

# Q3XG-1088R

SURFACE MOUNT 3dB 90° HYBRID COUPLERS

REV 1.3.0



## APPLICATIONS

- Signal Splitting/Combining
- Balanced Amplifier Circuit
- I/Q Modulators/Demodulators
- Analog Phase Shifters
- Analog Variable Attenuators
- Microwave Mixers
- Image Reject Mixers
- And More...

## FEATURES

- Excellent RF performance
- Low insertion loss
- Tight coupling
- Low amplitude balance
- Close phase tracking
- Industry standard sizes and footprint
- Dimensionally stable materials for best CTE match

## SPECIFICATIONS

TABLE 1: TYPICAL SPECIFICATIONS\*

FREQ (MHz)	POWER (W)	PART NUMBER	INSERTION LOSS (dB)	AMPLITUDE BALANCE (dB)	ISOLATION (dB)	VSWR	PHASE BALANCE	OPERATING TEMP (°C)	ΘJC (°C/W)
960-1215	175	<b>Q3XG-1088R</b>	0.15	± 0.2	27	1.15	± 2°	-55 to +95	17

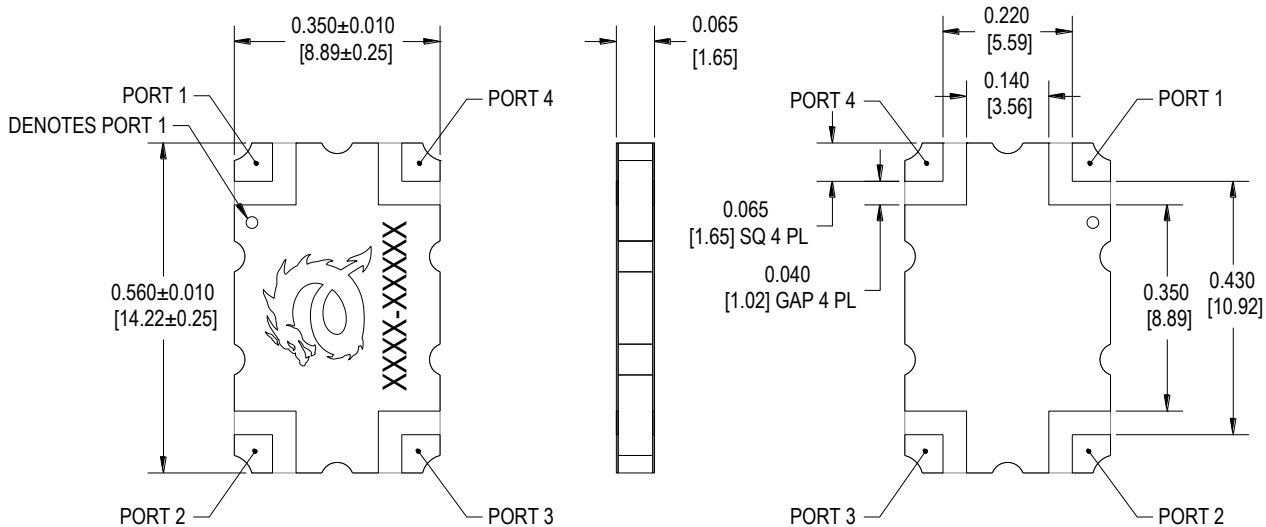
\* Units tested with small signal using Electro-Photonics test board at 25°C. Specifications subject to change without notice.

† Peak Power Handling = Max CW Power x 10 @ 10% DC 10µs PW

‡ Please consult sales ([sales@electro-photonics.com](mailto:sales@electro-photonics.com)) for custom footprints, sizes, and/or specifications.

## MECHANICAL OUTLINE

\* Dimensions are inches [millimeters].



