

Data Sheet

Customer: _____

Product: Thick Film Hyper Power Chip Resistor - HHP Series

Size : 0805 ~ 2512

Issued Date: 29-May-2025

Edition: Ver. 1

Record of change

Date	Ver.	Description	Page

HITANO ENTERPRISE CORP.

7F-7, No. 3, Wu Chuan 1st Road, New Taipei Industrial Park,
New Taipei City, TAIWAN, R.O.C.

Tel: +886 2 2299 1331 (Rep.)

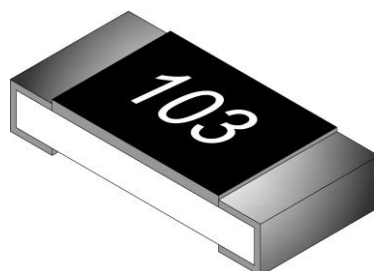
Fax: +886 2 2298 2466, 2298 2969

Prepared by	Checked by	Approved by	Accepted by (customer)
29-May-2025	29-May-2025	29-May-2025	
Randy Yu	Michelle Lin	Arthur Su	

Thick Film Hyper Power Chip Resistor

HHP Series

Thick Film Hyper Power Chip Resistor — HHP Series



Application

- Consumer electronics
- Motor Control
- Heating, Ventilating and Air conditioning
- Indoor lighting, Central door locking, Wiper module

Features

- Small size and light weight
- Reliability, high quality
- CCD visual quality inspection

Parts Number Explanation

Example:

HHP	0805	J	R	-	100R	Z
Product Type	Size (Inch)	Resistor Tolerance	Package	Special Type	Resistor Value	Optional
HHP	0805 1206 2010 2512	G : $\pm 2\%$ J : $\pm 5\%$ K : $\pm 10\%$	R : Paper Taping (0805~1206) K : Embossed Taping (2010~2512)	- = 7 inch Dia. Reel (Standard) 10 = 10 inch Reel 13 = 13 inch Reel (non preferred)	1R = 1 Ω 10R = 10 Ω 100R = 100 Ω 1KR = 1K Ω 1MR = 1M Ω	Z : Hyper Power Product

