

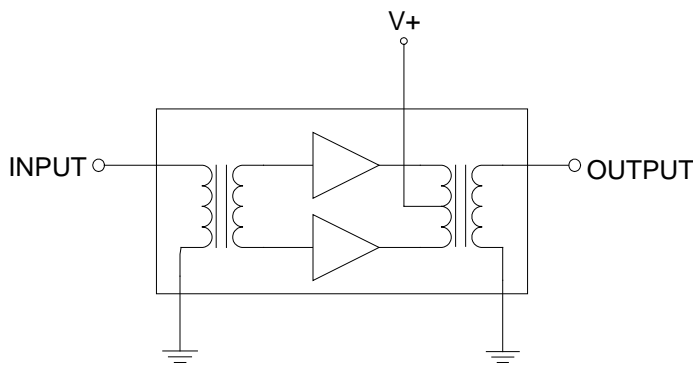
### Product Description

The QPA3350 is a Hybrid Power Doubler amplifier module. The part employs GaAs/GaN die and is operated from 45 MHz to 1003 MHz. It provides excellent linearity and superior return loss performance with low noise and optimal reliability.



Package: SOT-115J

### Functional Block Diagram



### Product Features

- Excellent Linearity
- Superior Return Loss Performance
- Extremely Low Distortion
- Optimal Reliability
- Extremely Low Noise
- Unconditionally Stable Under all Terminations
- 24.5dB Min Gain at 1003 MHz
- 480 mA Max. at 24 VDC

### Applications

- 45 – 1003 MHz CATV Amplifier Systems

### Ordering Information

Part No.	Description
QPA3350	Box with 50 pcs

## QPA3350 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

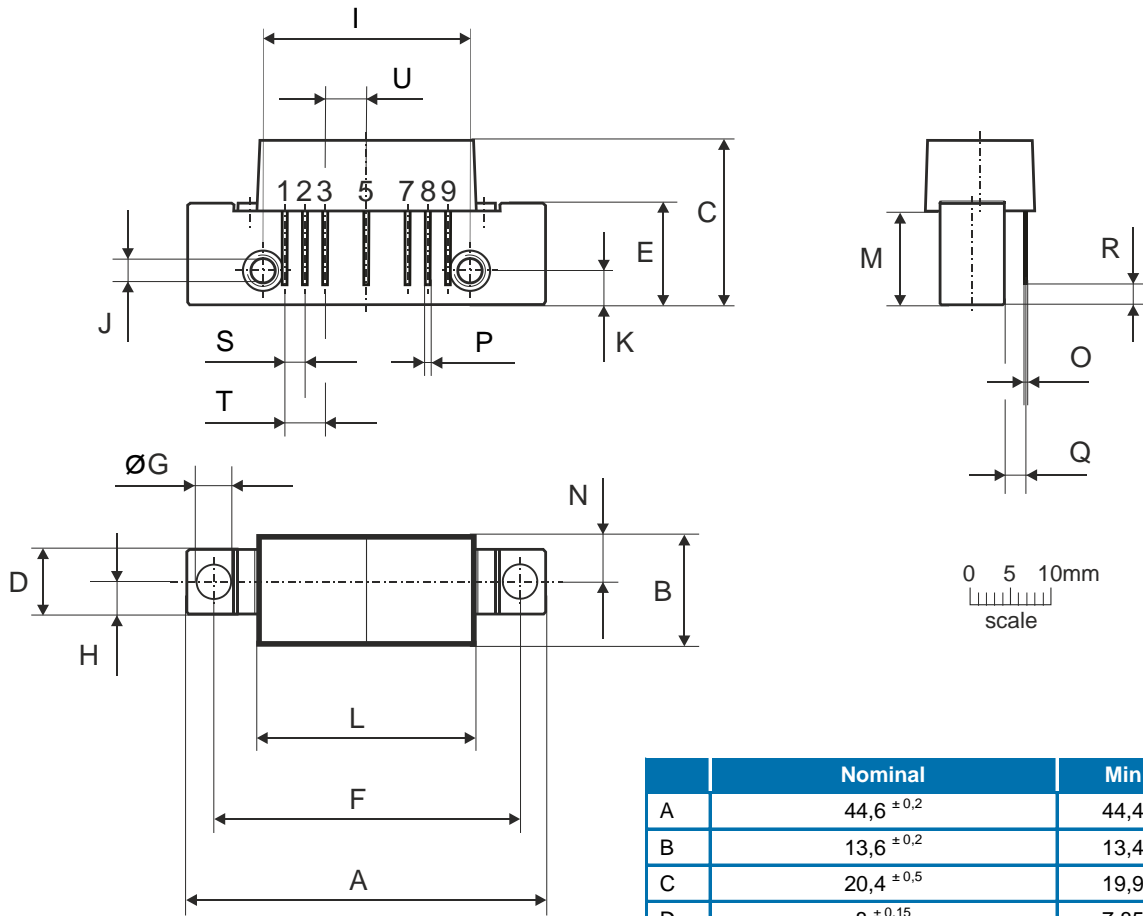
Operation of this device outside the parameter ranges given above may cause permanent damage.

