



QPA3223

CATV Power Doubler Hybrid Low Current 1003 MHz

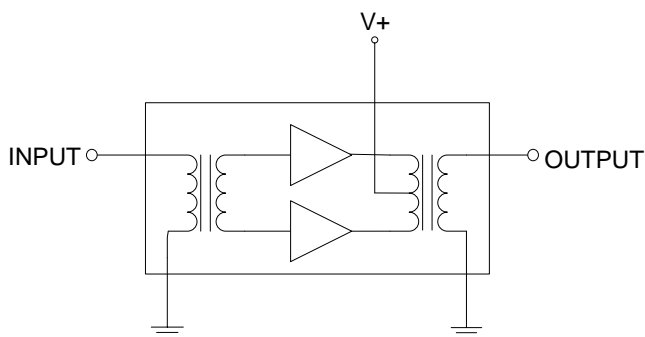
Product Overview

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.

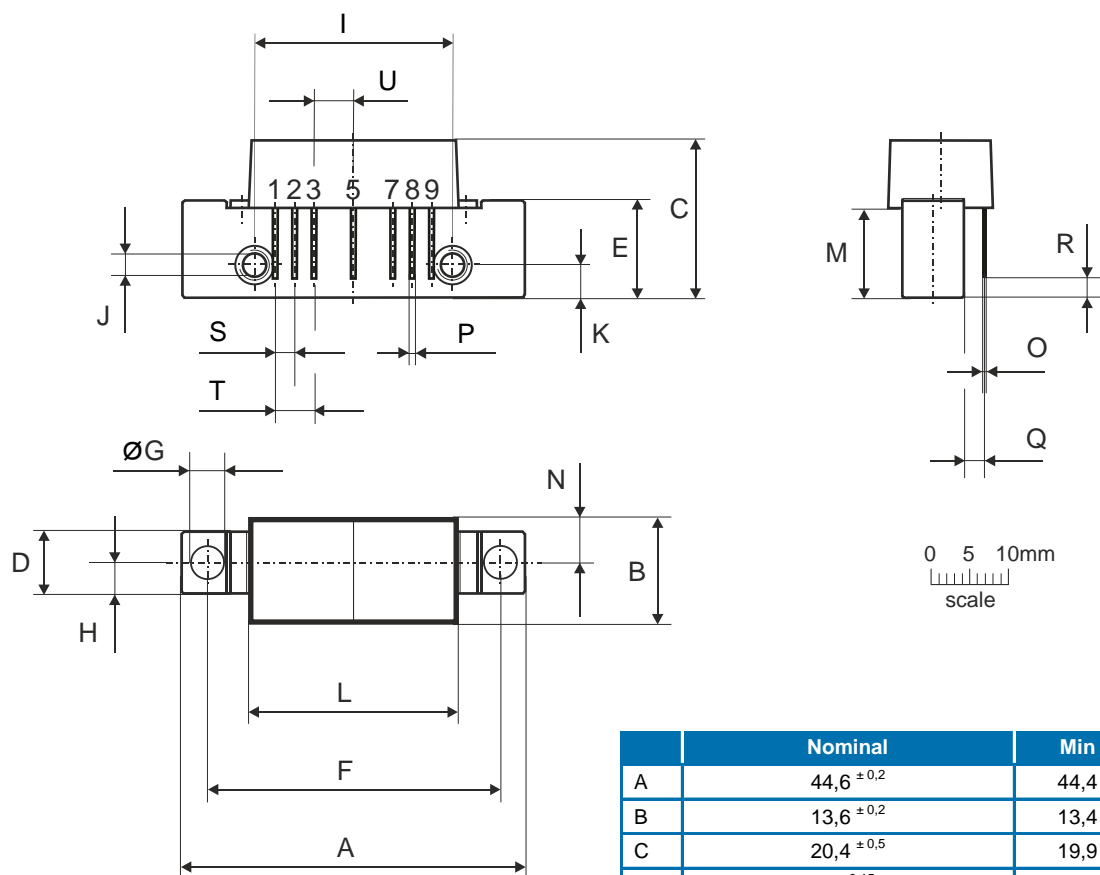
Electrical Specifications

Parameter	Conditions: $V_+ = 24\text{ V}$, $T_{MB} = 30\text{ °C}$, $Z_S = Z_L = 75\text{ }\Omega$	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,		-70	-67	dBc
XMOD	plus 75 J.83/B QAM256 channels from 552 to 1002 MHz,		-65	-62	dBc
CSO	-6 dB offset relative to the equivalent analog carrier;		-71	-68	dBc
CIN	(equivalent to virtually 56.4 dBmV @ 999 MHz; 13.4 dB tilt) ^[2]	58	62		dB

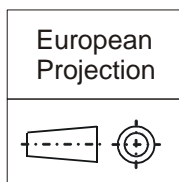
Notes:

- The slope is defined as the difference between the gain at the start frequency and the gain at the stop frequency.
- 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:

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