

SiGe:C Low Noise Amplifier MMIC for GPS, GLONASS, Galileo and Compass

Rev. 3 — 18 January 2017

Product data sheet

1. Product profile

1.1 General description

The BGU7004 is, also known as the GPS1103M, an AEC-Q100 qualified Low Noise Amplifier (LNA) for GNSS receiver applications in a plastic leadless 6-pin, extremely small SOT886 package. The BGU7004 requires only one external matching inductor and one external decoupling capacitor.

The BGU7004 adapts itself to the changing environment resulting from co-habitation of different radio systems in modern cellular handsets. It has been designed for low power consumption and optimal performance when jamming signals from co-existing cellular transmitters are present. At low jamming power levels it delivers 16.5 dB gain at a noise figure of 0.85 dB. During high jamming power levels, resulting for example from a cellular transmit burst, it temporarily increases its bias current to improve sensitivity.

1.2 Features and benefits

- AEC-Q100 qualified (see <u>Section 9.1</u>)
- Covers full GNSS L1 band, from 1559 MHz to 1610 MHz
- Noise figure (NF) = 0.85 dB and gain (G_p) = 16.5 dB
- High input 1 dB compression point P_i (1dB) of -11 dBm
- High out of band IP3_i of 9 dBm
- Supply voltage 1.5 V to 2.85 V
- Power-down mode current consumption < 1 μA</p>
- Optimized performance at low supply current of 4.5 mA
- Integrated matching for the output
- Requires only one input matching inductor and one supply decoupling capacitor
- Input and output DC decoupled
- ESD protection on all pins (HBM > 2 kV)
- Integrated temperature stabilized bias for easy design
- Small 6-pin leadless package 1 mm × 1.45 mm × 0.5 mm
- 110 GHz transit frequency SiGe:C technology

1.3 Applications

 LNA for GPS, GLONASS, Galileo and Compass (BeiDou) in automotive applications like Toll Collection and Emergency Call.



LNA for GPS, GLONASS, Galileo and Compass (BeiDou) in smart phones, feature phones, tablet PCs, Personal Navigation Devices, Digital Still Cameras, Digital Video Cameras, RF Front End modules, complete GPS chipset modules and theft protection (laptop, ATM).

1.4 Quick reference data

Table 1. Quick reference data

f = 1559 MHz to 1610 MHz; $V_{CC} = 1.8 \text{ V}$; $P_i < -40 \text{ dBm}$; $T_{amb} = 25 \text{ °C}$; input matched to 50 Ω using a 5.6 nH inductor; unless otherwise specified.

Symbo I	Parameter	Conditions		Min	Тур	Мах	Unit
V _{CC}	supply voltage	RF input AC coupled		1.5	-	2.85	V
I _{CC}	supply current	$V_{\text{ENABLE}} \ge 0.8 \text{ V}$					
		P _i < -40 dBm		3.2	4.5	5.7	mA
		$P_i = -20 \text{ dBm}$		8.1	11.6	14.4	mA
G _p	power gain	P _i < −40 dBm, no jammer		14	16.5	19	dB
		P _i = −20 dBm, no jammer		15	17.5	20	dB
NF	noise figure	P _i < −40 dBm, no jammer	[1]	-	0.85	1.2	dB
		P _i < −40 dBm, no jammer	[2]	-	0.9	1.3	dB
		P _i = −20 dBm, no jammer		-	1.2	1.6	dB
P _{i(1dB)}	input power at 1 dB	f = 1559 MHz to 1610 MHz					
	gain compression	V _{CC} = 1.5 V		-15	-12	-	dBm
		V _{CC} = 1.8 V		-14	-11	-	dBm
		V _{CC} = 2.85 V		-11	-8	-	dBm
IP3 _i	input third-order intercept point	f = 1.575 GHz					
		V _{CC} = 1.5 V	[3]	5	8	-	dBm
		V _{CC} = 1.8 V	[3]	5	9	-	dBm
		V _{CC} = 2.85 V	[3]	5	12	-	dBm

[1] PCB losses are substracted.

