

BLF7G27L-200PB; BLF7G27LS-200PB

Power LDMOS transistor

Rev. 1 — 5 April 2011

Objective data sheet

1. Product profile

1.1 General description

200 W LDMOS power transistor for base station applications at frequencies from 2600 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.

Mode of operation	f (MHz)	I_{DQ} (mA)	V_{DS} (V)	$P_{L(AV)}$ (W)	G_p (dB)	η_D (%)	ACPR _{885k} (dBc)
Pulsed CW	2600 to 2700	1700	28	200	16.5	25	-46

1.2 Features and benefits

- Excellent ruggedness
- High efficiency
- Low R_{th} providing excellent thermal stability
- Designed for broadband operation (2600 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 base stations and multi carrier applications in the 2600 MHz to 2700 MHz frequency range



2. Pinning information

Table 2. Pinning

Pin	Description	Simplified outline	Graphic symbol		
BLF7G27L-200PB (SOT1110A)					
1	drain1				
2	drain2				
3	gate1				
4	gate2				
5	source			[1]	
6, 7	sense drain				
8, 9	sense gate				
BLF7G27LS-200PB (SOT1110B)					
1	drain1				
2	drain2				
3	gate1				
4	gate2				
5	source	[1]			
6, 7	sense drain				
8, 9	sense gate				

[1] Connected to flange.

3. Ordering information

Table 3. Ordering information

Type number	Package		
	Name	Description	Version
BLF7G27L-200PB	-	flanged LDMOST ceramic package; 2 mounting holes; 8 leads	SOT1110A
BLF7G27LS-200PB	-	earless flanged LDMOST ceramic package; 8 leads	SOT1110B

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
I_D	drain current		-	48	A
T_{stg}	storage temperature		-65	+150	°C
T_j	junction temperature		-	200	°C

5. Thermal characteristics

Table 5. Thermal characteristics

Symbol	Parameter	Conditions	Typ	Unit
$R_{th(j-c)}$	thermal resistance from junction to case	$T_{case} = 80\text{ °C}; P_L = 200\text{ W}; T_j \leq 150\text{ °C}$	<td>	K/W

6. Characteristics

Table 6. 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	$V_{GS} = 0\text{ V}; I_D = 1.44\text{ mA}$	65	-	-	V
$V_{GS(th)}$	gate-source threshold voltage	$V_{DS} = 10\text{ V}; I_D = 144\text{ mA}$	1.5	1.9	2.3	V
I_{DSS}	drain leakage current	$V_{GS} = 0\text{ V}; V_{DS} = 28\text{ V}$	-	-	5	μA
I_{DSX}	drain cut-off current	$V_{GS} = V_{GS(th)} + 3.75\text{ V}; V_{DS} = 10\text{ V}$	-	24	-	A
I_{GSS}	gate leakage current	$V_{GS} = 11\text{ V}; V_{DS} = 0\text{ V}$	-	-	500	nA
g_{fs}	forward transconductance	$V_{DS} = 10\text{ V}; I_D = 7.2\text{ A}$	-	-	-	S
$R_{DS(on)}$	drain-source on-state resistance	$V_{GS} = V_{GS(th)} + 3.75\text{ V}; I_D = 5.04\text{ A}$	-	0.1	-	Ω

7. Test information

Remark: All testing performed in a class-AB production test circuit.

Table 7. Functional test information

Mode of operation: 1-carrier N-CDMA, single carrier IS-95 with pilot, paging, sync and 6 traffic channels (Walsh codes 8 - 13). PAR = 9.7 dB at 0.01 % probability on the CCDF, channel bandwidth is 1.2288 MHz; $f_1 = 2600\text{ MHz}; f_2 = 2700\text{ MHz};$ RF performance at $V_{DS} = 28\text{ V}; I_{Dq} = 1700\text{ mA}; T_{case} = 25\text{ °C};$ unless otherwise specified.

