

HF/VHF power MOS transistor

BLF242

FEATURES

- High power gain
- Low noise
- Easy power control
- Good thermal stability
- Withstands full load mismatch
- Gold metallization ensures excellent reliability.

DESCRIPTION

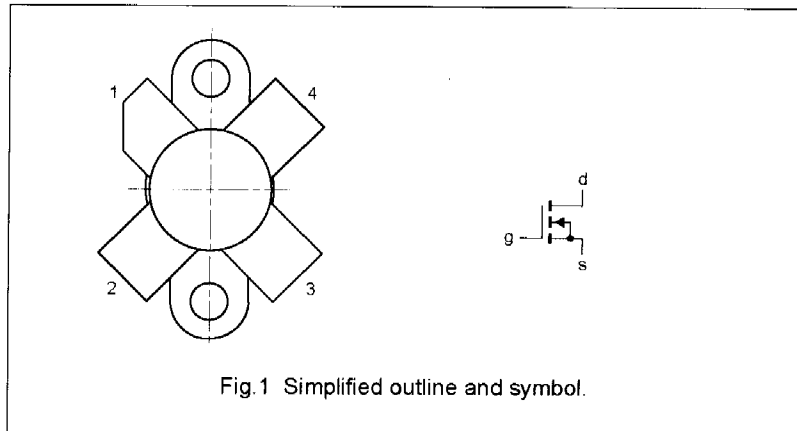
Silicon N-channel enhancement mode vertical D-MOS transistor designed for professional transmitter applications in the HF/VHF frequency range.

The transistor is encapsulated in a 4-lead, SOT123 flange envelope, with a ceramic cap. All leads are isolated from the flange.

PINNING - SOT123

PIN	DESCRIPTION
1	drain
2	source
3	gate
4	source

PIN CONFIGURATION



CAUTION

The device is supplied in an antistatic package. The gate-source input must be protected against static charge during transport and handling.

WARNING

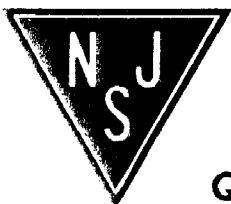
Product and environmental safety - toxic materials

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.

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	175	28	5	> 13 typ. 16	> 50 typ. 60



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

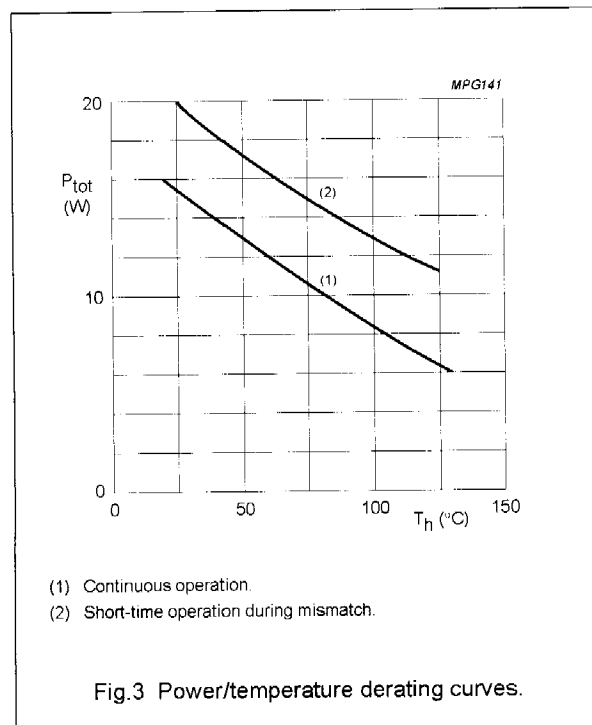
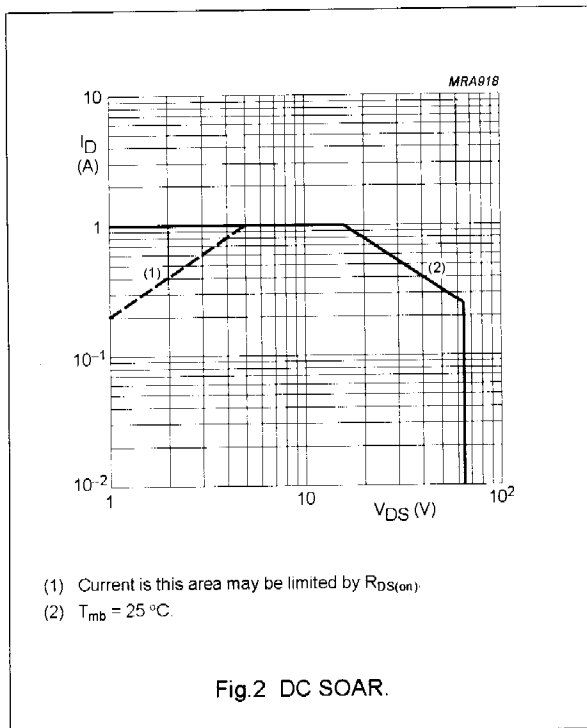
LIMITING VALUES

