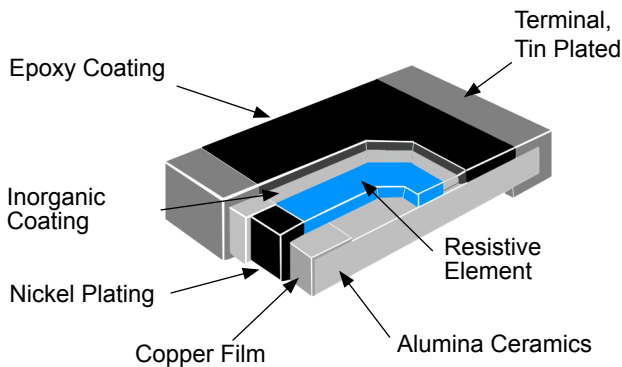


Data Sheet for Precision Resistors

SMD Resistor (metal thin film)

Series CPH



- 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 $\pm 0,01\%$
- Temperature Coefficient: up to $\pm 1\text{ppm}/^\circ\text{C}$

Electrical Specification	CPH				
	0603	0805	1206	2010	2512
Resistance range	100 Ω ..7,5k Ω	100 Ω ..36k Ω	100 Ω ..68k Ω	100 Ω ..150k Ω	100 Ω ..200k Ω
Resistance tolerance	$\pm 0,01\%$.. $\pm 0,5\%$				
Power rating @ 70°C (0W @ +155°C)	1/16W	1/10W	1/4W	1/2W	3/4W
Max. working voltage	100V	150V	200V	300V	
TCR-rate	$\pm 2, \pm 5$ (optional ± 1) ppm/ $^\circ\text{C}$				
Working temperature range (max.)	-20..+125°C (-55..+155°C)				

Mechanical Specification	
Resistance technology / material	Metal thin film / NiCr
Design	SMD: 0603, 0805, 1206, 2010, 2512
Housing material	Epoxy inorganic passivation layer
Connections	Axial tinned

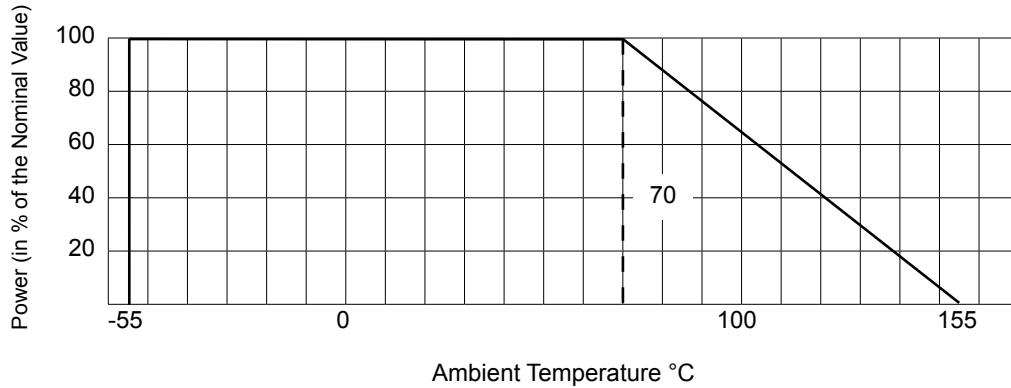
Parameters	Test Conditions (MIL-PRF-55342/JIS C5201-1)	Specification
Short time overload	2,5 x rated voltage, 5 sec.	$\Delta R \pm 0,02\% + 0,01\Omega$
Life span (biased)	70°C, rated voltage, 90 min. on 30 min off, 2000 h	$\Delta R \pm 0,02\% + 0,01\Omega$ @ R $\geq 250\Omega$ $\Delta R \pm 0,05\% + 0,01\Omega$ @ R < 250 Ω
High temperature / humidity	85°C, 85% RH 1/10 rated power, 90 min. on 30 min off, 1000 h	$\Delta R \pm 0,05\% + 0,01\Omega$
Temperature shock	-65°C..+150°C (15 min), 100 cycles	$\Delta R \pm 0,02\% + 0,01\Omega$
High temperature exposure	+155°C, no bias 1000 h	$\Delta R \pm 0,05\% + 0,01\Omega$
Resistance to soldering heat	235°C $\pm 5^\circ\text{C}$, 30 sec. (reflow)	$\Delta R \pm 0,01\% + 0,01\Omega$

