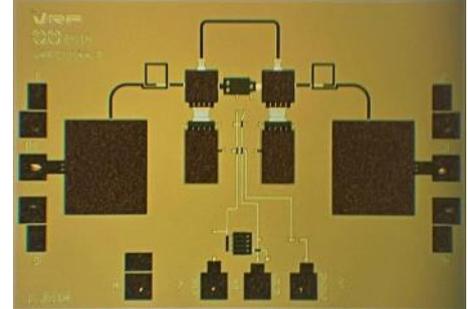


2-20GHz Variable Voltage Attenuator GaAs MMIC

Datasheet v2

Features

- Frequency Range: 2 to 20 GHz
- 12 dB attenuation range
- 1 dB insertion loss at 10 GHz
- Bias: $V_{CC} = 2.5\text{ V}$
- Control: $V_c = 0\text{-}3\text{ V}$
- Die Size: 1.7 mm x 1.2 mm x 0.1 mm



Description

The VRFC0044-7-BD is a bare die GaAs MMIC variable voltage attenuator MMIC which operates over the frequency range of 2 to 20 GHz. The part offers a dynamic range of 12 dB with a minimum insertion loss of 1 dB at 10 GHz. The MMIC offers excellent input and output return losses across the entire control range when configured with the appropriate RF bond-wires.

Electrical Specifications

Parameter	Condition	Specification			Unit
		Min.	Typ.	Max.	
Frequency Bandwidth		2		20	GHz
Minimum Insertion Loss	$f = 10\text{ GHz}$ $V_{CC} = +2.5\text{ V}$		1		dB
Dynamic Range	$f = 10\text{ GHz}$ $V_{CC} = +2.5\text{ V}$		12		dB
I/P Return Loss	$f = 10\text{ GHz}$ $V_{CC} = +2.5\text{ V}$		15		dB
O/P Return Loss	$f = 10\text{ GHz}$ $V_{CC} = +2.5\text{ V}$		15		dB
Thermal Resistance			188		$^{\circ}\text{C}/\text{W}$

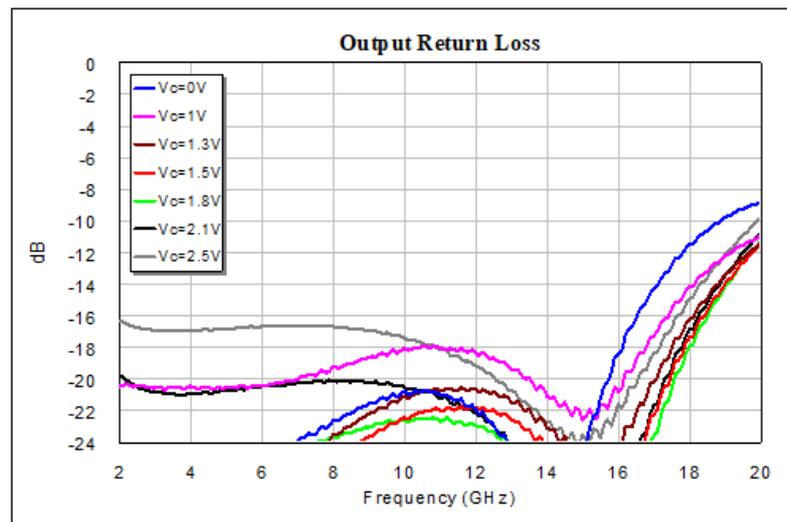
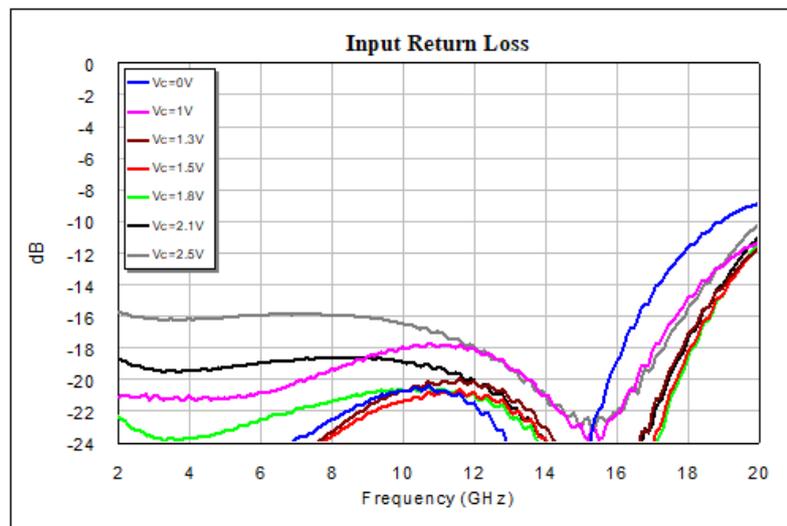
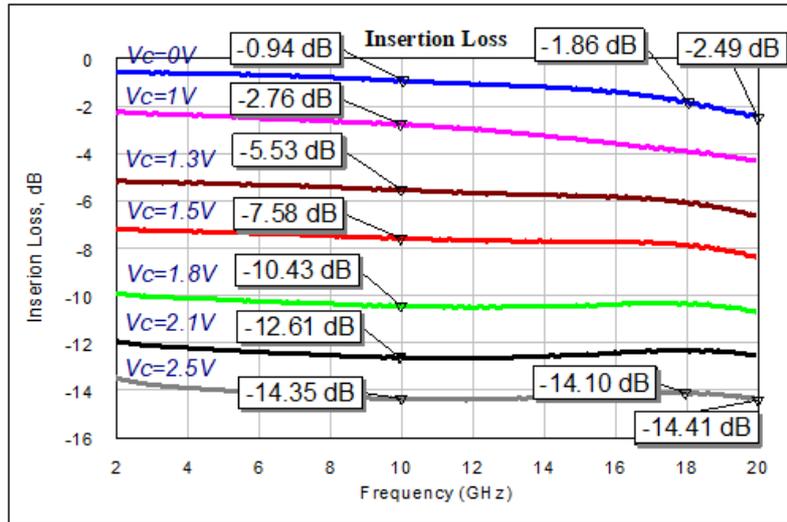
Note: specified performance indicated for die backside temperature of 25°C

