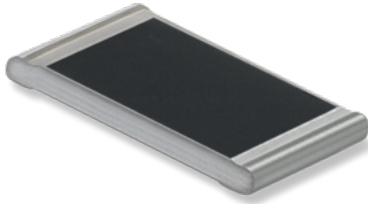


Data Sheet for Precision Resistors

SMD Resistor (metal thin film)

Series CPHV



- Aluminium nitride substrate with high thermal conductivity
- Rated power up to 6.0 W
- Resistance 50 Ω ~ 30.1 K Ω
- Resistance tolerance up to $\pm 0.1\%$
- TCR up to $\pm 25\text{ppm}/^\circ\text{C}$

Electrical Specification

Type	Power rating @ 70°C	Temperature range	Working voltage	Dielectric strength	Resistance range				TCR-rate (ppm/ °C)
					$\pm 0.1\%$	$\pm 0.25\%$	$\pm 0.50\%$	$\pm 1.00\%$	
0603	1/2W ¹	-55~+155°C	75V	150V	50 Ω ...30.1k Ω				± 25 ± 50
0805	1.0W ¹	-55~+155°C	100V	200V					
1206	2.0W ¹	-55~+155°C	100V	200V					
2512	6.0W ¹	-55~+155°C	100V	200V					

¹ Depending on assembly processes

Mechanical Specification

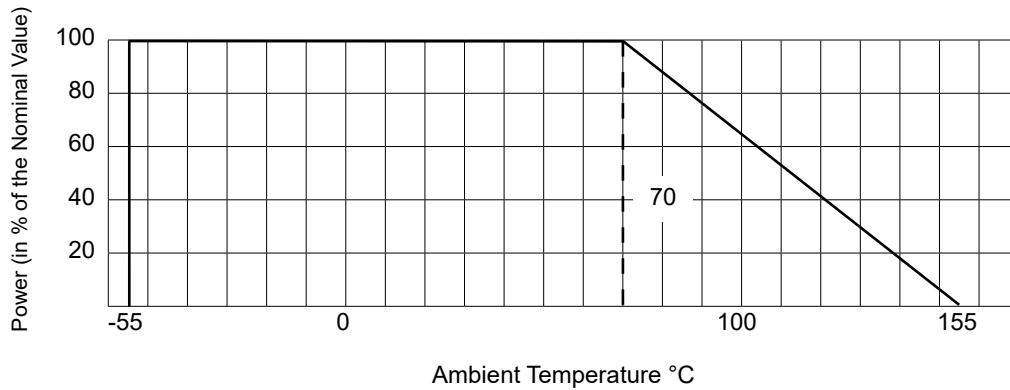
Resistance technology / material	Metal thin film / NiCr
Design	SMD: 0603, 0805, 1206, 2512
Housing material	Epoxy inorganic passivation layer
Connections	Axial tinned

Data Sheet for Precision Resistors

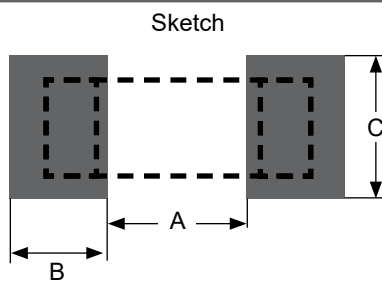
SMD Resistor (metal thin film)

