

# Thermo-variable Chip Attenuators

## ■ P\*V Series

### Features

- Simple solution for compensation for the temperature drift of GaAs amplifier
- Resistive construction allows operation in wide frequency range
- Ten different attenuation x 8 or 9 temperature characteristics: over 80 different offerings to meet any amplifier characteristics.

### Applications

- Cell phone base station
- Wireless remote controller



\*Except for Chinese RoHS

## ◆ Part numbering system

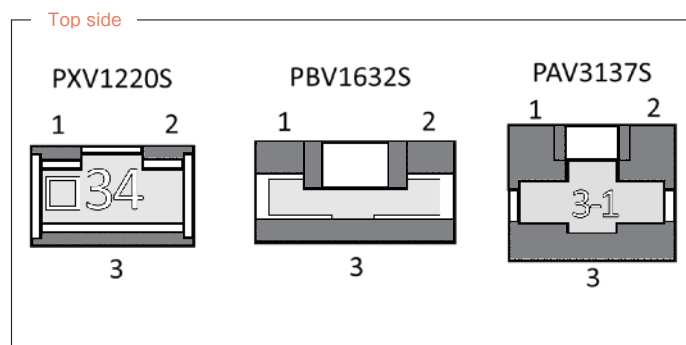
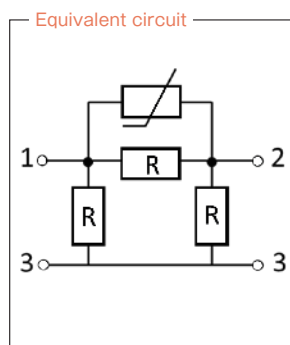
**PXV 1220S - 6dB N1 - T**

Series code			Packing quantity: T=Tape(T02, T1), B=Bulk
Size : PXV1220S, PBV1632S PAV3137S			Sensitive characteristic: N1~N9
			Attenuation : 2 digit

## ◆ Electrical Specification

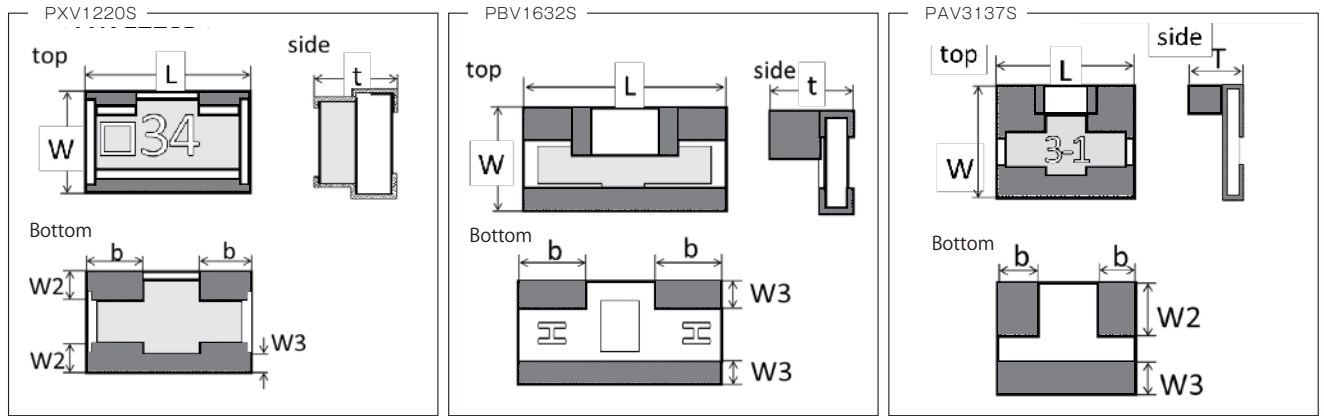
Type	PXV1220S	PBV1632S	PAV3137S
Attenuation	1 ~ 10dB (1dB Step)	1 ~ 10dB, 16dB (1dB Step)	1 ~ 10dB (1dB Step)
Attenuation tolerance	±0.5dB (@25°C, no load)		
Impedance	50Ω		
VSWR	<1.3		
Termo Sensitive characteristic	N1 ~ N9 (1db ~ 3dB) N1 ~ N8 (4db ~ 10dB)	N1 ~ N9 (1db ~ 3dB) N1 ~ N8 (4db ~ 16dB)	N1 ~ N9 (1db ~ 3dB) N1 ~ N8 (4db ~ 10dB)
Operating frequency	DC ~ 3GHz		DC ~ 6GHz
Rated power	63mW	100mW	2W
Operating temperature	-40°C~+100°C		-40°C~+125°C
Packaging quantity	100pcs/bag(B) 200pcs/reel (T02) 1000pcs/reel (T1)	20pcs/bag (B) 1,000pcs/reel (T1)	

