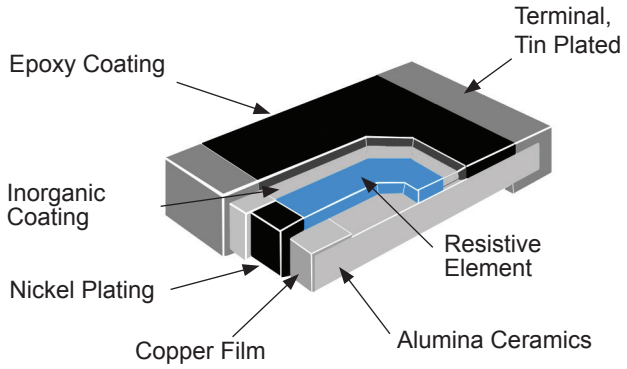
Ultra Precision SMD Resistors — CPH series

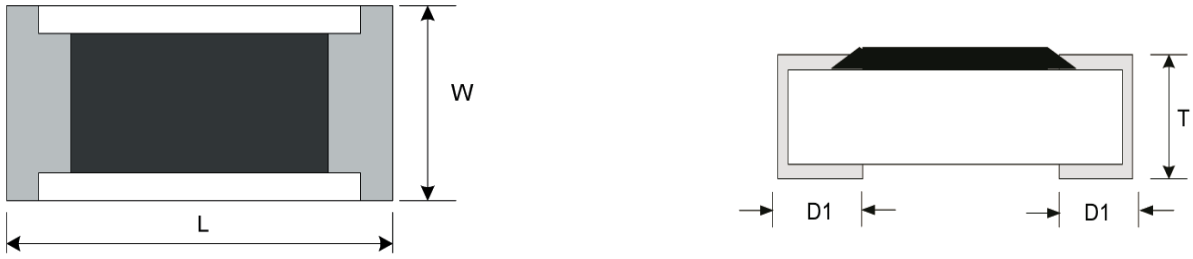


- Ultra Precision Thin Film NiCr Chip Resistor
- Advanced Thin Film Technology
- Best Long Term Stability for NiCr
- Low Noise Design
- Resistant to Corrosion (Passivation)
- Resistance Tolerances up to ±0,01%
- Temperature Coefficient: up to ±1ppm/°C

Type	Power Rating at 70°C	Temperature Range	Operating Voltage	Operating Voltage (max)	Resistance Tolerance	Resistance Value	TCR * (ppm/ °C)
CPH0603	1/16W	-20°C+125°C	50V	100V	±0,10%; ±0,05% ±0,10%; ±0,05%; ±0,01%	100Ω >250Ω 250Ω - 7,5KΩ	±2; ±5
CPH0805	1/10W	-20~+125°C	100V	150V	±0,10%; ±0,05% ±0,10%; ±0,05%; ±0,01%	100Ω >250Ω 250Ω - 36KΩ	±2; ±5
CPH1206	1/4W	-20~+125°C	150V	200V	±0,10%; ±0,05% ±0,10%; ±0,05%; ±0,01%	100Ω >250Ω 250Ω - 68KΩ	±2; ±5
CPH2010	1/2W	-20~+125°C	150V	300V	±0,10%; ±0,05% ±0,10%; ±0,05%; ±0,01%	100Ω >250Ω 250Ω - 150KΩ	±2; ±5
CPH2512	1W	-20~+125°C	150V	300V	±0,10%; ±0,05% ±0,10%; ±0,05%; ±0,01%	100Ω >250Ω 250Ω - 200KΩ	±2; ±5

* TCR 1ppm upon request

Technical Drawing



Type	L	W	T	D1
CPH0603	1,6 ± 0,2	0,8 ± 0,25	0,45 ± 0,1	0,3 ±0,2
CPH0805	2,0 ± 0,2	1,25 ± 0,25	0,4 ± 0,2	0,4 ± 0,2
CPH1206	3,2 ± 0,2	1,6 ± 0,25	0,5 ± 0,25	0,5 ± 0,25
CPH2010	5,0 ± 0,2	2,5 ± 0,25	0,6 ± 0,25	0,6 ± 0,25
CPH2512	6,4 ± 0,2	3,2 ± 0,25	0,7 ± 0,25	0,7 ± 0,25

All Dimensions in mm

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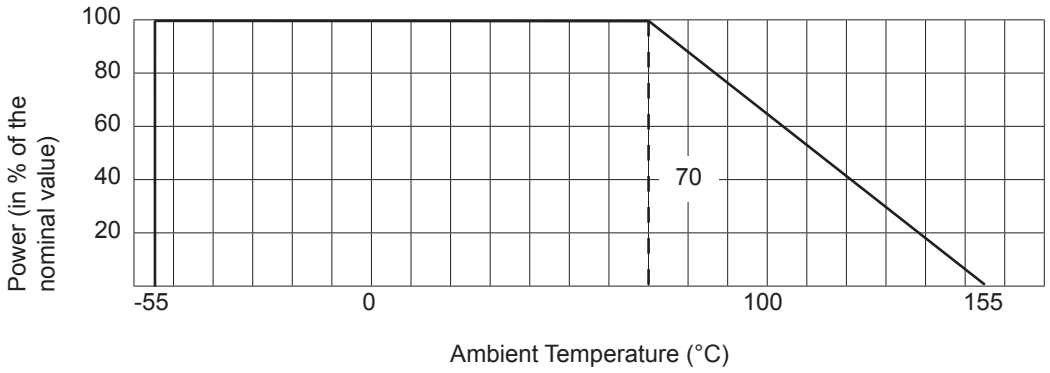
Mechanical Specification

