YCPQ060

LTCC 3dB Hybrid Coupler

Description

The YCPQ060 is a low temperature co-fired ceramic (LTCC) 3dB 90° hybrid coupler designed for high performance in various applications. The small part size allows for high density PCB layout and provide excellent solderability.

Applications

- 5G/6G applications
- Narrow & Wideband amplifiers
- Factory and Process automation
- Test Instrumentation
- Satellite communication

Features

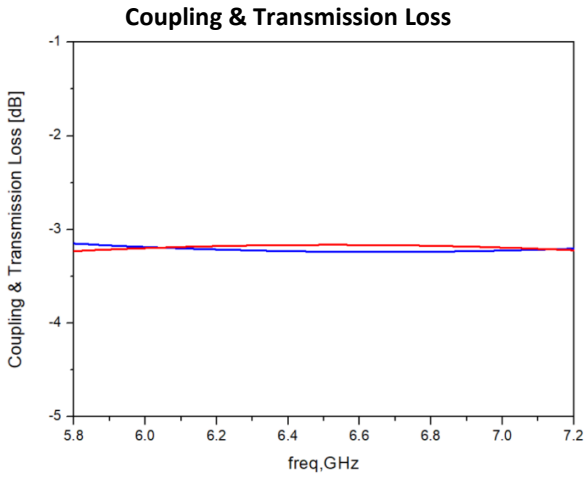
- 5800 – 7200GHz
- Low Insertion Loss
- Gold Plating Finish
- Surface Mount Type

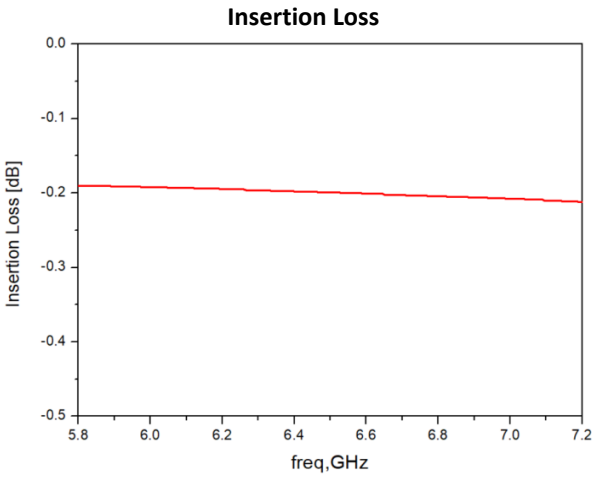
Electrical Specification

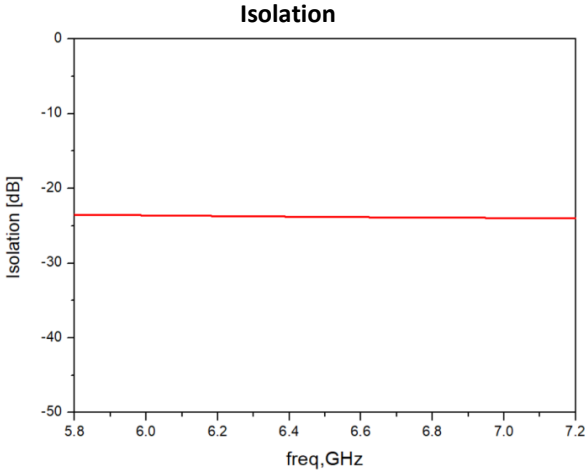
Parameter[1)]	Specification			Conditions	Unit
	Min.	Typ.	Max.		
Frequency	5800	-	7200	-	MHz
Amplitude Balance	-0.3	0	0.3	-	dB
Insertion Loss	-	-	0.4	-	dB
Phase Balance	85	90	95		Degree
Return Loss	15	-	-	-	dB
Isolation	15	-	-	-	dB
Power Capacity	-	4	-	-	W
Operation Temperature Range	-55	-	+125	-	°C

