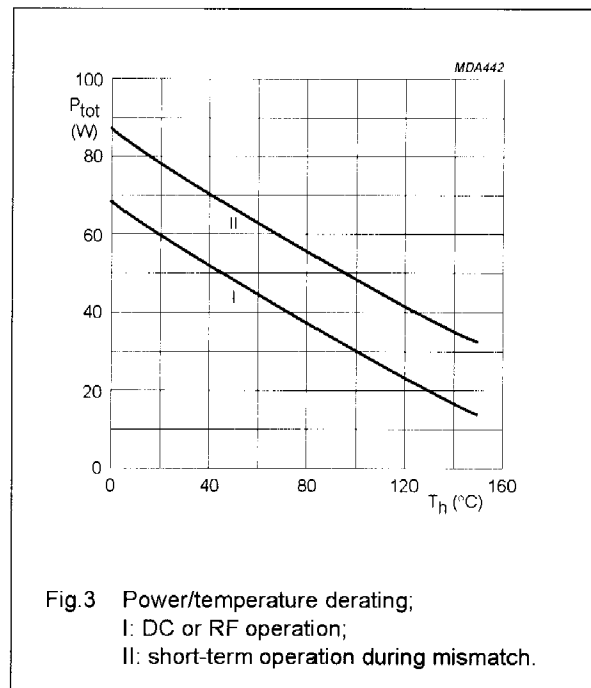
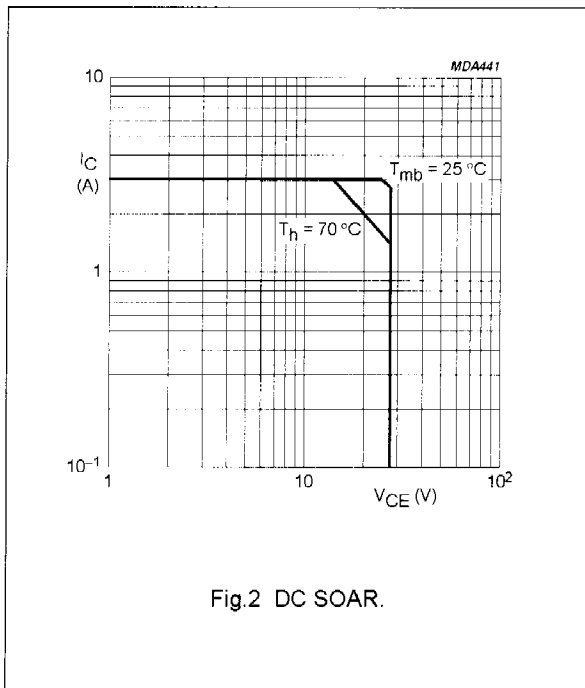
**LIMITING VALUES**

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

SYMBOL	PARAMETER	CONDITIONS	MIN.	MAX.	UNIT
V <sub>CBO</sub>	collector base voltage	open emitter	–	50	V
V <sub>CEO</sub>	collector emitter voltage	open base	–	27	V
V <sub>EBO</sub>	emitter base voltage	open collector	–	3.5	V
I <sub>C</sub>	collector current	DC or average	–	3	A
I <sub>CM</sub>	collector current	peak value f > 1 MHz	–	9	A
P <sub>tot</sub>	total power dissipation	f > 1 MHz T <sub>mb</sub> = 25 °C	–	70	W
T <sub>stg</sub>	storage temperature		–65	150	°C
T <sub>J</sub>	operating junction temperature		–	200	°C

