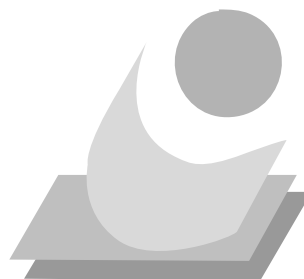


DATA BOOK
Thin Film Components

***Thin Film
Chip Attenuators***

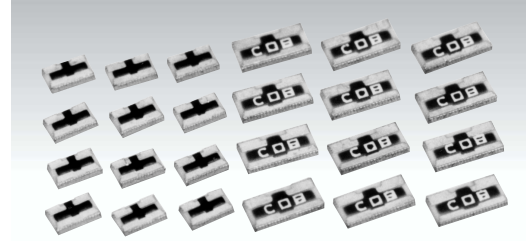
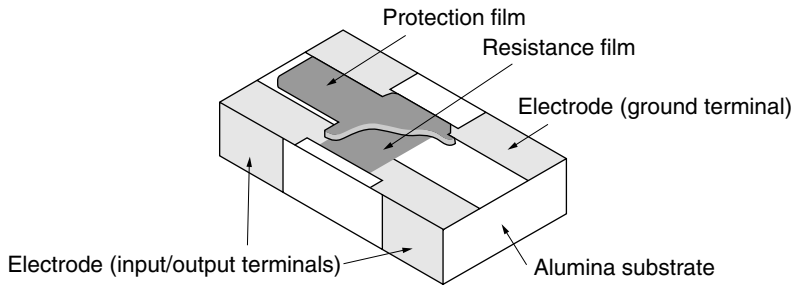


Thin Film Power

SUSUMU CO.,LTD.

Thin Film Chip Attenuators

Structure



Features

- Minimized parasite capacitance/inductance
- Excellent temperature and noise characteristics due to thin film resistance elements
- Frequency ranges: DC - 10GHz.

Specifications

★NEW

Dimension (mm)	PAT0510 (0402)	PAT1220 (0805)	PAT1632 (1206)	PAT3042S (1612)
L	1.00±0.10	2.00±0.20	3.20±0.20	4.20±0.20
W	0.51±0.10	1.25±0.20	1.60±0.20	3.00±0.20
P	0.12±0.05	0.40±0.20	0.55±0.25	1.00±0.30
P1	0.04±0.05	0.40±0.20	0.40±0.25	1.00±0.30
P2	0.24±0.05	0.50±0.20	1.00±0.25	1.20±0.30
T	0.30±0.05	0.40±0.10	0.40±0.10	0.8MAX.

PAT1632
PAT1220
PAT3042S

PAT0510

Electric characteristics

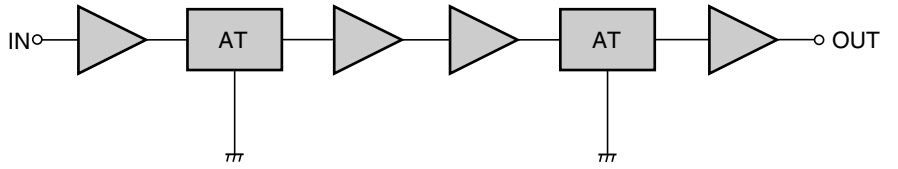
★NEW

Type	PAT0510(0402)			PAT1220(0805)	PAT1632(1206)	PAT3042S(1612)	
	Attenuation	0~3dB	4~7dB	8~10dB	0~10dB	0~10dB, 16dB	0~10dB, 16dB, 20dB
Attenuation Tolerance	±0.3dB	±0.5dB	±0.5dB	±0.3dB			
Impedance	50Ω(C)				50Ω(D)	75Ω(D)	
VSWR	<1.5			<1.3	<1.3	<1.2	<1.3
Frequency Range	DC ~10GHz			DC ~10GHz	DC ~3GHz	DC~2GHz	DC~2GHz
Rated power	32mW			100mW	125mW	250mW	
Rated Operating Temperature	70°C						
Operating Temperature Range	55°C~+125°C						

Application

Gain adjustment and impedance matching in high frequency circuits

Because control circuits need signals with identical level, and a receiver receives signals with different signal levels, signal levels could be adjusted by combining this SMT attenuators and amplifiers. At the same time termination can be obtained using these low reflection attenuators.



DATA

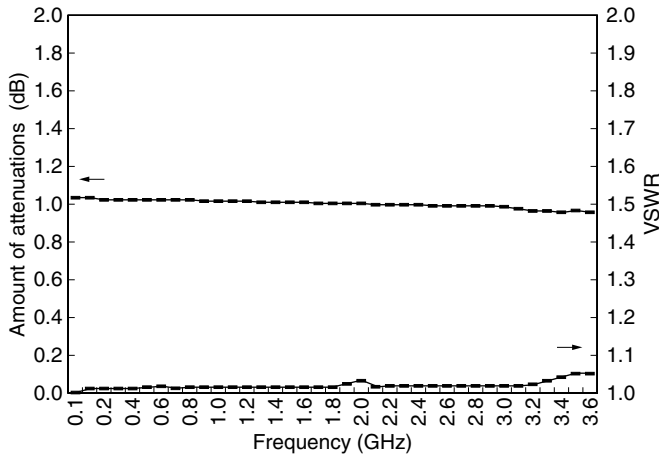
•Electric characteristics were measured under the following conditions:

