

## Applications

- General Purpose Wireless
- RF Bypass Paths
- Microwave Radio
- Test & Measurement
- Scientific Instruments

## Product Features

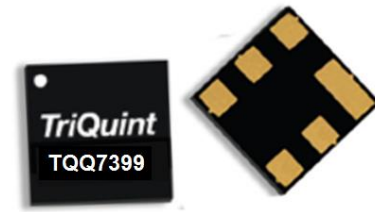
- DC – 2700 MHz
- 50 Ohm Port Impedance
- Typical Insertion Loss, 0.15 dB at 2140 MHz
- Typical Return Loss, 25 dB at 2140 MHz
- Surface Mountable

## General Description

The TQQ7399 is a passive low-loss through line that operates from 0 to 2700 MHz. At 2140 MHz, input and output return loss is typical 25 dB and typical insertion loss is 0.15 dB. The product is housed in an industry standard Pb-free / RoHS-compliant surface-mount leadless package.

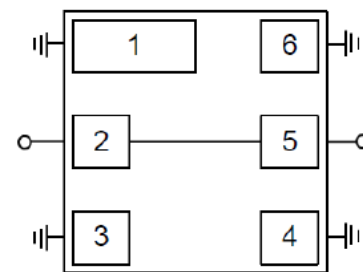
## Typical Performance

Parameter	Typical Value			Units
	100	2140	2700	
Frequency				MHz
Insertion Loss	0.15	0.15	0.15	dB
Input / Output Return Loss	25	25	25	dB



6 Pin 3 x 3 mm leadless SMT Package

## Functional Block Diagram



Top View

## Pin Configuration

Pin #	Label
2, 5	RF I/O
1, 3, 4, 6	NC

## Ordering Information

Part No.	Description
TQQ7399TR7*	Through Line

\*Standard T/R size = 2500 pieces on a 7" reel.

### Absolute Maximum Ratings

Parameter	Rating
Storage Temperature	-50 to +150 °C
RF Input Power, CW	+20 dBm

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

### Recommended Operating Conditions

Parameter	Min	Typ	Max	Units
T <sub>CASE</sub>	-40		+105	°C

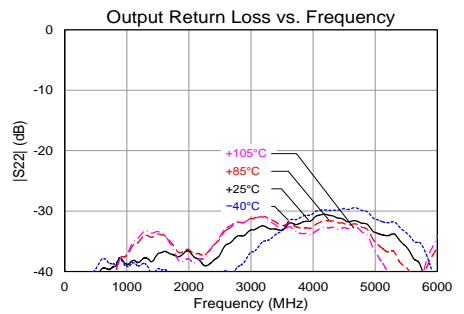
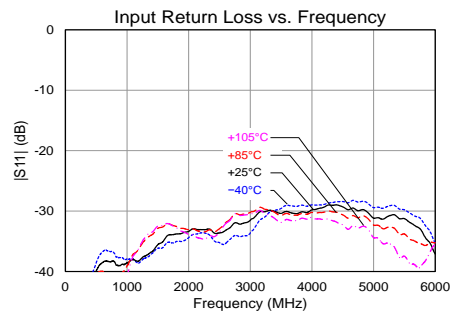
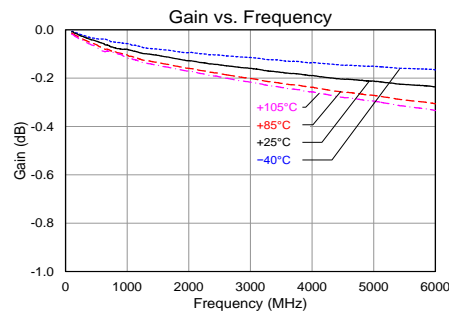
Electrical specifications are measured at specified test conditions. Specifications are not guaranteed over all recommended operating conditions.