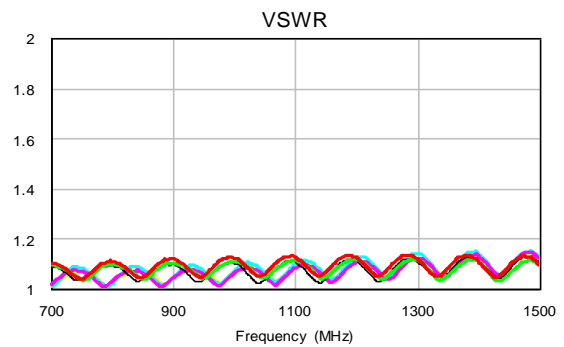
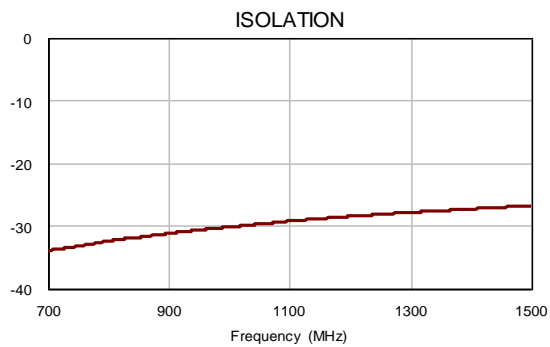
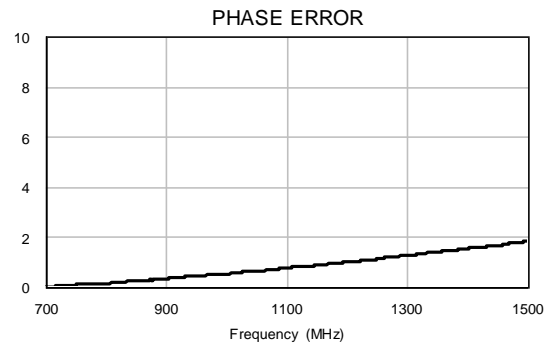
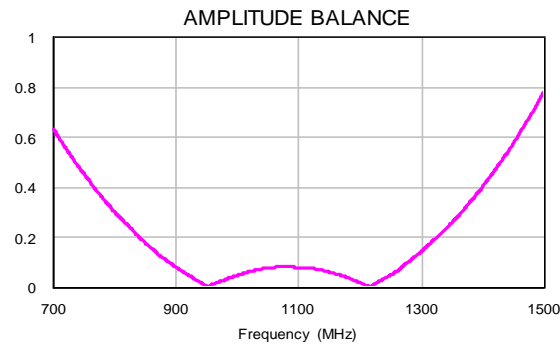
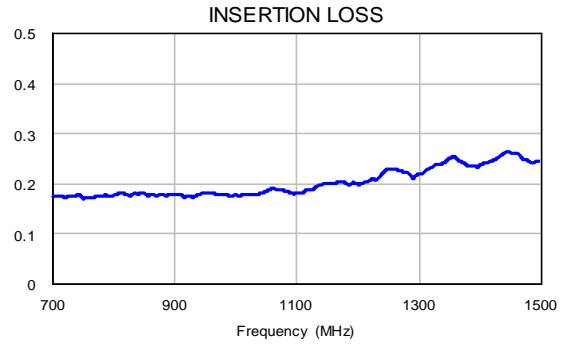
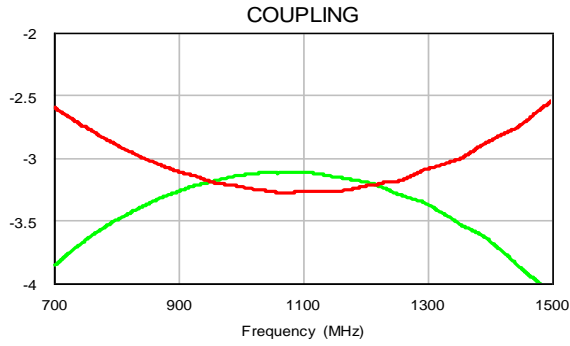
COUPLERS