Measurement apparatus: RF LCR meter [HP8722D]

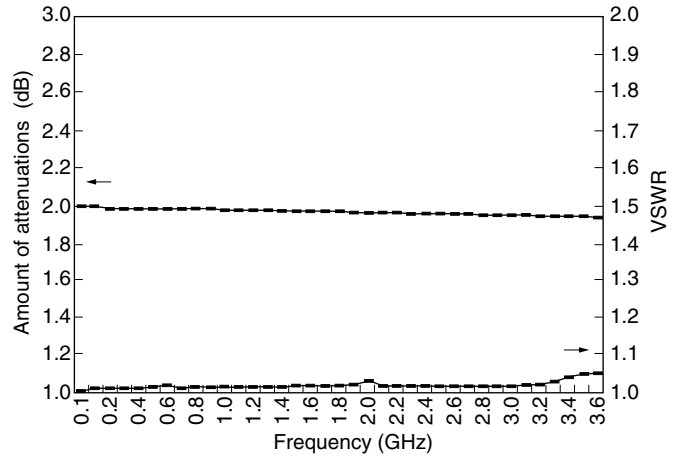
Measurement environment: room temperatures (24±2°C)

<Frequency characteristics>

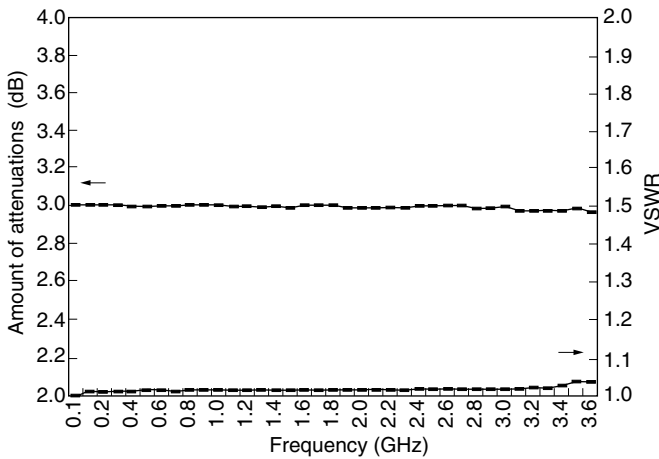
PAT1220



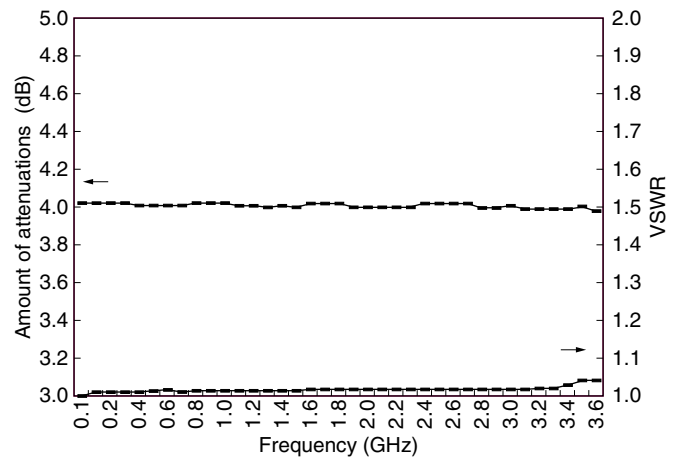
PAT1220C - 1dB



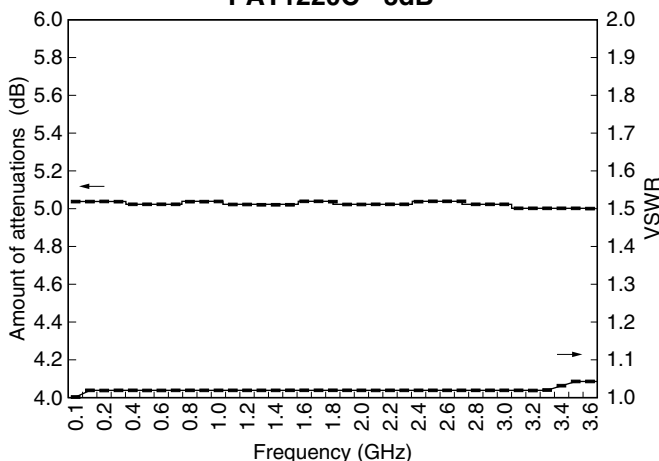
PAT1220C - 2dB