### Electrical Specifications Antenna – Transmit

Test conditions unless otherwise specified: Temp. = +25 °C

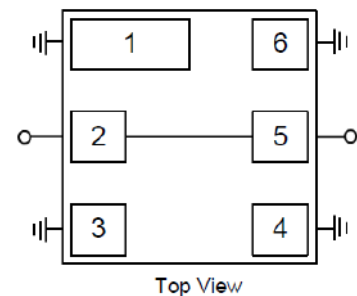
Parameter	Conditions	Min	Typ	Max	Units
Operational Frequency Range		0		2700	MHz
Test Frequency			2140		MHz
Port Impedance	0 to 2700 MHz		50		Ohms
Insertion Loss			0.15	0.2	dB
Return Loss	0 to 2700 MHz		25		dB

### Performance Plots: TQQ7399

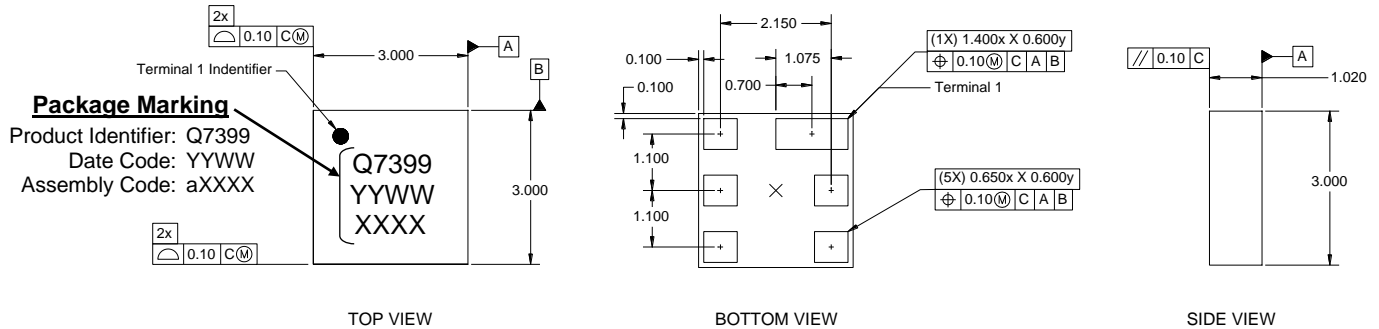


### Pin Description & Layout

Pin No.	Symbol	Description
2, 5	RF I/O	RF through path (bi-directional)
1, 3, 4, 6	NC	No electrical connection. Provide grounded land pads for PCB mounting integrity.



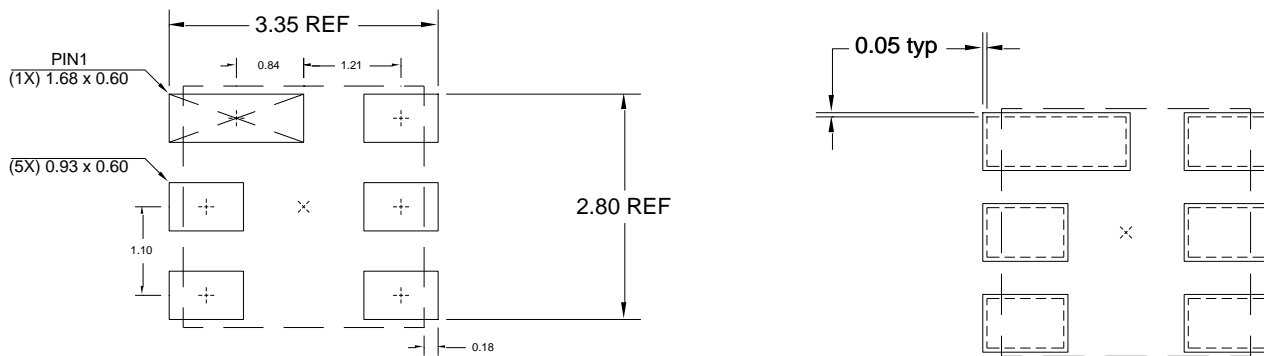
## Package Marking and Dimensions



### Notes:

1. All dimensions are in millimeters. Angles are in degrees.
2. Dimension and tolerance formats conform to ASME Y14.4M-1994.
3. The terminal #1 identifier and terminal numbering conform to JESD 95-1 SPP-012.

## PCB Mounting Pattern



### Notes:

1. All dimensions are in millimeters. Angles are in degrees.
2. Use 1 oz. copper minimum for top and bottom layer metal.

## Manufacturing Environments

### COMPONENT HANDLING

All necessary special handling techniques shall be adopted in order to avoid contamination of metallization / terminations. Examples include use of finger cots, plastic tweezers, etc.

### PART PLACEMENT

A placement force of up to 500 grams is applied (using a 2.00 mm or a 0.080 inch diameter rod) to the center of the part while remaining in its tape carrier.

