

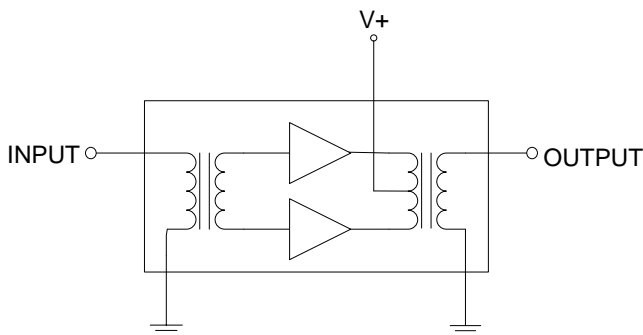
Product Overview

The QPA3223 is a Hybrid Power Doubler amplifier module. The part employs GaAs pHEMT and GaN pHEMT die, has high output capability, and is operated from 45 MHz to 1003 MHz. It provides excellent linearity and superior return loss performance with low noise and optimal reliability.



SOT-115J Package

Functional Block Diagram



Key Features

- Low Current
- Excellent Linearity
- Superior Return Loss Performance
- Extremely Low Distortion
- Optimal Reliability
- Unconditionally Stable Under All Terminations
- 22.5 dB Min. Gain at 1003 MHz
- 410 mA Max.

Applications

- 45 to 1003 MHz CATV Amplifier Systems

Ordering Information

Part No.	Description
QPA3223	Box with 50 pcs

Absolute Maximum Ratings

Parameter	Value / Range
RF Input Voltage (single tone)	75 dBmV
DC Supply Over-Voltage (5 minutes)	+30 V
Storage Temperature	-40 to 100 °C
Operating Mounting Base Temperature	-30 to 100 °C

Exceeding any one or a combination of the Absolute Maximum Rating conditions may cause permanent damage to the device. Extended application of Absolute Maximum Rating conditions to the device may reduce device reliability.

