

# BLF8G27LS-100P

Power LDMOS transistor

Rev. 2 — 20 December 2012

Objective data sheet

## 1. Product profile

### 1.1 General description

100 W LDMOS power transistor for base station applications at frequencies from 2500 MHz to 2700 MHz.

**Table 1. Typical performance**

Typical RF performance at  $T_{case} = 25\text{ °C}$  in a common source class-AB production test circuit.

Test signal	f (MHz)	$I_{Dq}$ (mA)	$V_{DS}$ (V)	$P_{L(AV)}$ (W)	$G_p$ (dB)	$\eta_D$ (%)	ACPR <sub>5M</sub> (dBc)
Single carrier W-CDMA	2500 to 2700	860	28	25	17.5	29	-35 <sup>[1]</sup>

[1] 3GPP test model 1; 64 DPCH; PAR = 7.2 dB at 0.01 % probability on CCDF. Channel bandwidth is 3.84 MHz.

### 1.2 Features and benefits

- Excellent ruggedness
- High efficiency
- Low  $R_{th}$  providing excellent thermal stability
- Designed for broadband operation (2500 MHz to 2700 MHz)
- Lower output capacitance for improved performance in Doherty applications
- Designed for low memory effects providing excellent pre-distortability
- Internally matched for ease of use
- Integrated ESD protection
- Compliant to Directive 2002/95/EC, regarding Restriction of Hazardous Substances (RoHS)

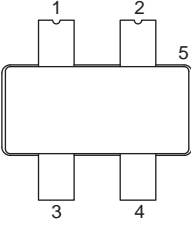
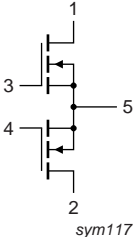
### 1.3 Applications

- RF power amplifiers for W-CDMA base stations and multi carrier applications in the 2500 MHz to 2700 MHz frequency range



## 2. Pinning information

**Table 2. Pinning**

Pin	Description	Simplified outline	Graphic symbol
1	drain1		 sym117
2	drain2		
3	gate1		
4	gate2		
5	source		

[1] Connected to flange.

## 3. Ordering information

**Table 3. Ordering information**

Type number	Package		
	Name	Description	Version
BLF8G27LS-100P	-	earless flanged ceramic package; 4 leads	SOT1121B

## 4. Limiting values

**Table 4. Limiting values**

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

Symbol	Parameter	Conditions	Min	Max	Unit
$V_{DS}$	drain-source voltage		-	65	V
$V_{GS}$	gate-source voltage		-0.5	+13	V
$T_{stg}$	storage temperature		-65	+150	°C
$T_j$	junction temperature		-	225	°C

## 5. Thermal characteristics

**Table 5. Thermal characteristics**

Symbol	Parameter	Conditions	Typ	Unit
$R_{th(j-c)}$	thermal resistance from junction to case	$T_{case} = 80\text{ °C}; P_L = <td> W$	<td>	K/W

## 6. Characteristics

**Table 6. DC characteristics**

$T_j = 25\text{ °C}$ ; per section unless otherwise specified.

Symbol	Parameter	Conditions	Min	Typ	Max	Unit
$V_{(BR)DSS}$	drain-source breakdown voltage	$V_{GS} = 0\text{ V}$ ; $I_D = 0.6\text{ mA}$	65	-	-	V
$V_{GS(th)}$	gate-source threshold voltage	$V_{DS} = 10\text{ V}$ ; $I_D = 60\text{ mA}$	1.5	<tbid>	2.3	V
$I_{DSS}$	drain leakage current	$V_{GS} = 0\text{ V}$ ; $V_{DS} = 28\text{ V}$	-	-	<tbid>	$\mu\text{A}$
$I_{DSX}$	drain cut-off current	$V_{GS} = V_{GS(th)} + 3.75\text{ V}$ ; $V_{DS} = 10\text{ V}$	-	<tbid>	-	A
$I_{GSS}$	gate leakage current	$V_{GS} = 11\text{ V}$ ; $V_{DS} = 0\text{ V}$	-	-	<tbid>	nA
$g_{fs}$	forward transconductance	$V_{DS} = 10\text{ V}$ ; $I_D = 60\text{ mA}$	-	<tbid>	-	S
$R_{DS(on)}$	drain-source on-state resistance	$V_{GS} = V_{GS(th)} + 3.75\text{ V}$ ; $I_D = 2100\text{ mA}$	-	<tbid>	-	$\Omega$

