

# Thick Film Chip Resistor High Ohmic Type

CRHM Series

MERITEK

## FEATURE

- Operating temperature: -55 ~ +125°C
- Highly reliable multilayer electrode construction
- Extended resistance range (110MΩ ~ 1GΩ)
- Applications: X-Ray equipment, low signal detection or amplification circuits, high input impedance quartz amplifiers, testing devices



## PART NUMBERING SYSTEM

CRHM 0805 W 207 J M  
(1) (2) (3) (4) (5) (6)



No	Item	Code	Description	Series Reference
(1)	Meritek Series	CRHM	High Ohmic Chip Resistor	SMD Type
(2)	Size Code	0805	EIA size	1206
(3)	Power Rating	W	W: 1/8W	V: 1/4W
(4)	Resistance	207	207: 200MΩ	117:110MΩ ~ 108:1GΩ
(5)	Tolerance	J	J: ±5%	-5% ~ +5%
(6)	TCR	M	M: ±500 (PPM/°C)	N: ±1000 (PPM/°C)

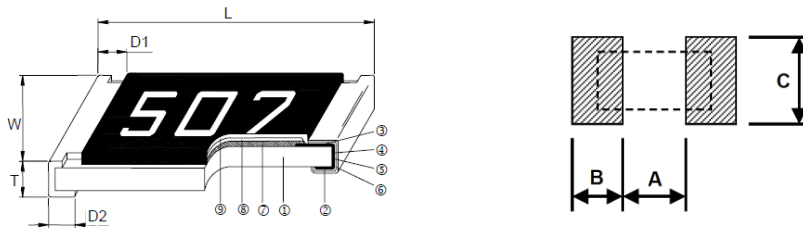
## STANDARD ELECTRICAL CHARACTERISTIC

Size	Power Rating at 70°C	Operating Temperature Range	Max Operating Voltage	Max Overload Voltage	Resistance Range (Ω)	TCR (PPM/°C)
					±5%	
0805	1/8W	-55 ~ +125°C	150V	300V	110MΩ ~ 500MΩ	±500
					510MΩ ~ 1GΩ	±1000
1206	1/4W	-55 ~ +125°C	200V	400V	110MΩ ~ 500MΩ	±500
					510MΩ ~ 1GΩ	±1000

Notes:

1. Operating Voltage  $V = \sqrt{P \cdot R}$  or Maximum operating voltage listed to the left, whichever is lower.
2. Overload Voltage  $V = 2.5 \cdot \sqrt{P \cdot R}$  or Maximum overload voltage listed to the left, whichever is lower.

## DIMENSIONS



Size	L (mm)	W (mm)	T (mm)	D1 (mm)	D2 (mm)	A (mm)	B (mm)	C (mm)	Weight (g/1kpcs)
0805	2.00±0.10	1.25±0.10	0.50±0.10	0.35±0.20	0.40±0.20	1.20	0.70	1.30	4.368
1206	3.10±0.10	1.55±0.10	0.55±0.10	0.50±0.25	0.50±0.20	2.00	0.90	1.60	8.947

## CONSTRUCTION

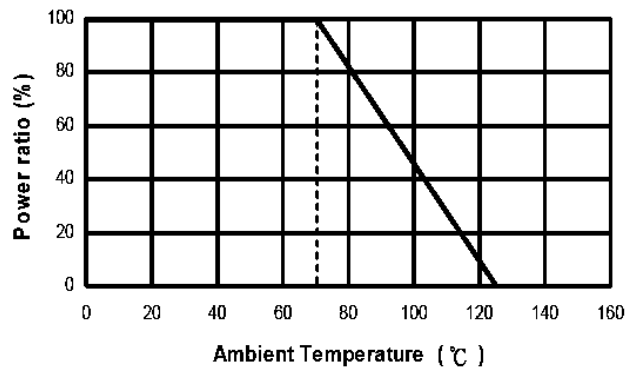
Item	Construction	Item	Construction	Item	Construction
1	Alumina Substrate	4	Edge Electrode	7	Resistor Layer
2	Bottom Electrode	5	Barrier Layer	8	Primary Overcoat
3	Top Electrode	6	External Electrode	9	Secondary Overcoat