Data Sheet for Precision Resistors

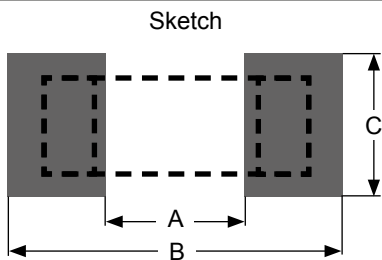
SMD Resistor (metal thin film)

Series CPH

Power Derating Curve

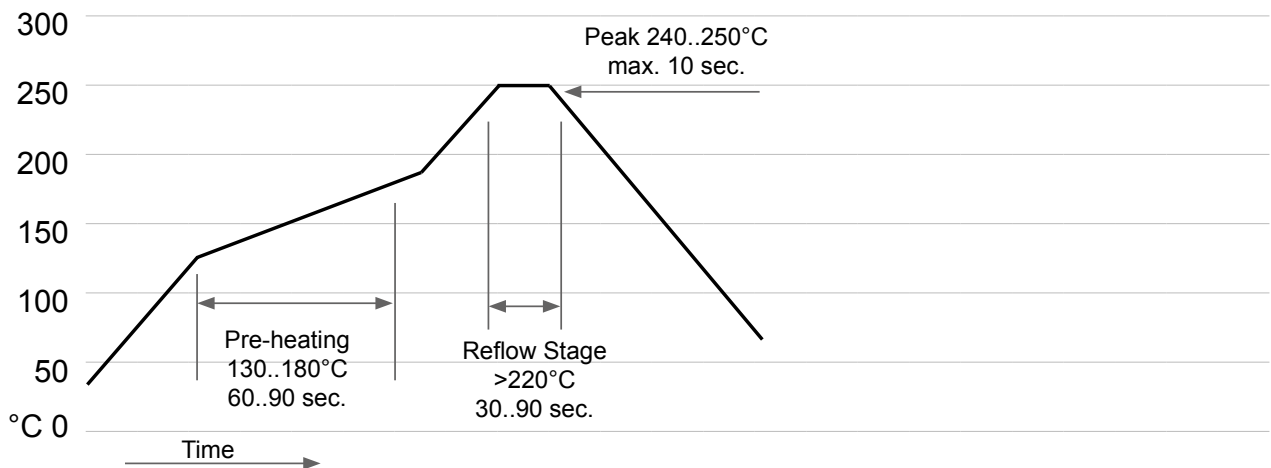


Recommended Foot Prints



CPH	A	B	C
0603	1,0 mm	3,0 mm	1,2 mm
0805	1,2 mm	4,0 mm	1,7 mm
1206	2,2 mm	5,0 mm	2,0 mm
2010	3,8 mm	6,8 mm	2,9 mm
2512	4,8 mm	8,2 mm	3,6 mm

