

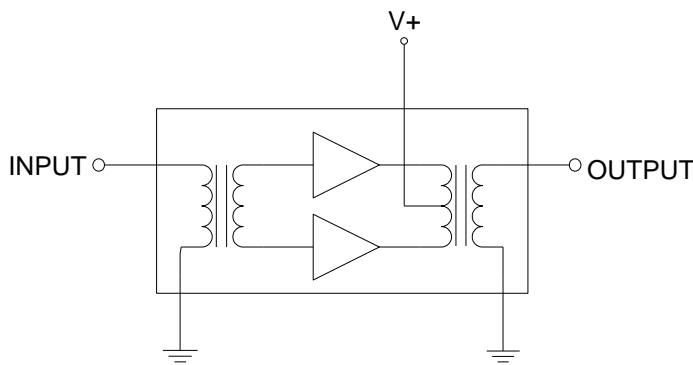
### Product Description

The QPA3357 is a Power Doubler amplifier module. The part employs GaAs die and is operated from 47 MHz to 1218 MHz. It provides excellent linearity and superior return loss performance with low noise and optimal reliability.



Package: SOT-115J

### Functional Block Diagram



### Product Features

- High Gain: 28dB at 1218MHz
- Excellent Linearity
- Superior Return Loss Performance
- Optimal Reliability
- Low Noise: 4.5dB
- Unconditionally Stable Under all Terminations
- 440 mA typ. at 24 VDC

### Applications

- 47 – 1218 MHz CATV Amplifier Systems
- DOCSIS 3.1 Applications

### Ordering Information

Part No.	Description
QPA3357	Box with 50 pcs

## QPA3357 Absolute Maximum Ratings

Parameter	Value / Range
RF Input Voltage (single tone)	+70 dBmV
DC Supply over-voltage (5 minutes)	+30 V
Storage Temperature	-40 to 100 °C
Operating Mounting Base Temperature	-30 to 85 °C

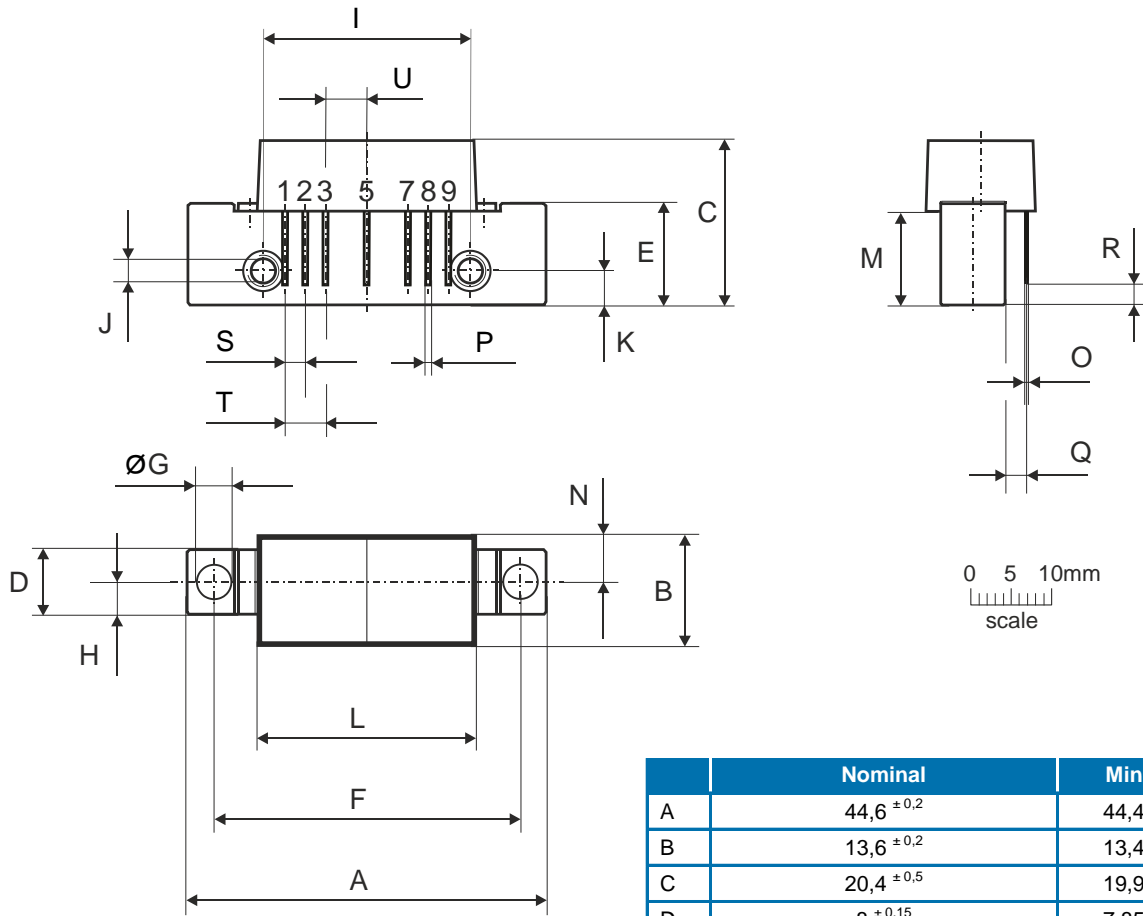
Operation of this device outside the parameter ranges given above may cause permanent damage.

