

VHF power MOS transistor

BLF246

FEATURES

- High power gain
- Low noise figure
- Easy power control
- Good thermal stability
- Withstands full load mismatch.

APPLICATIONS

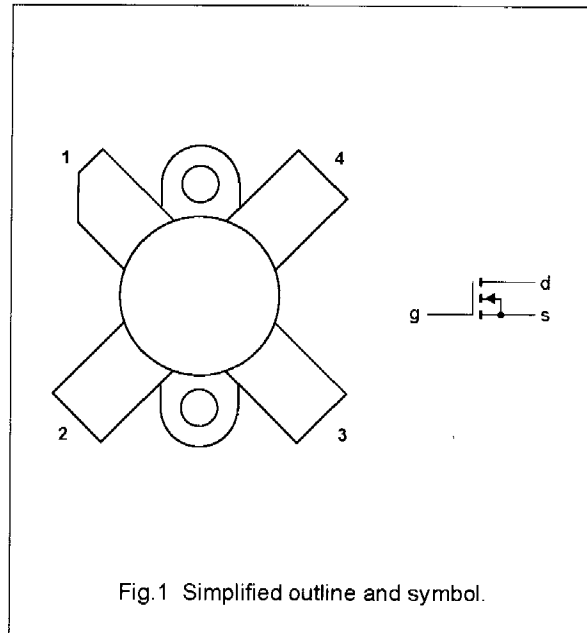
- Large signal amplifier applications in the VHF frequency range.

DESCRIPTION

Silicon N-channel enhancement mode vertical D-MOS transistor encapsulated in a 4-lead, SOT121B flange package with a ceramic cap. All leads are isolated from the flange. A marking code, showing gate-source voltage (V_{GS}) information is provided for matched pair applications. Refer to the "General" section of the handbook for further information.

PINNING - SOT121B

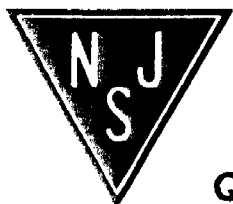
PIN	DESCRIPTION
1	drain
2	source
3	gate
4	source



QUICK REFERENCE DATA

RF performance at $T_h = 25^\circ\text{C}$ in a common source test circuit.

MODE OF OPERATION	f (MHz)	V_{DS} (V)	P_L (W)	G_p (dB)	η_D (%)
CW, class-B	108	28	80	≥ 16	≥ 55



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Quality Semi-Conductors

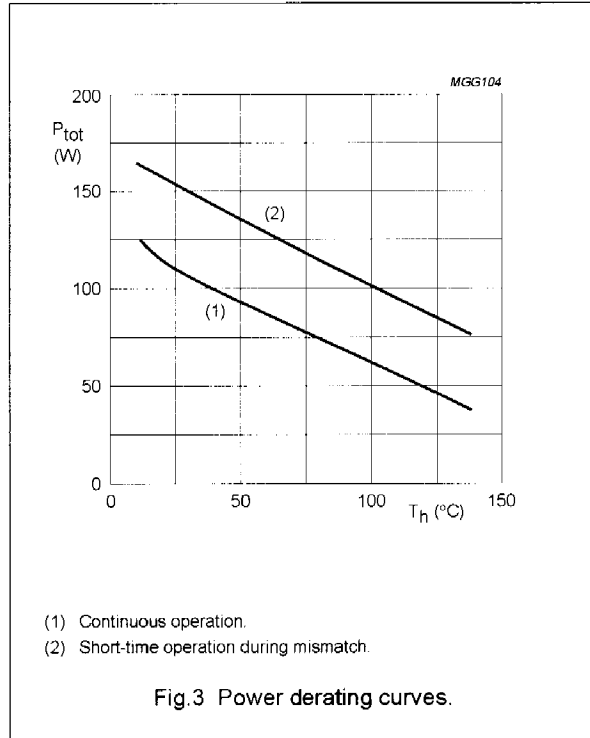
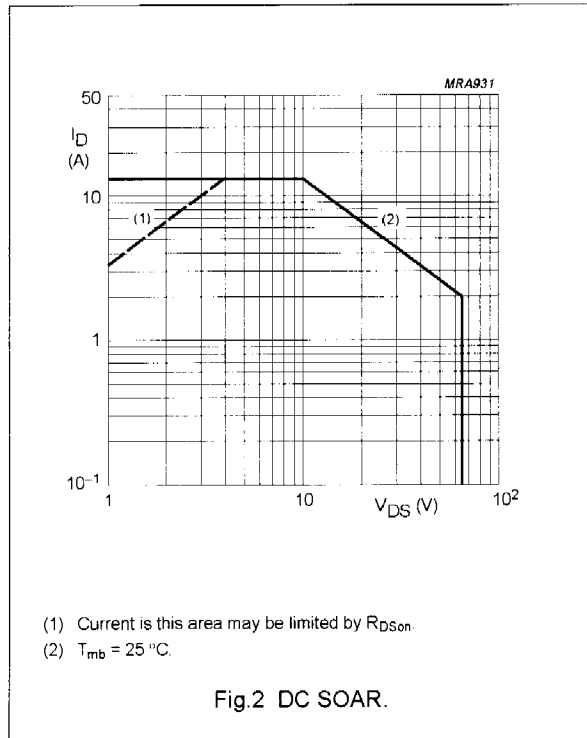
LIMITING VALUES