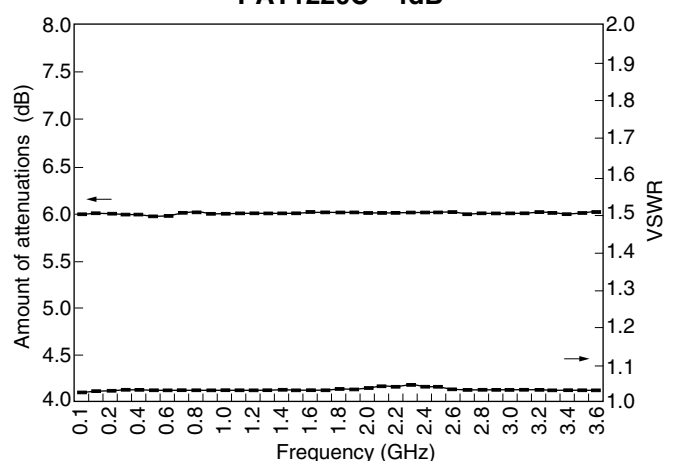
PAT1220C - 3dB



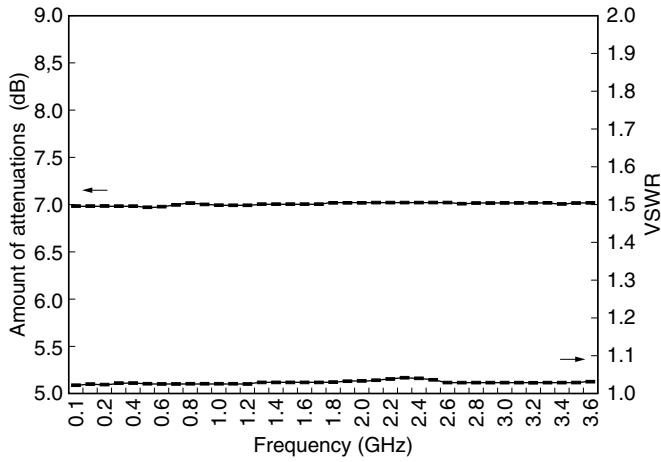
PAT1220C - 4dB



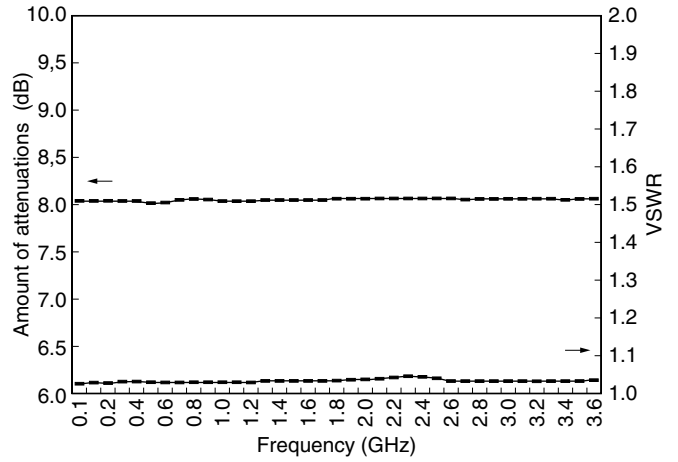
PAT1220C - 5dB



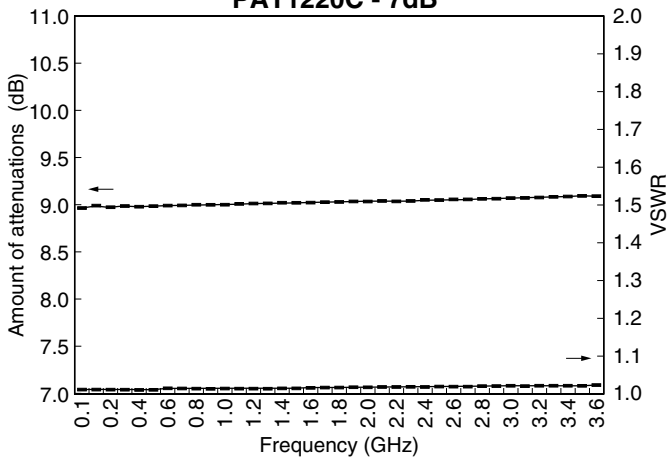
PAT1220C - 6dB



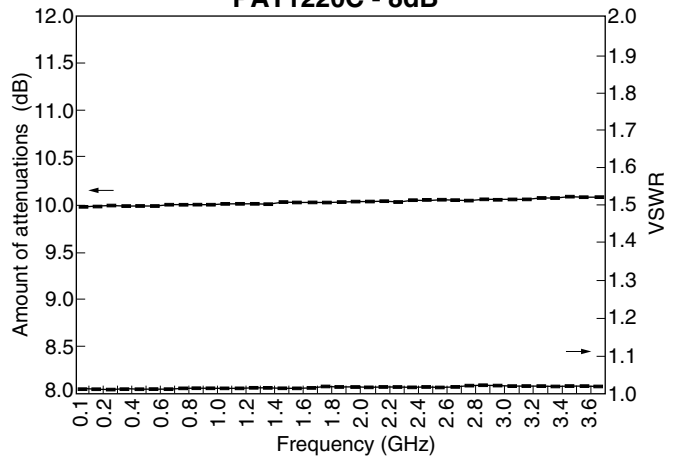
PAT1220C - 7dB



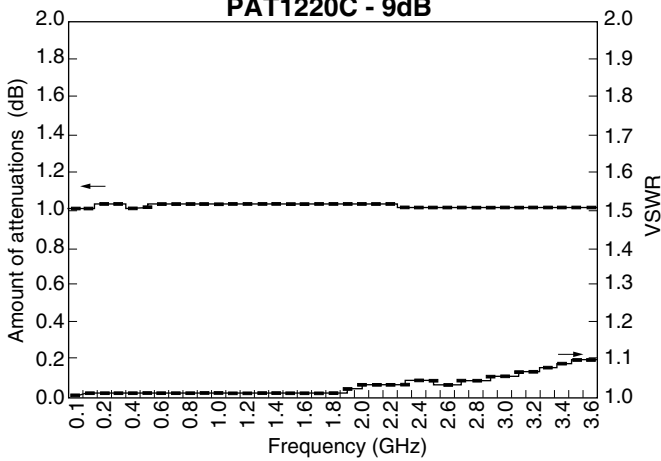
PAT1220C - 8dB