## ◆ Equivalent Circuit and pin arrangement



P\*V series High frequency surface mount components

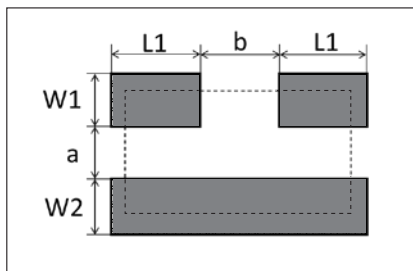
### ◆ Dimensions



Type	Size (inch)	L	W	t	b	W2	W3
PXV1220S	0805	2.00±0.20	1.25±0.20	1.1max	0.65±0.20	0.38±0.20	0.25±0.35
PBV1632S	1206	3.20±0.20	1.60±0.20	1.5max	1.00±0.20	—	0.40±0.35
PAV3137S	1512	3.70±0.20	3.10±0.20	1.5max	1.00±0.20	1.50±0.20	0.85±0.20

(unit : mm)

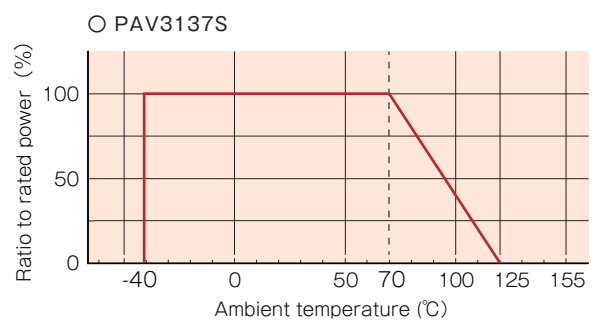
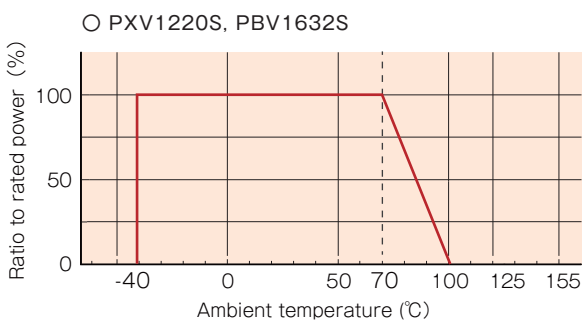
### ◆ Recommended land patterns(soldering footprints)



Type	W1	W2	a	L1	b
PXV1220S	0.70	0.70	0.50	0.80	0.70
PBV1632S	0.80	0.80	0.70	1.20	1.00
PAV3137S	1.55	1.15	0.60	1.25	1.50

(unit : mm)

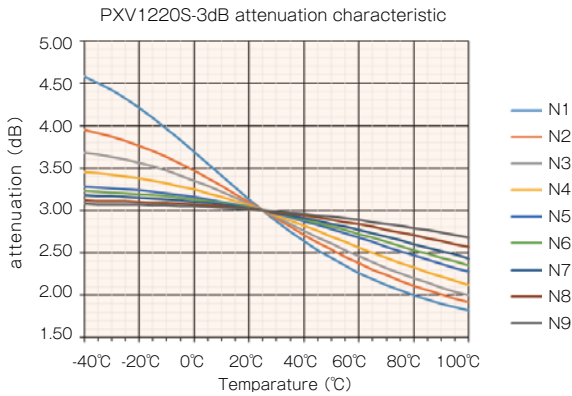
### ◆ Derating Curve



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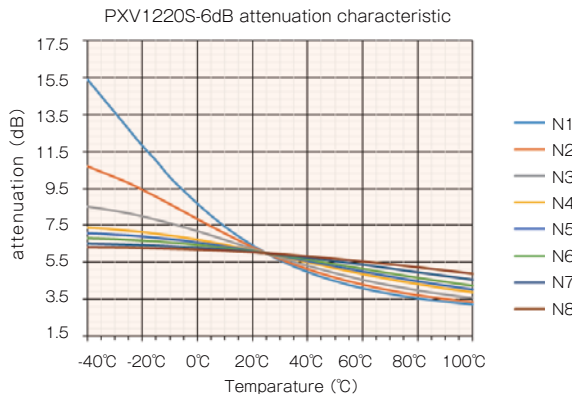
### ◆ Attenuation amount temperature characteristic



PXV1220S-3dB-N\*

Temperature	N1	N2	N3	N4	N5	N6	N7	N8	N9
-40 ~ +25°C	-0.0243	-0.0146	-0.0105	-0.00693	-0.00433	-0.0035	-0.00273	-0.0018	-0.00117
+25 ~ +100°C	-0.0158	-0.0145	-0.0133	-0.0117	-0.00963	-0.00867	-0.00754	-0.00578	-0.00423
-40 ~ +100°C	-0.0197	-0.0145	-0.012	-0.00949	-0.00717	-0.00627	-0.0053	-0.00393	-0.00281
Temp. characteristic tolerance	max ±10%						max ±15%		

