

GaAs MMIC Monolithic Integrated Directional Coupler , 2-18 GHz

Performance characteristics

- Frequency range: 2 -18 GHz
- Insertion loss : 1.7 dB (typ.)
- Coupling: 16dB
- Coupling flatness: 6.5dB
- Input\output standing wave: 1.3
- 50Ohm input / output
- Chip size: QFN 4X4

Product Introduction

The GDC-021815-PQ4 single-chip coupler chip covers a frequency range of 2 GHz to 18 GHz with a coupling degree of 16 dB . The chip has an insertion loss of 1.7 dB in the entire operating frequency band , a coupling flatness of 6.5 dB , and a port standing wave of less than 1.3 . The chip is packaged in a 4 x 4 mm plastic surface mount package, and the surface of the pin pad is tinned, which is suitable for reflow soldering installation.

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

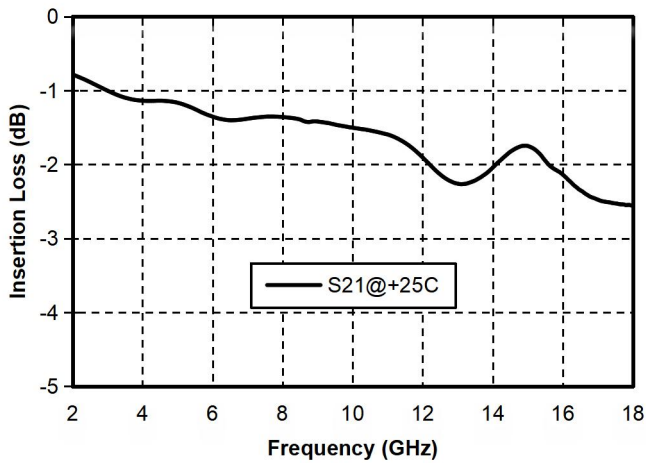
【1】 Exceeding any of these maximum limits may cause permanent damage.

Electrical performance parameters (TA = +25°C)				
Index	Minimum	Typical Value	Maximum	Unit
Frequency Range	2-18			G Hz
Insertion loss	-	1.7	-	dB
Coupling	-	16	-	dB
Input return loss	-	18	-	dB
Through output return loss	-	17	-	dB
Coupled output return loss	-	17	-	dB
Isolation		23		dB

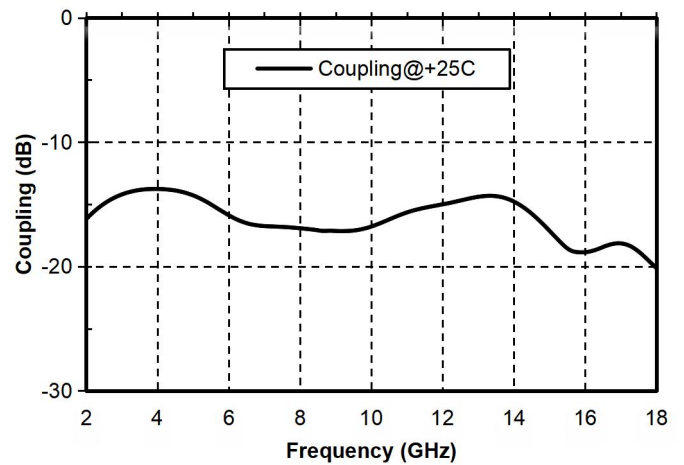
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Main index test curve