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## POWER DERATING CURVE



## RELIABILITY TEST CONDITION AND REQUIREMENT

Test	Standard	Condition	Requirement
Temperature Coefficient of Resistance (T.C.R.)	JIS-C5201-1 4.8 IEC-60115-1 4.8	-55°C ~ +125°C, 25°C is the reference temperature	As Spec.
Short Time Overload	JIS-C-5201-1 4.13 IEC-60115-1 4.13	RCWV*2.5 or Max. overload voltage, whichever is lower for 5 seconds	$ \Delta R/R  \leq 2.0\% + 0.05\Omega$
Insulation Resistance	JIS-C-5201-1 4.6 IEC-60115-1 4.6	Apply Max Overload Voltage for 1 minute	$\geq 10G$
Endurance	JIS-C-5201-1 4.25 IEC-60115-1 4.25.1	70±2°C, RCWV for 1000 hrs with 1.5 hrs "ON" and 0.5 hrs "OFF"	$ \Delta R/R  \leq 3.0\% + 0.10\Omega$
Damp Heat with Load	JIS-C-5201-1 4.24 IEC-60115-1 4.24	40±2°C, 90~95% R.H., RCWV for 1000 hrs with 1.5 hrs "ON" and 0.5 hrs "OFF"	$ \Delta R/R  \leq 3.0\% + 0.10\Omega$
Dry Heat	JIS-C-5201-1 4.23 IEC-60115-1 4.23.2	125°C for 1000 hrs	$ \Delta R/R  \leq 1.5\% + 0.10\Omega$
Bending Strength	JIS-C-5201-1 4.33 IEC-60115-1 4.33	Bending 3mm once for 5 seconds:	$ \Delta R/R  \leq 1.0\% + 0.05\Omega$
Solderability	JIS-C-5201-1 4.17 IEC-60115-1 4.17 JEDEC, J-STD-020C	245±5°C for 3 seconds	95% min. Coverage
Resistance to Soldering Heat	JIS-C-5201-1 4.18 IEC-60115-1 4.18	260±5°C for 10 seconds	$ \Delta R/R  \leq 1.0\% + 0.05\Omega$
Voltage Proof	JIS-C-5201-1 4.7 IEC-60115-1 4.7	1.42 times Max. operating voltage for 1 minute	No Breakdown or flashover
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 $\leq 10\%$
Temperature Cycling	JIS-C-5201-1 4.19 IEC-60115-1 4.19	-55°C ~ +125°C, 5 cycles	$ \Delta R/R  \leq 1.0\% + 0.05\Omega$

Notes: RCWV(Rated Continuous Working Voltage)= $\sqrt{P \times R}$  or Max. Operating Voltage, whichever is lower.

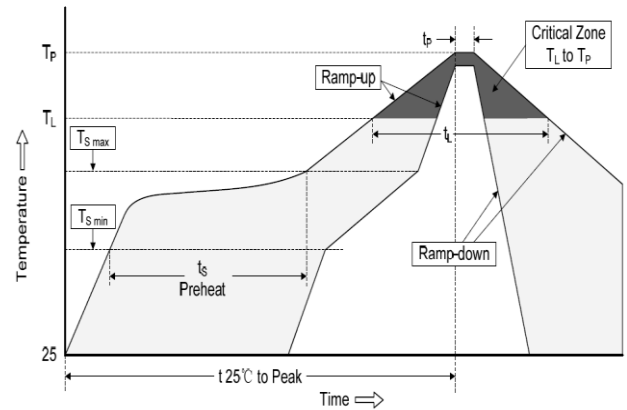
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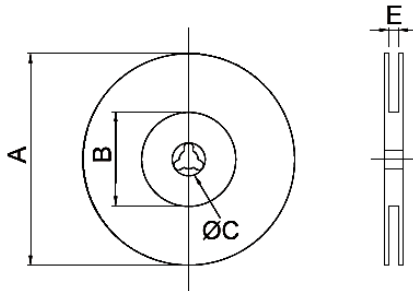
## RECOMMENDED SOLDERING PROFILES

Reflow Condition		
Pre Heat	Temp. Min $T_{S(min)}$	150°C
	Temp. Max $T_{S(max)}$	180°C
	Time (min. to max.) ( $t_s$ )	90~120 seconds
Average ramp up rate ( $T_L$ ) to peak		3°C/second max.
$T_{S(max)}$ to $T_L$ (Ramp-up rate)		3°C/second max.
Reflow	Temp. ( $T_L$ )	220°C
	Time (min. to max.) ( $t_L$ )	60seconds max.
Peak Temperature ( $T_P$ )		260°C
Time within 5°C of actual peak		10 seconds
Ramp-down Rate		6°C/second

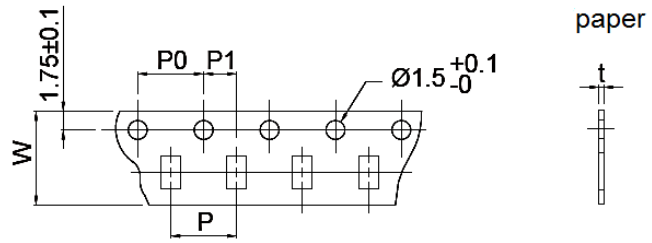


## PACKAGING DIMENSION

CARRIER TAPE REELS



TAPE DIMENSIONS (mm)



Part Number	Reel Dimension (mm)				Tape Dimensions (mm)					Parts Per Reel	
	$A \pm 2.0$	$B \pm 2.0$	$C \pm 0.5$	$E \pm 1.5$	$W \pm 0.20$	$P \pm 0.05$	$P_0 \pm 0.10$	$P_1 \pm 0.05$	$t \pm 0.10$	size	QTY.
CRHM0805 or CRHW1206	178.5	60.0	13.0	9.0	8.00	4.00	4.00	2.00	0.85	7"	5K
	254.0	100.0	13.0	9.5	8.00	4.00	4.00	2.00	0.85	10"	10K
	330.0	100.0	13.0	9.5	8.00	4.00	4.00	2.00	0.85	13"	20K

\*Specifications subject to change without notice.