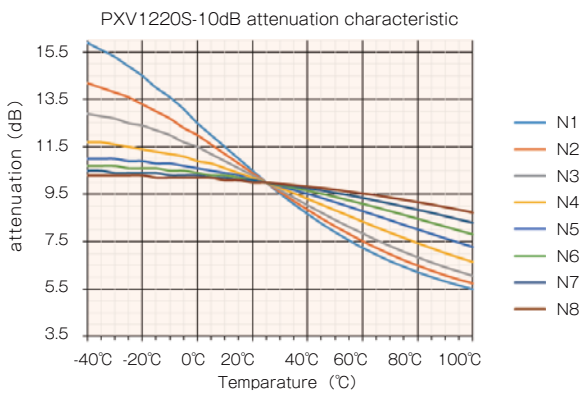
(unit : dB/°C)



PXV1220S-6dB-N\*

Temperature	N1	N2	N3	N4	N5	N6	N7	N8
-40 ~ +25°C	-0.145	-0.0725	-0.0388	-0.0213	-0.0166	-0.0125	-0.00794	-0.00504
+25 ~ +100°C	-0.037	-0.0351	-0.0323	-0.0282	-0.0261	-0.0235	-0.0191	-0.0148
-40 ~ +100°C	-0.0873	-0.0525	-0.0353	-0.025	-0.0217	-0.0184	-0.0139	-0.0102
Temp. characteristic tolerance	max ±10%						max ±15%	

(unit : dB/°C)

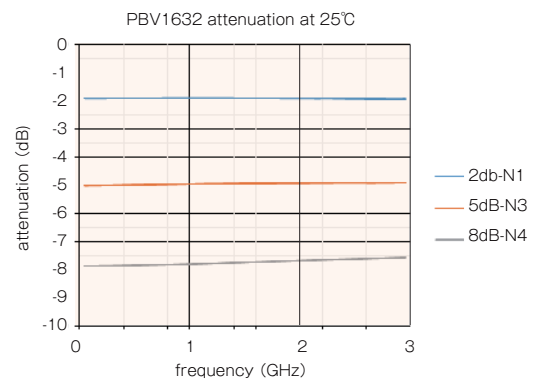
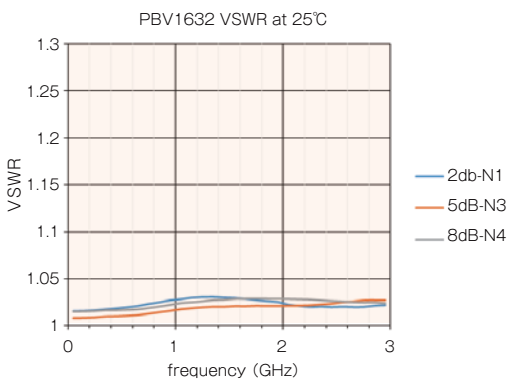
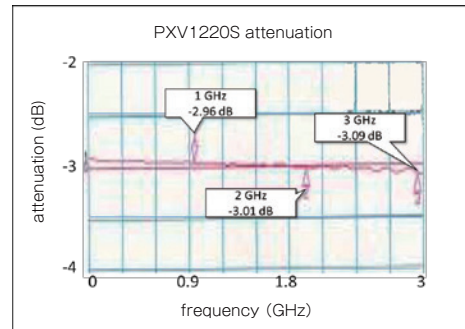
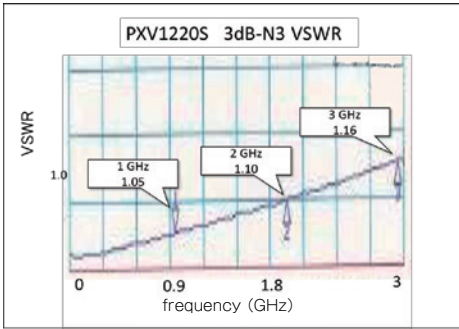


PXV1220S-10dB-N\*

Temperature	N1	N2	N3	N4	N5	N6	N7	N8
-40 ~ +25°C	-0.0908	-0.0643	-0.0449	-0.0264	-0.0161	-0.0107	-0.00716	-0.00475
+25 ~ +100°C	-0.0601	-0.0568	-0.0525	-0.0447	-0.0362	-0.0292	-0.0227	-0.0169
-40 ~ +100°C	-0.0743	-0.0603	-0.049	-0.0362	-0.0269	-0.0206	-0.0155	-0.0113
Temp. characteristic tolerance	max ±10%						max ±15%	

(unit : dB/°C)

## ◆ High frequency characteristics (measured value)



## ◆ Example of use

- High frequency GaAs transistor amplifiers' gain decreases as temperature increases.
- Integrating this attenuator into amplifier circuit compensates the gain loss and keep the gain constant in the circuit. (figure below)
- Replaces complex feedback circuits.