# Q3XG-1088R

SURFACE MOUNT 3dB 90° HYBRID COUPLERS

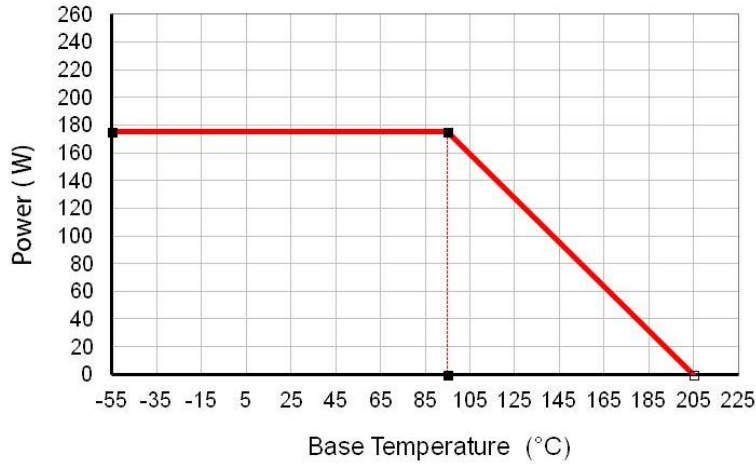
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## TYPICAL PERFORMANCE



## POWER DERATING

### POWER DERATING



## PIN CONFIGURATION

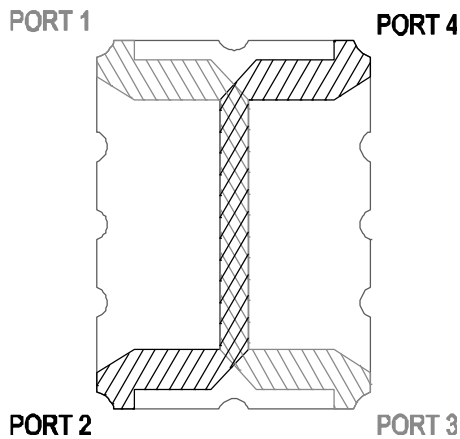


TABLE 2: SPLITTER CONFIGURATION\*

PORT 1	PORT 2	PORT 3	PORT 4
IN	ISO	-90°	0°
ISO	IN	0°	-90°
-90°	0°	IN	ISO
0°	-90°	ISO	IN

\* Signals will split into -3dB amplitude in quadrature. A small fraction of the signal will appear at the isolated port due to non-ideal isolation.

TABLE 3: COMBINER CONFIGURATION†

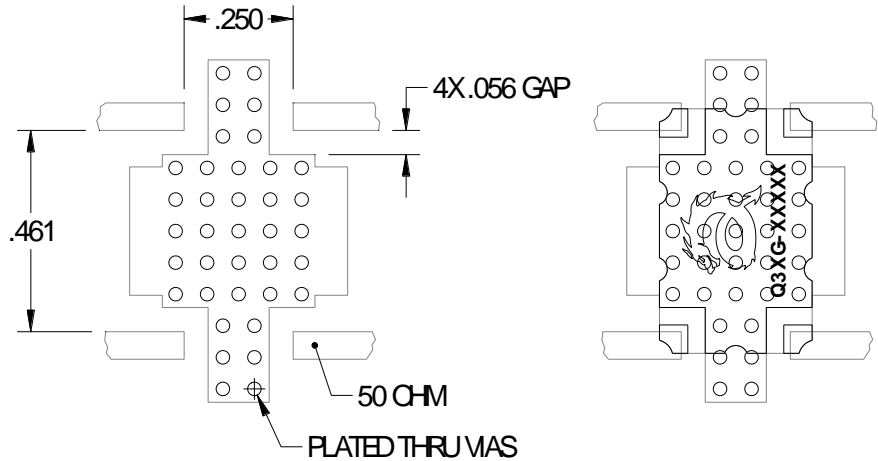
PORT 1	PORT 2	PORT 3	PORT 4
-90°	0°	ISO	OUT
0°	-90°	OUT	ISO
ISO	OUT	-90°	0°
OUT	ISO	0°	-90°

† Combining signals are applied in quadrature with equal amplitude. Unequal amplitude signals will generate small signal appearing at the isolated port.