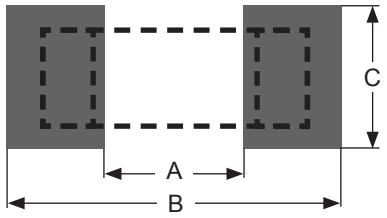
Housing	Epoxy, Inorganic Passivation Layer
Resistive Element	NiCr
Carrier	Alumina Substrate
Terminals	Tin

Power Derating Curve



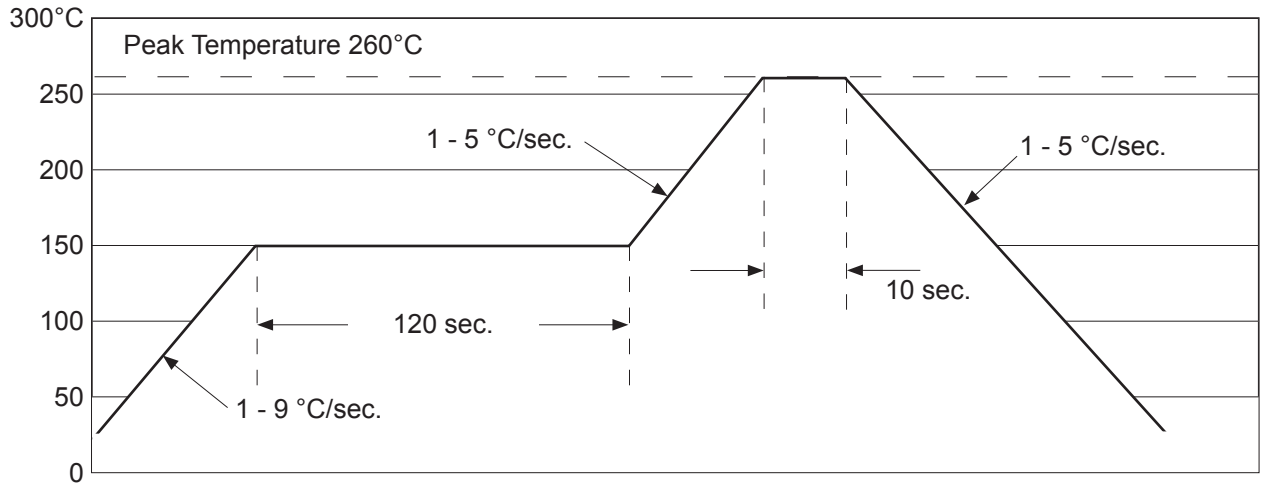
Recommended Foot Prints

Skizze



Type	A	B	C
CPH0603	1,0mm	3,0mm	1,2mm
CPH0805	1,2mm	4,0mm	1,7mm
CPH1206	2,2mm	5,0mm	2,0mm
CPH2010	3,8mm	6,8mm	2,9mm
CPH2512	4,8mm	8,2mm	3,6mm

Recomendation for Reflow Soldering (Temperature Profile)



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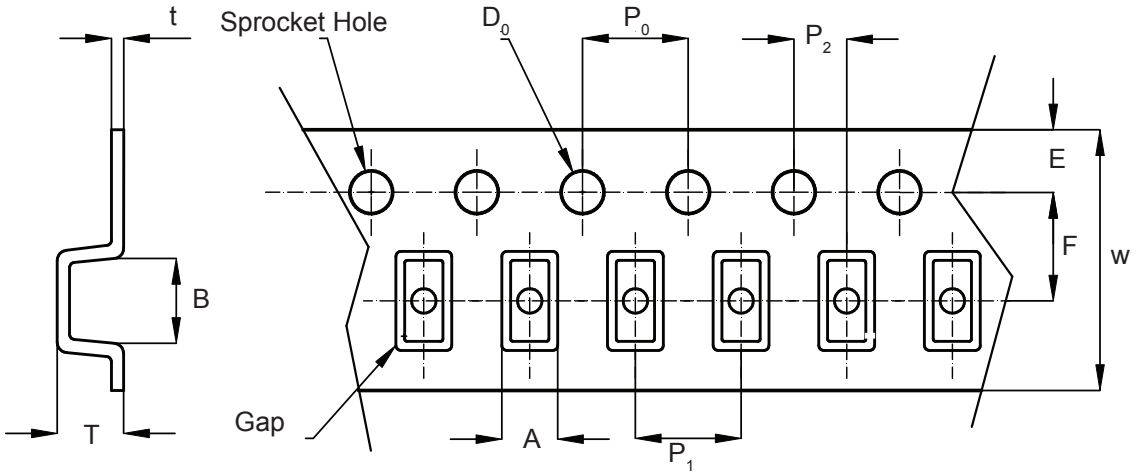
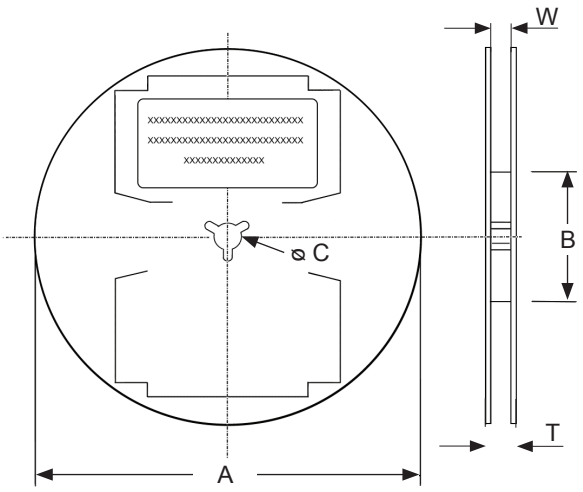
Blister Tape Dimensions (Embossed Tape)