Symbol	Parameter	Conditions	Min	Typ	Max	Unit
$P_{L(AV)}$	average output power		-	40	-	W
G_p	power gain		-	16.5	-	dB
RL_{in}	input return loss		-	-10	-	dB
η_D	drain efficiency		-	25	-	%
$ACPR_{885k}$	adjacent channel power ratio (885 kHz)		-	-45	-	dBc

7.1 Ruggedness in class-AB operation

The BLF7G27L-200PB and BLF7G27LS-200PB are capable of withstanding a load mismatch corresponding to VSWR = 10 : 1 through all phases under the following conditions: $V_{DS} = 28\text{ V}; I_{Dq} = 1700\text{ mA}; P_L = 200\text{ W (IS-95)}; f = 2600\text{ MHz}.$

8. Package outline

Flanged LDMOST ceramic package; 2 mounting holes; 8 leads

SOT1110A

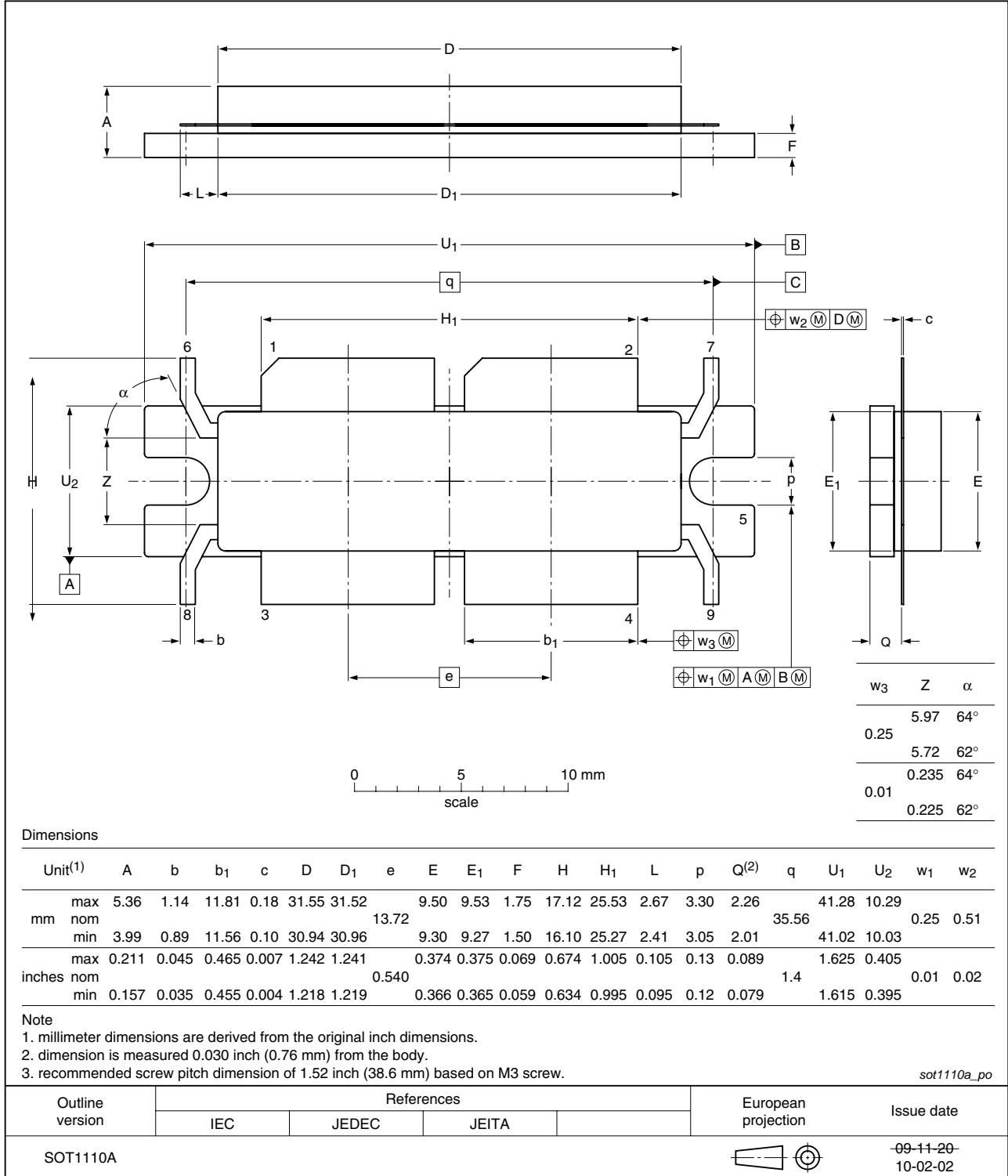


Fig 1. Package outline SOT1110A

Earless flanged LDMOST ceramic package; 8 leads

SOT1110B

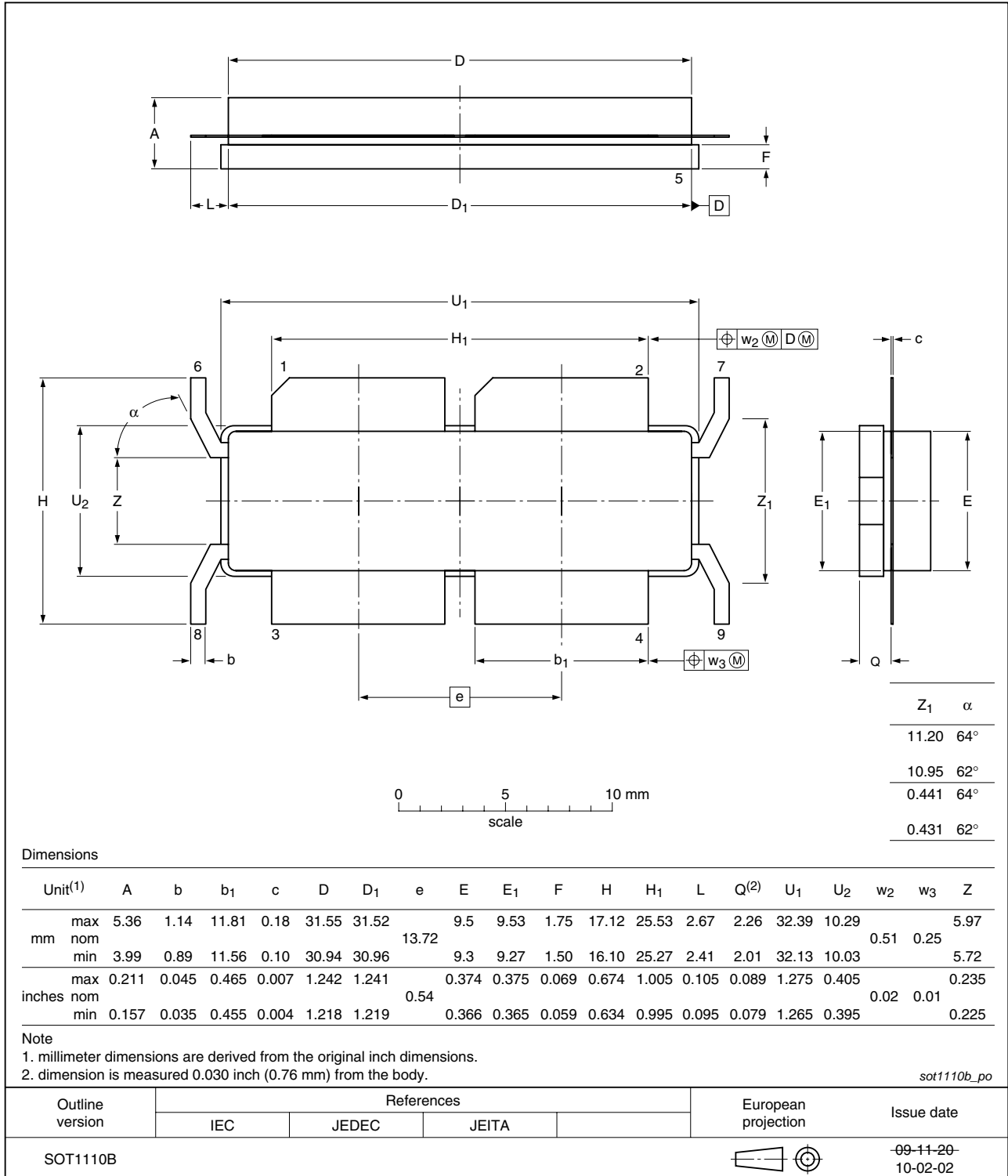


Fig 2. Package outline SOT1110B

9. Abbreviations

Table 8. Abbreviations

Acronym	Description
CCDF	Complementary Cumulative Distribution Function
CW	Continuous Wave
ESD	ElectroStatic Discharge
IS-95	Interim Standard 95
LDMOS	Laterally Diffused Metal Oxide Semiconductor
LDMOST	Laterally Diffused Metal Oxide Semiconductor Transistor
N-CDMA	Narrowband Code Division Multiple Access
PAR	Peak-to-Average power Ratio
RF	Radio Frequency
VSWR	Voltage Standing Wave Ratio

10. Revision history

Table 9. Revision history

Document ID	Release date	Data sheet status	Change notice	Supersedes
BLF7G27L-200PB_27LS-200PB v.1	20110405	Objective data sheet	-	-

11. Legal information

11.1 Data sheet status

Document status ^{[1][2]}	Product status ^[3]	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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