

# Thick Film Chip Resistor High Voltage Type

CRHV Series

**MERITEK**

## FEATURE

- Operation temperature: -55°C ~ +155°C
- Special material and design for high working voltage requirements
- Applications: Power Supplies, Industrial Control Systems, Measurement Instruments, Back Light Inverters, Medical, Precision Equipments



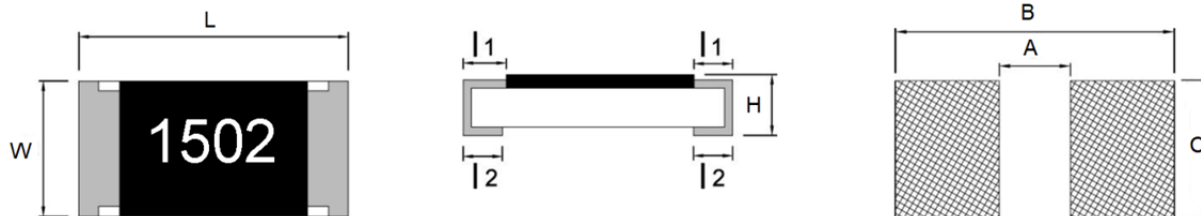
## PART NUMBERING SYSTEM

CRHV   0402   Y   1001   F   E  
(1)        (2)        (3)        (4)        (5)        (6)



No	Item	Code	Description	
(1)	Meritek Series	CRHV	Thick Film Chip Resistor series, High Voltage Type	
(2)	Size Code	0402	0402: 1.00 x 0.50 x 0.30	0603, 0805, 1206, 1210, 2512
(3)	Power Rating	Y	Y: 1/16W	X: 1/10W, W: 1/8W, V: 1/4W, U: 1/2W, T: 1W
(4)	Resistance	1000	1000: 100Ω	First three digits: significant, Fourth: Multiplier
(5)	Tolerance	F	F: ±1%	G: ±2%, J: ±5%
(6)	TCR	E	E: ±100 (PPM/°C)	F: ±200, G: ±300, H: ±400 (PPM/°C), I: ±500(PPM/°C)

## DIMENSIONS



Size	L	W	H	I1	I2	A	B	C
0402	1.00±0.10	0.50±0.05	0.30±0.05	0.15±0.10	0.20±0.10	0.60	1.60	0.70
0603	1.60±0.20	0.80±0.15	0.40±0.10	0.30±0.20	0.30±0.10	0.80	2.40	1.00
0805	2.00±0.20	1.25±0.15	0.50±0.15	0.30±0.15	0.40±0.15	1.30	2.90	1.45
1206	3.05±0.10	1.60±0.20	0.55±0.15	0.40±0.20	0.50±0.20	2.20	4.20	1.80
1210	3.05±0.10	2.50±0.20	0.55±0.15	0.50±0.20	0.50±0.20	2.00	4.40	2.70
2010	5.00±0.20	2.50±0.20	0.55±0.10	0.60±0.20	0.60±0.20	3.80	6.60	2.70
2512	6.30±0.20	3.20±0.20	0.55±0.10	0.60±0.20	0.60±0.20	4.90	8.10	3.40

Unit: mm

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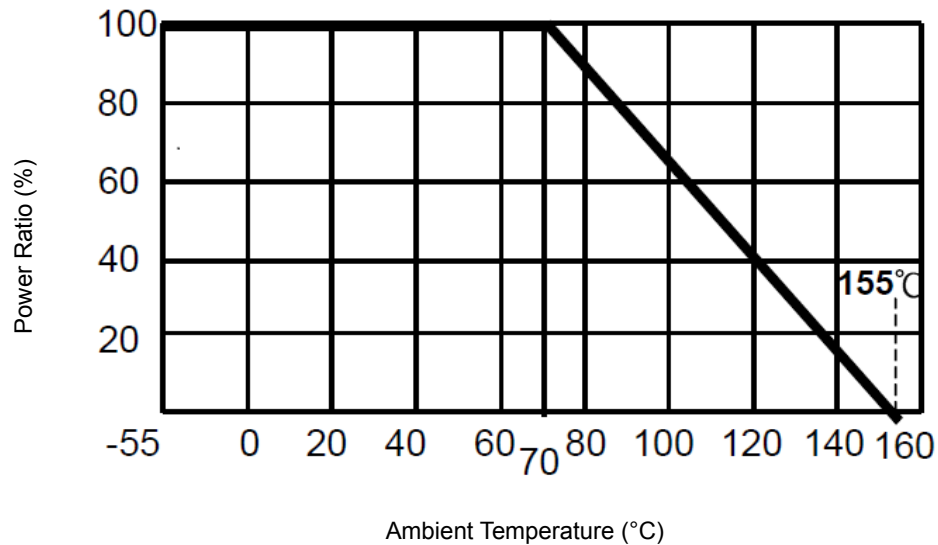
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## ELECTRICAL CHARACTERISTICS

