

### Product Overview

The QPP0020 transformer is designed for applications that require small, low-cost, and high reliable surface mount components. The units are built lead-free and RoHS compliant. This transformer offers low insertion loss combined with a high RF power capability across a broad temperature range. All devices are 100% RF tested.

The QPP0020 is targeted for use as an output transformer in CATV amplifiers. Additional applications may be found in broadband, wireless and other communication systems. S-Parameter data-files are available on request.

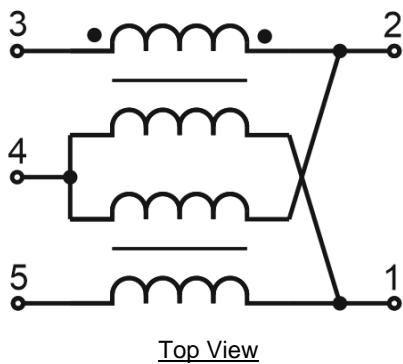


SP6 Package

### Key Features

- 45-1218 MHz
- Low insertion loss
- 75 Ω Characteristic Impedance
- Compatible with 260°C lead free soldering
- RoHS Compliant
- Industry Standard SMT Package SP6
- Available in Tape-and-Reel

### Functional Block Diagram



### Applications

- Broadband / CATV
- General Purpose Wireless

### Ordering Information

Part No.	Description
QPP0020SB	5 pcs in sample bag
QPP0020SR	100 pcs on a 13" reel
QPP0020TR13	1000 pcs on a 13" reel (standard)

## Absolute Maximum Ratings

Parameter	Rating
Storage Temperature	-55 to +100 °C
Operating Temperature Range	-40 to +100 °C
RF Power, CW, T=25 °C	+36 dBm
DC Current inside Pin4, T=25°C	1000 mA

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.

## Recommended Operating Conditions

Parameter	Min	Typ	Max	Units
Operating Temperature	-30		+100	°C
RF Power, CW			+30	dBm
DC Current inside Pin4			600	mA

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

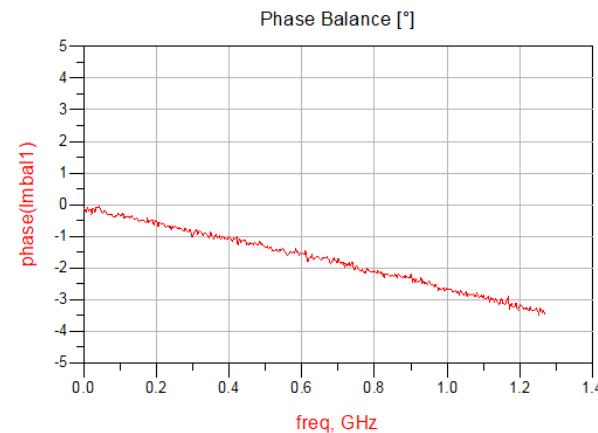
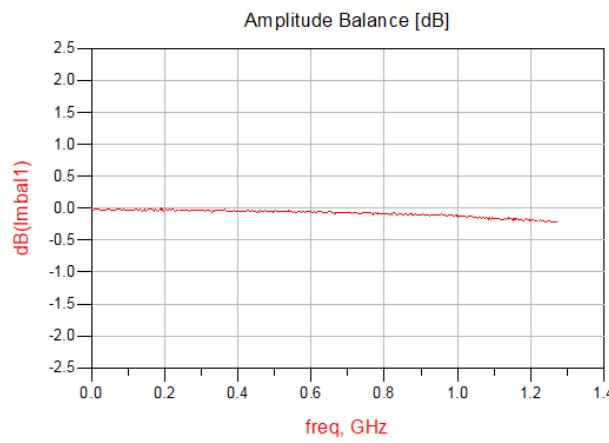
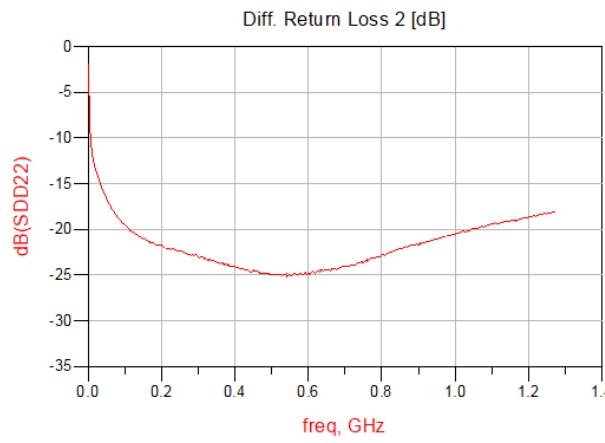
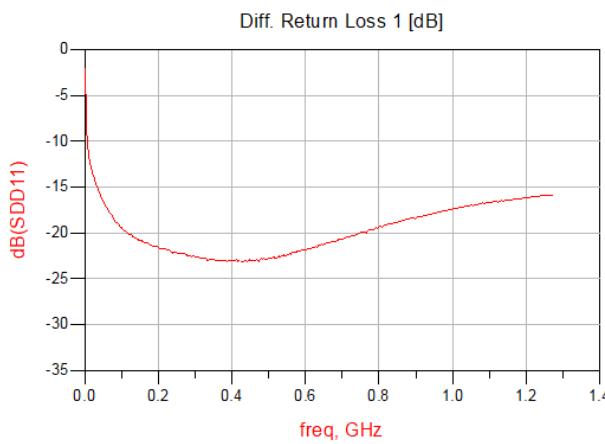
## Electrical Specifications