[2] Including PCB losses.

[3] $f_1 = 1713 \text{ MHz}; f_2 = 1851 \text{ MHz}; P_1 = P_2 = -30 \text{ dBm}.$

2. Pinning information

Table 2. Pir	nning		
Pin	Description	Simplified outline	Graphic symbol
1	GND		4 5
2	GND		\mathbf{k}^{4}
3	RF_IN		3 - 6
4	V _{cc}		
5	ENABLE		2 1 svm129
6	RF_OUT	Transparent top view	

BGU7004

All information provided in this document is subject to legal disclaimers. Rev. 3 — 18 January 2017

3. Ordering information

Table 3. Ordering information						
Type number	Package					
	Name	Description	Version			
BGU7004	XSON6	plastic extremely thin small outline package; no leads; 6 terminals; body 1 \times 1.45 \times 0.5 mm	SOT886			

4. Marking

Table 4. Marking codes	
Type number	Marking code
BGU7004	UY

5. Limiting values

Table 5.Limiting values

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

Symbol	Parameter	Conditions	Min	Max	Unit
V _{CC}	supply voltage	RF input AC coupled	-0.5	3.1	V
V _{ENABLE}	voltage on pin ENABLE	$V_{CC} \geq 2.5 \ V$	-0.5	3.1	V
		V _{CC} < 2.5 V [2]	-0.5	$V_{CC} + 0.6$	V
V _{RF_IN}	voltage on pin RF_IN	DC			
		$V_{CC} \ge 3.0 \text{ V}$ [3]	-0.5	3.6	V
		V _{CC} < 3.0 V [2][3]	-0.5	V _{CC} + 0.6	V
V _{RF_OUT}	voltage on pin RF_OUT	DC			
		$V_{CC} \ge 1.8 \text{ V}$ [3]	-0.5	3.6	V
		V _{CC} < 1.8 V [2][3]	-0.5	V _{CC} + 1.8	V
Pi	input power		-	0	dBm
P _{tot}	total power dissipation	$T_{sp} \le 130 \ ^{\circ}C$		55	mW
T _{stg}	storage temperature		-65	150	°C
Tj	junction temperature		-	150	°C

[1] T_{sp} is the temperature at the soldering point of the emitter lead.

[2] Due to internal ESD diode protection, the applied voltage should not exceed the specified maximum in order to avoid excess current.

[3] The RF input and RF output are AC coupled through internal DC blocking capacitors.

6. Thermal characteristics

ľ	Table 6.	Thermal characteristics			
	Symbol	Parameter	Conditions	Тур	Unit
	R _{th(j-sp)}	thermal resistance from junction to solder point		225	K/W

7. Characteristics

Table 7. Characteristics

f = 1559 MHz to 1610 MHz; $V_{CC} = 1.8 \text{ V}$; $V_{ENABLE} \ge 0.8 \text{ V}$; $P_i < -40 \text{ dBm}$; $T_{amb} = 25 \degree C$; input matched to 50 Ω using a 5.6 nH inductor; unless otherwise specified.