Thick Film Hyper Power Chip Resistor

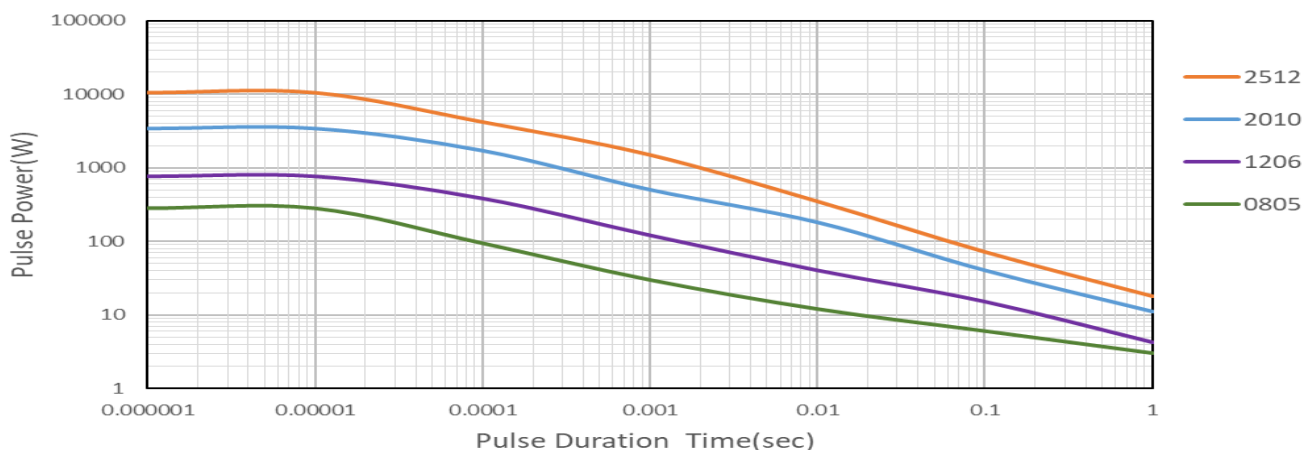
HHP Series

Hyper Power Rating Electrical Specifications

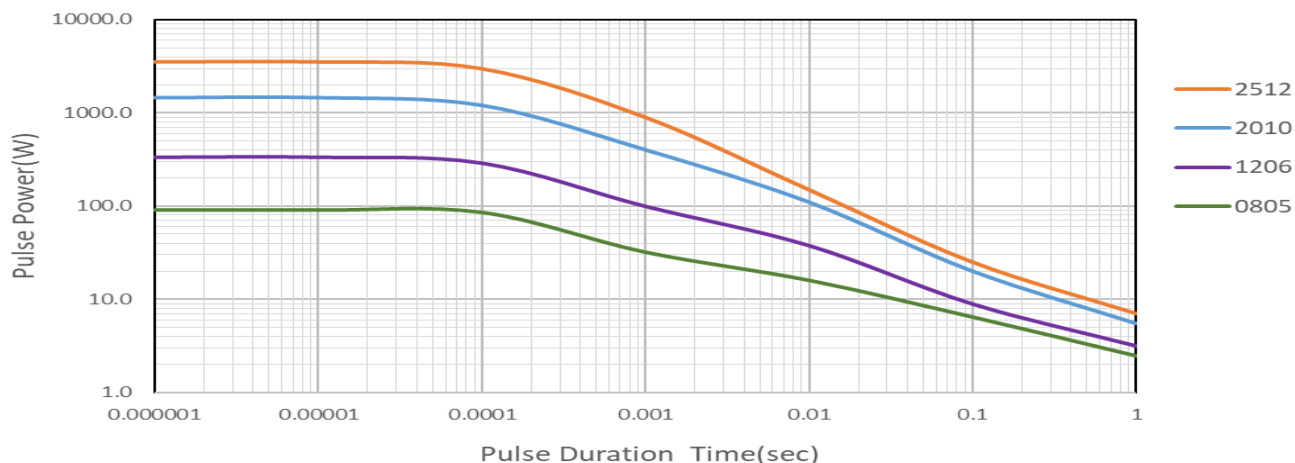
Item Type	Rated Power at 70°C	Max Working Voltage	Max Overload Voltage	T.C.R. (PPM/°C)	Resistance Range
					G(±2%)、J(±5%)、K(±10%)
HHP0805	0.75W	200V	300V	±400	$1\Omega \leq R < 10\Omega$
				±100	$10\Omega \leq R \leq 1M\Omega$
HHP1206	1W	200V	400V	±400	$1\Omega \leq R < 10\Omega$
				±100	$10\Omega \leq R \leq 1M\Omega$
HHP2010	2W			±400	$1\Omega \leq R < 10\Omega$
				±150	$10\Omega \leq R \leq 1M\Omega$
HHP2512	4W	250V	500V	±400	$1\Omega \leq R < 10\Omega$
				±150	$10\Omega \leq R \leq 1M\Omega$

- For non-standard parts, please contact our sales dept.
- Operating Temperature Range : -55°C ~ +155°C.

Single Pulse Power:



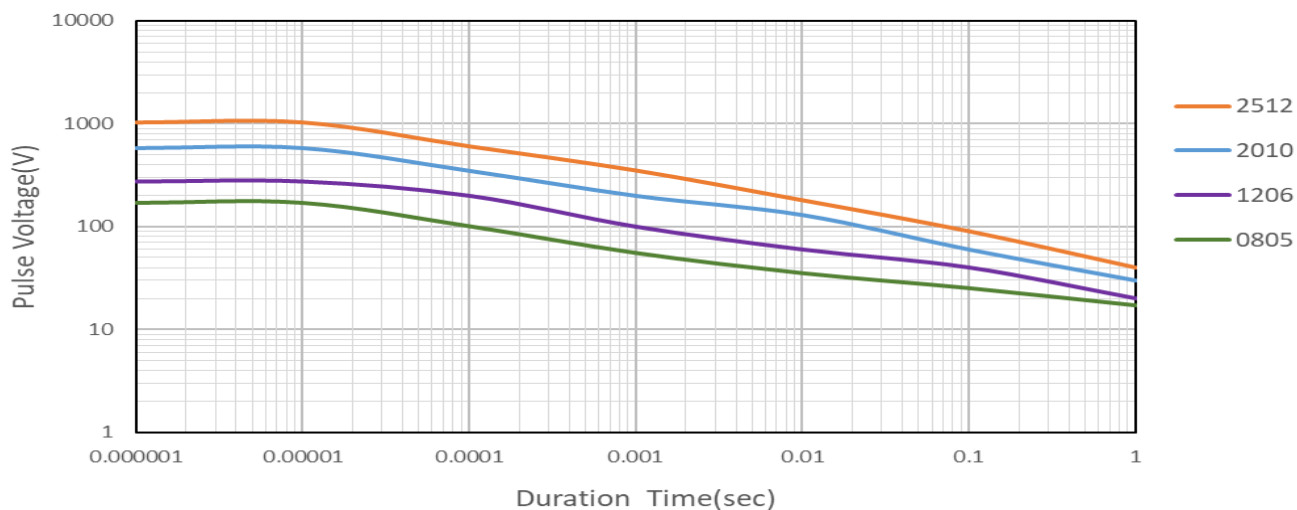
Continuous Pulse Power:



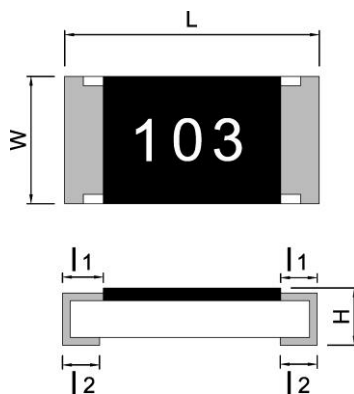
Thick Film Hyper Power Chip Resistor

HHP Series

■ Pulse Voltage:



■ Type Dimension



CHH0805 / CHH1206 / CHH2010 / CHH2512

Unit:mm

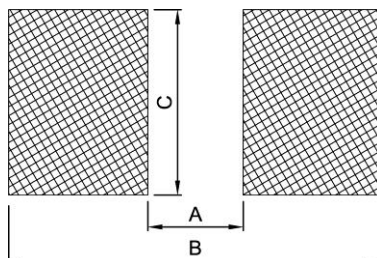
Type	L	W	H	l ₁	l ₂
HHP0805	2.00 ± 0.10	1.25 ± 0.10	0.62 ± 0.15	0.30 ± 0.15	0.30 ± 0.15
HHP1206	3.05 ± 0.10	1.60 ± 0.10	0.65 ± 0.15	0.40 ± 0.20	0.40 ± 0.20
HHP2010	5.00 ± 0.20	2.50 ± 0.15	0.65 ± 0.15	0.60 ± 0.20	0.60 ± 0.20
HHP2512	6.30 ± 0.20	3.20 ± 0.15	0.75 ± 0.15	0.60 ± 0.20	0.60 ± 0.20

Thick Film Hyper Power Chip Resistor

HHP Series

● General Information

■ Recommend Land Pattern Design



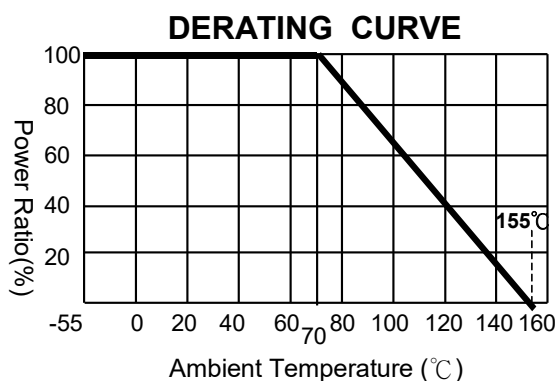
■ Dimension

Unit:mm

Item \ Type	0805	1206	2010	2512
A	1.30	2.20	3.80	4.90
B	2.90	4.20	6.60	8.10
C	1.40	1.70	2.70	3.40