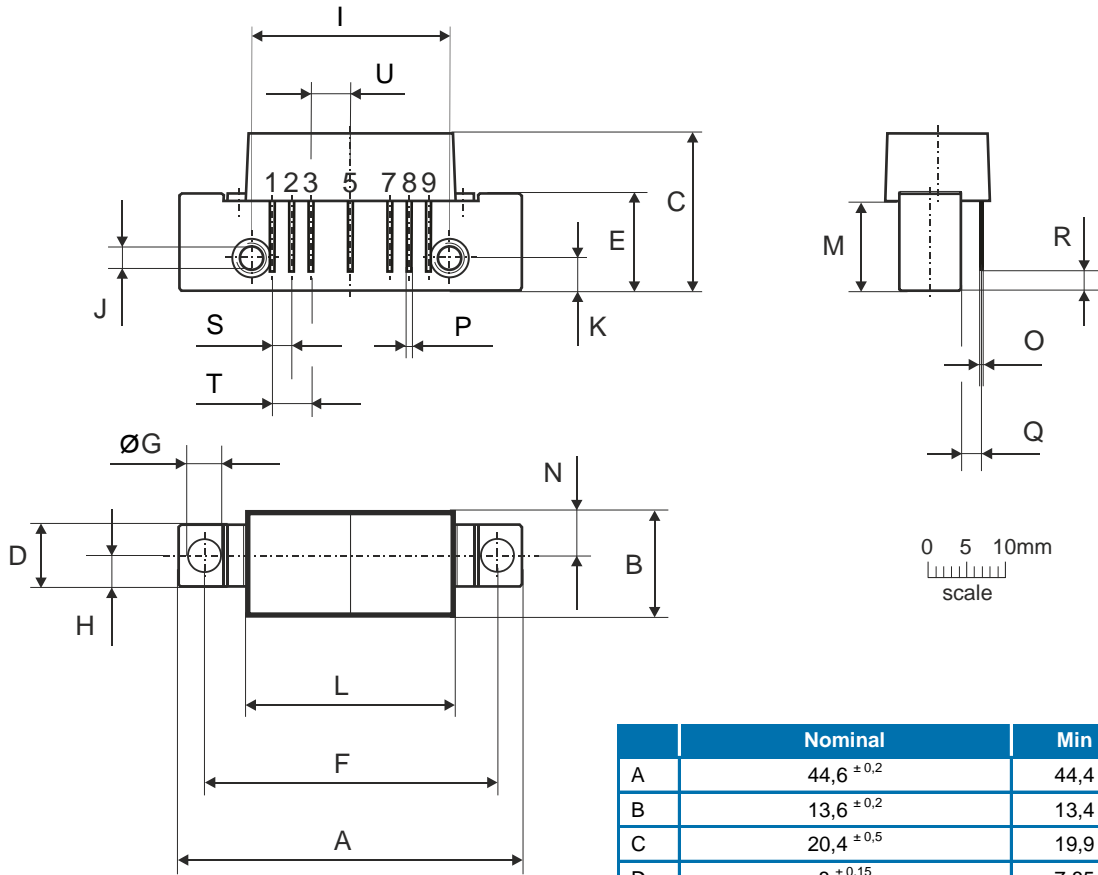
Electrical Specifications

Parameter	Conditions: V+ = 24 V, T _{MB} = 30 °C, Z _S = Z _L = 75 Ω	Min	Typ	Max	Unit
Operational Frequency Range		45		1003	MHz
Gain	f = 45 MHz	21.0	21.5	22.0	dB
	f = 1003 MHz	22.5	23.0	24.0	dB
Gain Slope	45 to 1003 MHz ^[1]	1.0	1.5	2.5	dB
Flatness of Frequency Response	45 to 1003 MHz (Peak to Valley)			0.8	dB
Input Return Loss	f = 45 to 320 MHz	20.0			dB
	f = 320 to 640 MHz	19.0			dB
	f = 640 to 870 MHz	18.0			dB
	f = 870 to 1003 MHz	16.0			dB
Output Return Loss	f = 45 to 320 MHz	20.0			dB
	f = 320 to 640 MHz	19.0			dB
	f = 640 to 870 MHz	18.0			dB
	f = 870 to 1003 MHz	17.0			dB
Noise Figure	f = 50 to 1003 MHz		3.0	4.0	dB
Total Current Consumption (DC)			400	410	mA
CTB	NTSC 79 ch. Analog, 50 dBmV @ 547.25 MHz, 7 dB tilt, plus 75 J.83/B QAM256 channels from 552 to 1002 MHz, -6 dB offset relative to the equivalent analog carrier; (equivalent to virtually 56.4 dBmV @ 999 MHz; 13.4 dB tilt) ^[2]		-70	-67	dBc
XMOD			-65	-62	dBc
CSO			-71	-68	dBc
CIN		58	62		dB

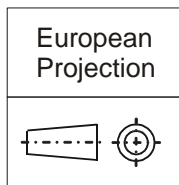
Notes:

1. The slope is defined as the difference between the gain at the start frequency and the gain at the stop frequency.
2. Composite Triple Beat (CTB) parameter is defined by the SCTE 06.
Cross-modulation (XMOD) is defined by the SCTE 58, referenced to 100% modulation of the carrier being tested.
Composite Second Order (CSO) is defined by the SCTE 06.
Carrier to Intermodulation Noise (CIN) is defined by ANSI/SCTE 17 2007.

Package Drawing (Dimensions in millimeters)



Notes:



Pinning:

Pin	Name
1	Input
2-3	GND
4	
5	V+
6	
7-8	GND
9	Output

	Nominal	Min	Max
A	44,6 ± 0,2	44,4	44,8
B	13,6 ± 0,2	13,4	13,8
C	20,4 ± 0,5	19,9	20,9
D	8 ± 0,15	7,85	8,15
E	12,6 ± 0,15	12,45	12,75
F	38,1 ± 0,2	37,9	38,3
G	4 ^{+0,2 / -0,05}	3,95	4,2
H	4 ± 0,2	3,8	4,2
I	25,4 ± 0,2	25,2	25,6
J	UNC 6-32	-	-
K	4,2 ± 0,2	4,0	4,4
L	27,2 ± 0,2	27,0	27,4
M	11,6 ± 0,5	11,1	12,1
N	5,8 ± 0,4	5,4	6,2
O	0,25 ± 0,02	0,23	0,27
P	0,45 ± 0,03	0,42	0,48
Q	2,54 ± 0,3	2,24	2,84
R	2,54 ± 0,5	2,04	3,04
S	2,54 ± 0,25	2,29	2,79
T	5,08 ± 0,25	4,83	5,33
U	5,08 ± 0,25	4,83	5,33

Handling Precautions

Parameter	Rating	Standard
ESD – Human Body Model (HBM)	1C	ANSI/ESDA/JEDEC JS-001
ESD – Charged Device Model (CDM)	C3	ANSI/ESDA/JEDEC JS-002



Caution!
ESD-Sensitive Device

RoHS Compliance

This part is compliant with 2011/65/EU RoHS directive (Restrictions on the Use of Certain Hazardous Substances in Electrical and Electronic Equipment) as amended by Directive 2015/863/EU.

Contact Information

For the latest specifications, additional product information, worldwide sales and distribution locations:

Web: www.qorvo.com

Tel: 1-844-890-8163

Email: customer.support@qorvo.com

Important Notice

The information contained herein is believed to be reliable; however, Qorvo makes no warranties regarding the information contained herein and assumes no responsibility or liability whatsoever for the use of the information contained herein. All information contained herein is subject to change without notice. Customers should obtain and verify the latest relevant information before placing orders for Qorvo products. The information contained herein or any use of such information does not grant, explicitly or implicitly, to any party any patent rights, licenses, or any other intellectual property rights, whether with regard to such information itself or anything described by such information. **THIS INFORMATION DOES NOT CONSTITUTE A WARRANTY WITH RESPECT TO THE PRODUCTS DESCRIBED HEREIN, AND QORVO HEREBY DISCLAIMS ANY AND ALL WARRANTIES WITH RESPECT TO SUCH PRODUCTS WHETHER EXPRESS OR IMPLIED BY LAW, COURSE OF DEALING, COURSE OF PERFORMANCE, USAGE OF TRADE OR OTHERWISE, INCLUDING THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE.**

Without limiting the generality of the foregoing, Qorvo products are not warranted or authorized for use as critical components in medical, life-saving, or life-sustaining applications, or other applications where a failure would reasonably be expected to cause severe personal injury or death.

Copyright 2016 © Qorvo, Inc. | Qorvo is a registered trademark of Qorvo, Inc.

Mouser Electronics

Authorized Distributor

Click to View Pricing, Inventory, Delivery & Lifecycle Information:

[Qorvo:](#)

[QPA3223](#)