In accordance with the Absolute Maximum System (IEC 60134).

SYMBOL	PARAMETER	CONDITIONS	MIN.	MAX.	UNIT
V_{DS}	drain-source voltage		-	65	V
V_{GS}	gate-source voltage		-	± 20	V
I_D	DC drain current		-	13	A
P_{tot}	total power dissipation	$T_{amb} \leq 25^\circ C$	-	130	W
T_{stg}	storage temperature		-65	+150	$^\circ C$
T_j	junction temperature		-	200	$^\circ C$

THERMAL CHARACTERISTICS

SYMBOL	PARAMETER	VALUE	UNIT
$R_{th\ j-mb}$	thermal resistance from junction to mounting base	1.35	K/W
$R_{th\ mb-h}$	thermal resistance from mounting base to heatsink	0.2	K/W



CHARACTERISTICST_j = 25 °C unless otherwise specified.

SYMBOL	PARAMETER	CONDITIONS	MIN.	TYP.	MAX.	UNIT
V _{(BR)DSS}	drain-source breakdown voltage	V _{GS} = 0; I _D = 50 mA	65	–	–	V
I _{DSS}	drain-source leakage current	V _{GS} = 0; V _{DS} = 28 V	–	–	2.5	mA
I _{GSS}	gate-source leakage current	V _{GS} = ±20 V; V _{DS} = 0	–	–	1	μA
V _{GStH}	gate-source threshold voltage	I _D = 50 mA; V _{DS} = 10 V	2	–	4.5	V
ΔV _{GS}	gate-source voltage difference of matched pairs	I _D = 50 mA; V _{DS} = 10 V	–	–	100	mV
g _{fs}	forward transconductance	I _D = 2.5 A or 5 A; V _{DS} = 10 V	3	4.2	–	S
R _{DSon}	drain-source on-state resistance	I _D = 5 A; V _{GS} = 10 V	–	0.2	0.3	Ω
I _{DSX}	on-state drain current	V _{GS} = 10 V; V _{DS} = 10 V	–	22	–	A
C _{is}	input capacitance	V _{GS} = 0; V _{DS} = 28 V; f = 1 MHz	–	225	–	pF
C _{os}	output capacitance	V _{GS} = 0; V _{DS} = 28 V; f = 1 MHz	–	180	–	pF
C _{rs}	feedback capacitance	V _{GS} = 0; V _{DS} = 28 V; f = 1 MHz	–	25	–	pF