■ Performance Characteristics

■ Power Derating Curve



Power rating or current rating is in the case based on continuous full-load at ambient temperature of 70°C.

For operation at ambient temperature in excess of 70°C, the load should be derated in accordance with figure of derating Curve.

■ Voltage Rating or Current Rating

Resistance Range: $\geq 1\Omega$

Rated Voltage: The resistor shall have a DC continuous working voltage or a RMS AC continuous working voltage at commercial-line frequency and wave form corresponding to the power rating, as determined formula as following:

$$E(RCWV) = \sqrt{P \times R}$$

E=Rated voltage(V)

P=Power rating(W)

R=Nominal resistance(Ω)

Thick Film Hyper Power Chip Resistor

HHP Series

● Reliability Test and Requirement

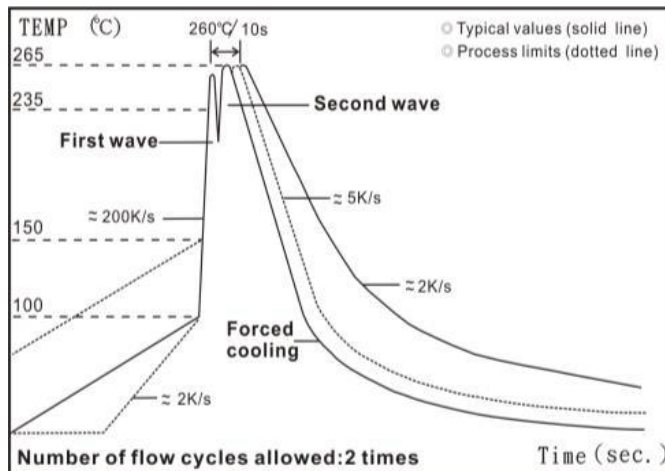
Test Item	Test Method	Procedure	Requirements
Temperature Coefficient of Resistance (T.C.R)	JIS-C-5201-1 4.8 IEC-60115-1 4.8	At 25°C /+155°C, 25°C is the reference temperature	As Spec
Short Time Overload	JIS-C-5201-1 4.13 IEC-60115-1 4.13	Hyper Power : 4 × Rated power or Max Overload Voltage whichever is less for 5 seconds	$\Delta \pm (2.0\% + 0.10\Omega)$
Leaching	JIS-C-5201-1 4.18 IEC-60068-2-58 8.2.1	260±5°C for 30 seconds.	Individual leaching area $\leq 5\%$ Total leaching area $\leq 10\%$
Resistance to Soldering Heat	JIS-C-5201-1 4.18 IEC-60115-1 4.18	260±5°C for 10 seconds.	$\Delta \pm (1.0\% + 0.05\Omega)$
Rapid Change of Temperature	JIS-C-5201-1 4.19 IEC-60115-1 4.19	-55°C to +155°C, 5 cycles	$\Delta \pm (1.0\% + 0.10\Omega)$
Resistance to Solvent	JIS-C-5201-1 4.29	The tested resistor be immersed into isopropyl alcohol of 20~25°C for 60 secs. Then the resistor is left in the room for 48 hrs.	$\Delta \pm (0.5\% + 0.05\Omega)$
Damp Heat with Load	JIS-C-5201-1 4.24 IEC-60115-1 4.24	40±2°C, 90~95% R.H. RCWV or Max. working voltage whichever is less for 1000 hrs with 1.5 hrs "ON" and 0.5 hrs "OFF" .	$\Delta \pm (2.0\% + 0.05\Omega)$
Load Life (Endurance)	JIS-C-5201-1 4.25 IEC-60115-1 4.25.1	70±2°C, RCWV or Max. working voltage whichever is less for 1000 hrs with 1.5 hrs "ON" and 0.5 hr "OFF".	$\Delta \pm (3.0\% + 0.05\Omega)$
Insulation Resistance	JIS-C-5201-1 4.6 IEC-60115-1 4.6	Apply 100VDC for 1 minute.	$\geq 10G\Omega$
Bending Strength	JIS-C-5201-1 4.33 IEC-60115-1 4.33	Bending once for 5 seconds D : 0805=5mm 1206=3mm 2010、2512=2mm	$\Delta \pm (1.0\% + 0.05\Omega)$