Series CPHV

Power Derating Curve

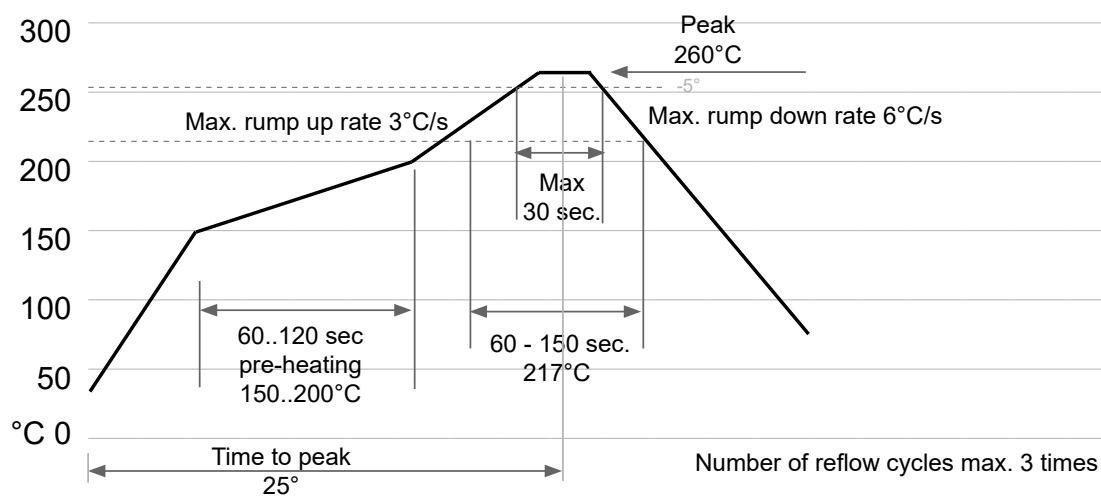


Recommended Foot Prints



CPHV	A	B	C
0603	0.37 mm	0.99 mm	0.86 mm ±0.1
0805	0.50 mm	1.08 mm	1.32 mm ±0.1
1206	0.60 mm	1.90 mm	1.80 mm ±0.1
2512	2.77 mm	2.31 mm	3.20 mm ±0.2

Recommendation for Reflow Soldering Profile

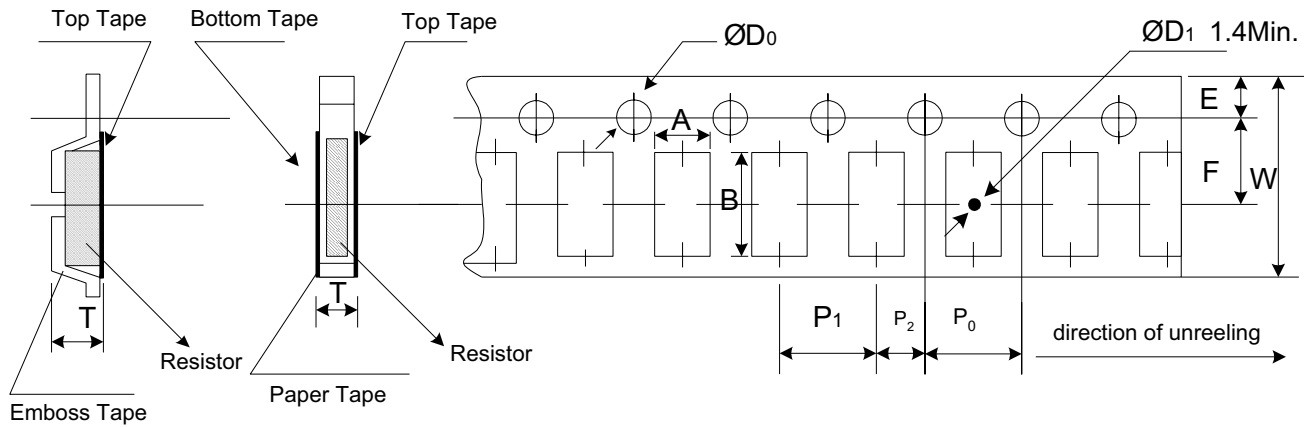


Data Sheet for Precision Resistors

SMD Resistor (metal thin film)

