

UHF power LDMOS transistor

BLF2045

FEATURES

- Typical 2-tone performance at a supply voltage of 26 V and I_{DQ} of 500 mA
 - Output power = 30 W (PEP)
 - Gain = 12.5 dB
 - Efficiency = 32%
 - $d_{im} = -26$ dBc
- Easy power control
- Excellent ruggedness
- High power gain
- Excellent thermal stability
- Designed for broadband operation (1800 to 2200 MHz)
- Internally matched for ease of use.

APPLICATIONS

- RF power amplifiers for GSM, EDGE, CDMA and W-CDMA base stations and multicarrier applications in the 1800 to 2200 MHz frequency range
- Broadcast drivers.

DESCRIPTION

30 W LDMOS power transistor for base station applications at frequencies from 1800 to 2200 MHz.

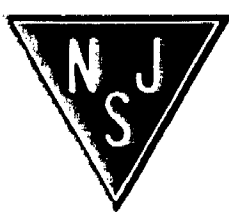
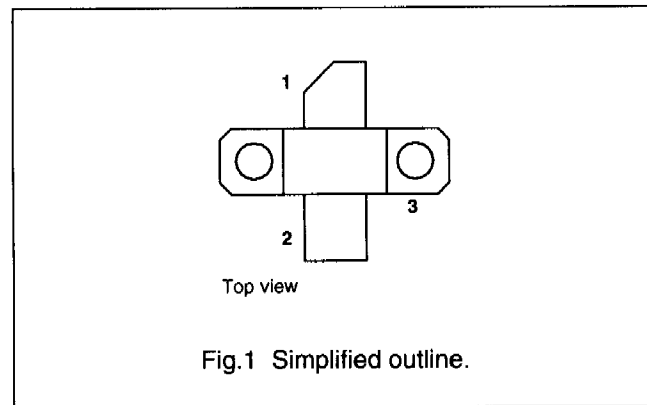
QUICK REFERENCE DATA

RF performance at $T_h = 25$ °C in a common source test circuit.

MODE OF OPERATION	f (MHz)	V_{DS} (V)	P_L (W)	G_p (dB)	η_D (%)	d_{im} (dBc)
2-tone, class-AB	$f_1 = 2000; f_2 = 2000.1$	26	30 (PEP)	>10	>30	≤ -25

PINNING - SOT467C

PIN	DESCRIPTION
1	drain
2	gate
3	source, connected to flange



LIMITING VALUES

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

SYMBOL	PARAMETER	MIN.	MAX.	UNIT
V_{DS}	drain-source voltage	–	65	V
V_{GS}	gate-source voltage	–	±15	V
I_D	drain current (DC)	–	4.5	A
T_{stg}	storage temperature	–65	+150	°C
T_j	junction temperature	–	200	°C

THERMAL CHARACTERISTICS

SYMBOL	PARAMETER	CONDITIONS	VALUE	UNIT
$R_{th\ j-h}$	thermal resistance from junction to heatsink	$P_{tot} = 87.5\text{ W}$; $T_h = 25\text{ °C}$; note 1	2.1	K/W

Note

1. Thermal resistance is determined under specified RF operating conditions.

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

SYMBOL	PARAMETER	CONDITIONS	MIN.	TYP.	MAX.	UNIT
$V_{(BR)DS}$	drain-source breakdown voltage	$V_{GS} = 0$; $I_D = 0.7\text{ mA}$	65	–	–	V
V_{GSth}	gate-source threshold voltage	$V_{DS} = 10\text{ V}$; $I_D = 70\text{ mA}$	1.5	–	3.5	V
I_{DSS}	drain-source leakage current	$V_{GS} = 0$; $V_{DS} = 26\text{ V}$	–	–	5	μA
I_{DSX}	drain cut-off current	$V_{GS} = V_{GSth} + 9\text{ V}$; $V_{DS} = 10\text{ V}$	9	–	–	A
I_{GSS}	gate leakage current	$V_{GS} = \pm 15\text{ V}$; $V_{DS} = 0$	–	–	125	nA
g_{fs}	forward transconductance	$V_{DS} = 10\text{ V}$; $I_D = 2.5\text{ A}$	–	2	–	S
R_{DSon}	drain-source on-state resistance	$V_{GS} = V_{GSth} + 9\text{ V}$; $I_D = 2.5\text{ A}$	–	340	–	mΩ
C_{iss}	input capacitance	$V_{GS} = 0$; $V_{DS} = 26\text{ V}$; $f = 1\text{ MHz}$	–	38	–	pF
C_{oss}	output capacitance	$V_{GS} = 0$; $V_{DS} = 26\text{ V}$; $f = 1\text{ MHz}$	–	31	–	pF
C_{rss}	feedback capacitance	$V_{GS} = 0$; $V_{DS} = 26\text{ V}$; $f = 1\text{ MHz}$	–	1.7	–	pF