Recommendation for Reflow Soldering Profile

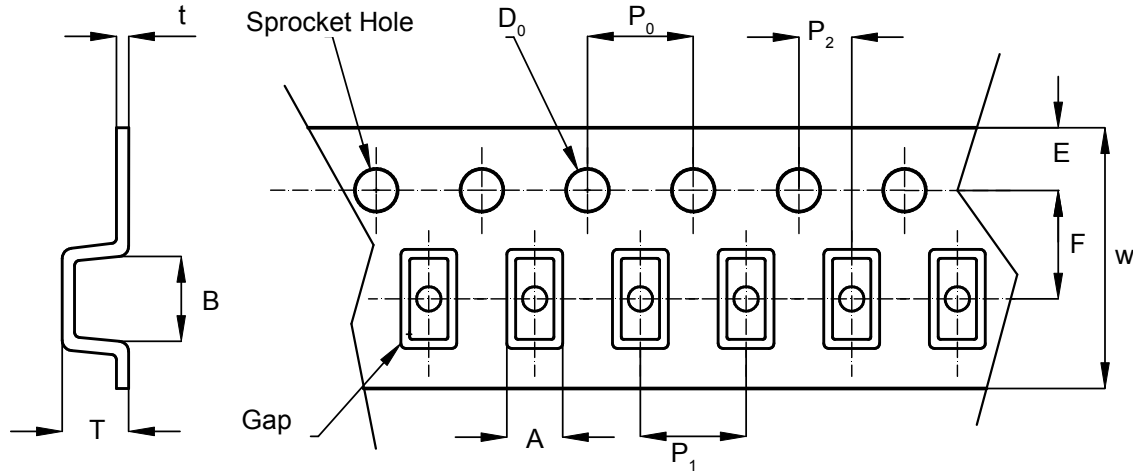


Data Sheet for Precision Resistors

SMD Resistor (metal thin film)

Series CPH

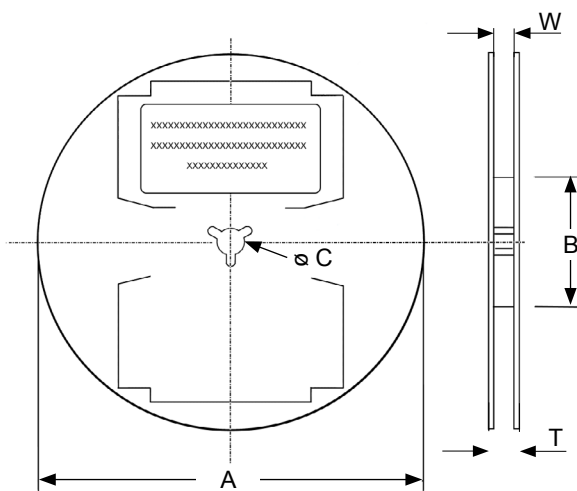
Blister Tape Dimensions



CPH	A	B	E	F	W	P ₀	P ₁	P ₂	D ₀	T	t
0603	1,10 ±0,2	1,9 ±0,2	1,75 ±0,1	3,5 ±0,05	8 ±0,3	4 ±0,15	4 ±0,15	2 ±0,10	Ø1,5 +0,1	1,5 max.	0,3 max.
0805	1,65 ±0,2	2,4 ±0,2	1,75 ±0,1	3,5 ±0,05	8 ±0,3	4 ±0,15	4 ±0,15	2 ±0,10	Ø1,5 +0,1	1,5 max.	0,3 max.
1206	2,00 ±0,2	3,6 ±0,2	1,75 ±0,1	3,5 ±0,05	8 ±0,3	4 ±0,15	4 ±0,15	2 ±0,10	Ø1,5 +0,1	1,5 max.	0,3 max.
2010	2,80 ±0,2	5,4 ±0,2	1,75 ±0,1	5,5 ±0,15	12 ±0,3	4 ±0,15	4 ±0,15	2 ±0,10	Ø1,5 +0,1	1,5 max.	0,3 max.
2512	3,40 ±0,2	6,6 ±0,2	1,75 ±0,1	5,5 ±0,15	12 ±0,3	4 ±0,15	4 ±0,15	2 ±0,10	Ø1,5 +0,1	1,5 max.	0,3 max.

Dimensions in mm

Reel Dimensions



	CPH 0603 CPH 0805 CPH 1206	CPH 2010 CPH 2512
ØA	180 -1,5	180 -1,5
ØB	60 +1,0	60 +1,0
ØC	13 ±0,2	13 ±0,2
W	9 +1,0	9 +1,0
T	11,4 ±1,0	13 ±1,0

Dimensions in mm

Packaging

100 pcs. Cut Tape
for quantities >500pcs.

500 pcs. Tape on Reel
for quantities < 1000pcs.