Series CPHV

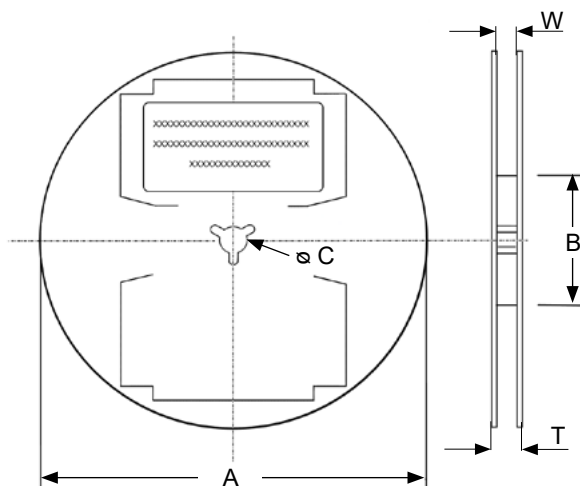
Blister Tape Dimensions



Unit: mm

Type	A	B	W	E	F	P ₀	P ₁	P ₂	ØD ₀	T
0603	1.10±0.05	1.90±0.05	8.00±0.10	1.75±0.05	3.5±0.05	4.00±0.10	4.00±0.10	2.00±0.05	1.55±0.05	0.60±0.03
0805	1.60±0.05	2.37±0.05	8.00±0.10	1.75±0.05	3.5±0.05	4.00±0.10	4.00±0.10	2.00±0.05	1.55±0.05	0.75±0.05
1206	2.00±0.05	3.55±0.05	8.00±0.10	1.75±0.05	3.5±0.05	4.00±0.10	4.00±0.10	2.00±0.05	1.55±0.05	0.75±0.05
2512	3.40±0.10	6.65±0.10	12.0±0.10	1.75±0.10	5.5±0.05	4.00±0.10	4.00±0.10	2.00±0.05	1.50±0.10	1.00±0.20

Reel Dimensions, quantity & packaging



Unit :mm

Type	ØA	ØB	ØC	W	T	Paper Tape (EA)	Emboss Plastic Tape (EA)
0603	178.0±1.0	60.0±1.0	13.5±0.7	9.5±1.0	11.5±1.0	5,000	-
0805	178.0±1.0	60.0±1.0	13.5±0.7	9.5±1.0	11.5±1.0	5,000	-
1206	178.0±1.0	60.0±1.0	13.5±0.7	9.5±1.0	11.5±1.0	5,000	-
2512	178.0±1.0	60.0±1.0	13.5±0.7	13.5±1.0	15.5±1.0	-	4,000

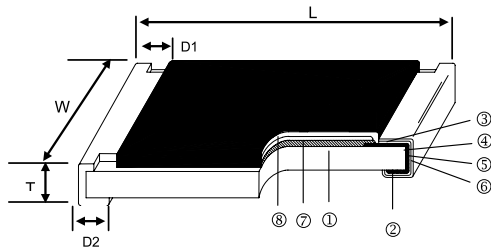
Data Sheet for Precision Resistors

SMD Resistor (metal thin film)

Series CPHV

Drawing

Construction



① Alumina Nitride Substrate	④ Edge Electrode	⑦ Resistor Layer
② Bottom Electrode	⑤ Barrier Layer	⑧ Overcoat
③ Top Electrode	⑥ External Electrode	

Dimensions

Unit: mm

Size (inch)	L	W	T	D1	D2	Weight (g) (1000pcs)
0603	1.55±0.10	0.80±0.10	0.43±0.15	0.30±0.15	0.50±0.20	1.73
0805	2.00±0.15	1.25±0.15	0.43±0.15	0.35±0.15	0.60±0.20	3.95
1206	3.05±0.20	1.55±0.20	0.43±0.15	0.50±0.15	1.20±0.20	10.98
2512	6.30±0.20	3.10±0.20	0.43±0.15	0.70±0.25	1.60±0.25	42.32

Order code

Description	Selection: standard=black/bold , possible <i>options=grey/italic</i>				
Series:	CPHV				
Type / size:					
0603		0603			
0805		0805			
1206		1206			
2512		2512			
Resistance tolerance:					
±1%					
±0.5%					
±0.25%					
±0.1%					
Temperature coefficient:					
±50ppm/°C					
±25ppm/°C					
Resistance value - please choose:					
From 50 Ω to ≤ 39.1 kΩ					
					xxkxxx

Order Example	Series	Type	Resistance tolerance	Temperature coefficient	Resistance value
Choice	CPHV	0603	±0.1%	±25ppm/°C	10,1kΩ
Code	CPHV	0603	W0,1%	TK25	10k100

Data Sheet for Precision Resistors

SMD Resistor (metal thin film)

