



# QPP0023

## 3.06:1 Transformer 45-1800 MHz

### Product Overview

The QPP0023 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 QPP0023 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 are available on request.

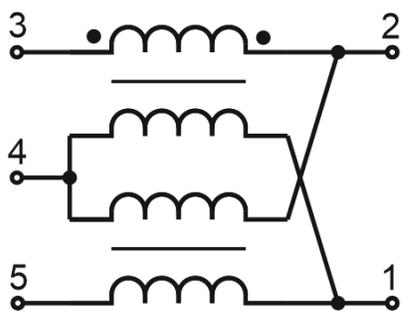


SP6 Package

### Key Features

- 45-1800 MHz
- Low insertion loss
- 75  $\Omega$  Characteristic Impedance
- Compatible with 260°C lead free soldering
- RoHS Compliant
- Industry Standard SMT Package SP6
- Available in Tape-and-Reel

### Functional Block Diagram



Top View

### Applications

- Broadband / CATV
- General Purpose Wireless

### Ordering Information

Part No.	Description
QPP0023SB	5 pcs in sample bag
QPP0023SR	100 pcs on a 13" reel
QPP0023TR13	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.

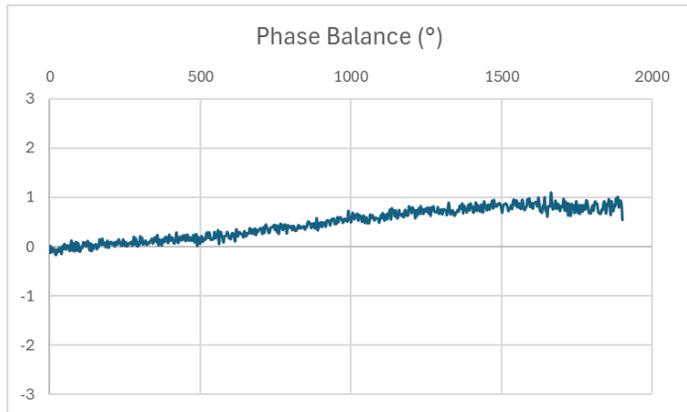
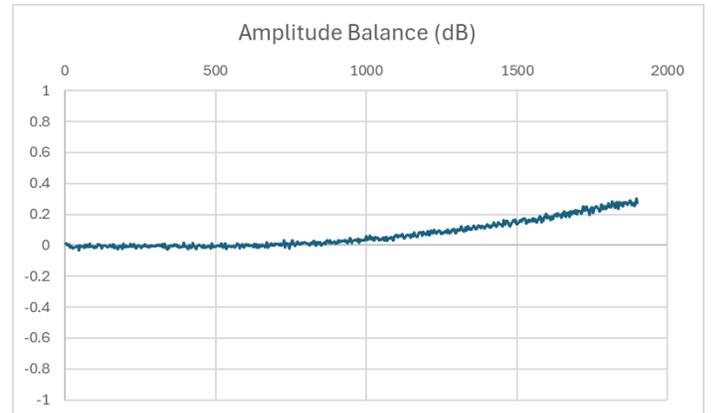
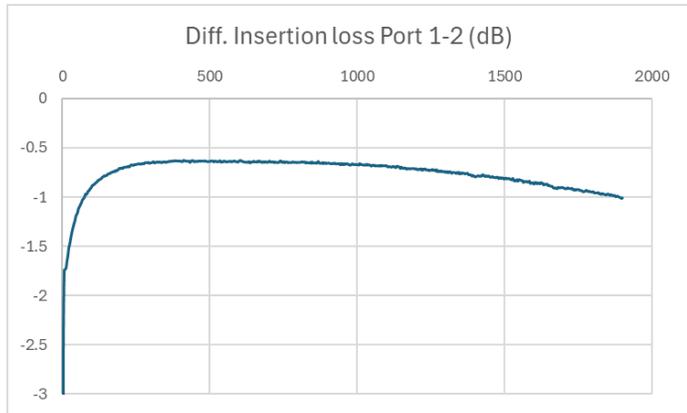
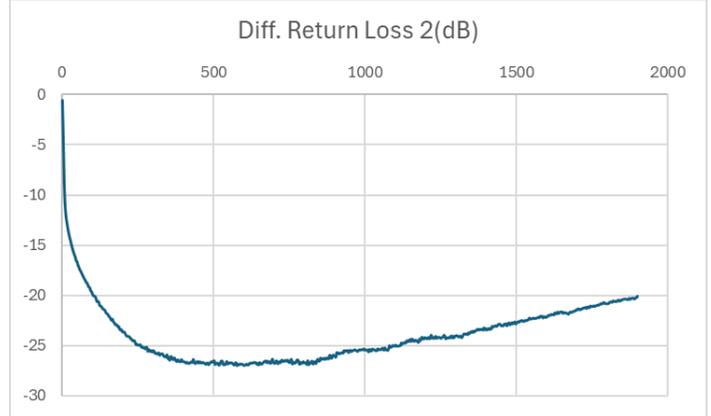
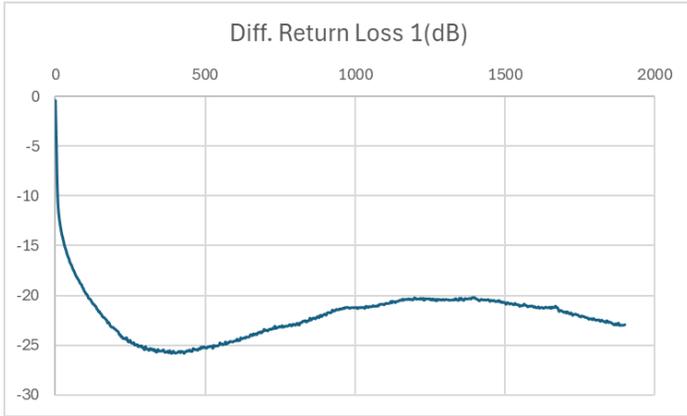
## Electrical Specifications

