UMTS Digital Gain Control Amplifier, 1.94 - 2.34 GHz

AM55-0027

V 1E.00

Advanced

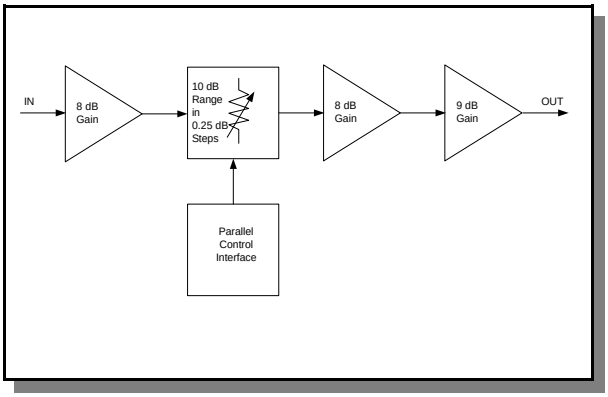
Features

- Digitally Controlled Gain Block
- Parallel Control Interface
- 4mm FQFP-N Package
- Single Positive Supply Voltage
- 0.25 dB Steps of Attenuation
- 10 dB Atttenuation Range

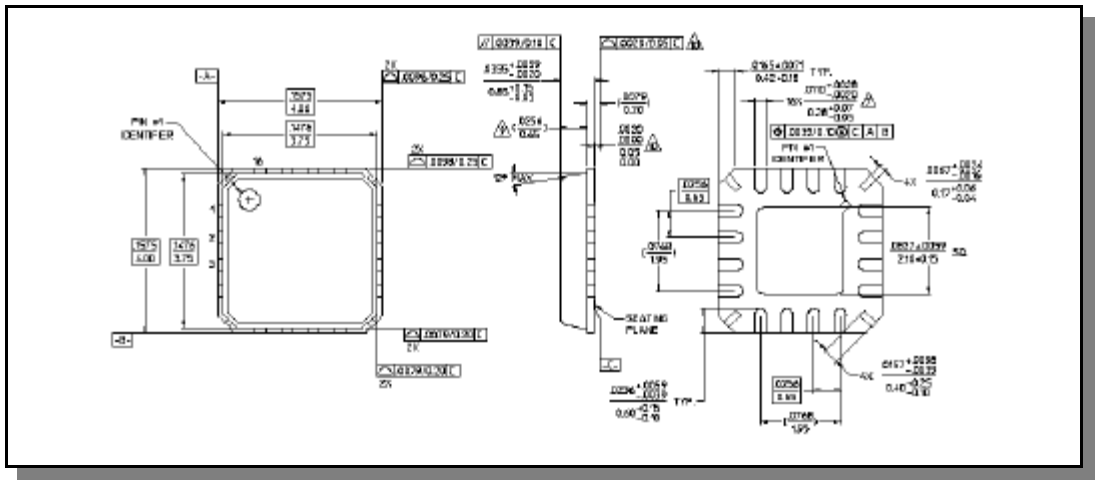
Description

M/A-COM's AM55-0027 is a digitally controlled Variable Gain Amplifier. Attenuation range is 10 dB with Attenuation Steps of 0.25 dB. Attenuation is controlled digitally through a parallel interface.

