

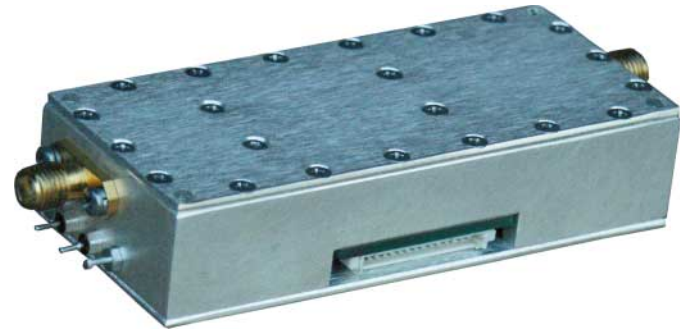
The SSA series of solid state RF attenuators from dBm offers unprecedented reliability, fast switching speed (less than 20us), wide dynamic range (95dB), excellent frequency range (20 to 3000 MHz) and a unique digital control bus to permit dense physical packaging. It is ideally suited for OEM switch matrix applications. The solid state attenuators, originally developed for dBm's product line of highly accurate, fast carrier/noise generators are now offered with a companion digital control bus and tray assembly to allow users to easily and cost effectively construct their own high speed RF mux of virtually any size. Fast update rates (1 KHz) with data strobing for simultaneous update of all attenuators is offered.

RF Attenuator

Each RF attenuator is constructed using MMIC GaAs technology and has a dynamic range of 95dB with a step size of 1dB. It is designed to handle high power levels (1dB compression point greater than +25 dBm) and is packaged in a compact 3.2" x 1.4" 0.75" housing. The solid state attenuators requires minimal DC power (360mW) and is controlled via a 7 bit parallel TTL word. SMA connectors are offered as standard.

Multi-channel Attenuator tray assembly

To simplify the construction of RF switch matrixes, a mutli-channel attenuator (up to 16 channels) assembly tray with a high speed digital control board is offered. The tray provides a simple method to mount up to sixteen RF attenuators with a single digital control port and a single connector for DC power input. Multiple trays can be incorporated into a rack mount chassis. Each attenuator is independently controllable . A master strobe input allows all channels to be updated simultaneously. Up to sixteen assembly trays, each with up to 16 RF attenuators (16x16 mux) can easily be configured and controlled via a simple 8 bit parallel address and 8 bit parallel data bus. All attenuators can be continuously and simultaneously updated at a rate exceeding 1 KHz



Features

- ◆ High reliability - solid state design
- ◆ Wide frequency range
- ◆ Fast switching speeds
- ◆ Low amplitude ripple
- ◆ Fast update rates
- ◆ Dense packaging for RF multi-channel designs

Applications

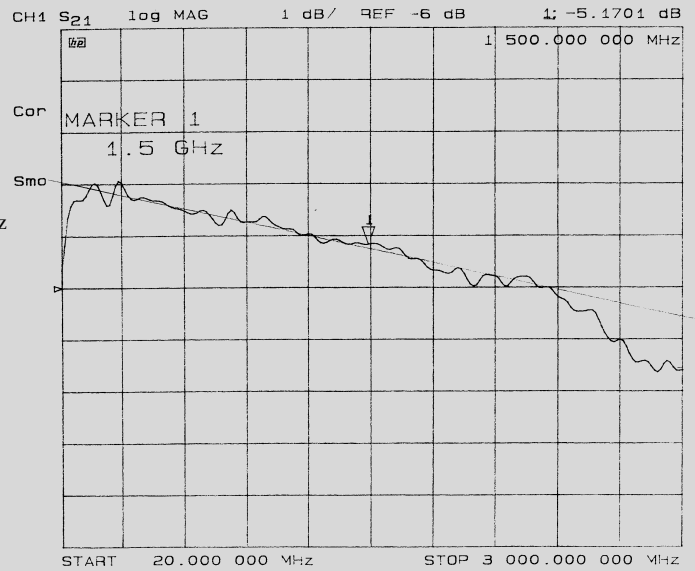
Typical applications for the SSA Series include:

- ◆ High speed switching/combining/attenuation wireless simulation system
- ◆ RF ATE test systems
- ◆ Cell phone and base station inter-op testing

Specifications

Solid State Attenuator

Attenuation Range	0 to 95 dB
Attenuation resolution:	1 dB
Frequency Range:	20 MHz to 3,000 MHz
Insertion loss	4 to 7.5 dB (20 to 3,000 MHz)
Amplitude ripple	+/- 0.75 dB @ 0 dB attn 20 MHz to 3,000 MHz +/- 0.2 dB max, per 100 MHz
1 dB Comp point	> +25 dBm, 100 MHz to 3,000 MHz, > +19 dBm @ 20MHz
Output 3rd order intercept	+40 dBm typical @ 0 dB, +35 dBm min any setting
Noise Floor	< -170 dBm/Hz
Switching speed	< 16 us 10% TTL to 90% RF
RF rise/fall time	< 3us
VSWR	1.5: 1 , 100 to 3,000MHz
Size	3.2" x 1.4" x 0.75" (excluding RF connectors)
Connectors	SMA(F)
Control Interface	7 bit parallel TTL, binary weighting
DC Power	+15V @ 2 mA -15V @ 22 mA



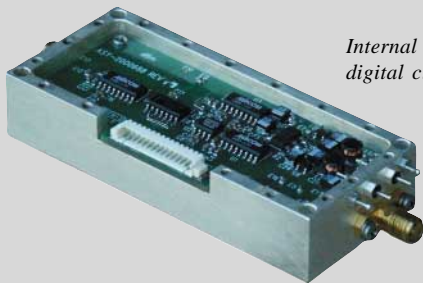
Frequency response of Attenuator

Multi-channel Attenuator Assembly

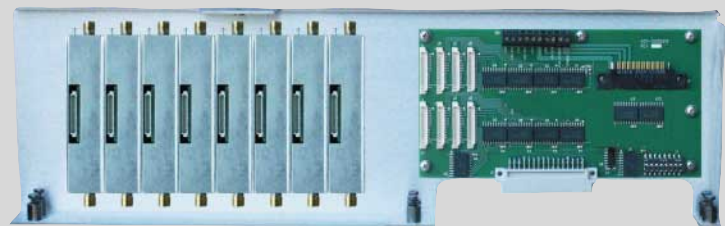
No of independent channels	8 or 16
Control interface bus	byte wide parallel latching, double buffered
Data	8 bit parallel
Address	8 bit
Byte write strobe	1 bit
Master strobe	1 bit
Assembly size	4.2" x 19" x 2" (160 cubic inches)
DC Power	+15V @ 35 mA (19mA for 8 channels) -15V @ 360 mA (180 mA for 8 channels) +5V @ 75 mA

Ordering Information

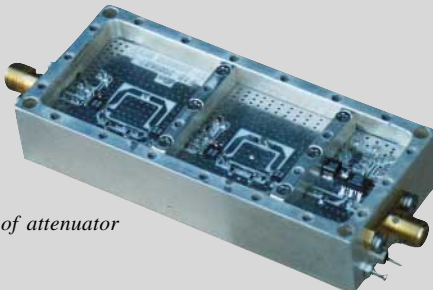
Model No.	Description
SSA20/3000	Solid State Attenuator, 20 MHz to 3,000 MHz
MUX-SSA-8	8 channel Attenuator assembly
MUX-SSA-16	16 channel Attenuator assembly



Internal view of attenuator digital circuitry.



Typical example of an 8 channel Attenuator Assembly (Cabling not shown)



Internal view of attenuator RF circuitry.



RF Test Equipment for Wireless Communications

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