Size	Rated Power at 70°C	Max. Working Voltage	Max. Overload Voltage	TCR	Resistance Range		
					±1.0%	±2%	±5%
	(W)	(V)	(V)	(PPM/°C)	(Ω)		
0402	1/16	100	200	±300	100 ~ 990		
		100	200	±200	1K ~ 10M		
0603	1/10	200	400	±200	47 ~ 98.8		
		200	400	±100	100 ~ 51M		
0805	1/8	400	800	±200	47 ~ 98.8		
		400	800	±100	100 ~ 51M		
1206	1/4	500	1,000	±200	47 ~ 98.8		
		500	1,000	±100	100 ~ 51M		
1210	1/3	500	1,000	±200	47 ~ 549		
		500	1,000	±100	560 ~ 51M		
2010	1/2	500	1,000	±200	47 ~ 549		
		500	1,000	±100	560 ~ 51M		
2512	1.0	500	1,000	±500	47 ~ 98.8		
		500	1,000	±200	100 ~ 549		
		500	1,000	±100	560 ~ 51M		

## POWER DERATING CURVE

Power Derating Curve



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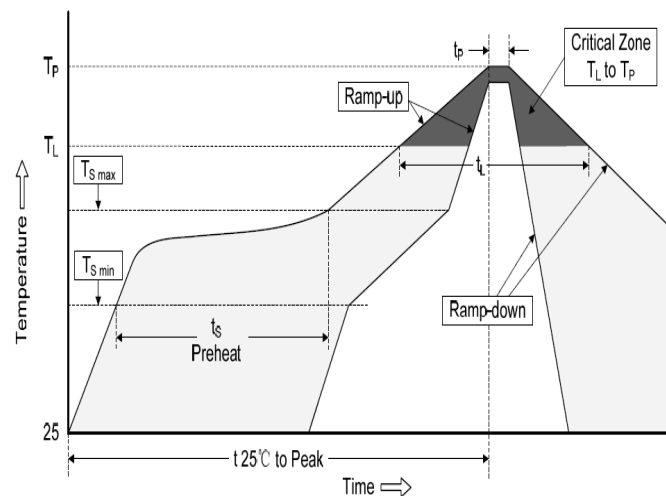
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## RELIABILITY TEST CONDITION AND REQUIREMENT

Item	Standard	Condition	Requirement		
			±1%	2%, 5%	
Temperature Coefficient of Resistance (T.C.R.)	JIS C 5201-1 4.8	-55°C ~ +155°C , 25°C is the reference temperature	As Specified	As Specified	
Short Time Overload	JIS C 5201-1 4.13	2.5*RCWV or Max. Overload Voltage whichever is lower for 5s	±(1.0%+0.05Ω)	±(2.0%+0.10Ω)	
Insulation Resistance	JIS C 5201-1 4.6	100 Voltage for 1 minute	≥ 10GΩ	≥ 10GΩ	
Endurance	JIS C 5201-1 4.25	70±2°C, RCWV for 1000hrs with 1.5hrs "ON" and 0.5hr "OFF"	±(1.0%+0.05Ω)	±(3.0%+0.10Ω)	
Electric Iron	Sony SS-00254-5	Preheating Temperature: 350±10°C Electric Iron preheating time: 3+1/-0 sec	±(1.0%+0.05Ω)	±(1.0%+0.05Ω)	
Damp Heat with Load	JIS C 5201-1 4.24	40±2°C, 90~95% R.H., RCWV or Max. working voltage whichever is less for 1000hrs with 1.5hrs "ON" and 0.5hr "OFF"	±(1.0%+0.05Ω)	±(2.0%+0.05Ω)	
Terminal Bending Strength	JIS C 5201-1 4.33	Deflection/5sec	±(1.0%+0.05Ω)	±(1.0%+0.05Ω)	
		5mm			0402, 0603, 0805
		3mm			1206, 1210
		2mm			2010, 2512
Solvent Test	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.	±(0.5%+0.05Ω)	±(0.5%+0.05Ω)	
Resistance to Soldering Heat	JIS C 5201-1 4.18	260±5°C for 10s	±(0.5%+0.05Ω)	±(1.0%+0.05Ω)	
Leaching	Sony SS-00254-9	260±5°C For 30 seconds	>95% Coverage	>95% Coverage	
Rapid Change of Temperature	JIS C 5201-1 4.19	-55°C ~ +155, 5 cycles	±(0.5%+0.05Ω)	±(1.0%+0.10Ω)	