Symbol	Parameter	Conditions	Min	Тур	Max	Unit
V _{CC}	supply voltage	RF input AC coupled	1.5	-	2.85	V
I _{CC}	supply current	$V_{\text{ENABLE}} \ge 0.8 \text{ V}$			Max Max 2.85 1 5.7 1 14.4 1 +125 1 19 1 20 1 20 1 20 1 20 1 21 1 21 1 1.2 1 1.2 1 1.3 1 1.3 1 1.8 1	
		$P_i < -40 \text{ dBm}$	3.2	4.5	5.7	mA
		$P_i = -20 \text{ dBm}$	8.1	11.6	14.4	mA
		$V_{\text{ENABLE}} \leq 0.3 \text{ V}$	-	-	1	μA
T _{amb}	ambient temperature		-40	+25	+125	°C
G _p	power gain	T _{amb} = 25 °C				
		P _i < -40 dBm, no jammer	14	16.5	19	dB
		$P_i = -20 \text{ dBm}$, no jammer	15	17.5	20	dB
		Conditions Min Typ RF input AC coupled 1.5 - $V_{ENABLE} \ge 0.8 V$ - - $P_i < -40 dBm$ 3.2 4.5 $P_i = -20 dBm$ 8.1 11.6 $V_{ENABLE} \le 0.3 V$ - - ature -40 +25 $T_{amb} = 25 °C$ - - $P_i < -40 dBm, no jammer$	17.5	20	dB	
		$P_{jam} = -20 \text{ dBm}; f_{jam} = 1850 \text{ MHz}$	15	17.5	20	dB
		$-40~^{\circ}C \leq T_{amb} \leq +125~^{\circ}C$				
		P _i < -40 dBm, no jammer	13	-	20	dB
		$P_i = -20 \text{ dBm}$, no jammer	14	-	21	dB
		$P_{jam} = -20 \text{ dBm}; f_{jam} = 850 \text{ MHz}$	14	-	21	dB
		$P_{jam} = -20 \text{ dBm}; f_{jam} = 1850 \text{ MHz}$	14	-	21	dB
RL _{in}	input return loss	$P_i < -40 \text{ dBm}$	5	8	-	dB
		$P_i = -20 \text{ dBm}$	6	10	-	dB
RL _{out}	output return loss	$P_i < -40 \text{ dBm}$	10	20	-	dB
		$P_i = -20 \text{ dBm}$	10	14	-	dB
ISL	isolation		20	23	-	dB
NF	noise figure	$T_{amb} = 25 \ ^{\circ}C$				
		$P_i < -40 \text{ dBm}$, no jammer [1]	-	0.85	1.2	dB
		$P_i < -40 \text{ dBm}$, no jammer [2]	-	0.9	1.3	dB
		$P_i = -20 \text{ dBm}$, no jammer	-	1.2	1.6	dB
		$P_{jam} = -20 \text{ dBm}; f_{jam} = 850 \text{ MHz}$	-	1.1	1.5	dB
		$P_{jam} = -20 \text{ dBm}; f_{jam} = 1850 \text{ MHz}$	-	1.3	1.7	dB
		$-40~^{\circ}C \leq T_{amb} \leq +125~^{\circ}C$				
		P _i < -40 dBm, no jammer	-	-	1.8	dB
		$P_i = -20 \text{ dBm}$, no jammer	-	-	2.0	dB
		$P_{jam} = -20 \text{ dBm}; f_{jam} = 850 \text{ MHz}$	-	-	1.9	dB
		$P_{jam} = -20 \text{ dBm}; f_{jam} = 1850 \text{ MHz}$	-	-	2.1	dB

Table 7. Characteristics ...continued

f = 1559 MHz to 1610 MHz; $V_{CC} = 1.8 \text{ V}$; $V_{ENABLE} \ge 0.8 \text{ V}$; $P_i < -40 \text{ dBm}$; $T_{amb} = 25 \degree \text{C}$; input matched to 50 Ω using a 5.6 nH inductor; unless otherwise specified.

Symbol	Parameter	Conditions	Min	Тур	Max	Unit
P _{i(1dB)}	input power at 1 dB	f = 1559 MHz to 1610 MHz				
	gain compression	V _{CC} = 1.5 V	-15	-12	-	dBm
		V _{CC} = 1.8 V	-14	-11	-	dBm
		V _{CC} = 2.85 V	-11	-8	-	dBm
		f = 806 MHz to 928 MHz				
		V _{CC} = 1.5 V [3]	-15	-12	-	dBm
		V _{CC} = 1.8 V [3]	-14	-11	-	dBm
		V _{CC} = 2.85 V [3]	-14	-11	-	dBm
		f = 1612 MHz to 1909 MHz				
		V _{CC} = 1.5 V [3]	-13	-10	-	dBm
		V _{CC} = 1.8 V [3]	-12	-9	-	dBm
		V _{CC} = 2.85 V [3]	-10	-7	-	dBm
IP3 _i	input third-order intercept point	f = 1.575 GHz				
		V _{CC} = 1.5 V [4]	5	8	-	dBm
		V _{CC} = 1.8 V [4]	5	9	-	dBm
		V _{CC} = 2.85 V [4]	5	12	-	dBm
t _{on}	turn-on time	[5]	-	-	2	μs
t _{off}	turn-off time	[5]	-	-	1	μs
К	Rollett stability factor		1	-	-	