Block Diagram



4mm FQFP-N Package Style



Electrical Specifications: T_A = 25°C, Z_0 = 50Ω, V_S = 5V

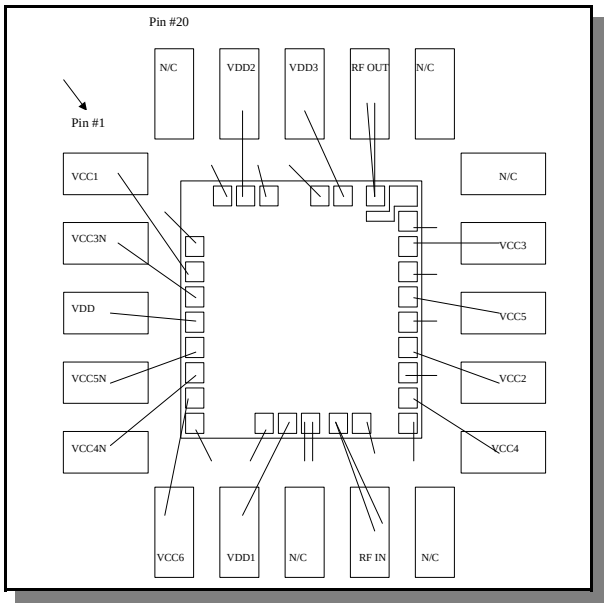
Parameter	Conditions	Frequency	Units	Min.	Typ.	Max.
Gain	No Attenuation	1.94 - 2.34 GHz	dB	24	26	—
Attenuation Range	—	1.94 - 2.34 GHz	dB	10	10	—
Attenuation Step Size	—	1.94 - 2.34 GHz	dB	0.2	0.25	0.3
Amplitude Flatness	— All attenuation states	1.94 - 2.34 GHz 2.09 - 2.19 GHz	dB dB	— —	— —	± 0.3 ± 0.1
Input Return Loss	—	1.94 - 2.34 GHz	dB	13	18	—
Output Return Loss	—	1.94 - 2.34 GHz	dB	10	14	—
Output P1 dB	0 dB attenuation	1.94 - 2.34 GHz	dBm	15	19	—
Output IP3	0 dB attenuation	1.94 - 2.34 GHz	dBm	30	31	—
Noise Figure	0 dB attenuation	1.94 - 2.34 GHz	dB	—	4.7	—
Noise Figure	10 dB attenuation	1.94 - 2.34 GHz	dB	—	9.0	—
Supply Current	—	—	mA	—	110	120

Pin Out Table

Control Pin		Attenuation State
5V	0V	
Vcc6		0.25 dB
Vcc1		0.5 dB
Vcc2		1 dB
Vcc3	Vcc3N	2 dB
Vcc4	Vcc4N	4 dB
Vcc5	Vcc5N	8 dB

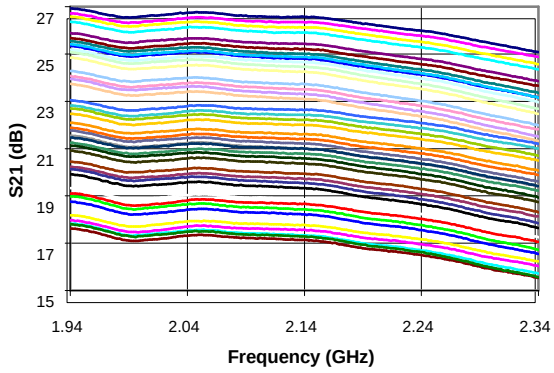
*All Vdd pins = 5V
Example: To get 7.5 dB Attenuation Vcc4 = 5V, Vcc4N = 0V, Vcc3 = 5V, Vcc3N = 0V, Vcc2 = 5V and Vcc1 = 5V
Note: In this case Vcc5 = 0V therefore Vcc5N is 5V, and Vcc6 = 0

Pin Out Figure

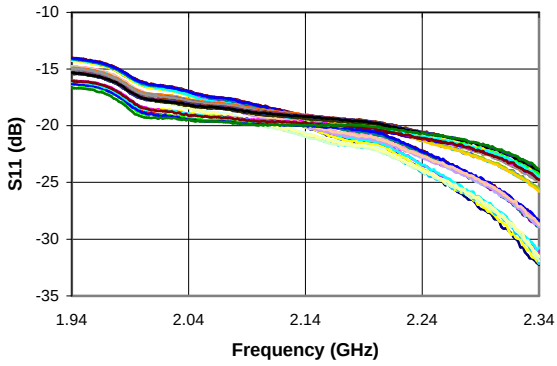


Typical Performance Curves

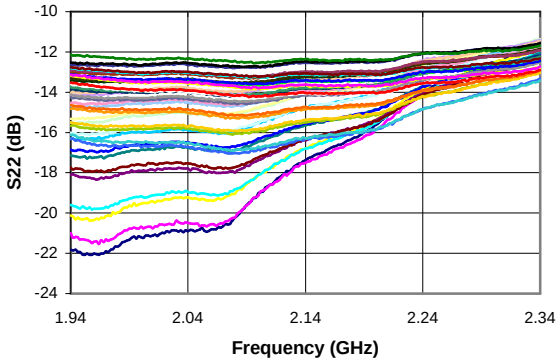
Gain vs. Frequency



Input Return Loss vs. Frequency



Output Return Loss vs. Frequency



Ordering Information

Part Number	Package
AM55-0027	Bulk Packaging
AM55-0027TR	Tape and Reel (1K Reel)
AM55-0027-TB	Units Mounted on Test Board