## Electrical Specifications

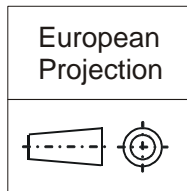
Parameter	Test Conditions: $V_+ = 24V$ , $T_{MB} = 30^\circ C$ , $Z_S = Z_L = 75\Omega$	Min	Typ	Max	Unit
Operational Frequency Range		50		1218	MHz
Gain	$f_o = 1218$ MHz		28.0		dB
Gain Slope	50 to 1218 MHz <sup>[1]</sup>		0.8		
Gain Flatness	47 to 1218 MHz		$\pm 0.5$		
Input Return Loss	$f_o = 50$ to 1003 MHz		18		dB
	$f_o = 1003$ to 1218 MHz		16		
Output Return Loss	$f_o = 50$ to 1218 MHz		18		dB
Noise Figure	$f_o = 50$ to 1218 MHz		4.5		dB
IDC			440		mA
CTB			-83		dBc
XMOD	$V_o = 57$ dBmV at 1218MHz, 19.1dB extrapolated tilt, 79 analog channels plus 111 digital channels (-6dB offset) <sup>[2][3]</sup>		-72		dBc
CSO			-81		dBc
CCN			60		dB

- The slope is defined as the difference between the gain at the start frequency and the gain at the stop frequency.
- 79 analog channels, NTSC frequency raster: 55.25MHz to 547.25MHz, +37.9dBmV to 46.0dBmV tilted output level, plus 111 digital channels, -6dB offset relative to the equivalent analog carrier.
- 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 Composite Noise (CCN) - The CCN 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 <sup>±0,2</sup>	44,4	44,8
B	13,6 <sup>±0,2</sup>	13,4	13,8
C	20,4 <sup>±0,5</sup>	19,9	20,9
D	8 <sup>±0,15</sup>	7,85	8,15
E	12,6 <sup>±0,15</sup>	12,45	12,75
F	38,1 <sup>±0,2</sup>	37,9	38,3
G	4 <sup>+0,2 / -0,05</sup>	3,95	4,2
H	4 <sup>±0,2</sup>	3,8	4,2
I	25,4 <sup>±0,2</sup>	25,2	25,6
J	UNC 6-32	-	-
K	4,2 <sup>±0,2</sup>	4,0	4,4
L	27,2 <sup>±0,2</sup>	27,0	27,4
M	11,6 <sup>±0,5</sup>	11,1	12,1
N	5,8 <sup>±0,4</sup>	5,4	6,2
O	0,25 <sup>±0,02</sup>	0,23	0,27
P	0,45 <sup>±0,03</sup>	0,42	0,48
Q	2,54 <sup>±0,3</sup>	2,24	2,84
R	2,54 <sup>±0,5</sup>	2,04	3,04
S	2,54 <sup>±0,25</sup>	2,29	2,79
T	5,08 <sup>±0,25</sup>	4,83	5,33
U	5,08 <sup>±0,25</sup>	4,83	5,33

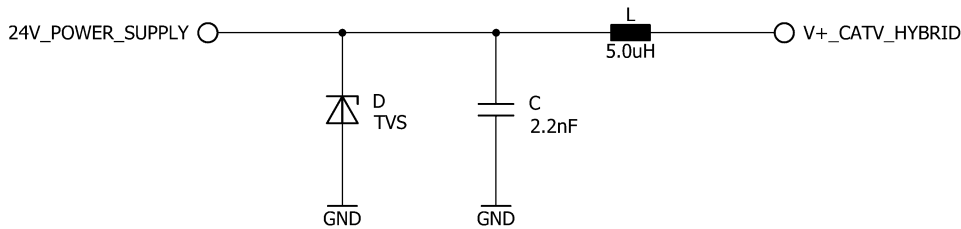
## Handling Precautions

Parameter	Rating	Standard
ESD – Human Body Model (HBM)	2	ANSI/ESD/JEDEC JS-001-2012
ESD – Charged Device Model (CDM)	C3	JEDEC JS-002



Caution!  
ESD-Sensitive Device

## Application Recommendation (V+)



TVS Diode PTVS28VS1UR is recommended in V+ Line for Transient Surge Protection

## 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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