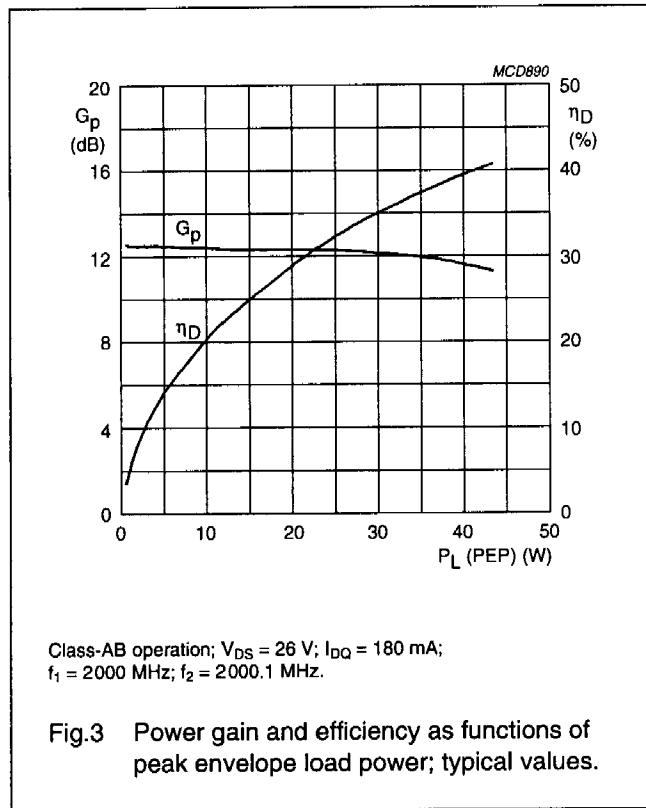
APPLICATION INFORMATION

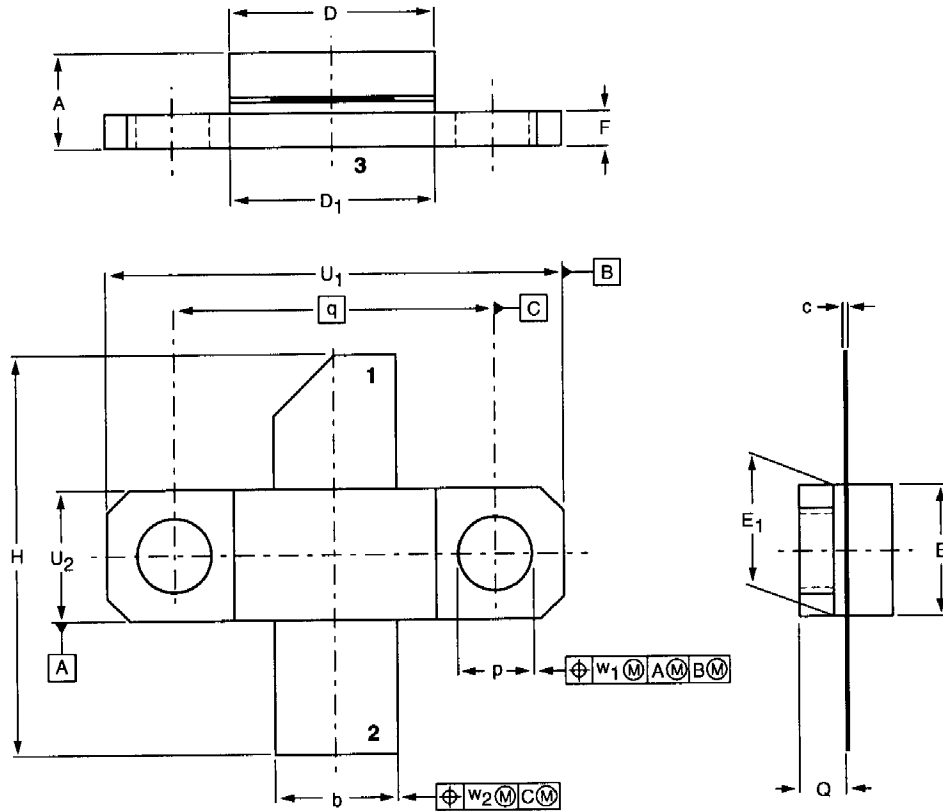
RF performance in a common source class-AB circuit. $T_h = 25\text{ }^\circ\text{C}$; $R_{th\text{ mb-h}} = 0.65\text{ K/W}$, unless otherwise specified.

MODE OF OPERATION	f (MHz)	V_{DS} (V)	I_{DQ} (mA)	P_L (W)	G_p (dB)	η_D (%)	d_{im} (dBc)
2-tone, class-AB	$f_1 = 2000$; $f_2 = 2000.1$	26	180	30 (PEP)	>10	>30	≤ -25

Ruggedness in class-AB operation

The BLF2045 is capable of withstanding a load mismatch corresponding to $VSWR = 10 : 1$ through all phases under the following conditions: $V_{DS} = 26\text{ V}$; $P_L = 30\text{ W (CW)}$; $f = 2000\text{ MHz}$.





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

UNIT	A	b	c	D	D ₁	E	E ₁	F	H	p	Q	q	U ₁	U ₂	w ₁	w ₂
mm	4.67 3.94	5.59 5.33	0.15 0.10	9.25 9.04	9.27 9.02	5.92 5.77	5.97 5.72	1.65 1.40	18.54 17.02	3.43 3.18	2.21 1.96	14.27	20.45 20.19	5.97 5.72	0.25	0.51
inch	0.184 0.155	0.220 0.210	0.006 0.004	0.364 0.356	0.365 0.355	0.233 0.227	0.235 0.225	0.065 0.055	0.73 0.67	0.135 0.125	0.087 0.077	0.562	0.805 0.795	0.235 0.225	0.010	0.020

OUTLINE VERSION	REFERENCES		
	IEC	JEDEC	EIAJ
SOT467C			