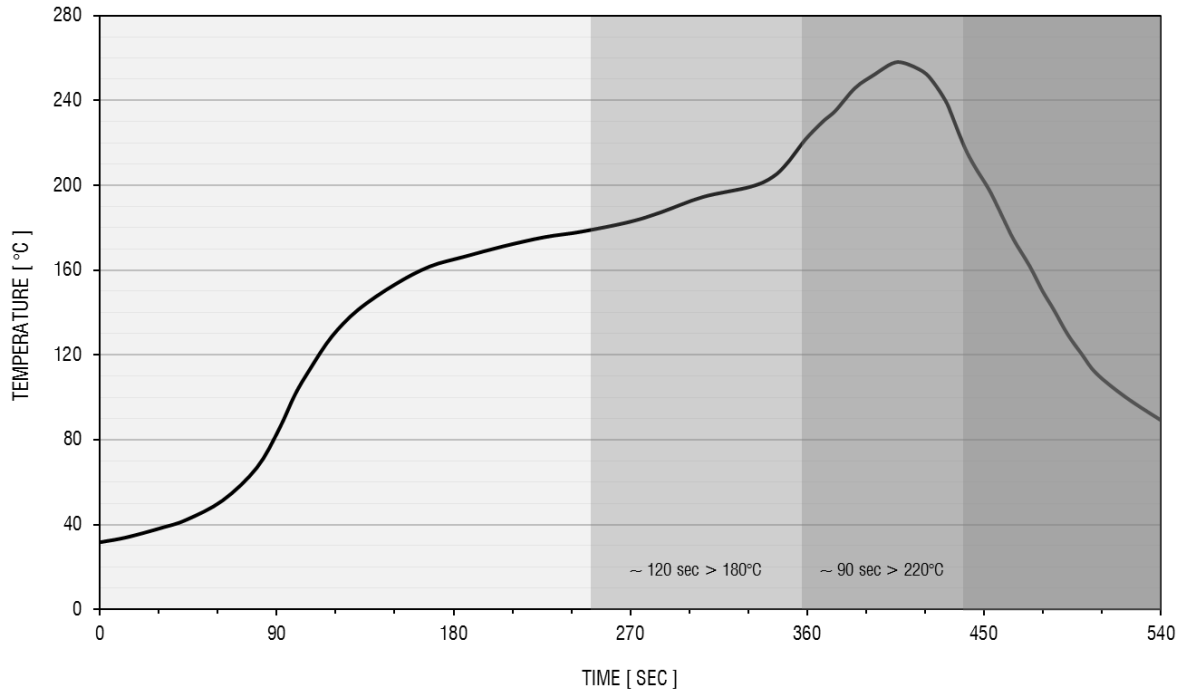
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## MOUNTING

Electro-Photonics test board is designed using 30 mil RO4350B material. Land pattern design must be taken into consideration when using a different thickness and/or dielectric constant in order for optimal performance.



### LEAD-FREE SOLDER PROFILE



# Q3XG-1088R

## ORDERING INFO\*

\* Consult sales ([sales@electro-photonics.com](mailto:sales@electro-photonics.com)) for custom configuration, size, footprint, and/or specifications. Parts come in loose pieces in plastic bag; Tape & Reel is available upon request (with minimum order quantities of 500 pcs).

**Q 3 X G - 1 0 8 8 R - T**  
 ①      ②                      ③      ④                      ⑤

①	②	③	④	⑤
PRODUCT CODE	SIZE	FREQUENCY	PLATING	PACKAGING
QUADRATURE 3dB CROSSOVER HYBRID	A = .250 X .200 B = .560 X .200 G = .560 X .350 D = .650 X .480	MHz  (SEE TABLE 1)	R = IMMERSION TIN  E = ENIG (ELECTROLESS NICKEL IMMERSION GOLD )	= BULK T = TAPE & REEL  (MOQ REQ'D FOR TAPE & REEL)