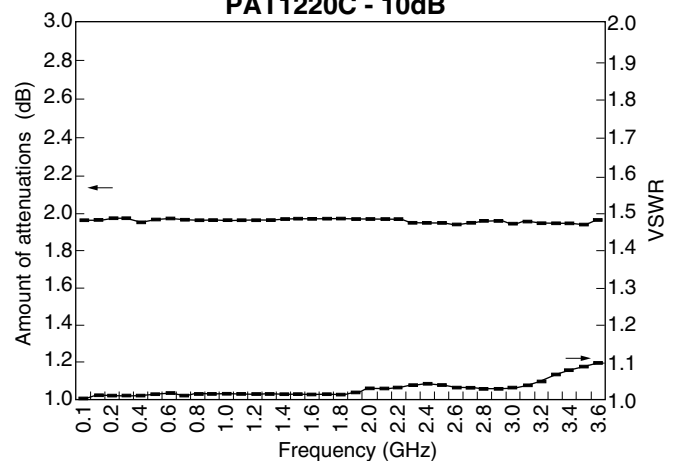
PAT1220C - 9dB



PAT1220C - 10dB

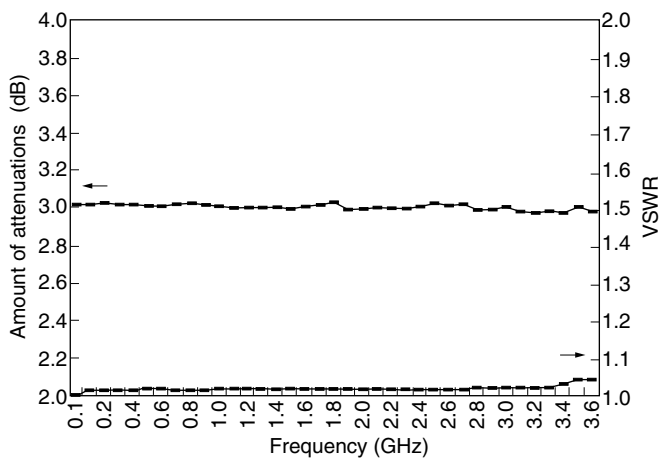


PAT1632C - 1dB

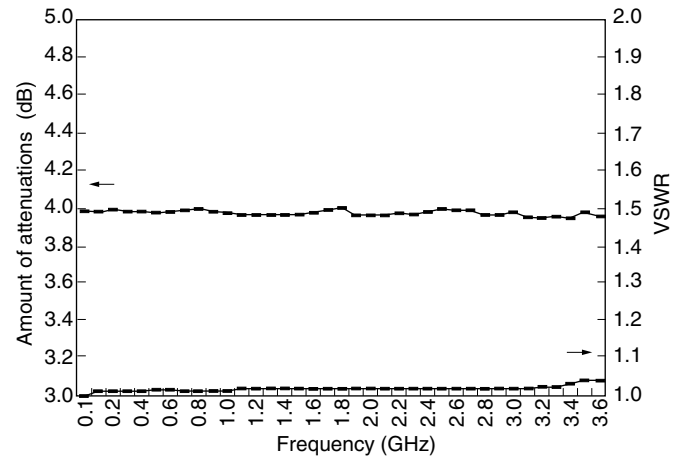


PAT1632C - 2dB

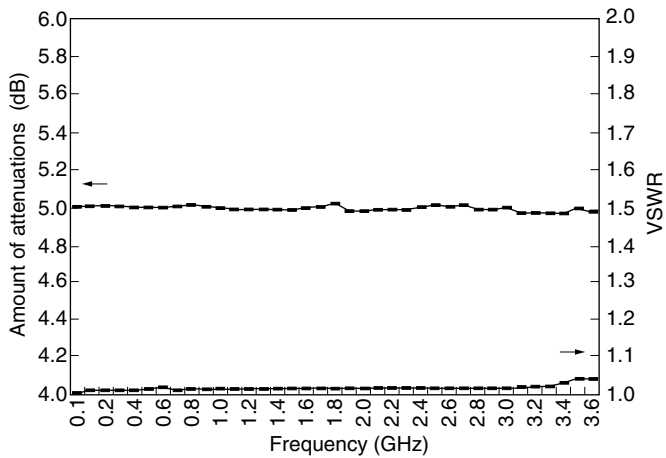
PAT1632



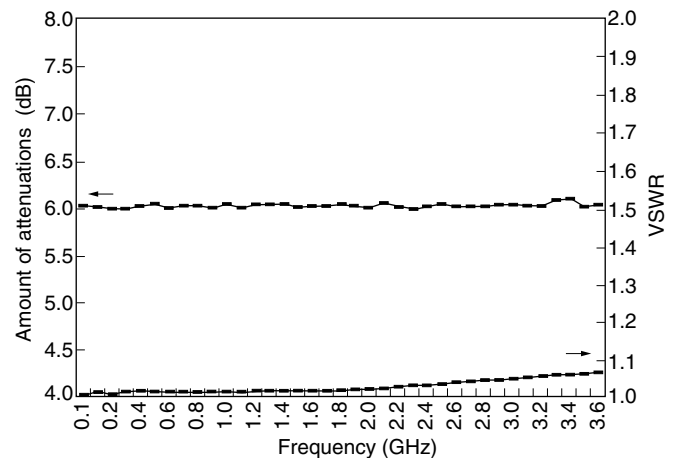
PAT1632C - 3dB



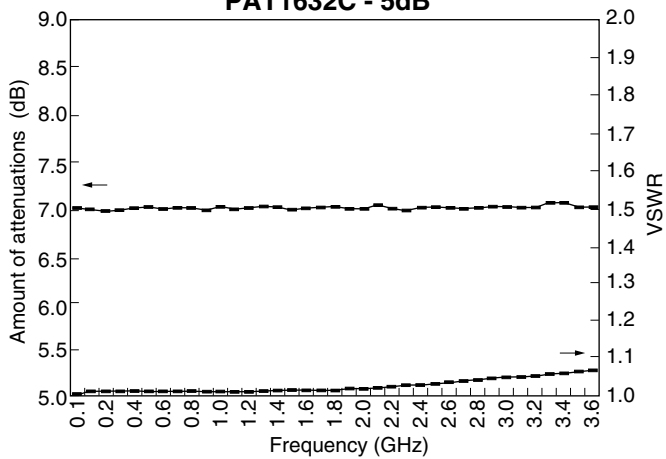
PAT1632C - 4dB



