

## GaAs MMIC Monolithic Integrated Directional Coupler , 2-16 GHz

### Performance characteristics

- Frequency range: 2 -16 GHz
- Insertion loss : 1.5 dB (typ.)
- Coupling: 15dB
- Coupling flatness: 5.0dB
- Input\output standing wave: 1.3
- 50Ohm input / output
- Chip size: QFN 5X5

### Product Introduction

GDC-021615-CQ5 single-chip coupler chip covers a frequency range of 2 GHz ~ 16 GHz , with a coupling degree of 15dB . The chip has an insertion loss of 1.5 dB in the entire operating frequency band , a coupling flatness of 5.0 dB , and a port standing wave of less than 1.3 . This chip uses a 5 x 5 mm ceramic surface mount package, and the surface of the pin pad is gold-plated, which is suitable for reflow soldering installation process.

Use restriction parameter <sup>1</sup>	
Maximum input power	+40dBm
Operating temperature	-55 ~ +85°C
Storage temperature	-65 ~ +150°C

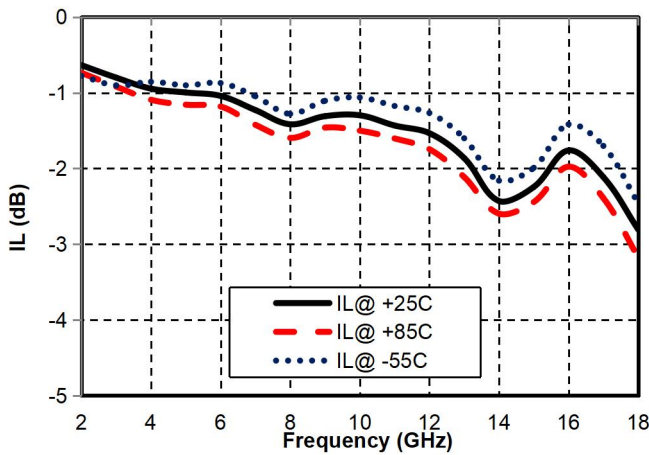
【1】 Exceeding any of these maximum limits may cause permanent damage.

Electrical performance parameters ( TA = +25°C)				
Index	Minimum	Typical Value	Maximum	Unit
Frequency Range	2-16			G Hz
Insertion loss	-	1.5	-	dB
Coupling	-	15	-	dB
Through input return loss	-	22	-	dB
Through output return loss	-	19	-	dB
Coupled output return loss	-	17	-	dB
Isolation		21		dB

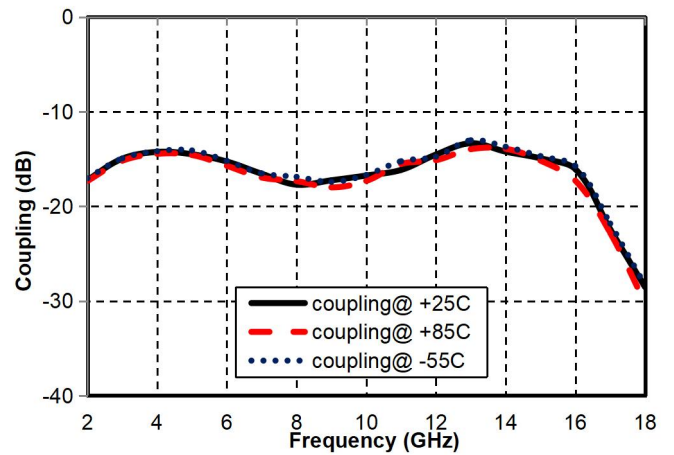
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Main index test curve