## SOLDERING RECOMMENDATION

Reflow Condition		
Pre Heat	Temp. Min $T_{s(min)}$	150°C
	Temp. Max $T_{s(max)}$	180°C
	Time (min. to max.) ( $t_s$ )	60s ~ 120s
Average ramp up rate ( $T_L$ ) to peak		3°C/s max.
$T_{s(max)}$ to $T_L$ (Ramp-up rate)		3°C/s max.
Reflow	Temp. ( $T_L$ )	230°C
	Time (min. to max.) ( $t_L$ )	40s max.
Peak Temperature ( $T_P$ )		250°C
Time within 5°C of $T_P$ ( $t_p$ )		10s
Ramp-down Rate		6°C/s

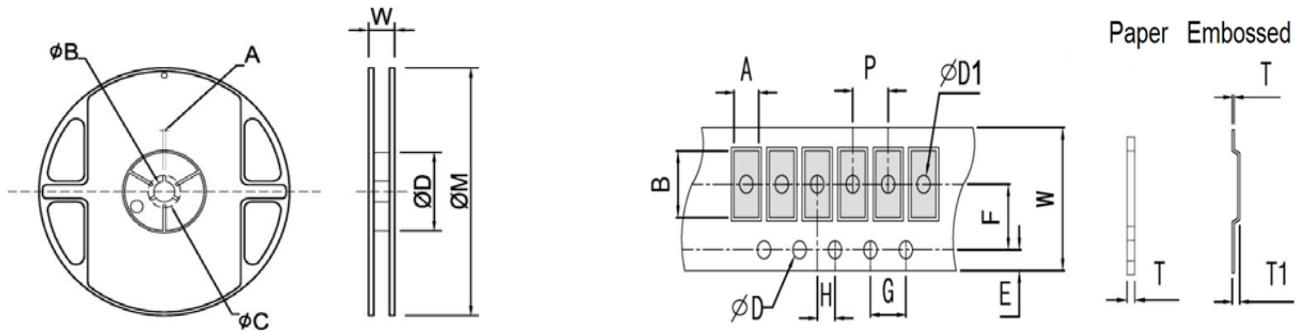


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## PACKAGING SPECIFICATIONS



Size	Reel Dimension (mm)								
	Type	Quantity	Reel Diameter	A ±0.5	φB ±1.0	φC ±1.0	φD ±1.0	W ±2.0	φM ±2.0
0402	Paper	10K	7"	2.0	13.5	21	60	11.5	178
	Paper	40K/50K	13"	2.0	13.5	21	100	11.5	330
0603 0805 1206	Paper	5K	7"	2.0	13.5	21	60	11.5	178
	Paper	10K	10"	2.0	13.5	21	100	11.5	254
	Paper	20K	13"	2.0	13.5	21	100	11.5	330
1210	Paper	5K	7"	2.0	13.5	21	60	11.5	178
2010	Plastic	4K	7"	2.0	13.5	21	60	16.0	178
2512	Plastic	4K	7"	2.0	13.5	21	60	16.0	178

Size	Tape Dimension (mm)												
	A	B	W ±0.2	E ±0.10	F ±0.05	G ±0.10	H ±0.05	T ±0.10	φD <sub>0</sub> ±0.05	φD <sub>1</sub> ±0.10	T1 ±0.15	P ±0.10	Type
0402	0.70±0.10	1.20±0.10	8.00	1.75	3.50	4.00	2.00	0.45	1.55	--	--	2.00	Paper
0603	1.05±0.20	1.80±0.20	8.00	1.75	3.50	4.00	2.00	0.60	1.55	--	--	4.00	Paper
0805	1.55±0.20	2.30±0.20	8.00	1.75	3.50	4.00	2.00	0.75	1.55	--	--	4.00	Paper
1206	1.90±0.20	3.50±0.20	8.00	1.75	3.50	4.00	2.00	0.75	1.55	--	--	4.00	Paper
1210	2.85±0.20	3.50±0.20	8.00	1.75	3.50	4.00	2.00	0.75	1.55	--	--	4.00	Paper
2010	2.80±0.20	5.60±0.20	12.0	1.75	5.50	4.0	2.0	0.23	1.55	1.50	0.85	4.00	Plastic
2512	3.40±0.20	6.70±0.20	12.0	1.75	5.50	4.0	2.0	0.23	1.55	1.50	0.85	4.00	Plastic

\*Specifications subject to change without notice.