

# HVTK

## High Voltage Thick Film Chip Resistor

**RoHS**  
COMPLIANT

**■ Features**

- Highly reliable multilayer electrode construction
- Higher component and equipment reliability
- Excellent performance at high voltage
- Reduced size of final equipment

**■ Applications**

- Inverter
- Outdoor Equipments
- Converter
- Automotive Industry
- High Pulse Equipment


**GENERAL SPECIFICATIONS**

Model	Power Rating	Operating Temp. Range	Max. Operation Voltage	Max. Overload Voltage	Resistance Range		TCR[PPM/℃]
					±1%	±5%	
HVTK02(0402)	1/16W	-55 ~ +155℃	100V	200V	10Ω ~ 1MΩ 1.02MΩ ~ 10MΩ	±100 ±200	
HVTK03(0603)	1/10W		200V	400V			
HVTK05(0805)	1/8W		400V	800V			
HVTK06(1206)	1/4W		500V	1000V			
HVTK10(2010)	3/4W		2000V	3000V			
HVTK12(2512)	1W		3000V	4000V			

\*Operating Voltage= $\sqrt{P \cdot R}$  or Max. operating voltage listed above, whichever is lower.

\*Overload Voltage= $2.5 \cdot \sqrt{P \cdot R}$  or Max. overload voltage listed above, whichever is lower.

**CHARACTERISTICS**

Values in [ ] mean change in Ω after test

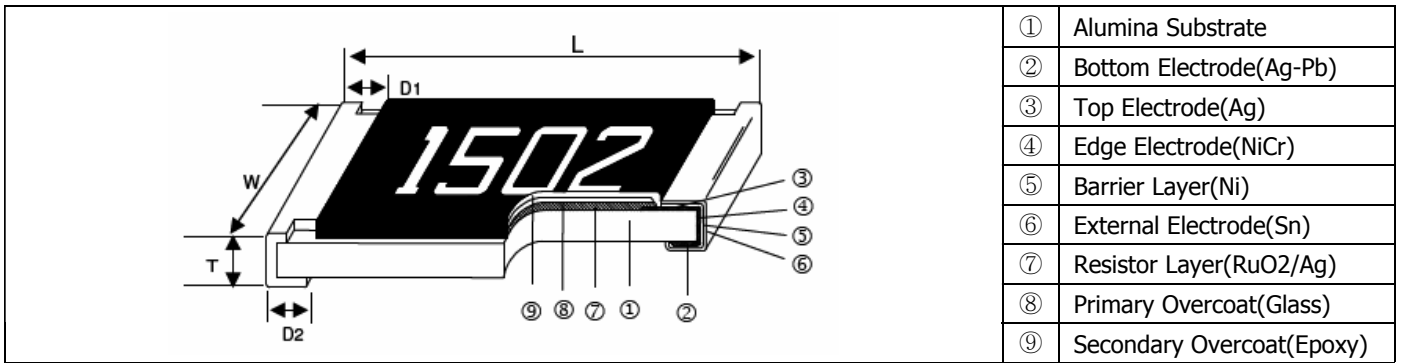
Item	Requirement		Test Method
	±1%	±5%	
Temp. Coefficient of Resistance	As Spec.		-55℃~+125℃ is the reference temperature
Short Time Overload	±(1.0%+0.05Ω)	±(2.0%+0.05Ω)	RCWV*2.5 or Max. overload voltage for 5 sec.
Insulation Resistance	≥ 10G		Max. overload voltage for 1minute
Endurance	±(2.0%+0.05Ω)	±(3.0%+0.05Ω)	70±2℃, Max. working voltage for 1000hrs with 1.5hrs "ON" and 0.5hrs "OFF"
Damp Heat with Load	±(2.0%+0.05Ω)	±(3.0%+0.05Ω)	40±2℃, 90~95% R.H. Max. working voltage for 1000hrs with 1.5hrs "ON" and 0.5hrs "OFF"
Dry Heat	±(1.0%+0.05Ω)	±(1.5%+0.05Ω)	At +125℃ for 1000hrs
Bending Strength	±(1.0%+0.05Ω)	±(1.0%+0.05Ω)	Bending once for 5sec. 2010, 2512 sizes:2mm Other sizes:3mm
Solderability	95% min. coverage		245±5℃ for 3sec.
Resistance to Soldering Heat	±(0.5%+0.05Ω)	±(1.0%+0.05Ω)	260±5℃ for 10sec.
Dielectric Withstand Voltage	No breakdown or flashover		1.42 times RCWV(RMS) for 1minute
Thermal Shock	Individual leaching area ≤ 5% Totl leaching area ≤ 10%		260±5℃ for 30sec.
Low Temperature Operation	±(0.5%+0.05Ω)	±(1.0%+0.05Ω)	-55℃ to +125℃, 5 cycles