Thick Film Hyper Power Chip Resistor

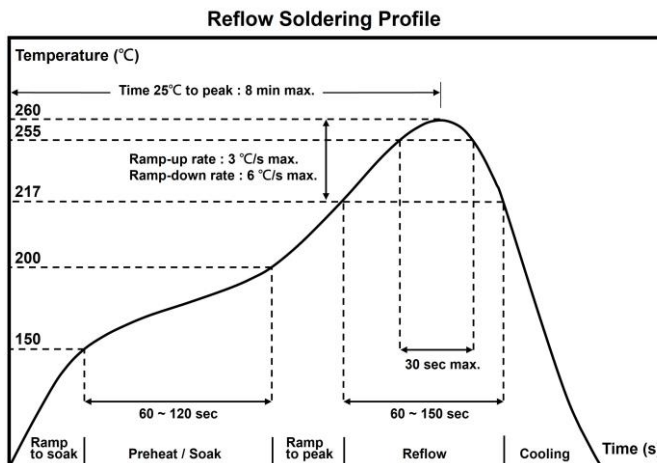
HHP Series

■ Recommended Customer Soldering Parameters

■ Wave solder Temperature condition



■ Solder reflow Temperature condition



■ Rework temperature (hot air equipment) : $350^{\circ}C$, 3~5seconds

■ Recommended reflow methods

IR, vapor phase oven, hot air oven

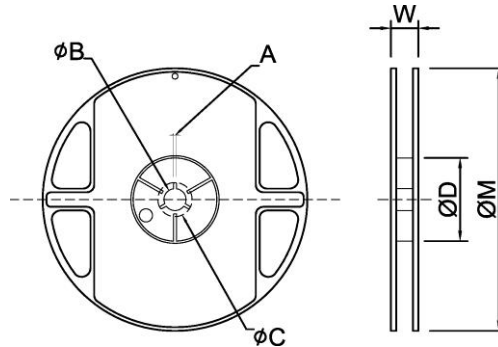
If reflow temperatures exceed the recommended profile, devices may not meet the performance requirements

Thick Film Hyper Power Chip Resistor

HHP Series

■ Appendix For SMD Chip Resistor

● Packaging Information

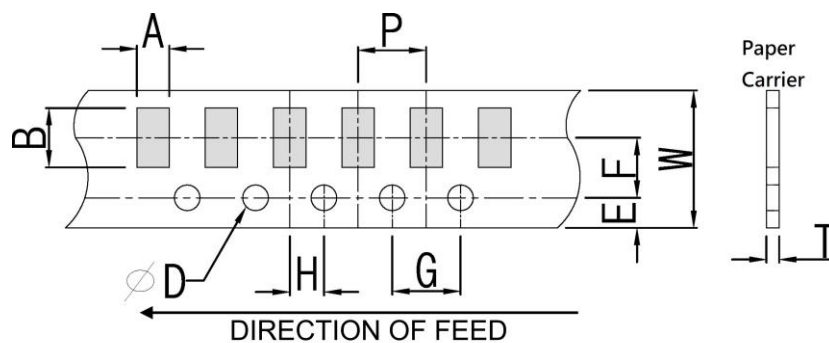


■ Dimension

Unit:mm

Type	Size		A	ΦB	ΦC	ΦD	W	ΦM
0805/1206	7"	5K/Reel	2.0±0.5	13.5±1.0	21±1.0	60±1.0	11.5±2.0	178±2.0
2010/2512	7"	4K/Reel	2.0±0.5	13.5±1.0	21±1.0	60±1.0	16.0±2.0	178±2.0