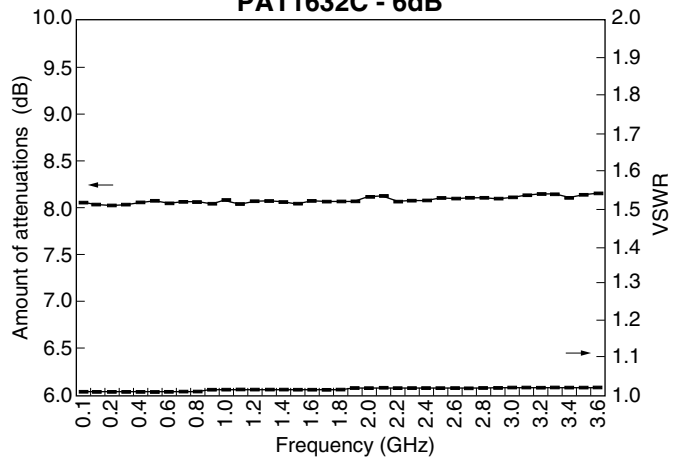
PAT1632C - 5dB



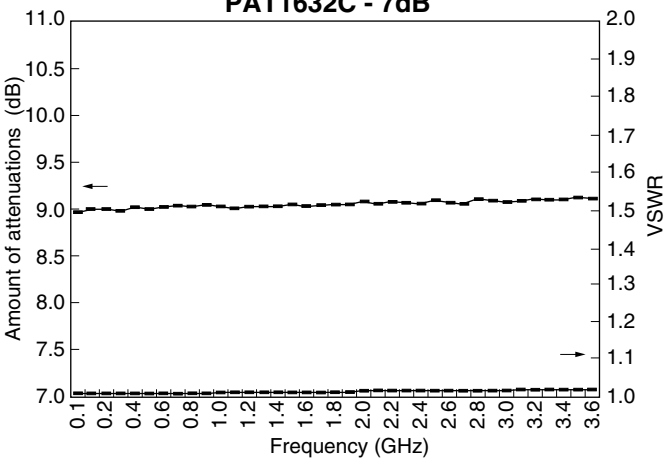
PAT1632C - 6dB



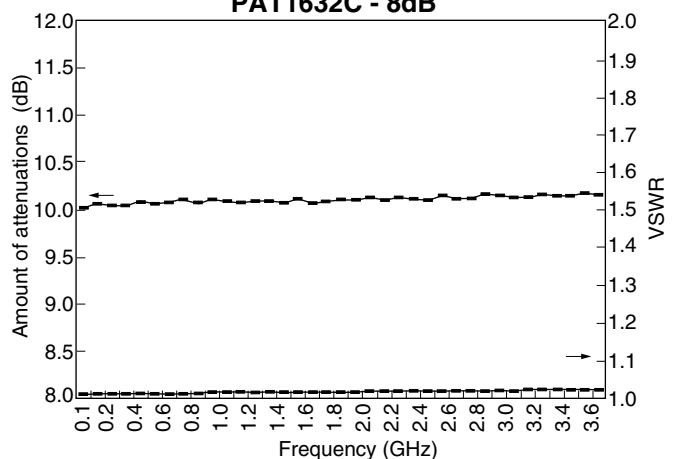
PAT1632C - 7dB



PAT1632C - 8dB

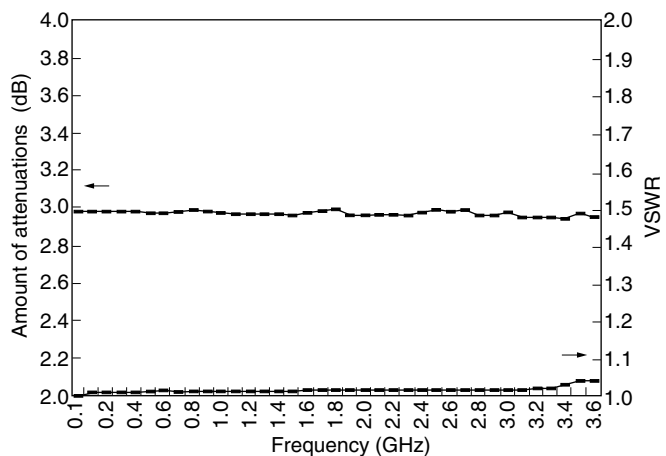


PAT1632C - 9dB

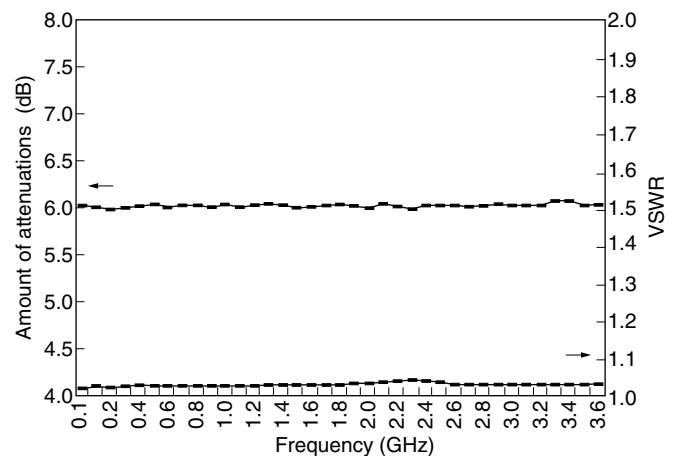


PAT1632C - 10dB

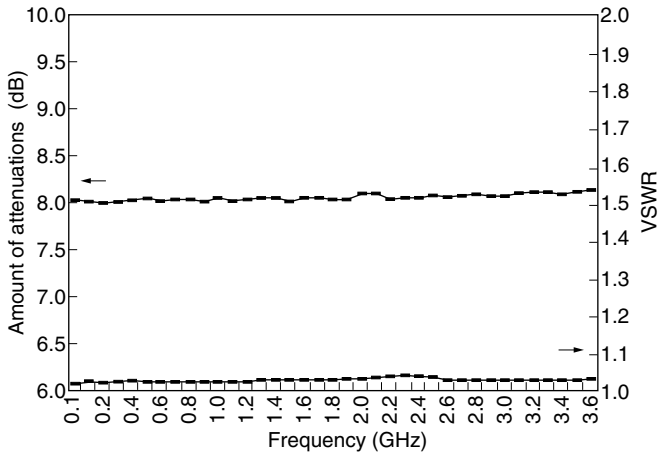