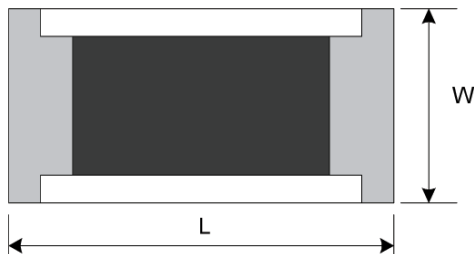
1000 pcs. Tape on Reel
for quantities 1000pcs.+

Data Sheet for Precision Resistors

SMD Resistor (metal thin film)

Series CPH

Technical Drawing



CPH	L	W	T	D1
0603	1,6 ±0,2	0,80 ±0,25	0,4 ±0,15	0,3 ±0,20
0805	2,0 ±0,2	1,25 ±0,25	0,4 ±0,15	0,4 ±0,20
1206	3,2 ±0,2	1,60 ±0,25	0,4 ±0,15	0,5 ±0,25
2010	5,0 ±0,2	2,50 ±0,25	0,45 ±0,15	0,6 ±0,25
2512	6,4 ±0,2	3,20 ±0,25	0,45 ±0,20	0,75 ±0,25

Dimensions in mm

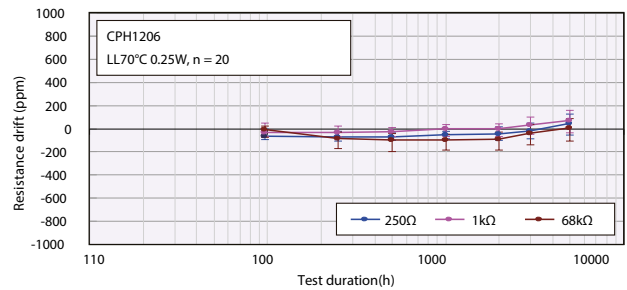
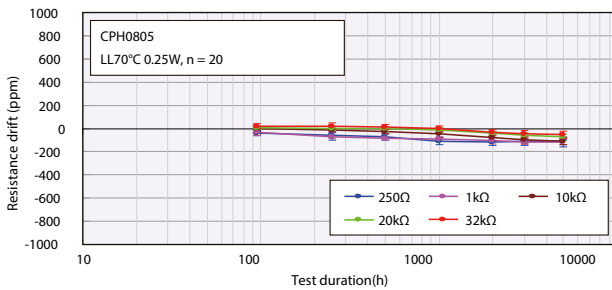
Order code

Description	Selection: standard=black/bold, possible options=grey/cursive				
Series:	CPH				
Type / size: 0603 (max. 7,5kΩ) 0805 (max. 36kΩ) 1206 (max. 68kΩ) 2010 (max. 150kΩ) 2512 (max. 200kΩ)		0603 0805 1206 2010 2512			
Resistance tolerance: ±0,5% ±0,1% ±0,05% <i>Option ±0,02</i> ±0,01%			W0,5% W0,1% W0,05% <i>W0,02%</i> W0,01%		
Temperature coefficient: 5ppm/°C 2ppm/°C <i>Option 1ppm/°C</i>				TK5 TK2 <i>TK1</i>	
Resistance value - please choose: From 100Ω to ≤ see type					xxkxxx

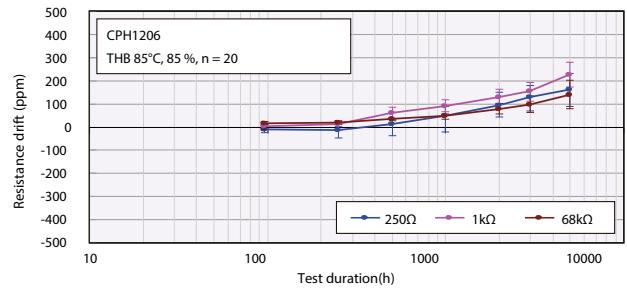
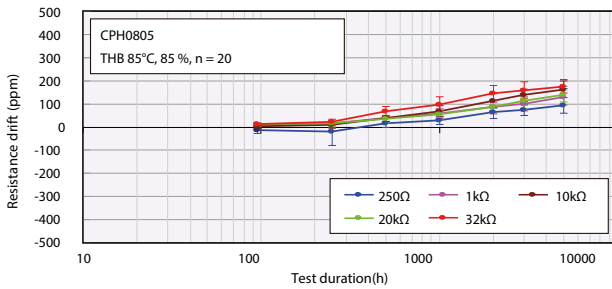
Order Example	Series	Type	Resistance tolerance	Temperature coefficient	Resistance value
Choice	CPH	0603	±0,1%	2ppm/°C	10,1kΩ
Code	CPH	0603	W0,1%	TK2	10k100