■ Tapping Specification



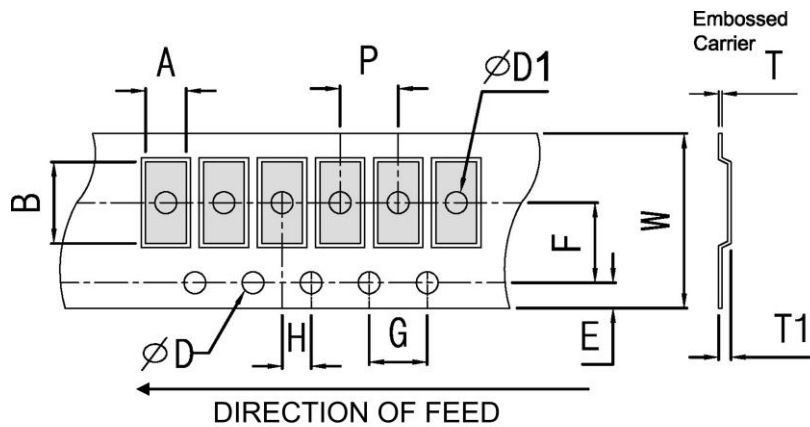
■ Dimension

Unit:mm

Packaging	Type	A	B	W	E	F	G	H	T	ϕD	P
Paper Type	0805	1.55 ± 0.2	2.30 ± 0.2	8.0 ± 0.2	1.75 ± 0.1	3.5 ± 0.05	4.0 ± 0.1	2.0 ± 0.05	0.75 ± 0.1	$1.50^{+0.10}_{-0}$	4.0 ± 0.1
	1206	1.90 ± 0.2	3.50 ± 0.2	8.0 ± 0.2	1.75 ± 0.1	3.5 ± 0.05	4.0 ± 0.1	2.0 ± 0.05	0.75 ± 0.1		