Size	A	B	E	F	W	P0	P1	P2	D_0	T	t
0603	1,10±0,2	1,90±0,2	1,75±0,1	3,5±0,05	8,0±0,3	4,00±0,15	4,00±0,15	2,00±0,10	⌀1,5+0,1	1,5 max.	0,3 max.
0805	1,65±0,2	2,40±0,2	1,75±0,1	3,5±0,05	8,0±0,3	4,00±0,15	4,00±0,15	2,00±0,10	⌀1,5+0,1	1,5 max.	0,3 max.
1206	2,00±0,2	3,60±0,2	1,75±0,1	3,5±0,05	8,0±0,3	4,00±0,15	4,00±0,15	2,00±0,10	⌀1,5+0,1	1,5 max.	0,3 max.
2010	2,80±0,2	5,40±0,2	1,75±0,1	5,5±0,15	12,0±0,3	4,00±0,15	4,00±0,15	2,00±0,10	⌀1,5+0,1	1,5 max.	0,3 max.
2512	3.40±0,2	6,60±0,2	1,75±0,1	5,5±0,15	12,0±0,3	4,00±0,15	4,00±0,15	2,00±0,10	⌀1,5+0,1	1,5 max.	0,3 max.

All Dimensions in mm

Reel Dimensions (Injection Molded)



Type	0603 ▼ 1206	2010 ▼ 2512
ØA	180 -1,5	180 -1,5
ØB	60,0 +1,0	60,0 +1,0
ØC	13,0±0,2	13,0±0,2
W	9,0 +1,0	13,0 +1,0
T	11,5±1,0	15,5±1,0

All Dimensions in mm

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Parameter	Conditions	Specification
Thermal Shock	-65°C to +150°C, 1000 Cycles	ΔR ±0,02%
Short Time Overload	Relateded Voltage x 2,5, 5sec.	ΔR ±0,02%
Soldering	245°C, 2,5sec.	95% Terminals Tin covered
Insulation Resistance	100 ±VDC, 1 min.	100MΩ
Stability	70 ±2°C, Nominal Power, 1,5h an, 0,5h aus, 2000h	ΔR ±0,02% for R >250Ω ΔR ±0,05% for R <250Ω
Stability (Moisture)	25°C, 80% r.H. to 95% r.H., 10 Cycles (250h)	ΔR ±0,02% for R >250Ω ΔR ±0,05% for R <250Ω
High Temperature Exposure	+155°, without Load 96h	ΔR ±0,02%
Low Temperaure Operation	-65°C, 45 min. Operating Voltage applied	ΔR ±0,01%
Substrate Bending Test	Bending 3mm	ΔR ±0,05%
Shelf Stability	25°C, 1 Year	ΔR ±0,01%

Processing and storage instructions

- Do not store in high temperatures (>40°C) high humidity (>70% RH).
- Hand Soldering: soldering temperature 240°C - 265°C with soldering tip ≤ 3mm
- Soldering furnace: max. temperature 250°C+0/-5°C, holding time max. 10sec.
- Dip Soldering: max. temperature of the soldering bath 260°C
- After the different soldering methods an even cooling down has to be ensured. Avoid parts from any mech. stress.

Packaging

100pcs. Cut Tape for quantities >500pcs.	500pcs. Tape on Reel for quantities < 1000pcs.	1000pcs. Tape on Reel for quantities 1000pcs.+

Ordering Information

CPH	0603	W0,1%	TK5	10k000
TYPE	**SIZE**	**RESISTANCE TOLERANCE**	**TCR**	**Resistance Value**
	0603	>100Ω ±0,1% / ±0,05%	5ppm/°C	(100Ω - 200kΩ)
	0805	>250Ω ±0,1% / ±0,05% / ±0,01%	2ppm/°C	
	1206			
	2010			
	2512			