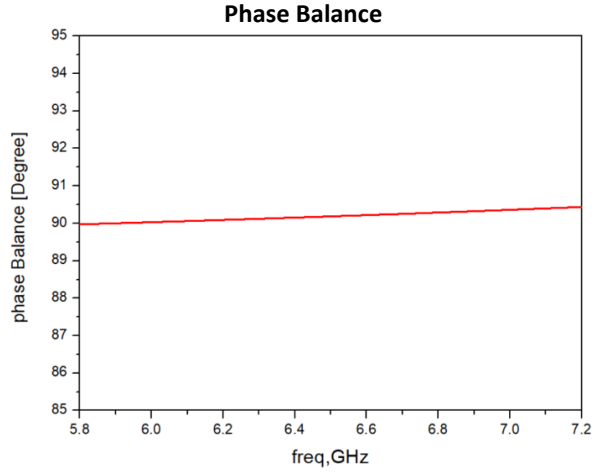
Notes:
1) Ta = 25℃, 50Ω system, unless otherwise noted.

Performance Plots









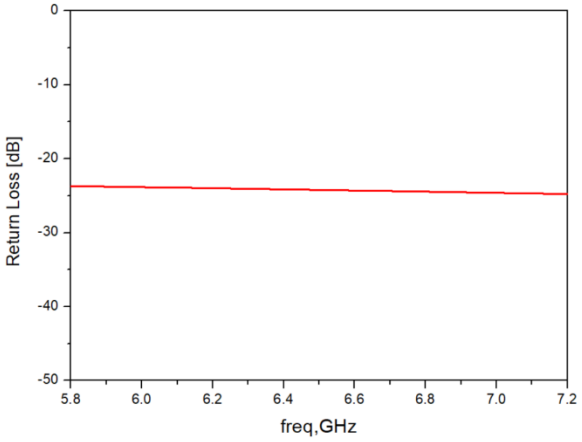
Mathematical Formula for the Parameters

1. Return Loss through Port 1 to Port 1 (S11)
2. Coupling through Port 1 to Port 4 (S41)
3. Transmission through Port 1 to Port 2 (S31)
4. Isolation through Port 1 to Port 2 (S21)
5. Insertion Loss and Amplitude Balance is function of the below mathematical formula.

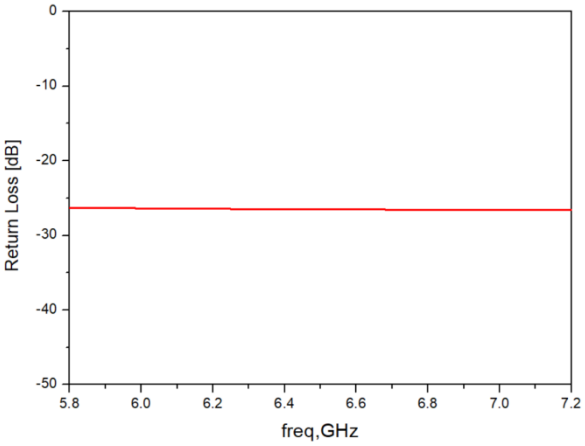
Parameter	Mathematical formula
Insertion Loss (dB)	$10 \bullet \log\left[\frac{P_{in}}{P_{cou}+P_{out}}\right]$
Amplitude Balance (dB)	$10 \bullet \log\left[P_{cou} \Big/ \frac{P_{cou}+P_{out}}{2}\right]$

Performance Plots

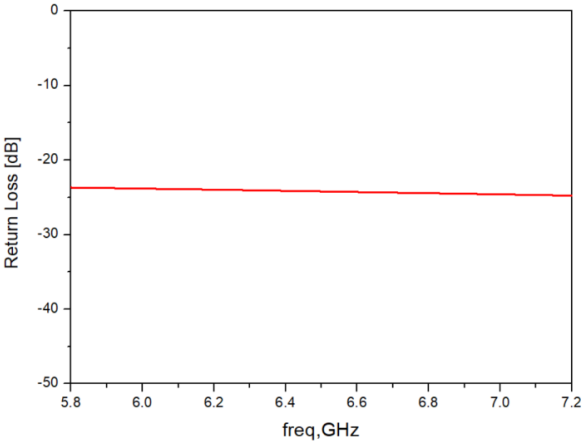
Return Loss (S11)