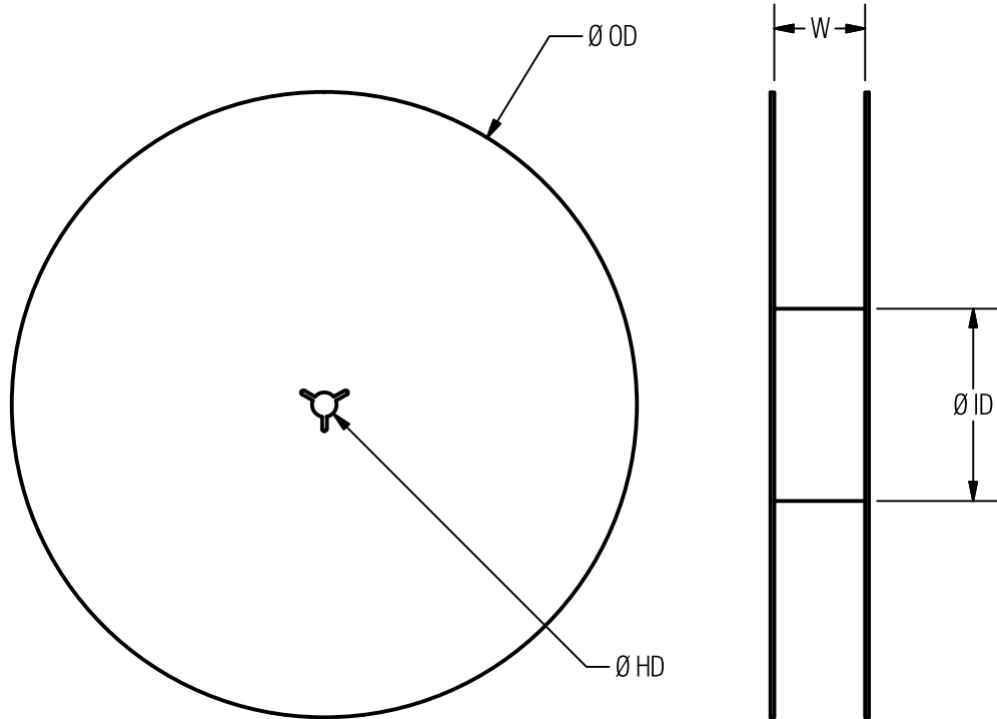
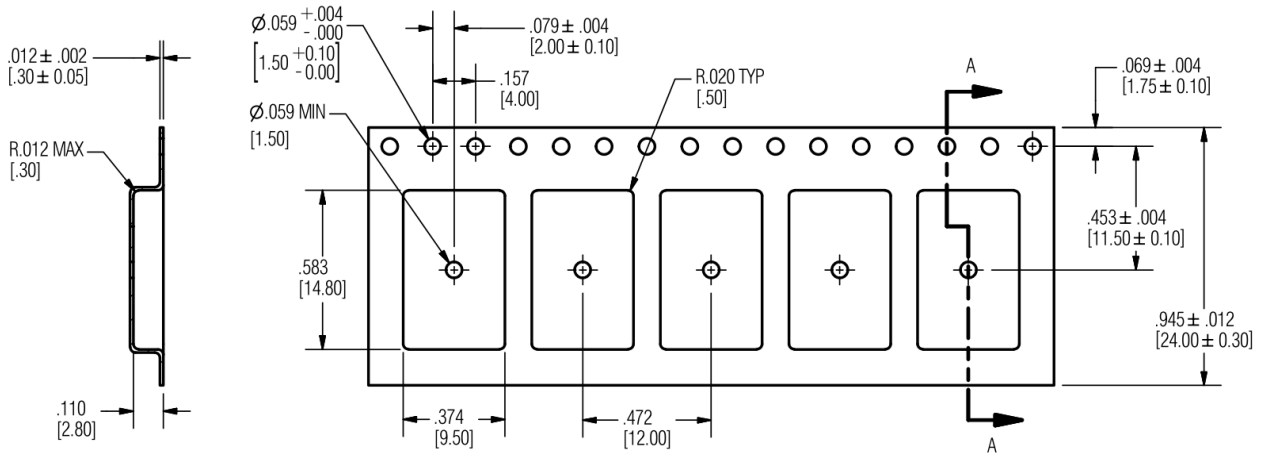


The Q3XG-1088R is lead free, RoHS compliant product.

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REEL DIMENSION INCHES [ mm ]	
Ø OD	13.0 [ 330.0 ]
Ø HD	0.512 [ 13.0 ]
W	0.945 [ 24.0 ]
Ø ID	4.0 [ 102.0 ]

COUPLERS