**Table 7. RF characteristics**

Test signal: single carrier W-CDMA; 3GPP test model 1; 64 DPCH; PAR = 7.2 dB at 0.01 % probability on CCDF; channel bandwidth is 3.84 MHz;  $f_1 = 2500\text{ MHz}$ ;  $f_2 = 2700\text{ MHz}$ ;

RF performance at  $V_{DS} = 28\text{ V}$ ;  $I_{Dq} = 860\text{ mA}$ ;  $T_{case} = 25\text{ °C}$ ; 2 sections combined unless otherwise specified; in a class-AB production test circuit.

Symbol	Parameter	Conditions	Min	Typ	Max	Unit
$G_p$	power gain	$P_{L(AV)} = 25\text{ W}$	<tbid>	17.5	-	dB
$RL_{in}$	input return loss	$P_{L(AV)} = 25\text{ W}$	-	-10	<tbid>	dB
$\eta_D$	drain efficiency	$P_{L(AV)} = 25\text{ W}$	<tbid>	29	-	%
$ACPR_{5M}$	adjacent channel power ratio (5 MHz)	$P_{L(AV)} = 25\text{ W}$	-	-35	<tbid>	dBc

## 7. Test information

### 7.1 Ruggedness in class-AB operation

The BLF8G27LS-100P is capable of withstanding a load mismatch corresponding to  $V_{SWR} = 10 : 1$  through all phases under the following conditions:  $V_{DS} = 28\text{ V}$ ;  $I_{Dq} = 860\text{ mA}$ ;  $P_L = 100\text{ W (CW)}$ ;  $f = 2500\text{ MHz}$ .