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

SYMBOL	PARAMETER	CONDITIONS	MIN.	MAX.	UNIT
V_{DS}	drain-source voltage		-	65	V
$\pm V_{GS}$	gate-source voltage		-	20	V
I_D	DC drain current		-	1	A
P_{tot}	total power dissipation	up to $T_{mb} = 25\text{ }^\circ\text{C}$	-	16	W
T_{stg}	storage temperature		-65	150	$^\circ\text{C}$
T_j	junction temperature		-	200	$^\circ\text{C}$

THERMAL RESISTANCE

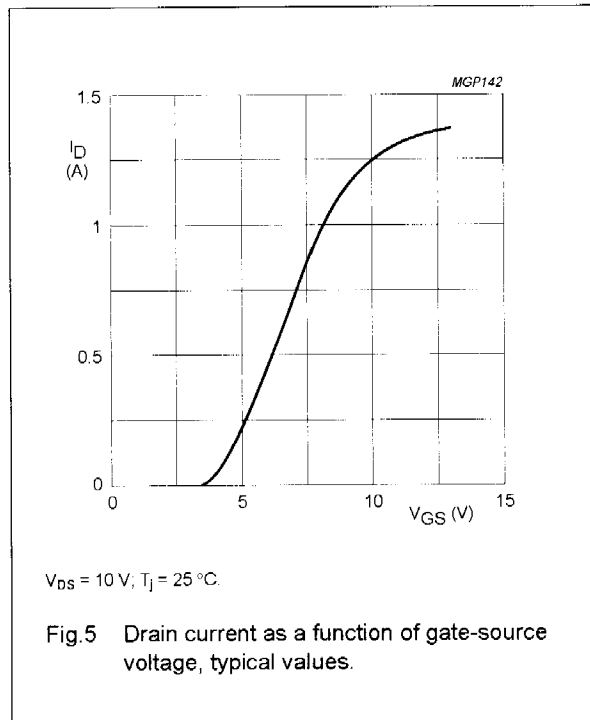
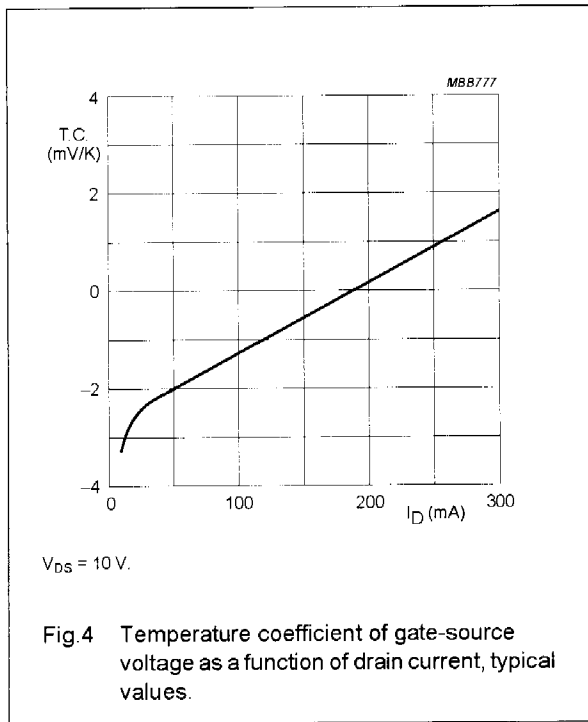
SYMBOL	PARAMETER	CONDITIONS	THERMAL RESISTANCE
$R_{th\ j-mb}$	thermal resistance from junction to mounting base	$T_{mb} = 25\text{ }^\circ\text{C}; P_{tot} = 16\text{ W}$	11 K/W
$R_{th\ mb-h}$	thermal resistance from mounting base to heatsink	$T_{mb} = 25\text{ }^\circ\text{C}; P_{tot} = 16\text{ W}$	0.3 K/W