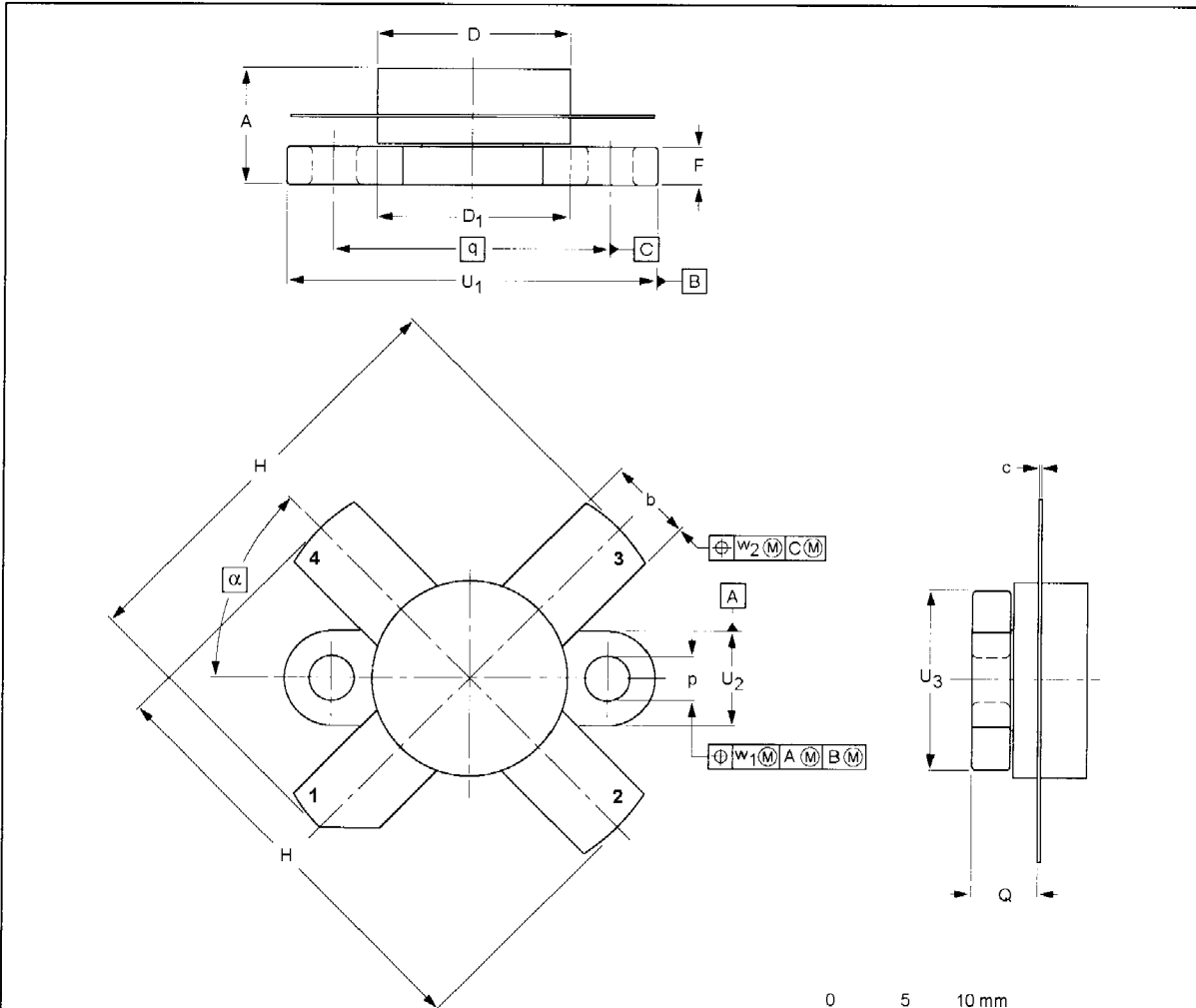
V_{GS} group indicator

GROUP	LIMITS (V)		GROUP	LIMITS (V)	
	MIN.	MAX.		MIN.	MAX.
A	2.0	2.1	O	3.3	3.4
B	2.1	2.2	P	3.4	3.5
C	2.2	2.3	Q	3.5	3.6
D	2.3	2.4	R	3.6	3.7
E	2.4	2.5	S	3.7	3.8
F	2.5	2.6	T	3.8	3.9
G	2.6	2.7	U	3.9	4.0
H	2.7	2.8	V	4.0	4.1
J	2.8	2.9	W	4.1	4.2
K	2.9	3.0	X	4.2	4.3
L	3.0	3.1	Y	4.3	4.4
M	3.1	3.2	Z	4.4	4.5
N	3.2	3.3			

PACKAGE OUTLINE

Flanged ceramic package; 2 mounting holes; 4 leads

SOT121B



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

UNIT	A	b	c	D	D ₁	F	H	p	Q	q	U ₁	U ₂	U ₃	w ₁	w ₂	α
mm	7.27	5.82	0.16	12.86	12.83	2.67	28.45	3.30	4.45	18.42	24.90	6.48	12.32	0.25	0.51	45°
	6.17	5.56	0.10	12.59	12.57	2.41	25.52	3.05	3.91		24.63	6.22	12.06			
inches	0.286	0.229	0.006	0.506	0.505	0.105	1.120	0.130	0.175	0.725	0.98	0.255	0.485	0.01	0.02	
	0.243	0.219	0.004	0.496	0.495	0.095	1.005	0.120	0.154		0.97	0.245	0.475			

OUTLINE VERSION	REFERENCES			EUROPEAN PROJECTION	ISSUE DATE
	IEC	JEDEC	EIAJ		
SOT121B					99-03-29