Parameter	Conditions <sup>(1)</sup>	Min	Typ	Max	Units
Operational Frequency Range		45		1800	MHz
Diff. Return Loss 1 <sup>(2)</sup>	45 MHz	-18		-13	dB
	200 MHz	-26		-21	dB
	500 MHz	-29		-24	dB
	1200 MHz	-25		-19	dB
	1800 MHz	-27		-19	dB
Diff. Return Loss 2 <sup>(2)</sup>	45 MHz	-19		-13	dB
	200 MHz	-26		-20	dB
	700 MHz	-34		-25	dB
	1200 MHz	-31		-22	dB
	1800 MHz	-27		-17	dB
Diff. Insertion Loss 1-2 <sup>(2)</sup>	45 MHz	-1.65			dB
	150 MHz	-1.05			dB
	500 MHz	-0.8			dB
	1200 MHz	-0.85			dB
	1800 MHz	-1.15			dB
Amplitude Balance <sup>(2)</sup>	45 MHz	-0.5		0.5	dB
	1800 MHz	-1		1	dB
Phase Balance <sup>(2)</sup>	45 MHz	-1		1	°
	1800 MHz	-3		3	°
DC Current Capability (inside Pin4)				600	mA
Impedance Ratio		3.06:1			
Type - Flux Coupled		Balanced to Balanced			

### Notes:

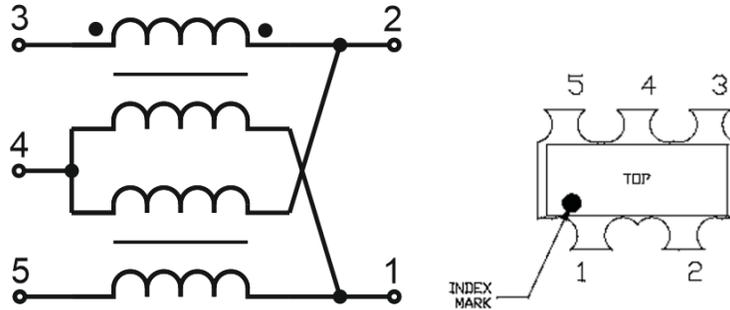
- Test conditions unless otherwise noted: IDC = 0 mA, T = +25 °C, Pin = - 15 dBm, 4-port measurement  
pin3 and pin5: balanced port 1 (Zref = 230 Ω, pin3: SE port1, pin5: SE port3)  
pin2 and pin1: balanced port 2 (Zref = 75 Ω, pin2: SE port2, pin1: SE port4)  
pin4: GND, reference plane at device leads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

Pad Configuration and Description

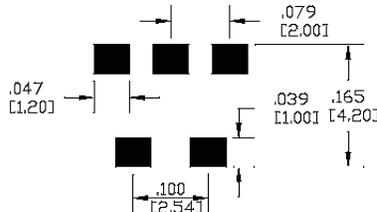
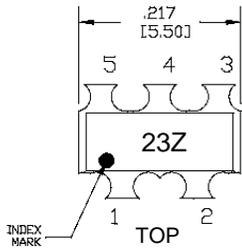


Top View

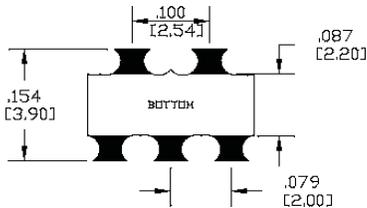
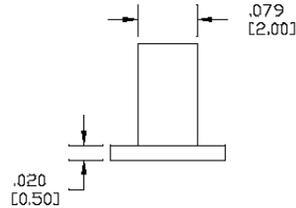
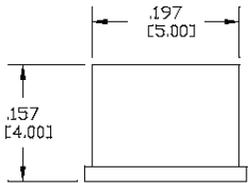
Pin No.	Label	Description
1	SECONDARY	Output 2, low impedance side
2	SECONDARY DOT	Output 1, low impedance side
3	PRIMARY DOT	Input 1, high impedance side
4	CENTER PIN	Center pin
5	PRIMARY	Input 2, high impedance side

**Package Marking, Dimensions and PCB Mounting Pattern**

Marking: Last 2 Digits of Part Number – 23  
 Date Code – Z (see notes)  
 Index Mark Color - Red



PCB FOOTPRINT



**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	...											

## RoHS Compliance

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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

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

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