

VHF push-pull power MOS transistor

BLF278

FEATURES

- High power gain
- Easy power control
- Good thermal stability
- Gold metallization ensures excellent reliability.

APPLICATIONS

- Broadcast transmitters in the VHF frequency range.

DESCRIPTION

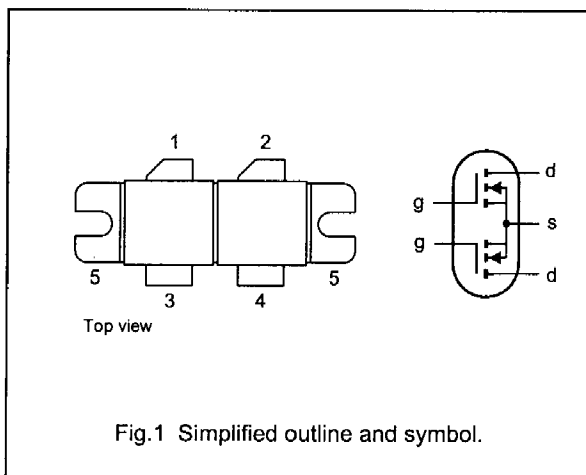
Dual push-pull silicon N-channel enhancement mode vertical D-MOS transistor encapsulated in a 4-lead, SOT262A1 balanced flange package with two ceramic caps. The mounting flange provides the common source connection for the transistors.

PINNING - SOT262A1

PIN	DESCRIPTION
1	drain 1
2	drain 2
3	gate 1
4	gate 2
5	source

CAUTION

This product is supplied in anti-static packing to prevent damage caused by electrostatic discharge during transport and handling.



QUICK REFERENCE DATA

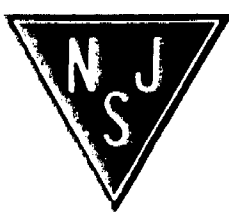
RF performance at $T_h = 25^\circ\text{C}$ in a push-pull common source test circuit.

MODE OF OPERATION	f (MHz)	V_{DS} (V)	P_L (W)	G_p (dB)	η_D (%)
CW, class-B	108	50	300	>20	>60
CW, class-C	108	50	300	typ. 18	typ. 80
CW, class-AB	225	50	250	>14 typ. 16	>50 typ. 55

WARNING

Product and environmental safety - toxic materials

This product contains beryllium oxide. The product is entirely safe provided that the BeO discs are 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.



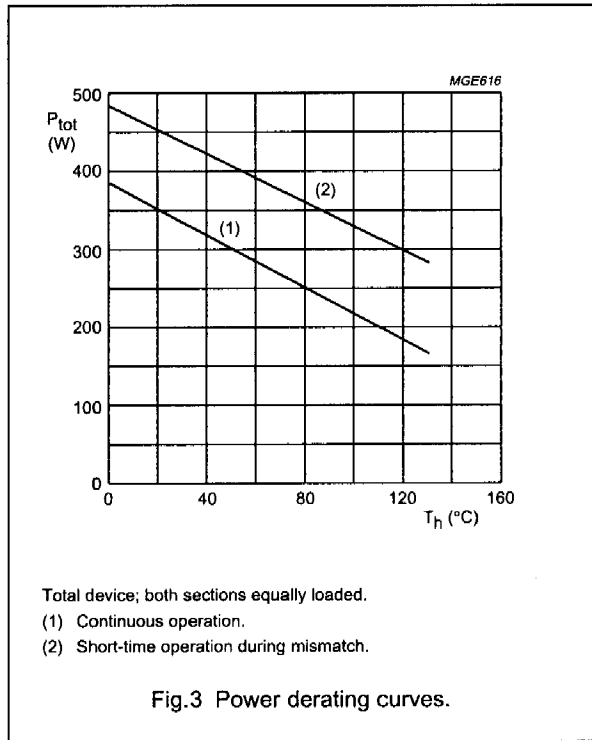
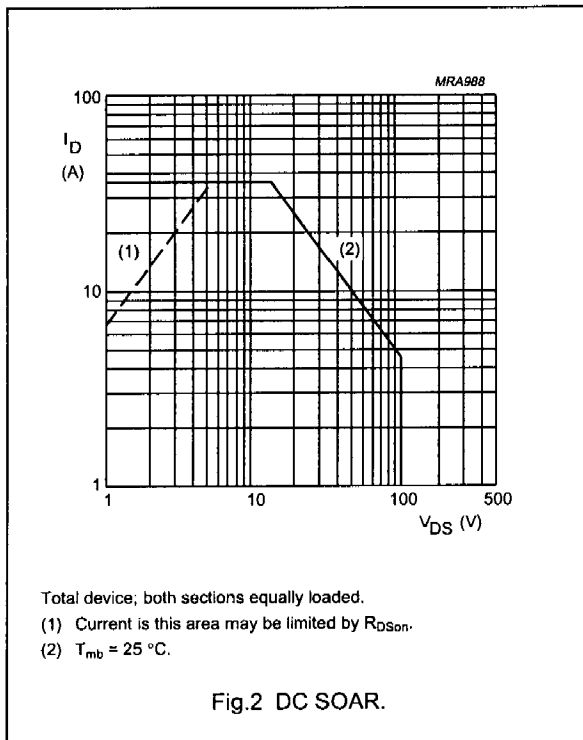
LIMITING VALUES