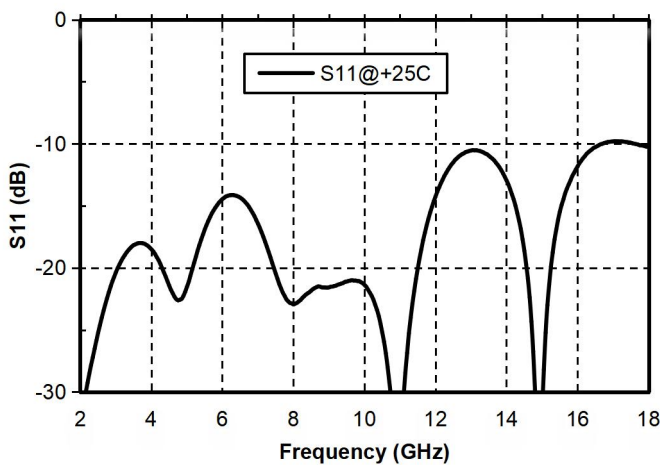
Insertion Loss vs. Operating Frequency



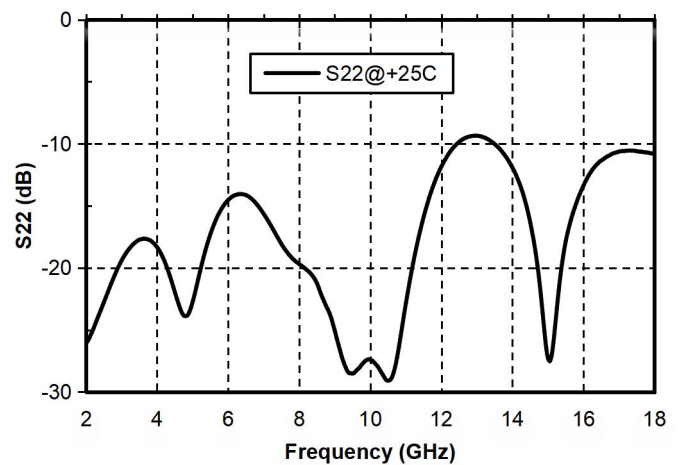
Coupling Degree vs. Operating Frequency



Input Return Loss vs. Operating Frequency

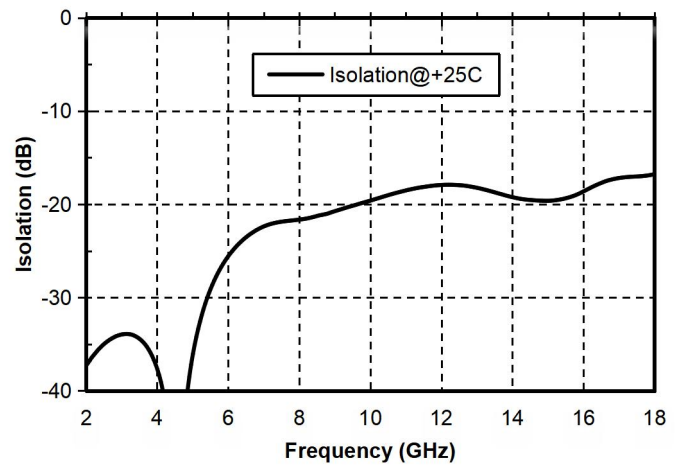
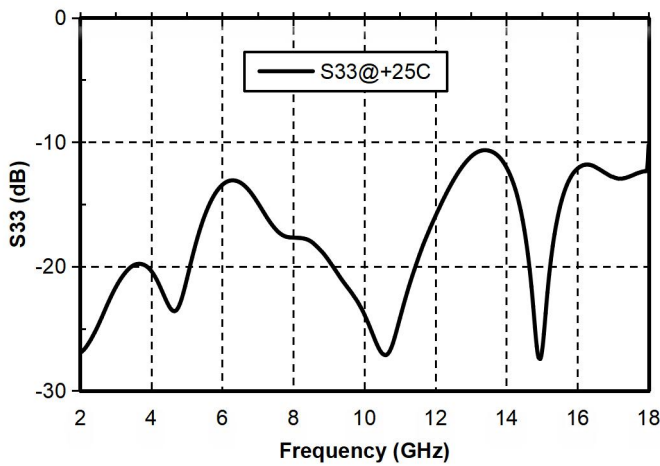


Through Output Return Loss vs. Operating Frequency



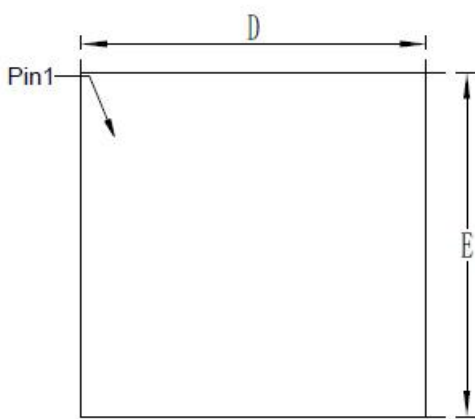
Coupled Output Return Loss vs. Operating Frequency