[1] PCB losses are subtracted.

- [2] Including PCB losses.
- [3] Out of band.
- [4] $f_1 = 1713 \text{ MHz}$; $f_2 = 1851 \text{ MHz}$; $P_1 = P_2 = -30 \text{ dBm}$.
- [5] Within 10 % of the final gain.

Table 8.ENABLE (pin 5)

 $-40 \circ C \le T_{amb} \le +125 \circ C; \ 1.5 \ V \le V_{CC} \le 2.85 \ V$

V _{ENABLE} (V)	State
≤ 0.3	OFF
≥ 0.8	ON

8. Application information

8.1 GNSS LNA



Table 9.List of componentsFor schematics see Figure 1.

Component	Description	Value	Supplier	Remarks
C1	decoupling capacitor	1 nF	various	
IC1	BGU7004	-	NXP	
L1	high quality matching inductor	5.6 nH	Murata LQW15A	



SiGe:C LNA MMIC for GPS, GLONASS, Galileo and Compass





All information provided in this document is subject to legal disclaimers.

© NXP Semiconductors N.V. 2017. All rights reserved. 8 of 20

SiGe:C LNA MMIC for GPS, GLONASS, Galileo and Compass







BGU7004



© NXP Semiconductors N.V. 2017. All rights reserved.

SiGe:C LNA MMIC for GPS, GLONASS, Galileo and Compass



8.2 GPS front-end

The GPS LNA is typically used in a GPS front-end. A GPS front-end application circuit and its characteristics is provided here.



Table 10.List of componentsFor schematics see Figure 32.

Component	Description	Value	Supplier	Remarks
BPF1, BPF2	GPS SAW filter	-	Murata SAFEA1G57KE0F00	Alternatives from Epcos:
				• B9444
				Alternatives from Murata:
				 SAFEA1G57KH0F00
				 SAFEA1G57KB0F00
				Alternatives from Fujitsu:
				• FAR-F6KA-1G5754-L4AA
				• FAR-F6KA-1G5754-L4AJ
C1	decoupling capacitor	1 nF	Various	
IC1	BGU7004	-	NXP	
L1	high quality matching inductor	5.6 nH	Murata LQW15A	

Product data sheet

8.3 Characteristics GPS front-end

Table 11. Characteristics GPS front-end

 $f = 1575 \text{ MHz}; V_{CC} = 1.8 \text{ V}; V_{ENABLE} \ge 0.8 \text{ V}; \text{ power at LNA input } P_i < -40 \text{ dBm}; T_{amb} = 25 \text{ °C}; \text{ input and output matched to } 50 \Omega; unless otherwise specified.}$