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

SYMBOL	PARAMETER	CONDITIONS	MIN.	MAX.	UNIT
Per transistor section					
V_{DS}	drain-source voltage		-	125	V
V_{GS}	gate-source voltage		-	±20	V
I_D	drain current (DC)		-	18	A
P_{tot}	total power dissipation	$T_{mb} \leq 25\text{ °C}$; total device; both sections equally loaded	-	500	W
T_{stg}	storage temperature		-65	150	°C
T_j	junction temperature		-	200	°C

THERMAL CHARACTERISTICS

SYMBOL	PARAMETER	CONDITIONS	VALUE	UNIT
$R_{th\ j-mb}$	thermal resistance from junction to mounting base	total device; both sections equally loaded.	max. 0.35	K/W
$R_{th\ mb-h}$	thermal resistance from mounting base to heatsink	total device; both sections equally loaded.	max. 0.15	K/W



CHARACTERISTICST_j = 25 °C unless otherwise specified.

SYMBOL	PARAMETER	CONDITIONS	MIN.	TYP.	MAX.	UNIT
Per transistor section						
V _{(BR)DSS}	drain-source breakdown voltage	V _{GS} = 0; I _D = 100 mA	125	–	–	V
I _{DSS}	drain-source leakage current	V _{GS} = 0; V _{DS} = 50 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	V _{DS} = 10 V; I _D = 50 mA	2	–	4.5	V
ΔV _{GS}	gate-source voltage difference of both sections	V _{DS} = 10 V; I _D = 50 mA	–	–	100	mV
g _{fs}	forward transconductance	V _{DS} = 10 V; I _D = 5 A	4.5	6.2	–	S
g _{fs1} /g _{fs2}	forward transconductance ratio of both sections	V _{DS} = 10 V; I _D = 5 A	0.9	–	1.1	
R _{DSon}	drain-source on-state resistance	V _{GS} = 10 V; I _D = 5 A	–	0.2	0.3	Ω
I _{DSX}	drain cut-off current	V _{GS} = 10 V; V _{DS} = 10 V	–	25	–	A
C _{is}	input capacitance	V _{GS} = 0; V _{DS} = 50 V; f = 1 MHz	–	480	–	pF
C _{os}	output capacitance	V _{GS} = 0; V _{DS} = 50 V; f = 1 MHz	–	190	–	pF
C _{fs}	feedback capacitance	V _{GS} = 0; V _{DS} = 50 V; f = 1 MHz	–	14	–	pF
C _{d-f}	drain-flange capacitance		–	5.4	–	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			