Parameter	Conditions <sup>(1)</sup>	Min	Typ	Max	Units
Operational Frequency Range	45 MHz	45		1218	MHz
	150 MHz			-14	dB
	500 MHz			-19	dB
	1000 MHz			-22	dB
	1218 MHz			-16.5	dB
Diff. Return Loss 1 <sup>(2)</sup>	45 MHz			-15.5	dB
	150 MHz			-14	dB
	600 MHz			-19	dB
	1000 MHz			-24	dB
	1218 MHz			-19.5	dB
Diff. Return Loss 2 <sup>(2)</sup>	45 MHz			-17.5	dB
	150 MHz			-14	dB
	600 MHz			-19	dB
	1000 MHz			-24	dB
	1218 MHz			-19.5	dB
Diff. Insertion Loss 1-2 <sup>(2)</sup>	45 MHz	-1.5			dB
	100 MHz	-1.1			dB
	700 MHz	-0.85			dB
	1218 MHz	-1.1			dB
Amplitude Balance <sup>(2)</sup>	45 MHz	-0.1		0.1	°
	1218 MHz	-0.7		0.1	°
Phase Balance <sup>(2)</sup>	45 MHz	-0.5		0.5	°
	1218 MHz	-4		0.5	°
DC Current Capability (inside Pin4)				600	mA
Impedance Ratio				3.06:1	
Type - Flux Coupled				Balanced to Balanced	

### Notes:

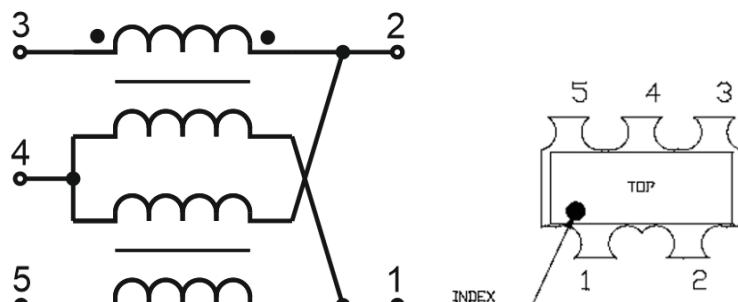
1. Test conditions unless otherwise noted: IDC = 0 mA, T = +25 °C, Pin = - 15 dBm, 4-port measurement, pin3-5: balanced port 1 (Zref = 230 Ω), pin2-1: balanced port 2 (Zref = 75 Ω), pin4: GND, reference plane at device leads.
2. Limits with linear transitions between frequency points.

## Typical Performance



Note: Test conditions unless otherwise noted: IDC = 0 mA, T = +25 °C, Pin = -15 dBm, 4-port measurement, pin3-5: balanced port 1 (Zref = 230 Ω, pin3: SE port1, pin5: SE port3), pin2-1: balanced port 2 (Zref = 75 Ω, pin2: SE port2, pin1: SE port4), pin4: GND, reference plane at device leads.