**THERMAL RESISTANCE**

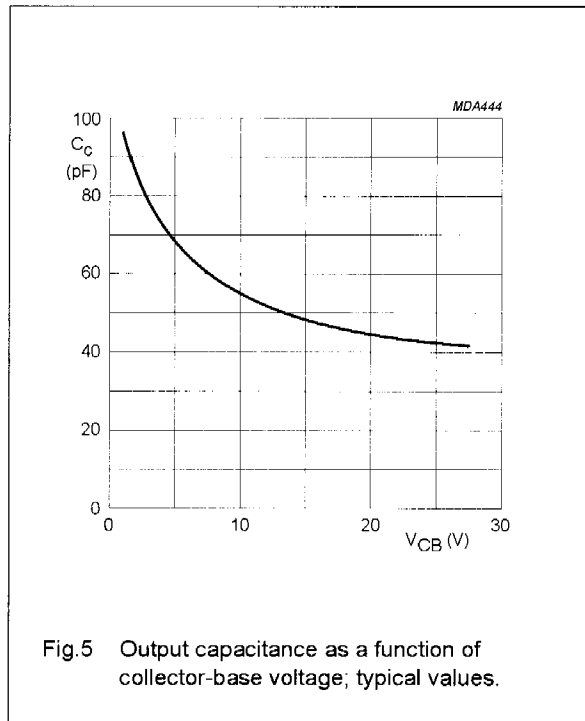
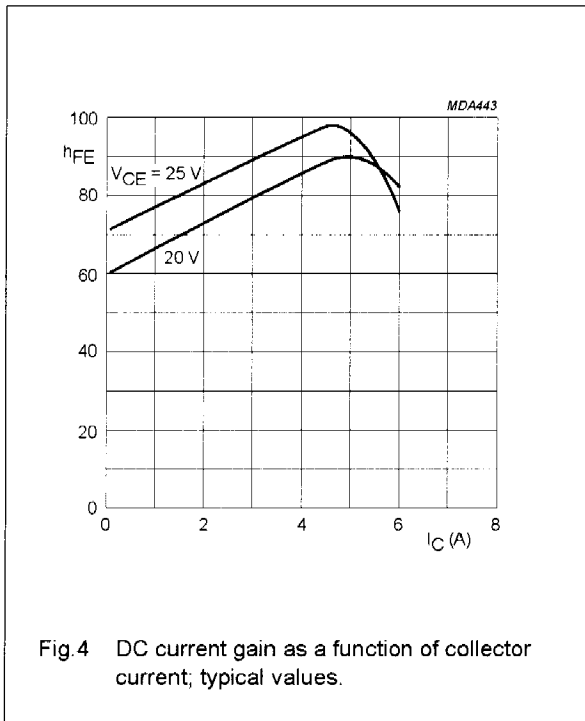
SYMBOL	PARAMETER	CONDITIONS	TYP.	MAX.	UNIT
R <sub>thj-mb</sub>	from junction to mounting base (RF)		–	2.3	K/W
R <sub>th mb-h</sub>	from mounting base to heatsink		–	0.4	K/W



**CHARACTERISTICS**

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

SYMBOL	PARAMETER	CONDITIONS	MIN.	TYP.	MAX.	UNIT
$V_{(BR)CBO}$	collector-base breakdown voltage	open emitter $I_C = 50\text{ mA}$	50	–	–	V
$V_{(BR)CEO}$	collector-emitter breakdown voltage	open base $I_C = 100\text{ mA}$	27	–	–	V
$V_{(BR)EBO}$	emitter-base breakdown voltage	open collector $I_E = 10\text{ mA}$	3.5	–	–	V
$I_{CES}$	collector leakage current	$V_{BE} = 0$ $V_{CE} = 27\text{ V}$	–	–	10	mA
$h_{FE}$	DC current gain	$I_C = 2\text{ A}$ $V_{CE} = 20\text{ V}$	15	–	–	
$C_c$	collector capacitance at $f = 1\text{ MHz}$	$I_E = I_B = 0$ $V_{CB} = 25\text{ V}$	–	44	–	pF
$C_{re}$	feedback capacitance at $f = 1\text{ MHz}$	$I_C = 0$ $V_{CE} = 25\text{ V}$	–	30	–	pF
$C_{cf}$	collector-flange capacitance		–	2	–	pF