Symbol	Parameter	Conditions	Min	Тур	Max	Unit
V _{CC}	supply voltage	RF input AC coupled	1.5	-	2.85	V
I _{CC}	supply current		-	4.5	-	mA
G _p	power gain	power at LNA input $P_i < -40 \text{ dBm}$ [1]	-	14.5	-	dB
		power at LNA input $P_i = -20 \text{ dBm}$ [1]	-	15.5	-	dB
RL _{in}	input return loss	power at LNA input $P_i < -40 \text{ dBm}$ [1]	-	8.5	-	dB
		power at LNA input $P_i = -20 \text{ dBm}$ [1]	-	10.5	-	dB
RL _{out}	output return loss	power at LNA input $P_i < -40 \text{ dBm}$ [1]	-	14.5	-	dB
		power at LNA input $P_i = -20 \text{ dBm}$ [1]	-	12.5	-	dB
NF	noise figure	power at LNA input $P_i < -40 \text{ dBm}$ [1]	-	1.8	-	dB
		power at LNA input $P_i = -20 \text{ dBm}$ [1]	-	1.9	-	dB
P _{i(1dB)}	input power at 1 dB gain compression	f = 1575 MHz		-8.2		dBm
		f = 806 MHz to 928 MHz [2]		31		dBm
		f = 1612 MHz to 1909 MHz [2]		40		dBm
IP3 _i	input third-order intercept point	[3]		64		dBm
α	attenuation	f = 850 MHz [4]	95	-	-	dBc
		f = 1850 MHz [4]	90	-	-	dBc
t _{on}	turn-on time	[5]	-	-	2	μs
t _{off}	turn-off time	[5]	-	-	1	μs

[1] Power at GPS front-end input = power at LNA input + attenuation BPF1.

[2] Out of band.

[3] $f_1 = 1713 \text{ MHz}; f_2 = 1851 \text{ MHz}; P_1 = P_2 = +10 \text{ dBm}.$

[4] Relative to f = 1575 MHz.

[5] Within 10 % of the final gain.

9. Test information

9.1 Quality information

All qualification tests are performed according AEC-Q100 except for read point testing (final test of qualification sample). Which is done only at room temperature.

As part of the zero defect program, the following is part of the industrial test flow:

- Part Average Testing
- Maverick Lot Handling at assembly factory

BGU7004

10. Package outline



Fig 33. Package outline SOT886 (XSON6)

BGU7004

All information provided in this document is subject to legal disclaimers. Rev. 3 — 18 January 2017

11. 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.

12. Abbreviations

Table 12. Abbreviations				
Acronym	Description			
AEC	Automotive Electronics Council			
ATM	Automated Teller Machine (cash dispenser)			
BPF	Band-Pass Filter			
ESD	ElectroStatic Discharge			
GLONASS	GLObal NAvigation Satellite System			
GNSS	Global Navigation Satellite System			
GPS	Global Positioning System			
HBM	Human Body Model			
MMIC	Monolithic Microwave Integrated Circuit			
РСВ	Printed Circuit Board			
SAW	Surface Acoustic Wave			
SiGe:C	Silicon Germanium Carbon			

13. Revision history

Table 13. Revision history						
Document ID	Release date	Data sheet status	Change notice	Supersedes		
BGU7004 v.3	20170118	Product data sheet	-	BGU7004 v.2		
Modifications:	<u>Section 1</u> : added GPS1103M according to our new naming convention					
BGU7004 v.2	20150220	Product data sheet	-	BGU7004 v.1		
Modifications:	The title of this data sheet has been changed.					
	 <u>Section 1.3 on page 1</u>: Added GLONASS, Galileo and Compass (BeiDou) to the possible applications. 					
	 <u>Section 11 on page 17</u>: ESD information has moved from Section 1.1 to this section. 					
	 <u>Section 14.3 on page 18</u>: Adjusted the disclaimers with respect to "suitability to use in automotive applications" and "Translations". 					
BGU7004 v.1	20110705	Product data sheet	-	-		

Product data sheet

14. Legal information

14.1 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.

[1] Please consult the most recently issued document before initiating or completing a design.

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

[3] The product status of device(s) described in this document may have changed since this document was published and may differ in case of multiple devices. The latest product status information is available on the Internet at URL http://www.nxp.com.

14.2 Definitions

Draft — The document is a draft version only. The content is still under internal review and subject to formal approval, which may result in modifications or additions. NXP Semiconductors does not give any representations or warranties as to the accuracy or completeness of information included herein and shall have no liability for the consequences of use of such information.