Thick Film Hyper Power Chip Resistor

HHP Series



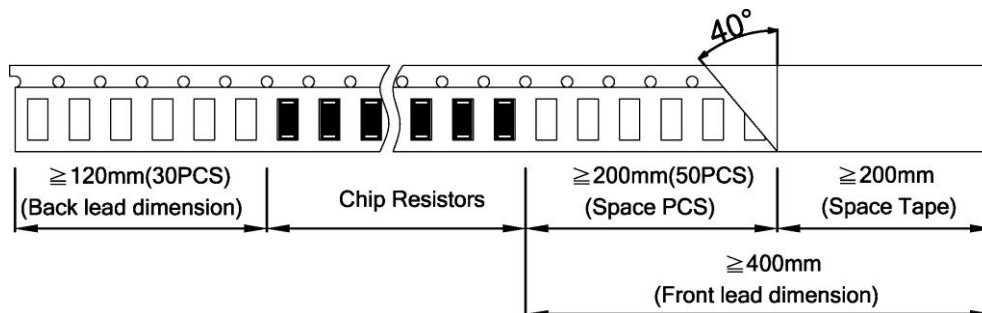
Dimension

Unit:mm

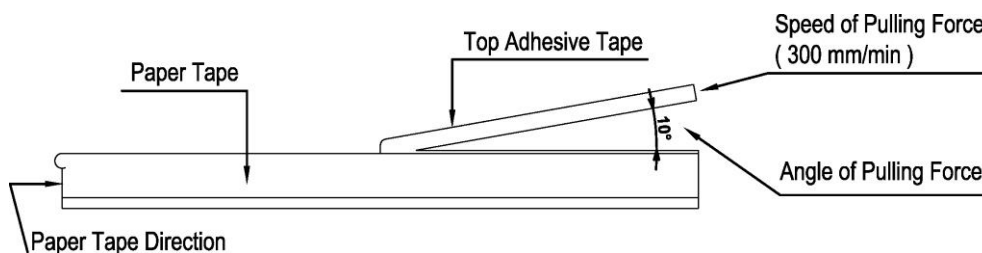
Packaging	Type	A	B	W	E	F	G	H	T	ØD	ØD1	T1	P
Embossed Type	2010	2.80±0.2	5.60±0.2	12±0.1	1.75±0.1	5.5±0.05	4.0±0.1	2.0±0.05	0.23±0.1	1.50 ^{+0.10} ₋₀	1.50±0.1	0.85±0.15	4.0±0.1
	2512	3.40±0.2	6.70±0.2	12±0.1	1.75±0.1	5.5±0.05	4.0±0.1	2.0±0.05	0.23±0.1		1.50±0.1	0.95±0.15	

Packing Material Data/Storage Data

Front & Back Lead Dimension



Top Adhesive Peel Off Strength : 10~70g

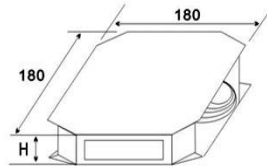


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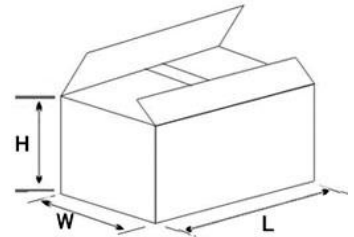
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■ Package

Inner Box Size	
Reel	Size H(mm)
1	13
2	24
3	36
5	60
10	113



External Box Size			
Contain (Kpcs)	Length (mm)	Width (mm)	Height (mm)
25K	180	180	60
50K	180	180	110
150K	430	200	200
300K	400	400	200



■ Storage Data :

Storage time at the environment temp: $25\pm 5^{\circ}\text{C}$ & humidity: $60\pm 20\%$ is valid for one year from the date of delivery.

■ Product Testing Method:

Our products are tested with our company's tapping & testing equipments by using four-feet probe to touch at the back of both electrodes. Supposed different testing points or methods are requested, please advise beforehand and customized-made production is available.

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HHP Series

■ Standard Resistance Values in a Decade

■ Marking code:

2%: marking code, please refer to E96 and E24 data form as below

Ex: 120K, The marking code is 1203 in E24

121K, The marking code is 1213 in E96

5%: marking code, please refer to E24 data form as below

Ex: 120K, The marking code is 124 in E24

E96	E48	E96	E48	E96	E48	E96	E48	E96	E48	
100	100	169	169	287	287	487	487	825	825	
102		174		294		499		845		
105	105	178	178	301	301	511	511	866	866	
107		182		309		523		887		
110	110	187	187	316	316	536	536	909	909	
113		191		324		549		931		
115	115	196	196	332	332	562	562	953	953	
118		200		340		576		976		
121	121	205	205	348	348	590	590			
124		210		357		604				
127	127	215	215	365	365	619	619			
130		221		374		634				
133	133	226	226	383	383	649	649			
137		232		392		665				
140	140	237	237	402	402	681	681			
143		243		412		698				
147	147	249	249	422	422	715	715			
150		255		432		732				
154	154	261	261	442	442	750	750			
158		267		453		768				
162	162	274	274	464	464	787	787			
165		280		475		806				

E24	E12	E6	E3
10	10	10	10
11			
12	12		
13			
15	15	15	
16			
18	18		
20			
22	22	22	22
24			
27	27		
30			
33	33	33	
36			
39	39		
43			
47	47	47	47
51			
56	56		
62			
68	68	68	
75			
82	82		
91			

According to IEC publication 63