PAT3042S



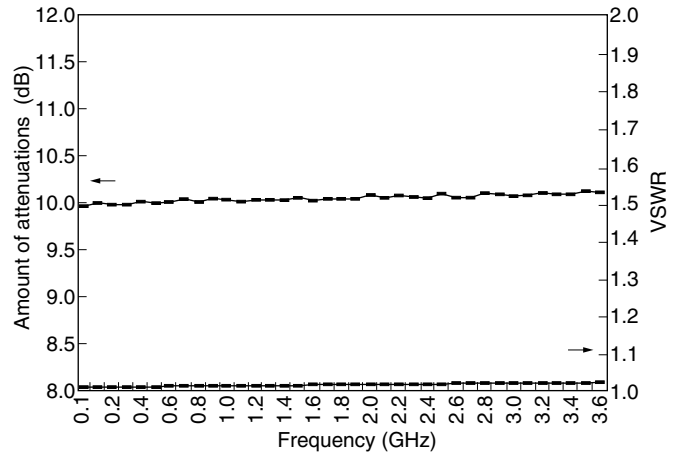
PAT3042SC - 3dB



PAT3042SC - 6dB



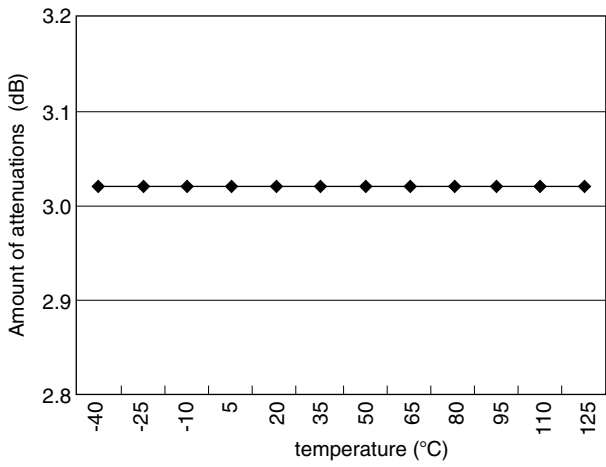
PAT3042SC - 8dB



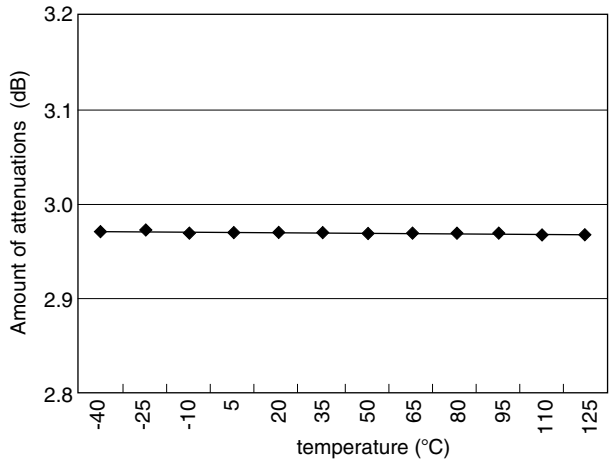
PAT3042SC - 10dB

<Temperature characteristics>

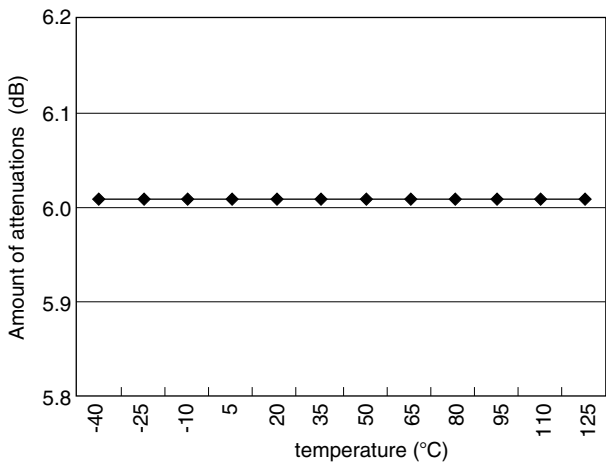
Thin film attenuators have high stability for change of temperature