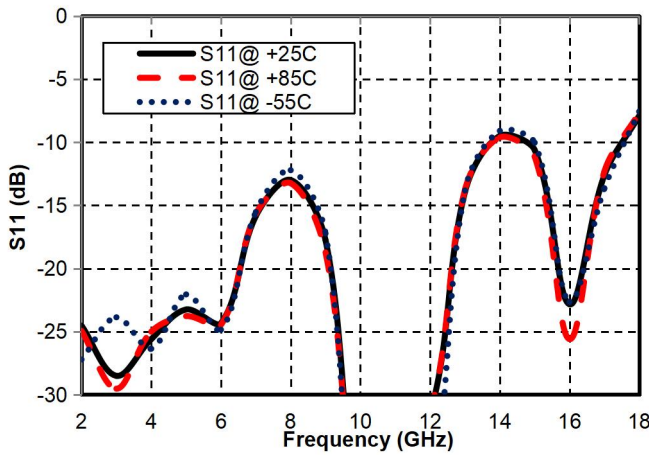
Insertion Loss vs. Operating Frequency



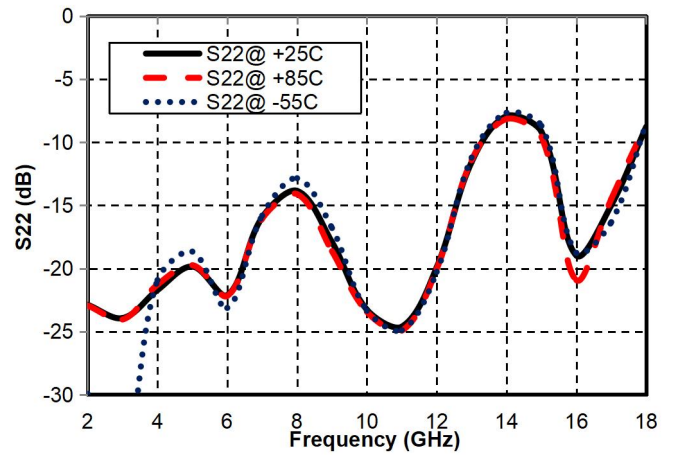
Coupling Degree vs. Operating Frequency



Thru Input Return Loss vs. Operating Frequency

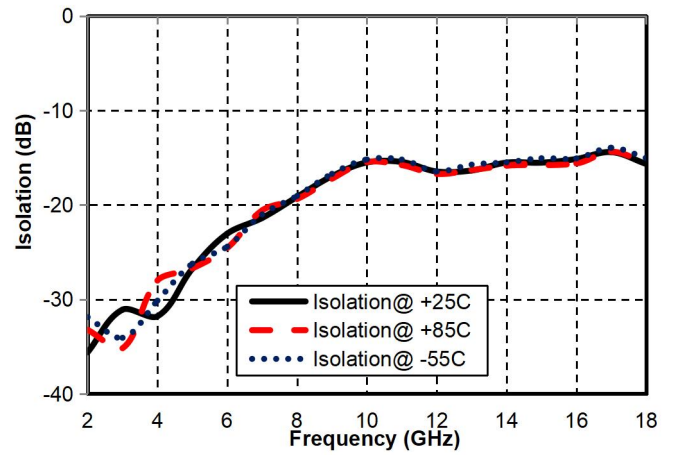
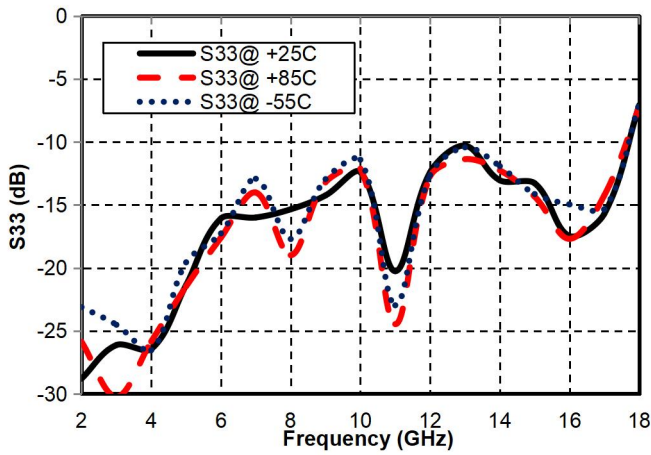


Through Output Return Loss vs. Operating Frequency



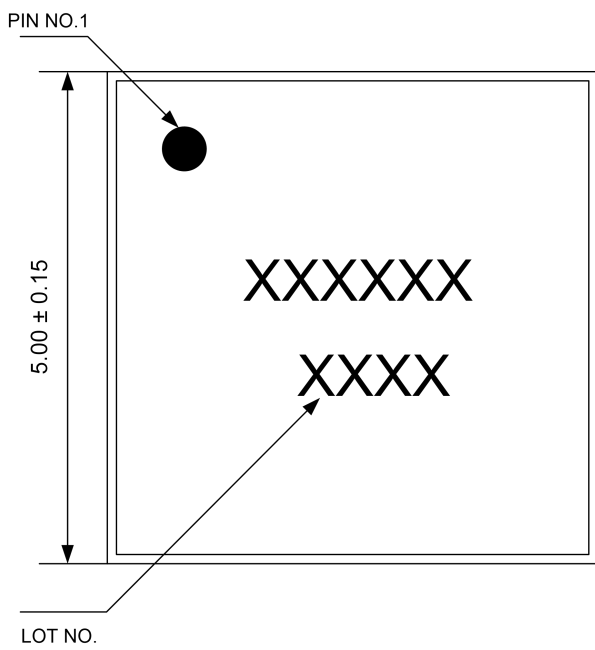
Coupled Output Return Loss vs. Operating Frequency

