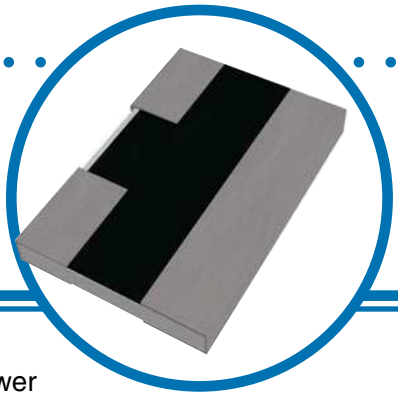
High Frequency Surface Mount Attenuators

TT electronics
IRC Advanced Film Division

PAT Series

- Frequency operation to 10 GHz
- Industry standard 0805, 1206, 1612 chip sizes
- Low parasitic capacitance and inductance
- Thin film stability over time and temperature



The PAT chip attenuator series are available in a wide range of power ratings from 100mW to 250mW. The surface mount package is ideal for applications where parasitic capacitance and inductance are concerns. Typical applications include wireless communication receivers and transmitters.

Electrical Data

	PAT1220	PAT1632	PAT3042SC	PAT3042SD
Impedance	50Ω	50Ω	50Ω	75Ω
Frequency Range	DC to 10 GHz	DC to 3GHz	DC to 3GHz	DC to 2GHz
VSWR	1.3	1.3	1.2	1.3
Attenuation	0, 1, 2, 3, 4, 5, 6, 7, 8, 9, 10dB	0, 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 16dB	0, 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 16, 20dB	
Attenuation Tolerance	±0.3dB	0 to 10dB: ±0.3dB 16dB: ±0.5dB	0 to 10dB: ±0.3dB 16, 20dB: ±0.5dB	
TCR	±50ppm/°C	±50ppm/°C	±25ppm/°C	
Power Rating	100mW	125mW	250mW	
Operating Temperature Range	-55°C to +125°C			

Environmental Data

	Test Condition	Tolerance	
		Attenuation	**Δ Impedance**
Short Time Overload	2.5 x rated voltage, 5 sec	±0.02dB	±0.2%
Load Life	1000 Hours, 70°C	±0.04dB	±0.5%
Moisture Resistance	1000 Hours, 60°C, 95%	±0.04dB	±0.5%
Temperature Cycle	5 Cycles, 125°C High, -55 Low	±0.02dB	±0.2%
Resistance to Solder Heat	260°C, 10 sec.	±0.02dB	±0.2%
Terminal Strength	Fulcrum dist: 90mm, Bending width: 3mm Substrate: Glass epoxy t=1.6mm	±0.02dB	±0.2%
Solderability	235°C, 3 sec.	>95% coverage	
Insulation Resistance	500V, 1 minute	>1000MΩ	

General Note
IRC reserves the right to make changes in product specification without notice or liability.
All information is subject to IRC's own data and is considered accurate at time of going to print.

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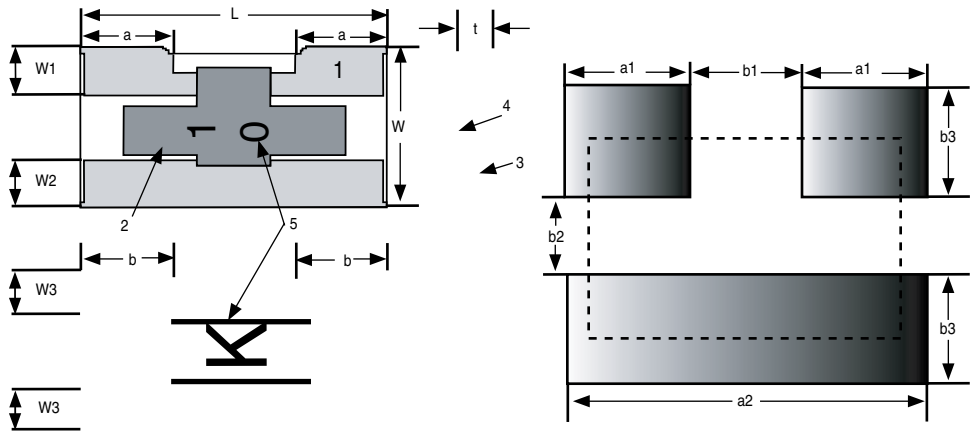
Physical Data