2-20GHz Variable Voltage Attenuator GaAs MMIC

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Measured Performance (on wafer, L = 0.24nH added to input and output ports)

T=+25°C baseplate, VCC = +2.5V



2-20GHz Variable Voltage Attenuator GaAs MMIC

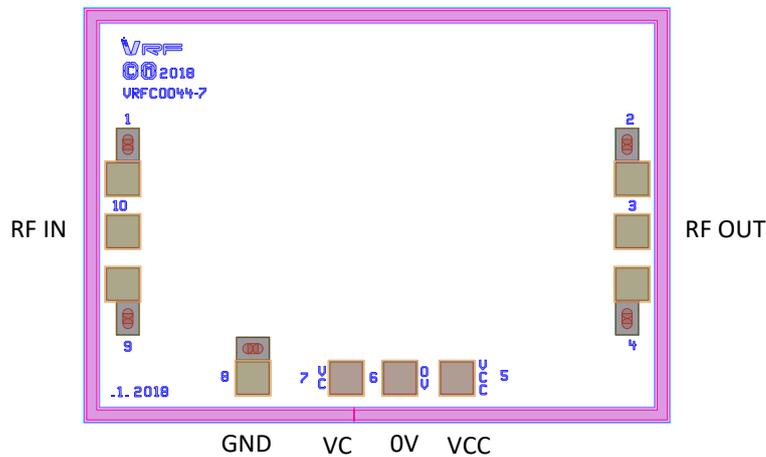
Datasheet v2

Recommended Absolute Maximum Ratings ^[1]

Parameter	Symbol	Value	Notes
Voltage CC	V_{CC}	+5V	
Voltage Control	V_C	+5V	
Gate Current	I_g	5mA	
RF input power	RF_{in}	20dBm	
Power Dissipation	P_d	100mW	
Junction Temperature	T_j	175°C	For maximum median device lifetime, T_j should be minimised
Storage Temperature	$T_{storage}$	-55 to 150°C	

^[1] Operation outside these conditions may cause permanent damage to the device. Combination of maximum rating conditions may reduce the values. Device performance at these ratings is not implied.

Assembly & Bonding Data



Die Size	1.7mm x 1.2mm
Die Thickness	100µm
Minimum Bondpad opening	100µm x 100µm

Optimum length (0.24nH) are recommended for RF bondwires.

The RF input and output ports are DC blocked.



GaAs devices are ESD sensitive and precautions should be observed during storage, handling, assembly and testing.