8. Package outline

Earless flanged ceramic package; 4 leads

SOT1121B

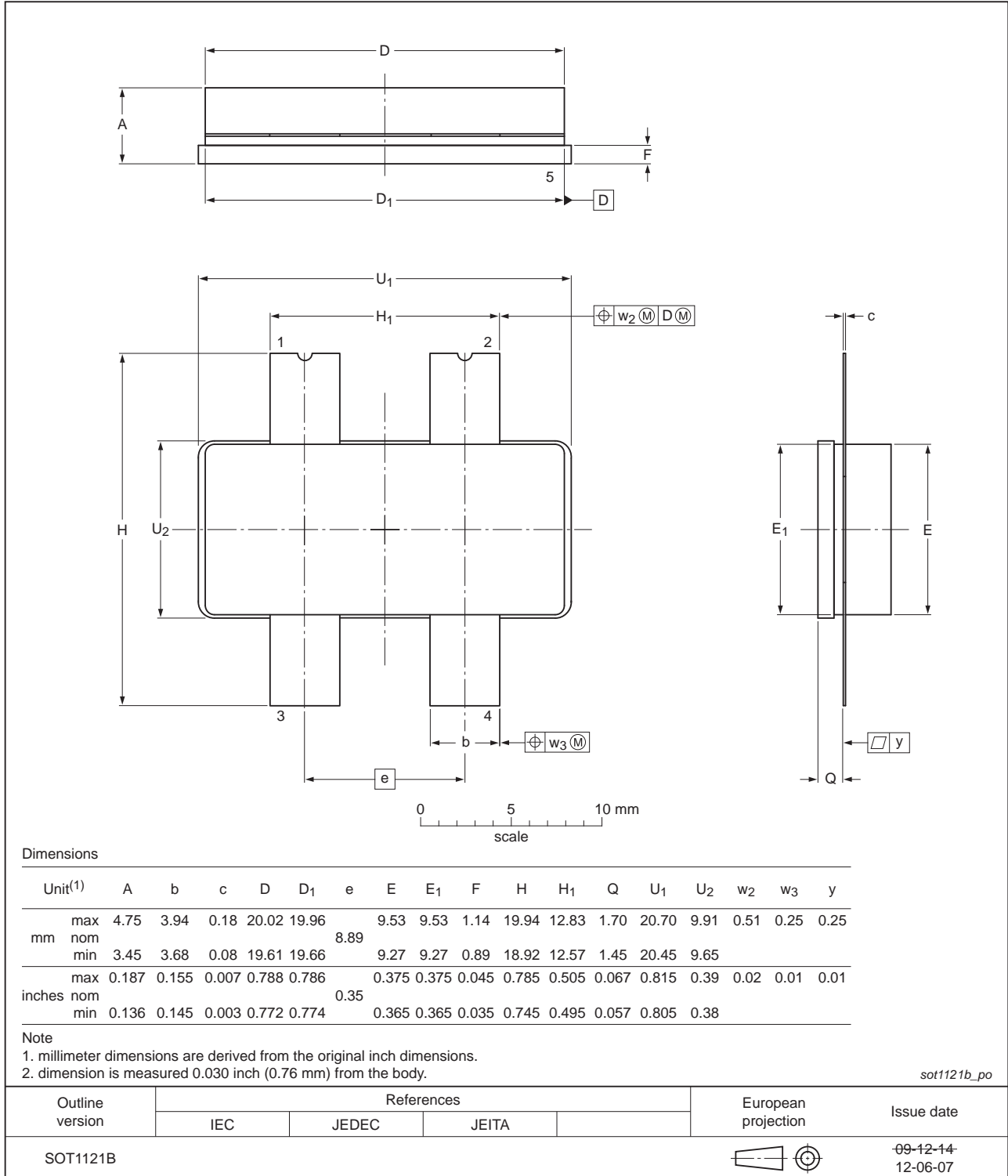


Fig 1. Package outline SOT1121B

## 9. Handling information

### CAUTION



This device is sensitive to ElectroStatic Discharge (ESD). Observe precautions for handling electrostatic sensitive devices.

Such precautions are described in the *ANSI/ESD S20.20*, *IEC/ST 61340-5*, *JESD625-A* or equivalent standards.

## 10. Abbreviations

**Table 8. Abbreviations**

Acronym	Description
3GPP	3rd Generation Partnership Project
CCDF	Complementary Cumulative Distribution Function
CW	Continuous Wave
DPCH	Dedicated Physical CHannel
ESD	ElectroStatic Discharge
LDMOS	Laterally Diffused Metal Oxide Semiconductor
PAR	Peak-to-Average Ratio
VSWR	Voltage Standing Wave Ratio
W-CDMA	Wideband Code Division Multiple Access

## 11. Revision history

**Table 9. Revision history**

Document ID	Release date	Data sheet status	Change notice	Supersedes
BLF8G27LS-100P v.2	20121220	Objective data sheet	-	BLF8G27LS-100P v.1
Modifications:				
			<ul style="list-style-type: none"> <li>• <a href="#">Table 1 on page 1</a>: table has been updated.</li> <li>• <a href="#">Table 7 on page 3</a>: table has been updated.</li> </ul>	
BLF8G27LS-100P v.1	20121203	Objective data sheet	-	-

## 12. Legal information

### 12.1 Data sheet status

Document status <sup>[1][2]</sup>	Product status <sup>[3]</sup>	Definition
Objective [short] data sheet	Development	This document contains data from the objective specification for product development.
Preliminary [short] data sheet	Qualification	This document contains data from the preliminary specification.
Product [short] data sheet	Production	This document contains the product specification.

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[2] The term 'short data sheet' is explained in section "Definitions".

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