CHARACTERISTICS

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

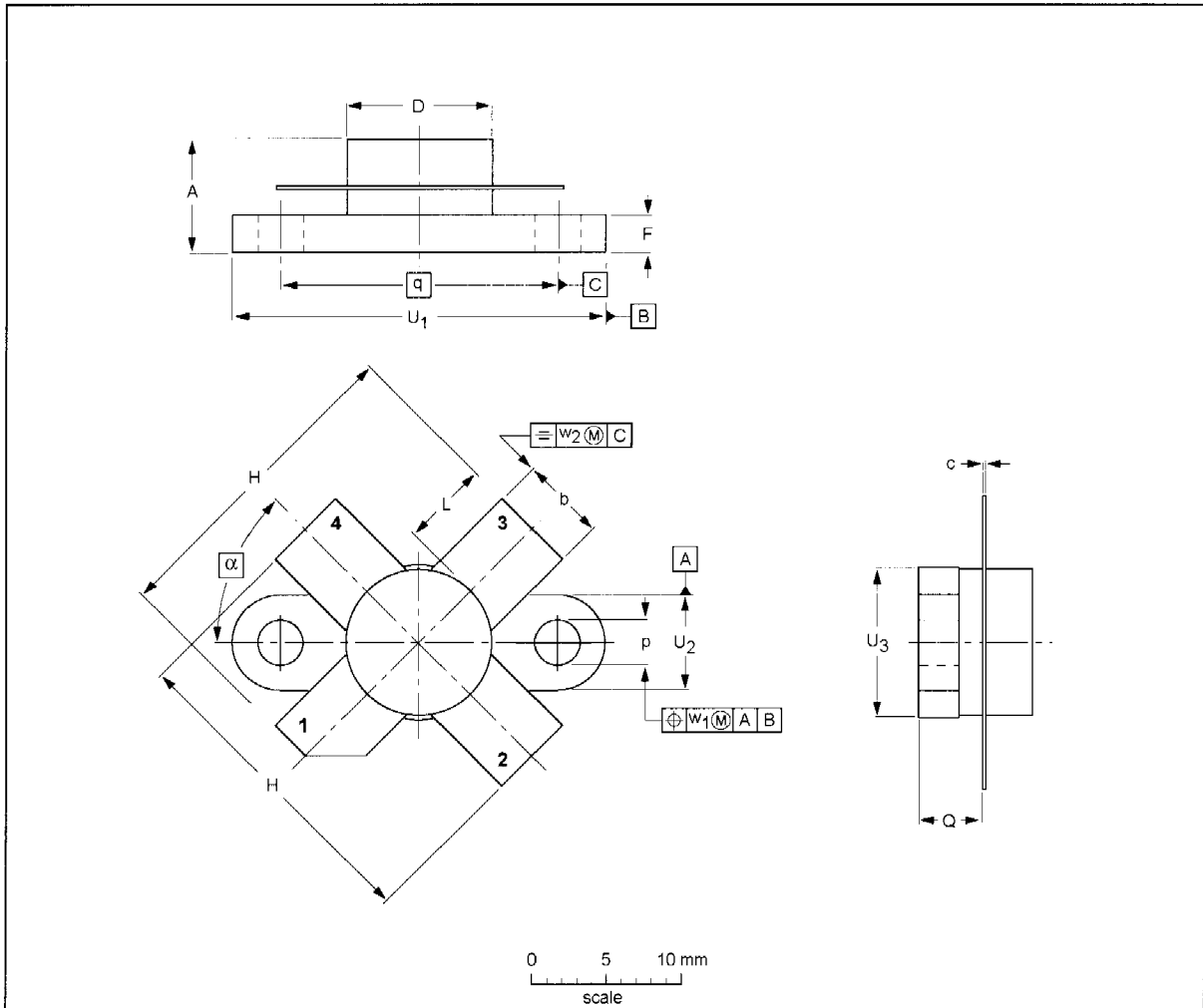
SYMBOL	PARAMETER	CONDITIONS	MIN.	TYP.	MAX.	UNIT
$V_{(BR)DSS}$	drain-source breakdown voltage	$V_{GS} = 0; I_D = 0.1\text{ mA}$	65	-	-	V
I_{DSS}	drain-source leakage current	$V_{GS} = 0; V_{DS} = 28\text{ V}$	-	-	10	μA
I_{GSS}	gate-source leakage current	$\pm V_{GS} = 20\text{ V}; V_{DS} = 0$	-	-	1	μA
$V_{GS(th)}$	gate-source threshold voltage	$I_D = 3\text{ mA}; V_{DS} = 10\text{ V}$	2	-	4.5	V
g_{fs}	forward transconductance	$I_D = 0.3\text{ A}; V_{DS} = 10\text{ V}$	0.16	0.24	-	S
$R_{DS(on)}$	drain-source on-state resistance	$I_D = 0.3\text{ A}; V_{GS} = 1\text{ V}$	-	3.3	5	Ω
I_{DSX}	on-state drain current	$V_{GS} = 10\text{ V}; V_{DS} = 10\text{ V}$	-	1.2	-	A
C_{is}	input capacitance	$V_{GS} = 0; V_{DS} = 28\text{ V}; f = 1\text{ MHz}$	-	13	-	pF
