

**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.

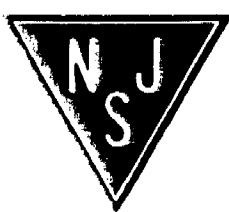
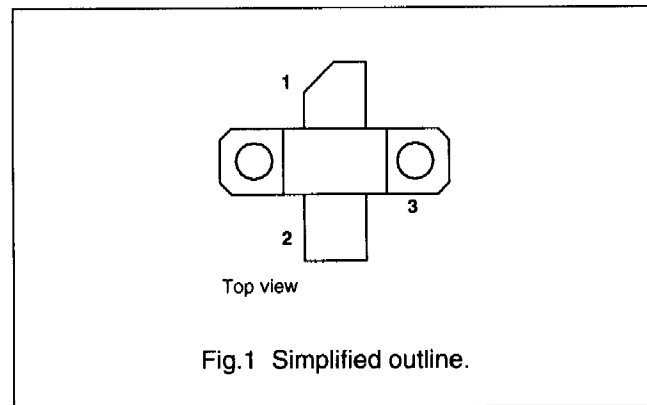
**QUICK REFERENCE DATA**

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)	$\eta_D$ (%)	$d_{im}$ (dBc)
2-tone, class-AB	$f_1 = 2000; f_2 = 2000.1$	26	30 (PEP)	>10	>30	$\leq -25$

**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

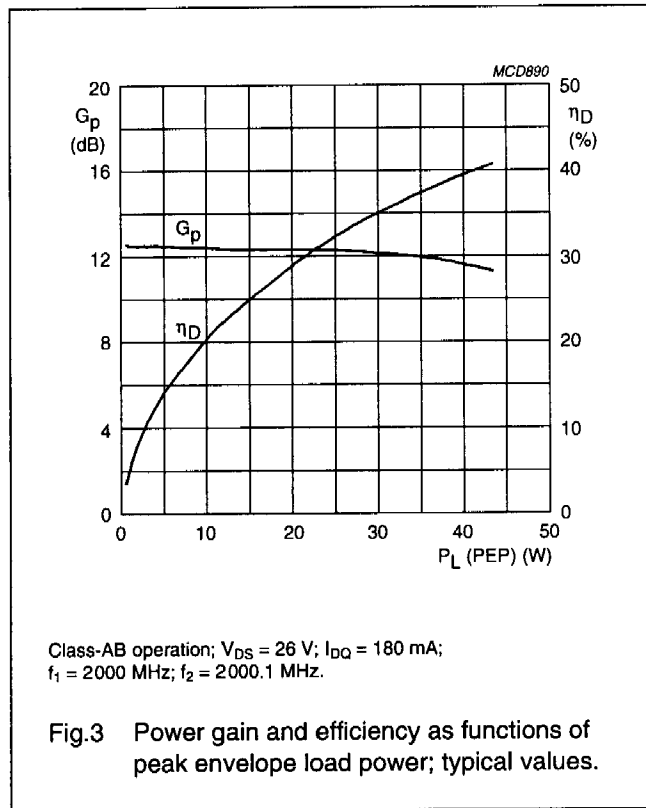
**APPLICATION INFORMATION**

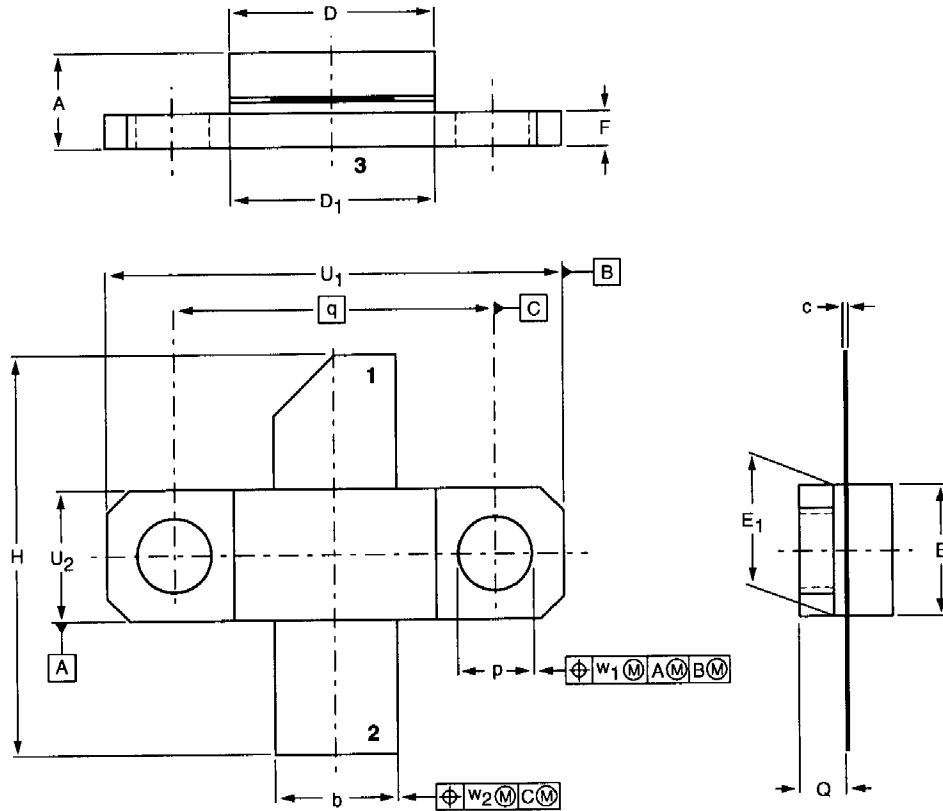
RF performance in a common source class-AB circuit.  $T_h = 25\text{ }^\circ\text{C}$ ;  $R_{th\text{ mb-h}} = 0.65\text{ K/W}$ , unless otherwise specified.

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

**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 <sub>1</sub>	E	E <sub>1</sub>	F	H	p	Q	q	U <sub>1</sub>	U <sub>2</sub>	w <sub>1</sub>	w <sub>2</sub>
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				