\*Reference Standard: IEC 60115-1, 60068-2-58; JIS-C 5201-1

\*Storage Temperature: 25±3℃; Humidity < 80%RH

## DIMENSIONS

Unit : mm



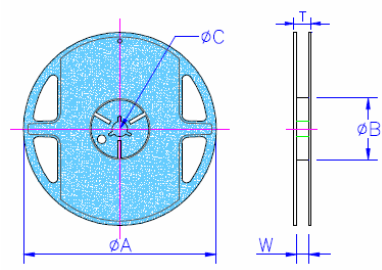
①	Alumina Substrate
②	Bottom Electrode(Ag-Pb)
③	Top Electrode(Ag)
④	Edge Electrode(NiCr)
⑤	Barrier Layer(Ni)
⑥	External Electrode(Sn)
⑦	Resistor Layer(RuO2/Ag)
⑧	Primary Overcoat(Glass)
⑨	Secondary Overcoat(Epoxy)

Model	Size(Inch)	L	W	T	D1	D2	Weight(g) (1000pcs)
HVTK02	0402	1.00±0.05	0.50±0.05	0.32±0.05	0.25±0.10	0.20±0.10	0.620
HVTK03	0603	1.60±0.10	0.80±0.10	0.45±0.10	0.30±0.20	0.30±0.20	2.042
HVTK05	0805	2.00±0.15	1.25±0.15	0.55±0.10	0.30±0.20	0.40±0.20	4.368
HVTK06	1206	3.10±0.15	1.55±0.15	0.55±0.10	0.50±0.25	0.50±0.20	8.947
HVTK0A	2010	5.00±0.20	2.50±0.15	0.55±0.15	0.60±0.25	0.50±0.20	24.241
HVTK12	2512	6.35±0.20	3.20±0.15	0.55±0.10	0.60±0.25	0.55±0.20	39.448

