



## Model 3203 & 3204 Phase Compensated Programmable Attenuators

**dc to 1.5 GHz  
1 Watt**

### *Ruggedized SMA Connectors*



### Features

- /// Usable to 2.0 GHz
- /// Low Current Gain
- /// Switching Time - Cell switching is completed, after electrical command, within 6 msec.
- /// Long Switch Life - Each cell has a rated switch life of 5,000,000 switching operations.
- /// Designed to meet many of the environmental requirements of MIL-A-24215, Class IV

### Specifications

**NOMINAL IMPEDANCE:** 50  $\Omega$

**FREQUENCY RANGE:** dc to 1.5 GHz

MAXIMUM SWR:	
Frequency Range (GHz)	SWR
dc - 1.0	1.25
1.0 - 1.5	1.35

CELL CONFIGURATIONS:			
Model Number	NO. Cells	Attenuation Range/Steps (dB)	Cell Increments (dB)
3203-1	8	103/1	1, 2, 4, 8, 16, 24, 24, 24
3204-1	6	55/1	1, 2, 4, 8, 16, 24

MAXIMUM INSERTION LOSS (dB):		
Frequency Range (GHz)	3203-1	3204-1
dc - 0.5	2.50	2.00
0.5 - 1.0	3.25	2.75
1.0 - 1.5	3.75	3.25

**INCREMENTAL ATTENUATION ACCURACY:**

$\pm 0.3$  dB or 1.0%

**INCREMENTAL PHASE DEVIATION:** 10° maximum for any attenuator setting.

**INCREMENTAL TEMPERATURE COEFFICIENT:**

0.00005 dB/dB/°C

**POWER RATING:** 1 watt average to 25 °C ambient temperature, derated linearly to 0.25 watt @ 71 °C. 50 watts peak (5  $\mu$ sec pulse width; 1% duty cycle)

**POWER COEFFICIENT:** < 0.005 dB/dB/watt

**RATED SWITCH LIFE:** 5 million cycles operations per cell @ 0 dBm

**SWITCHING TIME:** 6 msec maximum at nominal rated voltage

**RELEASE TIME:** 3 msec maximum

**CYCLING RATE:** 5 Hz maximum per relay

**OPERATING VOLTAGE:** +12V (+16V maximum; +9V minimum)

**OPERATING CURRENT:** 14 mA typical per cell @ +12V

**TEMPERATURE RANGE (Operating):** -55°C to +71°C

**CALIBRATION:** Test data is available at additional cost.

**CONNECTORS:** SMA female connectors per MIL-STD-348 interface dimensions - mate nondestructively with MIL-C-39012 connectors.

**CONTROL TERMINALS:** 0.040 inch (1 mm) diameter solderable leads. May be used with PC board sockets/receptacles.

**CONSTRUCTION:**

Housing: Aluminum

Connectors: Stainless steel body and beryllium copper contacts.

Control terminals: Brass/Copper, Silver plated

**WEIGHT (Typical):** 3203-1: 108 g (3.9 oz)  
3204-1: 84 g (3.0 oz)

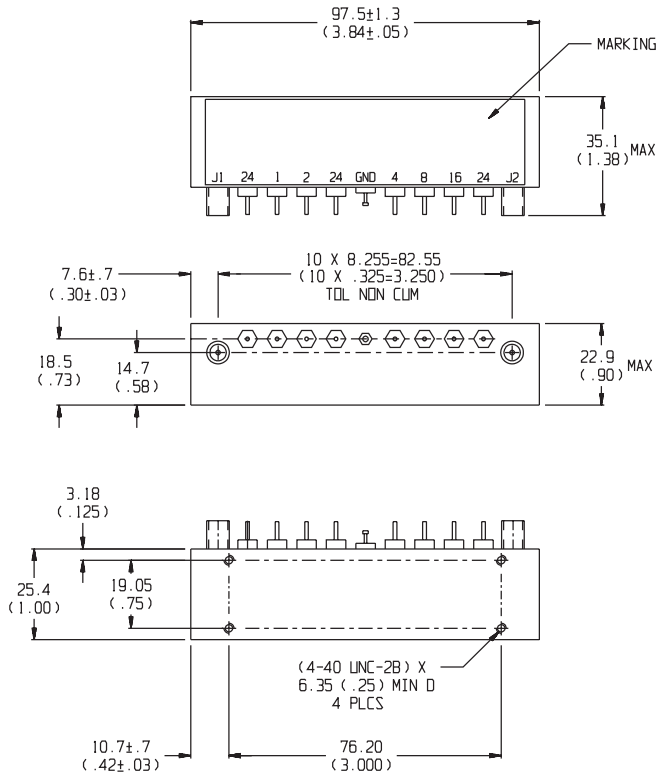
### CONTROL CONFIGURATION:

One terminal is connected to case ground and the remaining terminals are provided for activation of individual cells. Attenuation is fail-safe to "0" setting in the absence of a control voltage. Application of a voltage (+) to a particular cell causes it to switch to the attenuate position.

Note: Control is non-latching and requires a continuous control signal for the period of time in which attenuation is required.

## PHYSICAL DIMENSIONS:

**Model 3203-1:**



UNLESS OTHERWISE SPECIFIED  
DIMENSIONS ARE IN MM (INCHES)  
TOLERANCES ARE:  
.X +/- .5(.02)  
.XX +/- .25(.01)

**Model 3204-1:**