Isolation vs. Operating Frequency

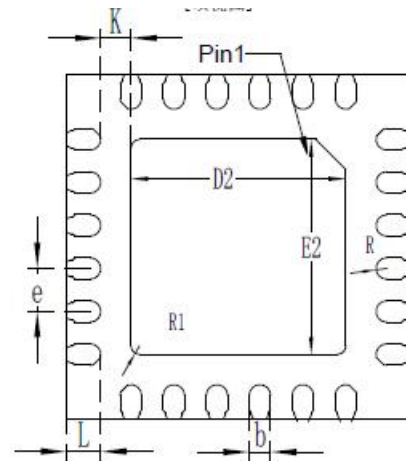


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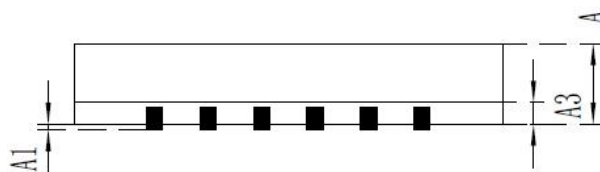
Appearance structure



Top view



Bottom view



Side View

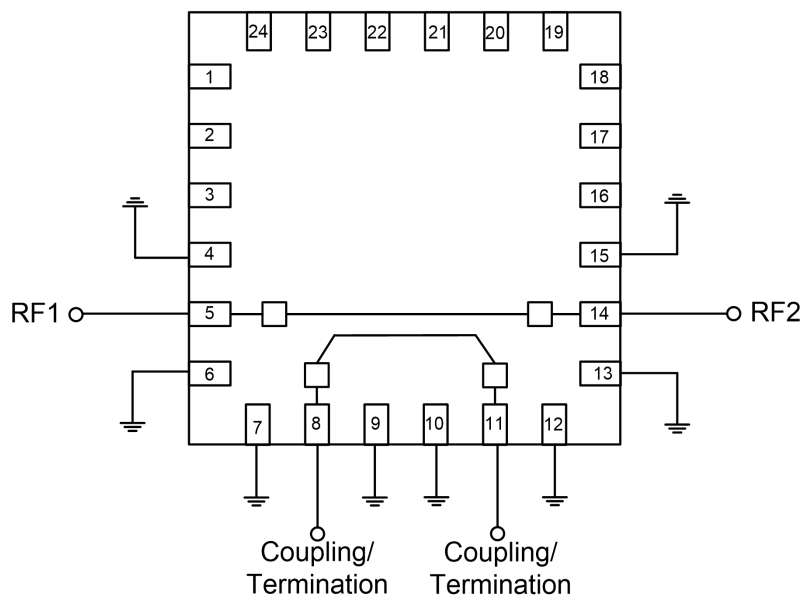
Structure size			
	MIN	TYP	MAX
A	0.650	0.750	0.850
A1	0.000	0.020	0.050
A3	--	0.203	--
b	0.200	0.250	0.300
D	3.900	4.000	4.100

E	3.900	4.000	4.100
e		0.500	--
D2		2.500	
E2	--	2.500	--
L	--	0.400	--
K	0.200	0.350	--
R	0.090	0.125	--
R1	--	0.100	--

All units in the figures are millimeters .

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Recommended assembly drawing



Precautions for use

- Sealing material : Low-pressure injection molding plastic that meets ROHS specifications
- Lead frame material: copper alloy
- Lead surface plating: 100% matte tin
- Maximum reflow peak temperature: 260 °C

Pin Definition		
Bonding point number	Function Symbol	Functional Description
5	RF 1	RF signal input terminal, no DC blocking capacitor required
14	RF2	Direct RF signal output, no DC blocking capacitor required
8, 11	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
4, 6, 7, 9, 10, 12, 13, 15	GND	The pins need to be well grounded to the RF and DC grounds
Other	NC	The pin is floating and can be grounded