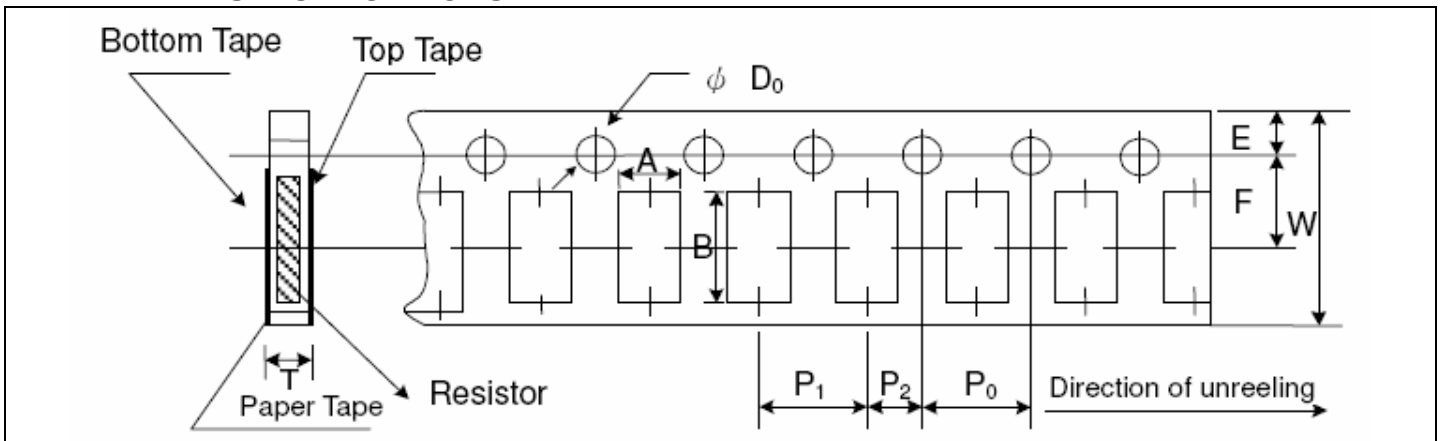
## REEL SPECIFICATIONS

Unit : mm

Model	Packaging Quantity	Tape width	Reel Diameter	Φ A	Φ B	Φ C	W	T
HVTK02	Paper	8mm	7 inch	178.5±1.5	60+1/-0	13.0±0.2	9.0±0.5	12.5±0.5
HVTK03			10 inch	254±1	100±0.5	13.0±0.2	9.5±0.5	13.5±0.5
HVTK05			13 inch	330±1	100±0.5	13.0±0.2	9.5±0.5	13.5±0.5
HVTK06			20K					
HVTK0A	Embossed	12mm	7 inch	178.5±1.5	60+1/-0	13.0±0.5	13.0±0.5	15.5±0.5
HVTK12			10 inch	250±1	62±0.5	13.0±0.5	12.5±0.5	16.5±0.5