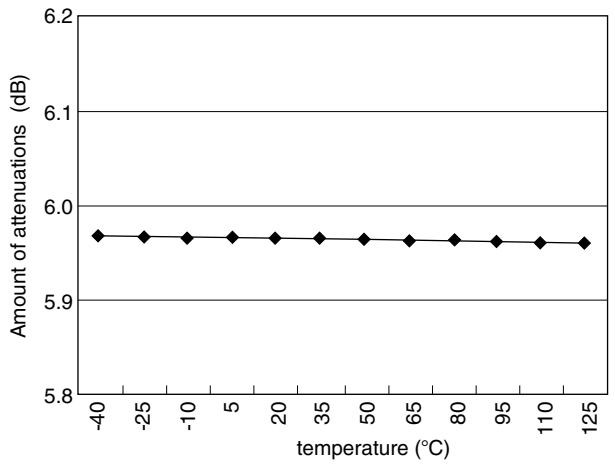
PAT1220C - 3dB



PAT1632C - 3dB



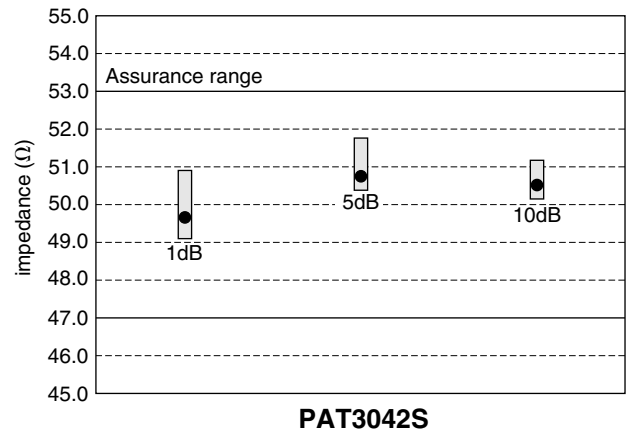
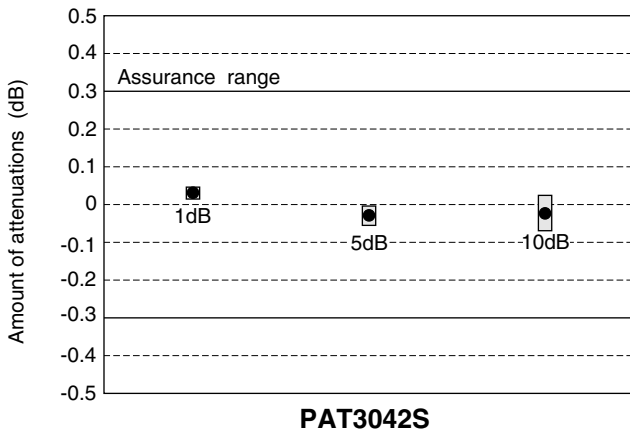
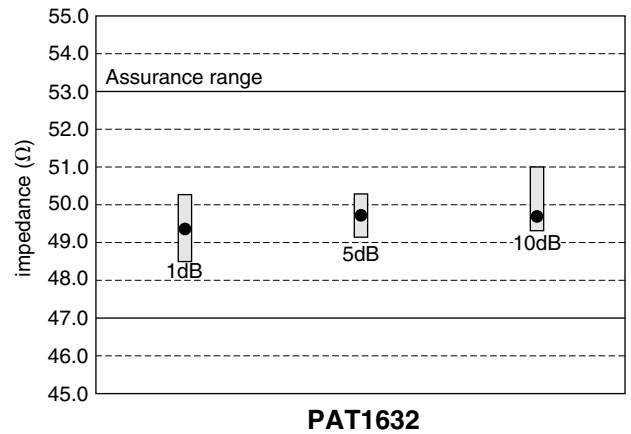
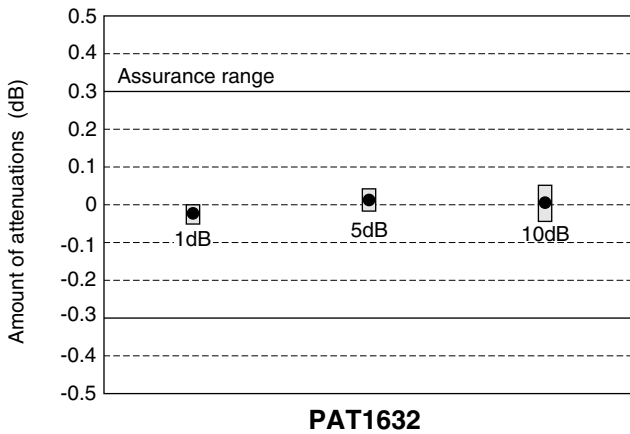
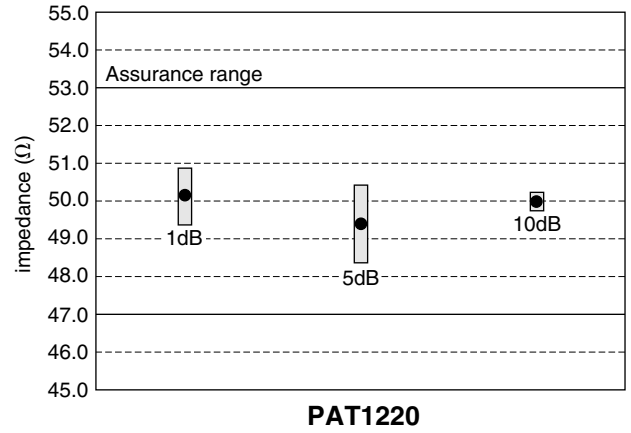
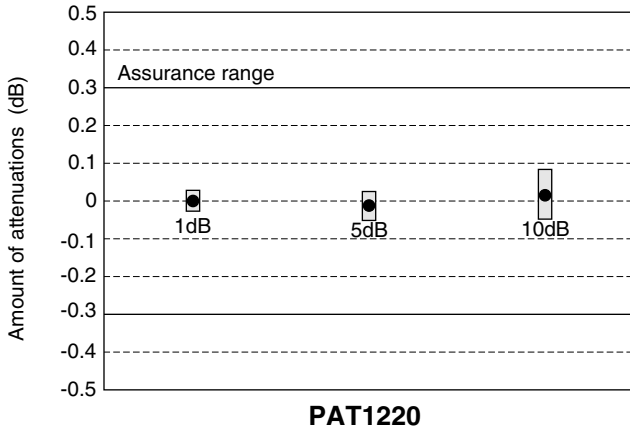
PAT1220C - 6dB



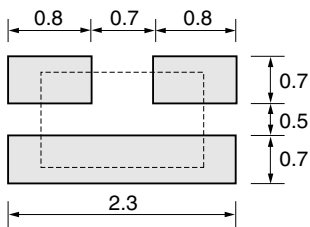
PAT1632C - 6dB

<Distribution of attenuations> measurement frequency: 3GHz

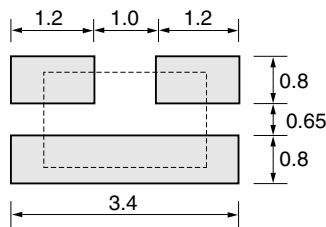
<Distribution of impedance> measurement frequency: 3GHz



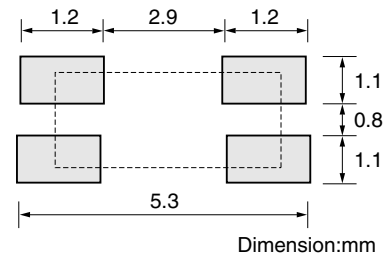
Recommended land patterns



PAT1220 recommended land pattern



PAT1632 recommended land pattern



PAT3042S recommended land pattern

Dimension:mm