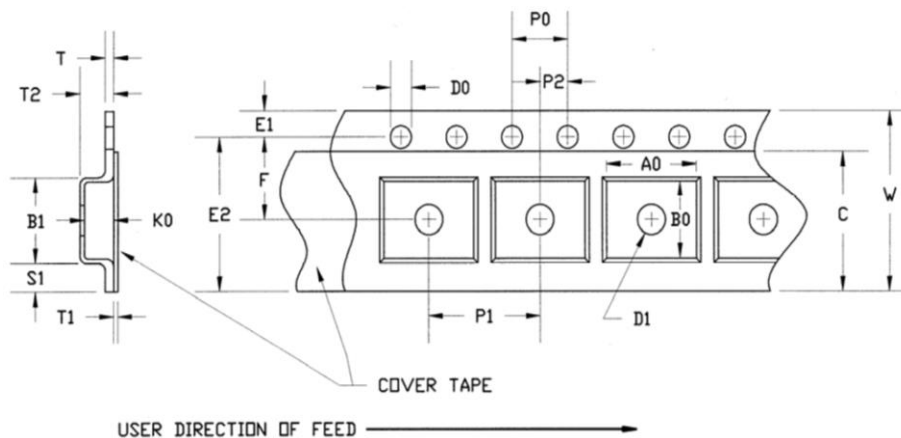
### COMPONENT SOLDERABILITY

#### Convection or Infrared Reflow

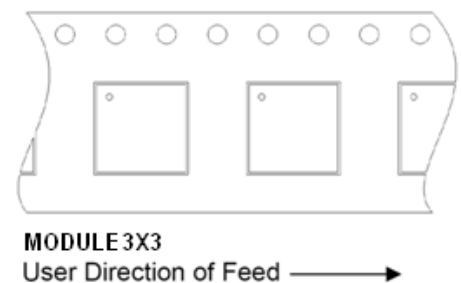
Part will comply with convection or infrared reflow soldering processes consistent with IPC/JEDEC J-STD-020. Qorvo's actual reflow profile for qualification is provided below:

Reflow Parameters	IPC / JEDEC J-STD-020	Qorvo Actual
Average ramp-up rate (217 °C to Peak)	3 °C/second max.	0.57 °C / second
Preheat Time (150 °C to 200 °C)	60 – 180 seconds	150 seconds
Time above 217 °C	60 – 150 seconds	126 seconds
Peak Temperature	260 +0/ -5 °C	259 °C
Time within 5 °C of actual Peak Temperature	20 – 40 seconds	30 seconds
Ramp-down Rate	6 °C / second max.	0.875 °C / second
Time 25 °C to Peak Temperature	8 minutes max.	7 minutes max.

## Tape and Reel Information



PART	FEATURE	SYMBOL	SIZE (in)	SIZE (mm)
CAVITY	LENGTH	A0	0.134	3.40
	WIDTH	B0	0.126	3.20
	DEPTH	K0	0.055	1.40
	PITCH	P1	0.157	4.00
DISTANCE BETWEEN CENTERLINE	CAVITY TO PERFORATION LENGTH DIRECTION	P2	0.079	2.00
	CAVITY TO PERFORATION WIDTH DIRECTION	F	0.138	3.50
COVER TAPE	WIDTH	C	0.213	5.40
CARRIER TAPE	WIDTH	W	0.315	8.00



## Product Compliance Information

### MSL Rating

MSL Rating: Level 3  
Test: 260°C convection reflow  
Standard: JEDEC Standard IPC/JEDEC J-STD-020

### Solderability

Compatible with both lead-free (260°C max. reflow temperature) and tin/lead (245°C max. reflow temperature) soldering processes.

Contact plating: Electroless Nickel Immersion Gold

### RoHS Compliance

This part is compliant with EU 2002/95/EC RoHS directive (Restrictions on the Use of Certain Hazardous Substances in Electrical and Electronic Equipment).

This product also has the following attributes:

- Lead Free
- Halogen Free (Chlorine, Bromine)
- Antimony Free
- TBBP-A (C<sub>15</sub>H<sub>12</sub>Br<sub>4</sub>O<sub>2</sub>) Free
- PFOS Free
- SVHC Free

## Contact Information

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

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Email: [customer.support@qorvo.com](mailto:customer.support@qorvo.com)

For technical questions and application information:

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Система менеджмента качества компании отвечает требованиям в соответствии с ГОСТ Р ИСО 9001, ГОСТ РВ 0015-002 и ЭС РД 009

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