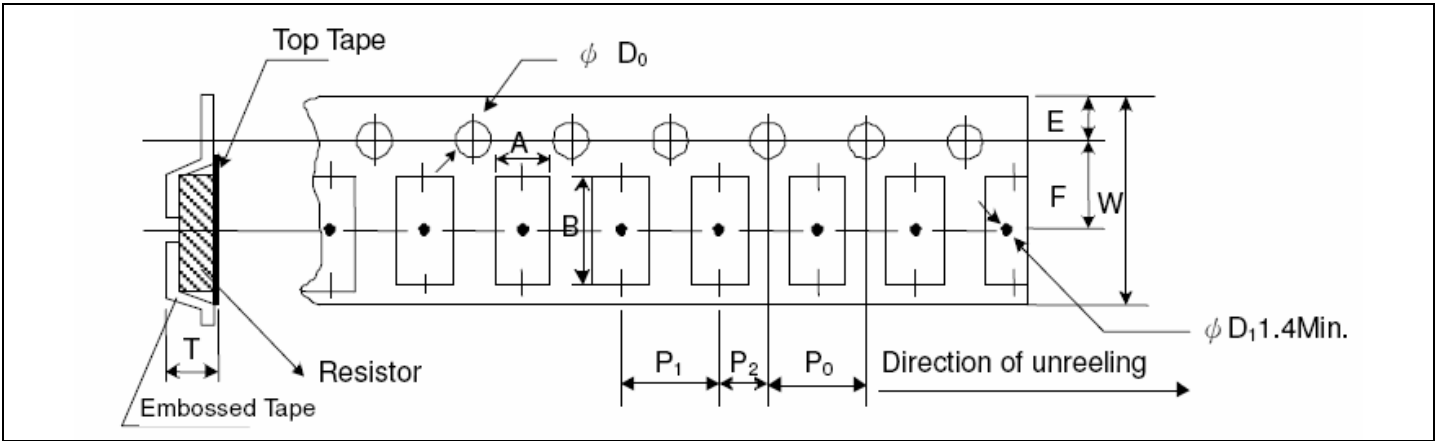


## PAPER TAPE SPECIFICATIONS



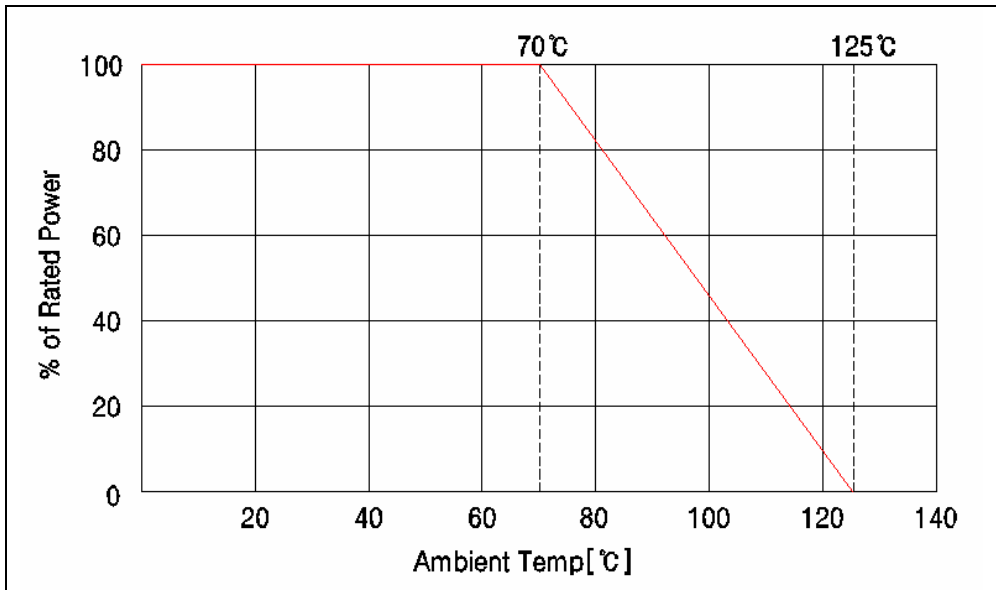
Model	Dimensions[mm]									
	A	B	W	E	F	P0	P1	P2	ΦD0	T
HVTK02	0.65±0.10	1.15±0.1	8.00±0.2	1.75±0.1	3.5±0.05	4.00±0.10	2.00±0.05	2.00±0.05	1.50+0.1,-0	0.45±0.1
HVTK03	1.10±0.10	1.90±0.1	8.00±0.2	1.75±0.1	3.5±0.05	4.00±0.10	4.00±0.05	2.00±0.05	1.50+0.1,-0	0.70±0.1
HVTK05	1.60±0.10	2.40±0.2	8.00±0.2	1.75±0.1	3.5±0.05	4.00±0.10	4.00±0.05	2.00±0.05	1.50+0.1,-0	0.85±0.1
HVTK06	1.90±0.10	3.50±0.2	8.00±0.2	1.75±0.1	3.5±0.05	4.00±0.10	4.00±0.05	2.00±0.05	1.50+0.1,-0	0.85±0.1

### EMBOSS PALSTIC TAPE SPECIFICATION



Model	Dimensions[mm]									
	A	B	W	E	F	P0	P1	P2	φD0	T
HVTK0A	2.8±0.20	5.5±0.20	12.0±0.3	1.75±0.1	5.5±0.05	4.00±0.1	4.00±0.1	2.00±0.05	1.50+0.1,- 0	1.2+0
HVTK12	3.5±0.20	6.7±0.20	12.0±0.3	1.75±0.1	5.5±0.05	4.00±0.1	4.00±0.1	2.00±0.05	1.50+0.1,- 0	1.2+0

### DERATING CURVE



### RECOMMEND LAND PATTERN

Unit : mm

Model	A	B	C
HVTK02	0.50	0.45	0.60
HVTK03	0.90	0.60	0.60
HVTK05	1.20	0.70	1.30
HVTK06	2.00	0.90	1.60
HVTK0A	3.80	0.90	2.80
HVTK12	3.80	1.60	3.50

## ORDERING PROCEDURE EXAMPLE