## Pad Configuration and Description



Top View

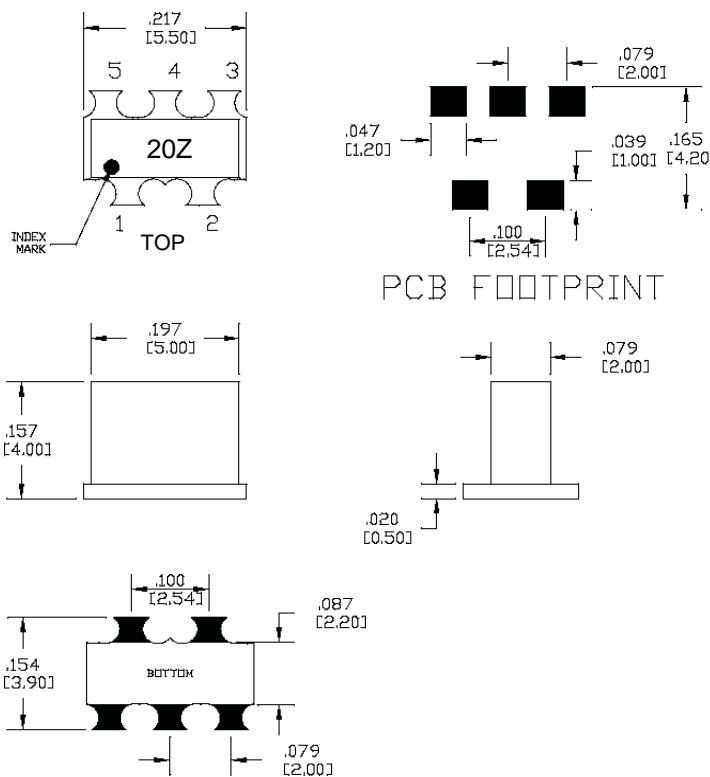
Pin No.	Label	Description
1	SECONDARY	Output 2, low impedance side.
2	SECONDARY DOT	Output 1, low impedance side.
3	PRIMARY DOT	Input 1, high impedance side.
4	CENTER PIN	Center pin.
5	PRIMARY	Input 2, high impedance side.

## Package Marking, Dimensions and PCB Mounting Pattern

Marking: Last 2 Digits of Part Number – 20

Date Code – Z (see notes)

Index Mark Color - Green



### Notes:

3. All dimensions are in inches [millimeters].
4. The terminal #1 identifier and terminal numbering conform to JESD 95-1 SPP-012.
5. Contact: tin-plated
6. One digit date code:

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
2023	a	b	c	d	e	f	g	h	j	k	l	m
2024	n	p	q	r	s	t	u	v	w	x	y	z
2025	A	B	C	D	E	F	G	H	J	K	L	M
2026	N	P	Q	R	S	T	U	V	W	X	Y	Z
2027	a	b	c	d	e	f	g	h	j	k	l	m
2028	...											

## Handling Precautions

Parameter	Rating	Standard
ESD – Human Body Model (HBM)	N.A.	MIL-STD-1686



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:

Web: [www.qorvo.com](http://www.qorvo.com)

Tel: 1-844-890-8163

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

## Important Notice

The information contained in this Data Sheet and any associated documents ("Data Sheet Information") is believed to be reliable; however, Qorvo makes no warranties regarding the Data Sheet Information and assumes no responsibility or liability whatsoever for the use of said information. All Data Sheet Information is subject to change without notice. Customers should obtain and verify the latest relevant Data Sheet Information before placing orders for Qorvo® products. Data Sheet Information or the use thereof does not grant, explicitly, implicitly or otherwise any rights or licenses to any third party with respect to patents or any other intellectual property whether with regard to such Data Sheet Information itself or anything described by such information.

DATA SHEET INFORMATION DOES NOT CONSTITUTE A WARRANTY WITH RESPECT TO THE PRODUCTS DESCRIBED HEREIN, AND QORVO HEREBY DISCLAIMS ANY AND ALL WARRANTIES WITH RESPECT TO SUCH PRODUCTS WHETHER EXPRESS OR IMPLIED BY LAW, COURSE OF DEALING, COURSE OF PERFORMANCE, USAGE OF TRADE OR OTHERWISE, INCLUDING THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE. Without limiting the generality of the foregoing, Qorvo® products are not warranted or authorized for use as critical components in medical, life-saving, or life-sustaining applications, or other applications where a failure would reasonably be expected to cause severe personal injury or death. Applications described in the Data Sheet Information are for illustrative purposes only. Customers are responsible for validating that a particular product described in the Data Sheet Information is suitable for use in a particular application.

© 2020 Qorvo US, Inc. All rights reserved. This document is subject to copyright laws in various jurisdictions worldwide and may not be reproduced or distributed, in whole or in part, without the express written consent of Qorvo US, Inc. | QORVO® is a registered trademark of Qorvo US, Inc.

# Mouser Electronics

Authorized Distributor

Click to View Pricing, Inventory, Delivery & Lifecycle Information:

[Qorvo](#):

[QPP0020TR13](#) [QPP0020SR](#)