

**UHF power MOS transistor**

**BLF521**

**FEATURES**

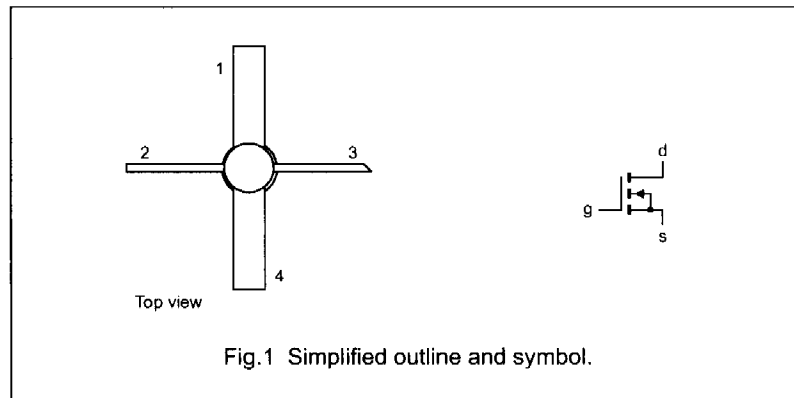
- High power gain
- Easy power control
- Gold metallization
- Good thermal stability
- Withstands full load mismatch
- Designed for broadband operation.

**DESCRIPTION**

Silicon N-channel enhancement mode vertical D-MOS transistor designed for communications transmitter applications in the UHF frequency range.

The transistor is encapsulated in a 4-lead, SOT172D studless package, with a ceramic cap. All leads are isolated from the mounting base.

**PIN CONFIGURATION**



**CAUTION**

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

**PINNING - SOT172D**

PIN	DESCRIPTION
1	source
2	gate
3	drain
4	source

**WARNING**

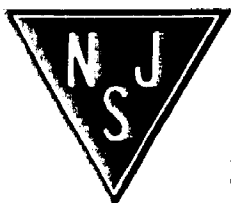
**Product and environmental safety - toxic materials**

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  $T_{amb} = 25^\circ C$  in a common source test circuit.

MODE OF OPERATION	f (MHz)	$V_{DS}$ (V)	$P_L$ (W)	$G_p$ (dB)	$\eta_D$ (%)
CW, class-B	500	12.5	2	>10	>50



**LIMITING VALUES**

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

SYMBOL	PARAMETER	CONDITIONS	MIN.	MAX.	UNIT
$V_{DS}$	drain-source voltage		–	40	V
$V_{GS}$	gate-source voltage		–	±20	V
$I_D$	drain current (DC)		–	1	A
$P_{tot}$	total power dissipation	$T_{mb} \leq 25\text{ °C}$	–	10	W
$T_{stg}$	storage temperature		–65	150	°C
$T_j$	junction temperature		–	200	°C

**THERMAL CHARACTERISTICS**

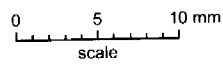
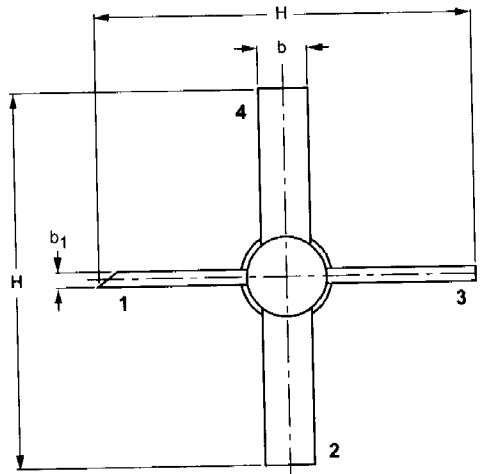
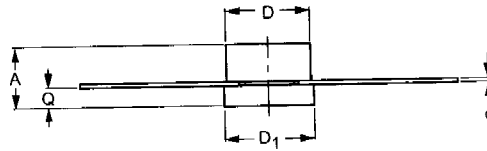
SYMBOL	PARAMETER	VALUE	UNIT
$R_{th\ j-mb}$	thermal resistance from junction to mounting base	17.5	K/W
$R_{th\ j-a}$	thermal resistance from junction to ambient; note 1	75	K/W

**CHARACTERISTICS** $T_j = 25\text{ °C}$  unless otherwise specified.

SYMBOL	PARAMETER	CONDITIONS	MIN.	TYP.	MAX.	UNIT
$V_{(BR)DSS}$	drain-source breakdown voltage	$V_{GS} = 0; I_D = 3\text{ mA}$	40	–	–	V
$I_{DSS}$	drain-source leakage current	$V_{GS} = 0; V_{DS} = 12.5\text{ V}$	–	–	10	µA
$I_{GSS}$	gate-source leakage current	$V_{GS} = \pm 20\text{ V}; V_{DS} = 0$	–	–	1	µA
$V_{GSth}$	gate-source threshold voltage	$I_D = 3\text{ mA}; V_{DS} = 10\text{ V}$	2	–	4.5	V
$g_{fs}$	forward transconductance	$I_D = 0.3\text{ A}; V_{DS} = 10\text{ V}$	80	135	–	mS
$R_{Dson}$	drain-source on-state resistance	$I_D = 0.3\text{ A}; V_{GS} = 15\text{ V}$	–	3.5	4	Ω
$I_{DSX}$	on-state drain current	$V_{GS} = 15\text{ V}; V_{DS} = 10\text{ V}$	–	1.3	–	A
$C_{is}$	input capacitance	$V_{GS} = 0; V_{DS} = 12.5\text{ V}; f = 1\text{ MHz}$	–	5.3	–	pF
$C_{os}$	output capacitance	$V_{GS} = 0; V_{DS} = 12.5\text{ V}; f = 1\text{ MHz}$	–	7.8	–	pF
$C_{rs}$	feedback capacitance	$V_{GS} = 0; V_{DS} = 12.5\text{ V}; f = 1\text{ MHz}$	–	1.8	–	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			



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

UNIT	A	b	b <sub>1</sub>	c	D	D <sub>1</sub>	H	Q
mm	3.71 2.89	3.31 3.04	0.89 0.63	0.16 0.10	5.20 4.95	5.33 5.08	26.17 24.63	1.15 0.88
inches	0.146 0.114	0.13 0.12	0.035 0.025	0.006 0.004	0.205 0.195	0.210 0.200	1.03 0.97	0.045 0.035

OUTLINE VERSION	REFERENCES		
	IEC	JEDEC	EIAJ
SOT172D			