Short data sheet — A short data sheet is an extract from a full data sheet with the same product type number(s) and title. A short data sheet is intended for quick reference only and should not be relied upon to contain detailed and full information. For detailed and full information see the relevant full data sheet, which is available on request via the local NXP Semiconductors sales office. In case of any inconsistency or conflict with the short data sheet, the full data sheet shall prevail.

Product specification — The information and data provided in a Product data sheet shall define the specification of the product as agreed between NXP Semiconductors and its customer, unless NXP Semiconductors and customer have explicitly agreed otherwise in writing. In no event however, shall an agreement be valid in which the NXP Semiconductors product is deemed to offer functions and qualities beyond those described in the Product data sheet.

14.3 Disclaimers

Limited warranty and liability — Information in this document is believed to be accurate and reliable. However, NXP Semiconductors does not give any representations or warranties, expressed or implied, as to the accuracy or completeness of such information and shall have no liability for the consequences of use of such information. NXP Semiconductors takes no responsibility for the content in this document if provided by an information source outside of NXP Semiconductors.

In no event shall NXP Semiconductors be liable for any indirect, incidental, punitive, special or consequential damages (including - without limitation - lost profits, lost savings, business interruption, costs related to the removal or replacement of any products or rework charges) whether or not such damages are based on tort (including negligence), warranty, breach of contract or any other legal theory.

Notwithstanding any damages that customer might incur for any reason whatsoever, NXP Semiconductors' aggregate and cumulative liability towards customer for the products described herein shall be limited in accordance with the *Terms and conditions of commercial sale* of NXP Semiconductors.

Right to make changes — NXP Semiconductors reserves the right to make changes to information published in this document, including without limitation specifications and product descriptions, at any time and without notice. This document supersedes and replaces all information supplied prior to the publication hereof.

Suitability for use in automotive applications - This NXP

Semiconductors product has been qualified for use in automotive applications. Unless otherwise agreed in writing, the product is not designed, authorized or warranted to be suitable for use in life support, life-critical or safety-critical systems or equipment, nor in applications where failure or malfunction of an NXP Semiconductors product can reasonably be expected to result in personal injury, death or severe property or environmental damage. NXP Semiconductors and its suppliers accept no liability for inclusion and/or use of NXP Semiconductors products in such equipment or applications and therefore such inclusion and/or use is at the customer's own risk.

Applications — Applications that are described herein for any of these products are for illustrative purposes only. NXP Semiconductors makes no representation or warranty that such applications will be suitable for the specified use without further testing or modification.

Customers are responsible for the design and operation of their applications and products using NXP Semiconductors products, and NXP Semiconductors accepts no liability for any assistance with applications or customer product design. It is customer's sole responsibility to determine whether the NXP Semiconductors product is suitable and fit for the customer's applications and products planned, as well as for the planned application and use of customer's third party customer(s). Customers should provide appropriate design and operating safeguards to minimize the risks associated with their applications and products.

NXP Semiconductors does not accept any liability related to any default, damage, costs or problem which is based on any weakness or default in the customer's applications or products, or the application or use by customer's third party customer(s). Customer is responsible for doing all necessary testing for the customer's applications and products using NXP Semiconductors products in order to avoid a default of the applications and the products or of the application or use by customer's third party customer(s). NXP does not accept any liability in this respect.

Limiting values — Stress above one or more limiting values (as defined in the Absolute Maximum Ratings System of IEC 60134) will cause permanent damage to the device. Limiting values are stress ratings only and (proper) operation of the device at these or any other conditions above those given in the Recommended operating conditions section (if present) or the Characteristics sections of this document is not warranted. Constant or repeated exposure to limiting values will permanently and irreversibly affect the quality and reliability of the device.

Terms and conditions of commercial sale — NXP Semiconductors products are sold subject to the general terms and conditions of commercial sale, as published at http://www.nxp.com/profile/terms, unless otherwise agreed in a valid written individual agreement. In case an individual agreement is concluded only the terms and conditions of the respective agreement shall apply. NXP Semiconductors hereby expressly objects to applying the customer's general terms and conditions with regard to the purchase of NXP Semiconductors products by customer.