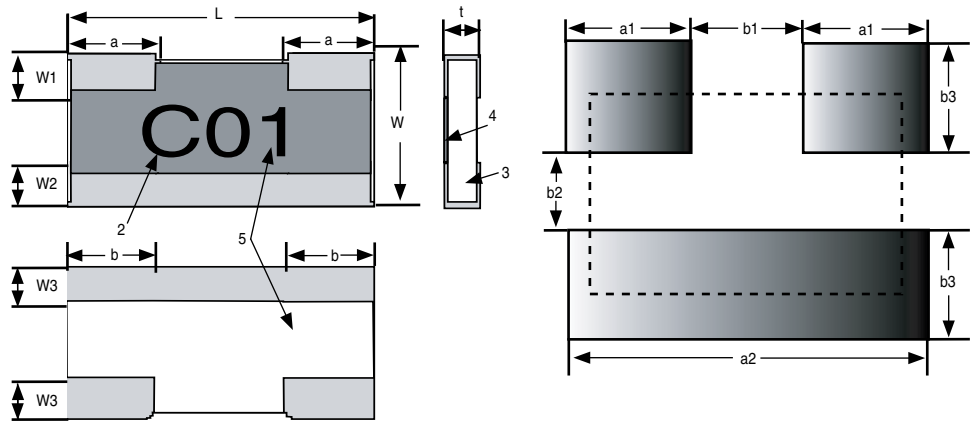
PAT1220



Dimensions (mm)	
L	2.00 ±0.10
W	1.25 ±0.10
t	0.40 ±0.10
a	0.50 ±0.20
b	0.60 ±0.20
W1	0.40 ±0.20
W2	0.40 ±0.20
W3	0.35 ±0.20
b1	0.70 ±0.10
b2	0.50 ±0.10
b3	0.70 ±0.10
a1	0.80 ±0.10
a2	2.30 ±0.10

1: Electrode (surface soldering and lead-free possible) 2: Covering resin 3: Alumina substrate 4: Thin film resistor 5: Mark (shows impedance, attenuations and date)

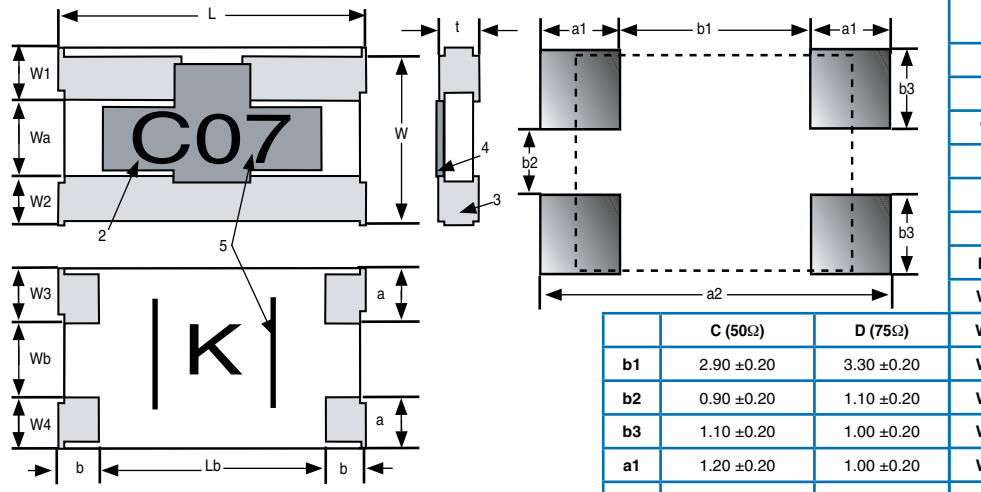
PAT1632



Dimensions (mm)	
L	3.20 ±0.20
W	1.60 ±0.20
t	0.40 ±0.10
a	1.00 ±0.25
b	1.00 ±0.20
W1	0.55 ±0.25
W2	0.40 ±0.25
W3	0.40 ±0.20
b1	1.00 ±0.20
b2	0.65 ±0.20
b3	0.80 ±0.10
a1	1.20 ±0.20
a2	3.40 ±0.20