## Electrical Specifications

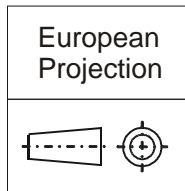
Parameter	Test Conditions: $V_+ = 24V$ , $T_{MB} = 30^\circ C$ , $Z_S = Z_L = 75\Omega$	Min	Typ	Max	Unit
Operational Frequency Range	–	40	–	1003	MHz
Gain	$f_o = 50$ MHz	23.3	23.8	24.3	dB
Gain	$f_o = 1003$ MHz	24.5	25.0	26.0	
Gain Slope	40 to 1003 MHz <sup>[1]</sup>	0.5	1.0	2.0	
Gain Flatness	40 to 1003 MHz			0.8	
Input Return Loss	$f_o = 40$ to 320 MHz	20		–	dB
	$f_o = 320$ to 640 MHz	19		–	
	$f_o = 640$ to 870 MHz	18		–	
	$f_o = 870$ to 1003 MHz	17		–	
Output Return Loss	$f_o = 40$ to 320 MHz	20		–	dB
	$f_o = 320$ to 640 MHz	19		–	
	$f_o = 640$ to 870 MHz	18		–	
	$f_o = 870$ to 1003 MHz	17		–	
Noise Figure	$f_o = 50$ to 1003 MHz	–		4.0	dB
IDC			470	480	mA
CTB			-73	-68	dBc
XMOD	$V_o = 61.0$ dBmV at 1000MHz, 18dB extrapolated tilt, 79 analog channels plus 75 digital channels (-6dB offset) <sup>[2][4]</sup>		-65	-60	dBc
CSO			-76	-70	dBc
CIN		55	60		dB
CTB			-77		dBc
XMOD	$V_o = 56.4$ dBmV at 1000MHz, 13.4dB extrapolated tilt, 79 analog channels plus 75 digital channels (-6dB offset) <sup>[3][4]</sup>		-75		dBc
CSO			-77		dBc
CIN			66		dB

1. The slope is defined as the difference between the gain at the start frequency and the gain at the stop frequency.
2. 79 analog channels, NTSC frequency raster: 55.25MHz to 547.25MHz, +43dBmV to +52.4dBmV tilted output level, plus 75 digital channels, -6dB offset relative to the equivalent analog carrier.
3. 79 analog channels, NTSC frequency raster: 55.25MHz to 547.25MHz, +43dBmV to +50.0dBmV tilted output level, plus 75 digital channels, -6dB offset relative to the equivalent analog carrier.
4. Composite Triple Beat (CTB) - The CTB parameter is defined by ANSI/SCTE 6.  
Composite Second Order (CSO) - The CSO parameter (both sum and difference products) is defined by ANSI/SCTE 6.  
Cross Modulation (XMOD) - Cross modulation (XMOD) is defined by ANSI/SCTE 58, measured at baseband (selective voltmeter method), referenced to 100% modulation of the carrier being tested.  
Carrier to Intermodulation Noise (CIN) - The CIN parameter is defined by ANSI/SCTE 17 (Test procedure for carrier to noise).

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

## Handling Precautions

Parameter	Rating	Standard
ESD – Human Body Model (HBM)	1C	ANSI/ESD/JEDEC JS-001-2012



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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