BGU7004

All information provided in this document is subject to legal disclaimers.

No offer to sell or license — Nothing in this document may be interpreted or construed as an offer to sell products that is open for acceptance or the grant, conveyance or implication of any license under any copyrights, patents or other industrial or intellectual property rights.

Export control — This document as well as the item(s) described herein may be subject to export control regulations. Export might require a prior authorization from competent authorities.

Quick reference data — The Quick reference data is an extract of the product data given in the Limiting values and Characteristics sections of this document, and as such is not complete, exhaustive or legally binding.

15. Contact information

For more information, please visit: http://www.nxp.com

For sales office addresses, please send an email to: salesaddresses@nxp.com

Translations — A non-English (translated) version of a document is for reference only. The English version shall prevail in case of any discrepancy between the translated and English versions.

14.4 Trademarks

Notice: All referenced brands, product names, service names and trademarks are the property of their respective owners.

16. Contents

1	Product profile 1
1.1	General description
1.2	Features and benefits 1
1.3	Applications
1.4	Quick reference data 2
2	Pinning information 2
3	Ordering information 3
4	Marking 3
5	Limiting values 3
6	Thermal characteristics 3
7	Characteristics 4
8	Application information 6
8.1	GNSS LNA
8.2	GPS front-end
8.3	Characteristics GPS front-end 15
9	Test information 15
9.1	Quality information 15
10	Package outline 16
11	Handling information 17
12	Abbreviations 17
13	Revision history 17
14	Legal information 18
14.1	Data sheet status 18
14.2	Definitions
14.3	Disclaimers 18
14.4	Trademarks 19
15	Contact information 19
16	Contents

Please be aware that important notices concerning this document and the product(s) described herein, have been included in section 'Legal information'.

© NXP Semiconductors N.V. 2017.

All rights reserved.

For more information, please visit: http://www.nxp.com For sales office addresses, please send an email to: salesaddresses@nxp.com

Date of release: 18 January 2017 Document identifier: BGU7004



Компания «ЭлектроПласт» предлагает заключение долгосрочных отношений при поставках импортных электронных компонентов на взаимовыгодных условиях!

Наши преимущества:

- Оперативные поставки широкого спектра электронных компонентов отечественного и импортного производства напрямую от производителей и с крупнейших мировых складов;
- Поставка более 17-ти миллионов наименований электронных компонентов;
- Поставка сложных, дефицитных, либо снятых с производства позиций;
- Оперативные сроки поставки под заказ (от 5 рабочих дней);
- Экспресс доставка в любую точку России;
- Техническая поддержка проекта, помощь в подборе аналогов, поставка прототипов;
- Система менеджмента качества сертифицирована по Международному стандарту ISO 9001;
- Лицензия ФСБ на осуществление работ с использованием сведений, составляющих государственную тайну;
- Поставка специализированных компонентов (Xilinx, Altera, Analog Devices, Intersil, Interpoint, Microsemi, Aeroflex, Peregrine, Syfer, Eurofarad, Texas Instrument, Miteq, Cobham, E2V, MA-COM, Hittite, Mini-Circuits, General Dynamics и др.);

Помимо этого, одним из направлений компании «ЭлектроПласт» является направление «Источники питания». Мы предлагаем Вам помощь Конструкторского отдела:

- Подбор оптимального решения, техническое обоснование при выборе компонента;
- Подбор аналогов;
- Консультации по применению компонента;
- Поставка образцов и прототипов;
- Техническая поддержка проекта;
- Защита от снятия компонента с производства.



Как с нами связаться

Телефон: 8 (812) 309 58 32 (многоканальный) **Факс:** 8 (812) 320-02-42 **Электронная почта:** <u>org@eplast1.ru</u> **Адрес:** 198099, г. Санкт-Петербург, ул. Калинина, дом 2, корпус 4, литера А.