

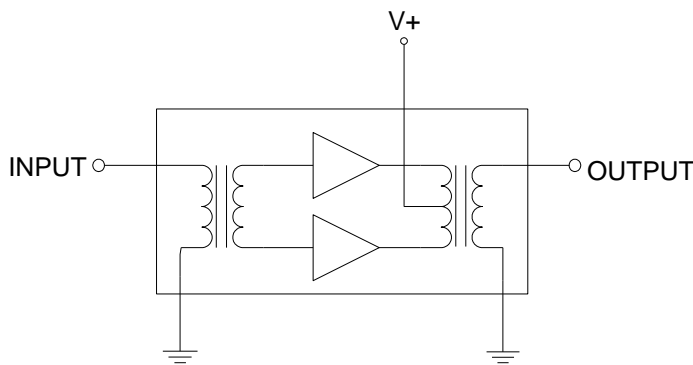
### Product Description

The QPA3359 is a Push Pull amplifier module. The part employs GaAs pHEMT/MESFET 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
- 270 mA typ. at 24 VDC

### Applications

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

### Ordering Information

Part No.	Description
QPA3359	Box with 50 pcs

## QPA3359 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 100 °C

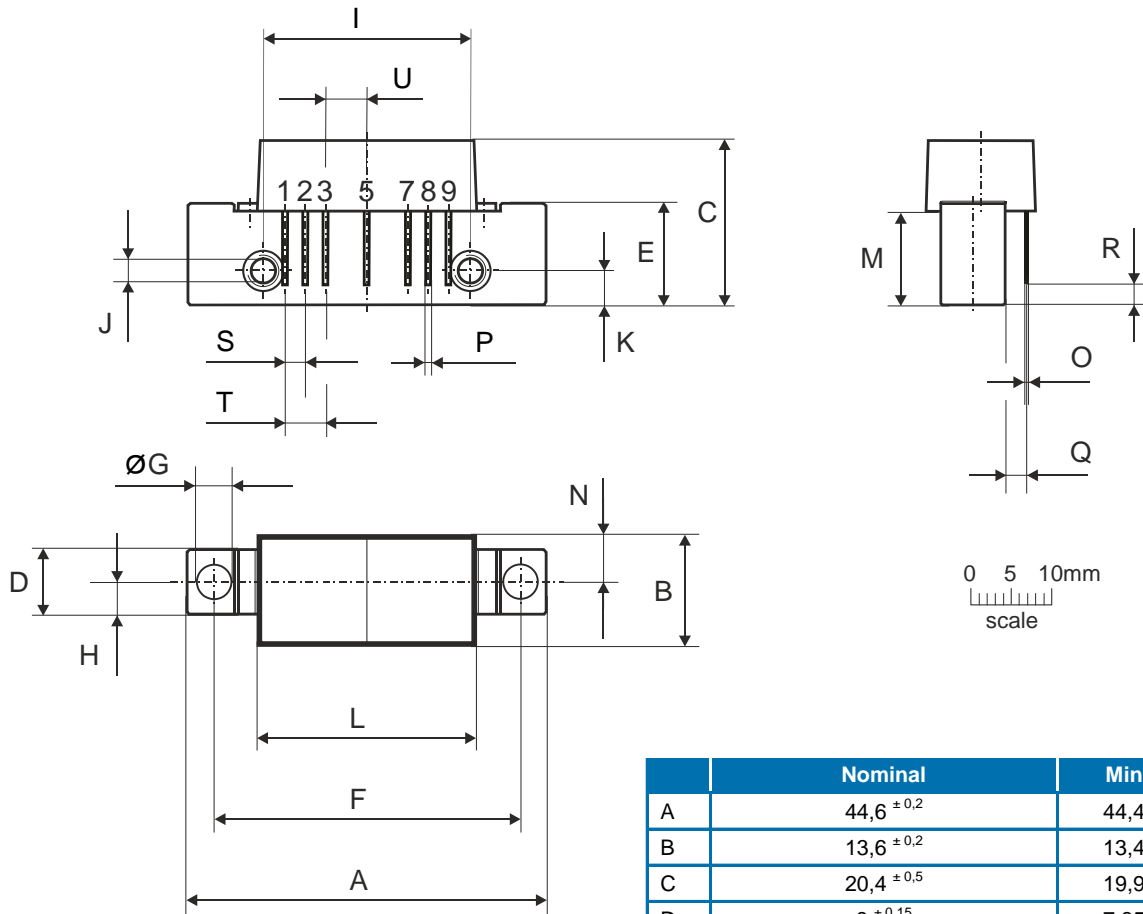
Operation of this device outside the parameter ranges given above may cause permanent damage.

## Electrical Specifications

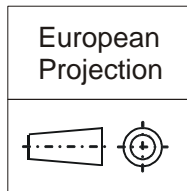
Parameter	Test Conditions: $V_+ = 24V$ , $T_{MB} = 30^\circ C$ , $Z_S = Z_L = 75\Omega$	Min	Typ	Max	Unit
Operational Frequency Range		47		1218	MHz
Gain	$f_o = 1218$ MHz		28.0		dB
Gain Slope	47 to 1218 MHz <sup>[1]</sup>		1.0		
Gain Flatness	47 to 1218 MHz		$\pm 0.5$		
Input Return Loss	$f_o = 47$ to 1003 MHz		20		dB
	$f_o = 1003$ to 1218 MHz		18		
Output Return Loss	$f_o = 47$ to 1218 MHz		18		dB
Noise Figure	$f_o = 50$ to 1218 MHz		4.5		dB
IDC			270		mA
CTB			-70		dBc
XMOD	$V_o = 44$ dBmV, flat, 79 analog channels plus 111 digital channels (-6dB offset) <sup>[2][3]</sup>		-70		dBc
CSO			-76		dBc
CCN			64		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, +44.0dBmV flat 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

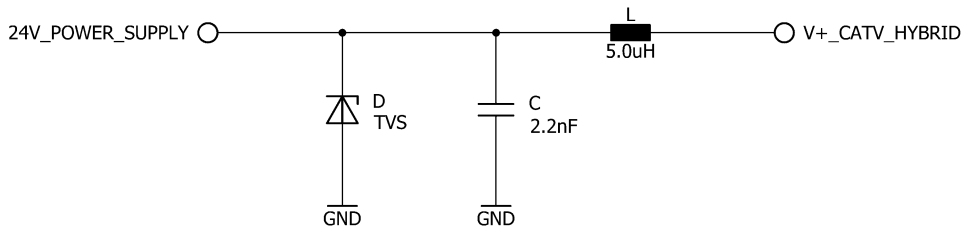
## Handling Precautions

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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