C_{os}	output capacitance	$V_{GS} = 0; V_{DS} = 28\text{ V}; f = 1\text{ MHz}$	-	9.4	-	pF
C_{rs}	feedback capacitance	$V_{GS} = 0; V_{DS} = 28\text{ V}; f = 1\text{ MHz}$	-	1.7	-	pF



PACKAGE OUTLINE

Flanged ceramic package; 2 mounting holes; 4 leads

SOT123A



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

UNIT	A	b	c	D	D ₁	F	H	L	p	Q	q	U ₁	U ₂	U ₃	w ₁	w ₂	α
mm	7.47 6.37	5.82 5.56	0.18 0.10	9.73 9.47	9.63 9.42	2.72 2.31	20.71 19.93	5.61 5.16	3.33 3.04	4.63 4.11	18.42	25.15 24.38	6.61 6.09	9.78 9.39	0.51	1.02	45°
inches	0.294 0.251	0.229 0.219	0.007 0.004	0.383 0.373	0.397 0.371	0.107 0.091	0.815 0.785	0.221 0.203	0.131 0.120	0.182 0.162	0.725	0.99 0.96	0.26 0.24	0.385 0.370	0.02	0.04	

OUTLINE VERSION	REFERENCES			EUROPEAN PROJECTION	ISSUE DATE
	IEC	JEDEC	EIAJ		
SOT123A					97-06-28