1: Electrode (surface soldering and lead-free possible) 2: Covering resin 3: Alumina substrate 4: Thin film resistor 5: Mark (shows impedance, attenuations and date)

PAT3042S



Dimensions (mm)		
	C (50Ω)	D (75Ω)
L	4.20 ±0.20	
W	3.00 ±0.20	
t	0.80 ±0.15	
a	0.80 ±0.20	
b	0.50 ±0.20	0.30 ±0.20
Lb	3.10 ±0.20	3.50 ±0.20
Wa	1.05 ±0.20	1.55 ±0.20
Wb	0.95 ±0.20	1.55 ±0.20
W1	0.95 ±0.20	0.55 ±0.20
W2	0.80 ±0.20	0.60 ±0.20
W3	0.95 ±0.20	0.55 ±0.20
W4	0.90 ±0.20	0.60 ±0.20
Wb	0.95 ±0.20	1.55 ±0.20

	C (50Ω)	D (75Ω)
b1	2.90 ±0.20	3.30 ±0.20
b2	0.90 ±0.20	1.10 ±0.20
b3	1.10 ±0.20	1.00 ±0.20
a1	1.20 ±0.20	1.00 ±0.20
a2	5.30 ±0.20	5.30 ±0.20

1: Electrode (surface soldering and lead-free possible) 2: Covering resin 3: Alumina substrate 4: Thin film resistor 5: Mark (shows impedance, attenuations and date)

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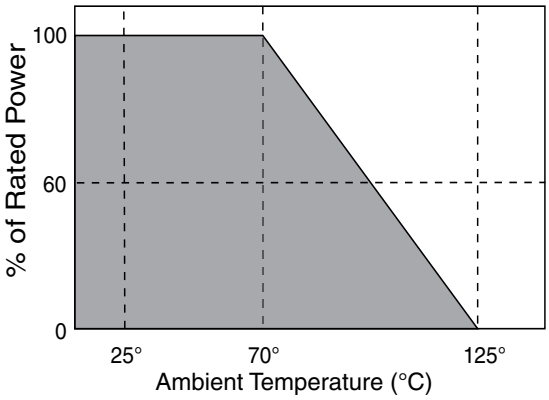
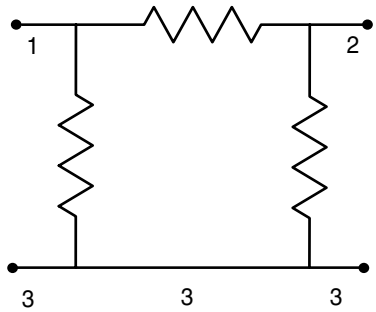
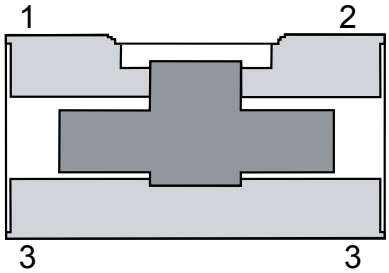
Power Derating Curve



Schematic Diagram Data





Ordering Data

Prefix HFR - PAT1220 - C - 3dB - T(5)

Model
PAT1220; PAT1632; PAT3042SD (75Ω); PAT3042SC(50Ω)

Attenuation
0, 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 16, 20dB

Impedence
C = 50Ω; D = 75Ω

Package
T=Tape, B=Bulk, Taping Quantity Unit:5 (5000), 1 (1000)

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