Series CPHV

Test data

Environmental Characteristics

Item	Requirement	Test Method
Temperature Coefficient of Resistance (T.C.R.)	As Spec.	MIL-STD-202 Method 304 +25/-55/+25/+125/+25°C
Short Time Overload ⁽²⁾	$\Delta R \pm 0.5 \%$	Actual power handling capability is limited by the end user mounting process. As with any high power chip resistor the ability to remove the heat is critical to the overall performance of the device
Insulation Resistance	>9999M Ω	MIL-STD-202 Method 302 Apply 100V _{DC} for 1 minute
Endurance	$\Delta R \pm 1 \%$	MIL-STD-202 Method 108 70 $\pm$ 2°C, RCWV for 1000 hrs with 1.5 hrs "ON" and 0.5 hrs "OFF"
Damp Heat with Load	$\Delta R \pm 0.4 \%$	MIL-STD-202 Method 103 40 $\pm$ 2°C, 90~95% R.H. RCWV for 1000 hrs with 1.5 hrs "ON" and 0.5 hrs "OFF"
Solderability	95% min. coverage	MIL-STD-202 Method 208 245 $\pm$ 5°C for 3 seconds
Resistance to Soldering Heat	$\Delta R \pm 0.2 \%$	MIL-STD-202 Method 210 260 $\pm$ 5°C for 10 seconds
Low Temperature Operation	$\Delta R \pm 0.2 \%$	JIS-C-5201-1 4.36 1 hour, -65°C, followed by 45 minutes of RCWV
High Temperature Exposure	$\Delta R \pm 0.2 \%$	MIL-STD-202 Method 108 At + 155°C for 1000hrs
Thermal Shock	$\Delta R \pm 0.2 \%$	MIL-STD-202F Method 107 -55°C ~150°C, 100 cycles

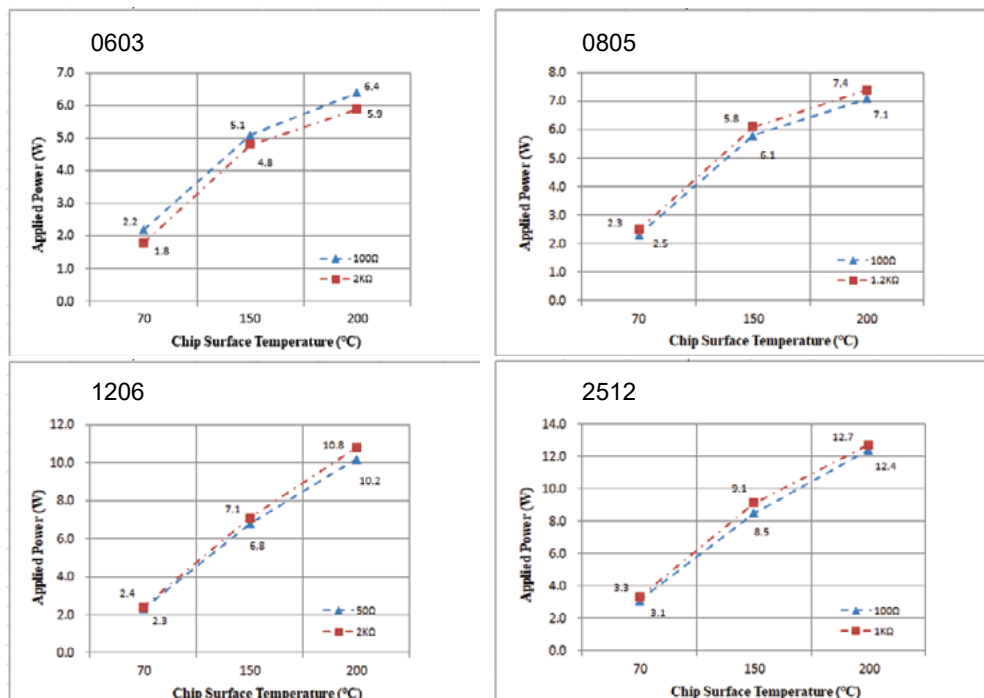
RCWV(Rated continuous working voltage)= $\sqrt{P \cdot R}$ or Max. Operating voltage whichever is lower

■ Reference Standards: MIL-STD-202, JIS-C 5201

■ Storage Temperature: 15~28°C; Humidity < 80%RH

■ Shelf Life: 2 years from production date.

Chip temperature vs. applied power



⁽²⁾ Chip surface temperature measured using FLIR ETS-320 thermal imaging system with an approximate test card surface temperature