Isolation vs. Operating Frequency

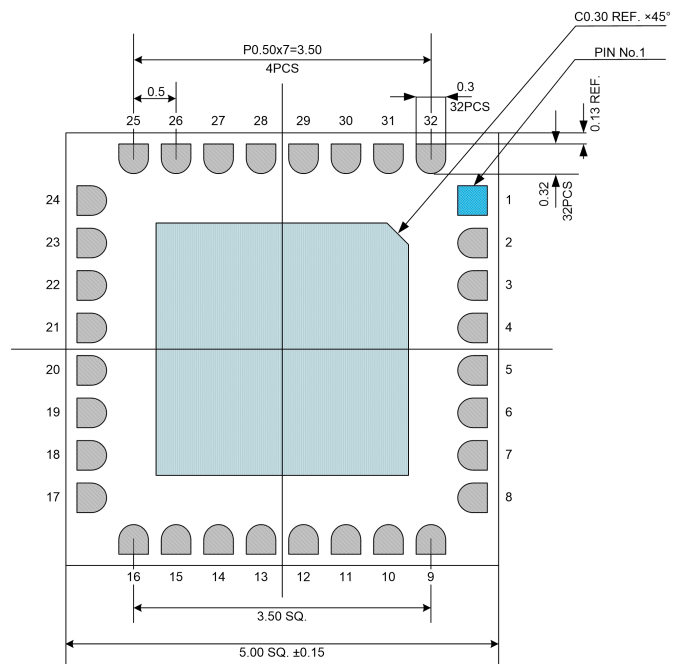


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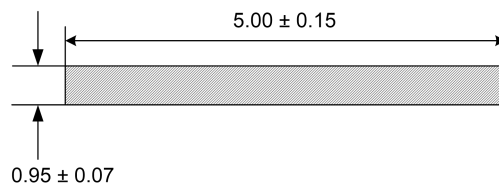
### Appearance structure



Top view



Bottom view



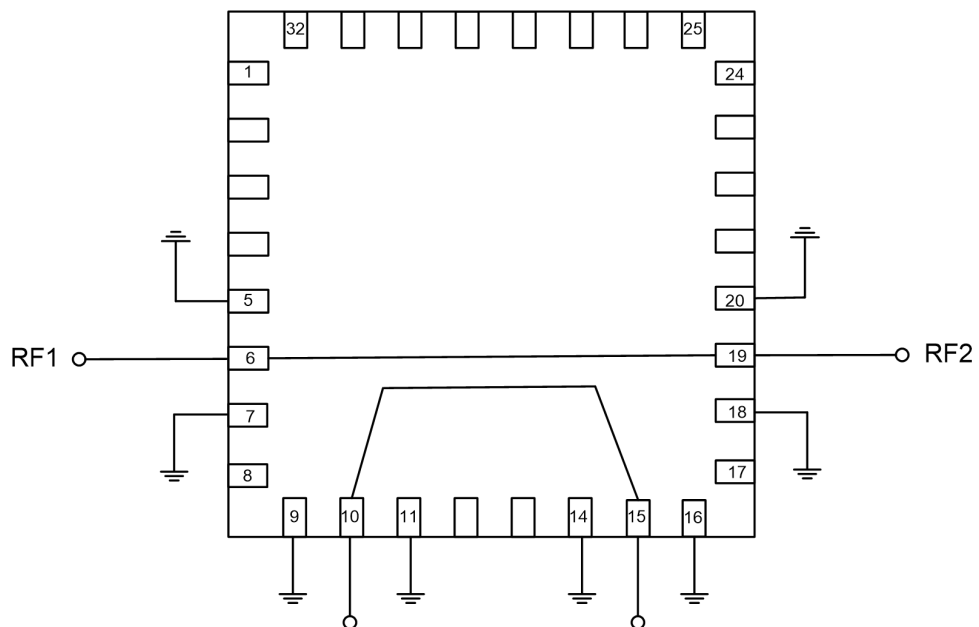
Side View

All units in the figures are millimeters .

Pin Definition		
Bonding point number	Function Symbol	Functional Description
6	RF 1	RF signal input/output terminal
19	RF2	RF signal input/output terminal
10	Coupling/Termination	Coupled RF signal output and / or load
15	Coupling/Termination	Coupled RF signal output and/or load
Chip bottom	GND	The bottom of the chip needs to be well grounded to RF and DC
5, 7, 9, 11, 14, 16, 18, 20	GND	The pins need to be well grounded to the RF and DC grounds
Other	NC	The pin is floating and can be grounded

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### Recommended Circuit



### Precautions for use

- Sealing material : Ceramic material that meets ROHS standards
- Lead frame material: copper alloy
- Lead surface plating: gold, gold layer thickness 0.3um MIN
- Maximum reflow peak temperature: 260 °C