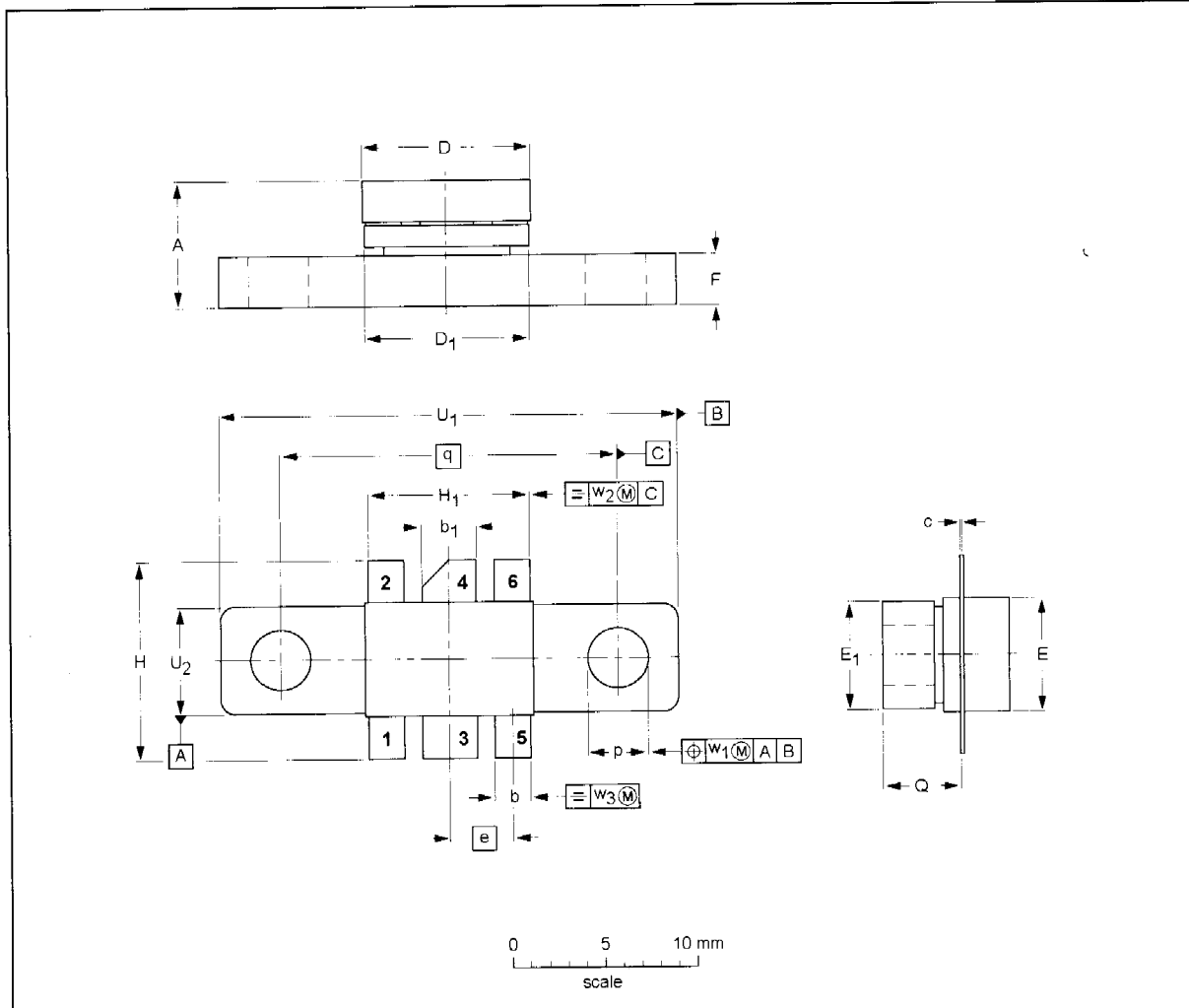
# UHF power transistor

BLV97CE

## PACKAGE OUTLINE

Flanged ceramic package; 2 mounting holes; 6 leads

SOT171A



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

UNIT	A	b	b <sub>1</sub>	c	D	D <sub>1</sub>	E	E <sub>1</sub>	e	F	H	H <sub>1</sub>	p	Q	q	U <sub>1</sub>	U <sub>2</sub>	w <sub>1</sub>	w <sub>2</sub>	w <sub>3</sub>
mm	6.81 6.07	2.15 1.85	3.20 2.89	0.16 0.07	9.25 9.04	9.30 8.99	5.95 5.74	6.00 5.70	3.58	3.05 2.54	11.31 10.54	9.27 9.01	3.43 3.17	4.32 4.11	18.42	24.90 24.63	6.00 5.70	0.51	1.02	0.26
inches	0.268 0.239	0.085 0.073	0.126 0.114	0.006 0.003	0.364 0.356	0.366 0.354	0.234 0.226	0.236 0.224	0.140	0.120 0.100	0.445 0.415	0.365 0.355	0.135 0.125	0.170 0.162	0.725	0.980 0.970	0.236 0.224	0.02	0.04	0.01

OUTLINE VERSION	REFERENCES			EUROPEAN PROJECTION	ISSUE DATE
	IEC	JEDEC	EIAJ		
SOT171A					97-06-28