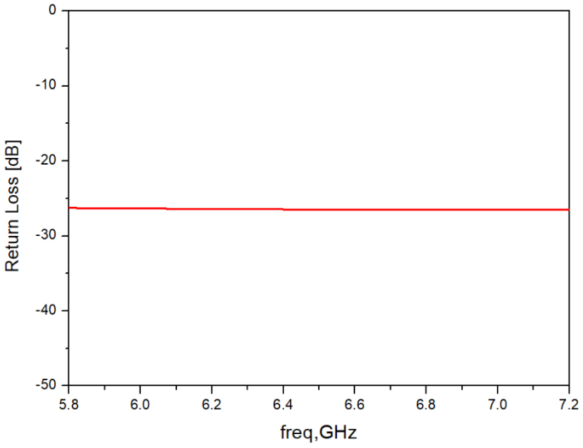
Return Loss (S22)



Return Loss (S33)



Return Loss (S44)



Recommended Operating Condition

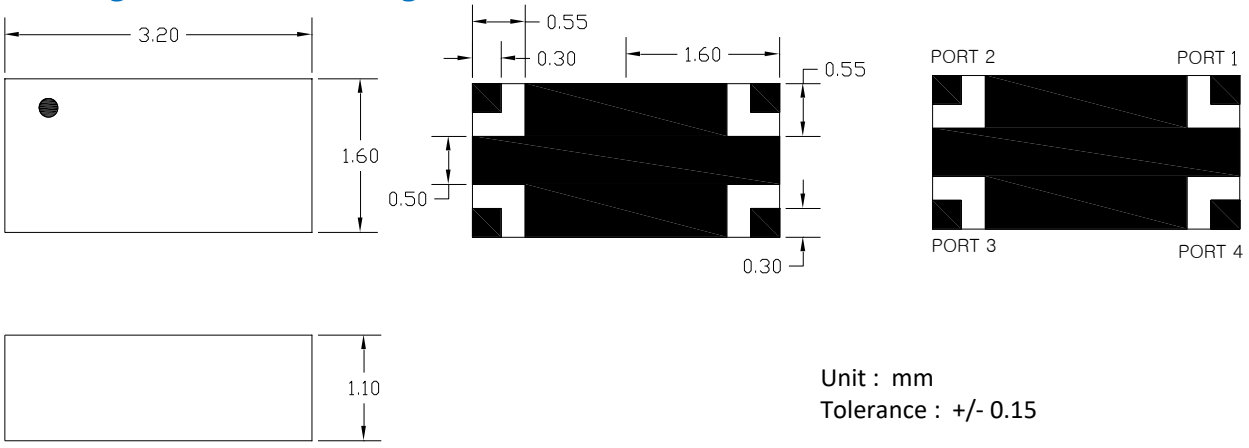
Parameter	Min	Typ	Max	Units
Operating Temperature	-55	25	125	°C
Storage Temperature	-20		35	°C

Notes:
1) Storage Temperature Range before soldering in taping package.

Absolute Maximum Ratings

Parameter	Rating	Units
Input Power (AVG/CW)	4	W

Package Outline Drawing



Unit : mm
Tolerance : +/- 0.15

Port Configuration

Configuration	Port 1	Port 2	Port 3.	Port 4
Case 1	Input	Isolated	Output -3dB, -90°	Coupling -3dB, -90°
Case 2	Isolated	Input	Coupling -3dB, -90°	Output -3dB, -90°
Case 3	Output -3dB, -90°	Coupling -3dB, -90°	Input	Isolated
Case 4	Coupling -3dB, -90°	Output -3dB, -90°	Isolated	Input