Test Data

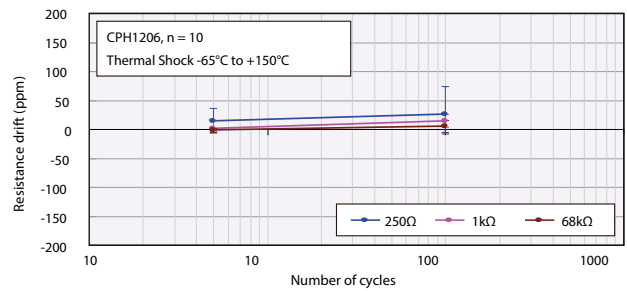
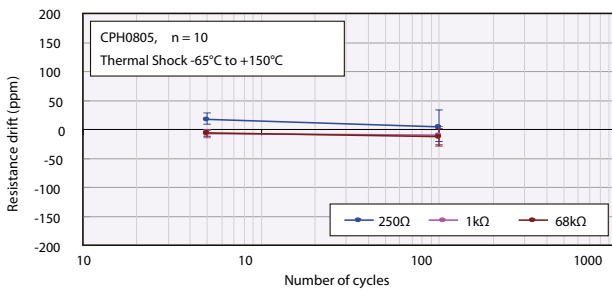
Biased life test



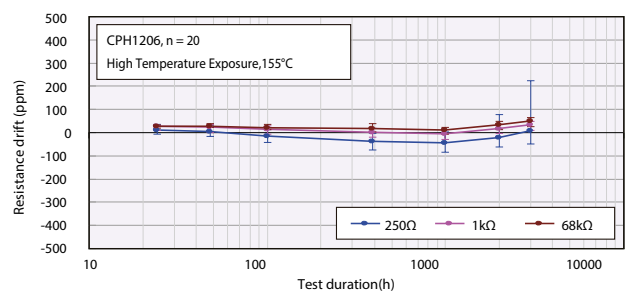
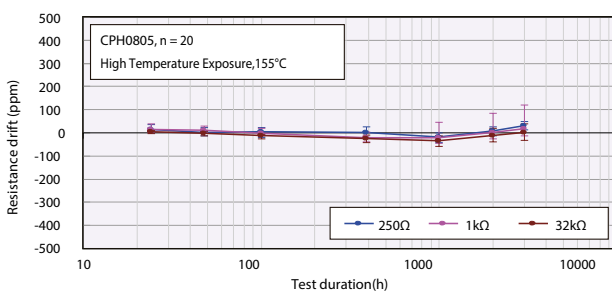
High temperature high humidity (biased)



Temperature shock

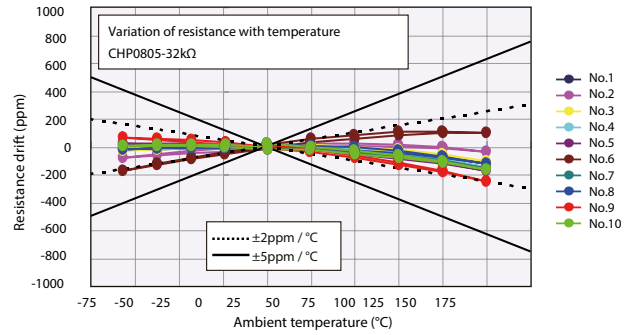
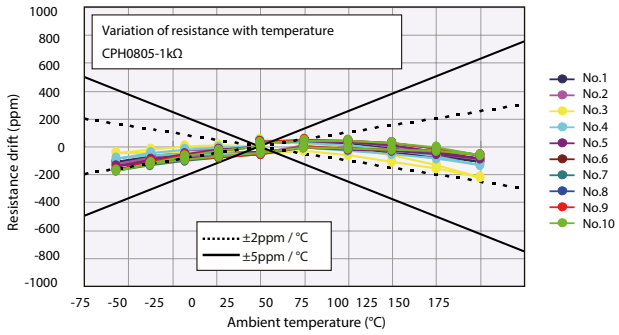


High temperature exposure



Temperature coefficient of Resistance

CPH0805



CPH1206

