

# MEGA HIGH OHMIC CHIP RESISTORS HMR SERIES

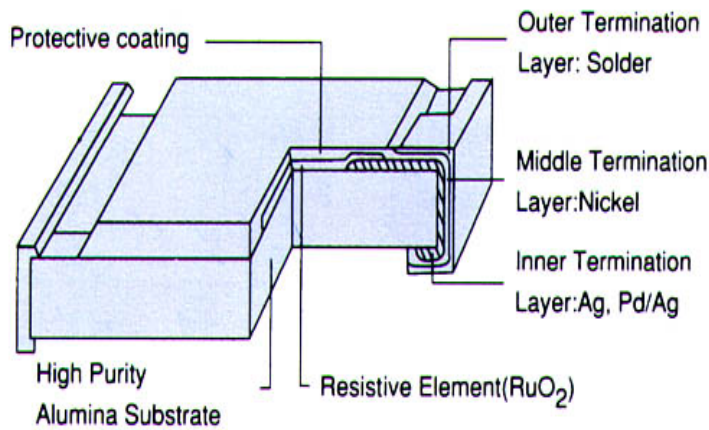
## ■ Features

- Extended resistance range ( 110MΩ to 1GΩ )
- Highly stable in auto-placement surface mounting application
- Highly reliable multilayer electrode construction..

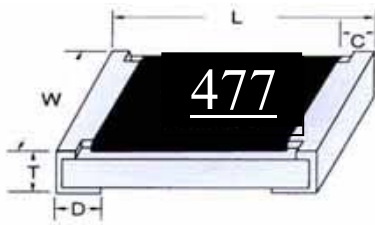
## ■ Applications

- Low signal detection or amplification circuit.
- X-ray equipment
- Testing device
- Voltage dividers and hybrid.
- High input impedance quartz amplifiers

## ■ Configuration



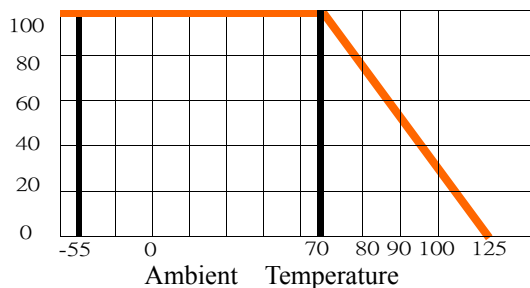
## ■ Dimensions



Size	L	W	C	D	T
0805	2.00±0.10	1.25±0.10	0.40±0.20	0.40±0.20	0.50±0.15
1206	3.10±0.10	1.60±0.10	0.50±0.25	0.50±0.25	0.60±0.15

Unit(mm)

## ■ Power Derating Curve



Maximum dissipation in percentage of rated power as a function of the ambient temperature.

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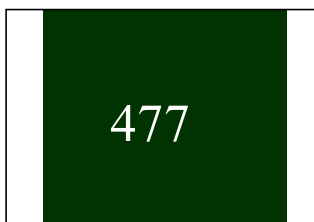
## ■ Rating

Type	Size	Power Rating at 70°C	Max. RCWV	Max. Overload Voltage	Resistance Tolerance (%)	Temperature Coefficient (TCR; ppm/°C)	Resistance Range
HMR0805	0805	1/8W	150V	300V	5%	±500	110MΩ~500MΩ
						±1000	510MΩ~1GΩ
HMR1206	1206	1/4W	200V	400V		±500	110MΩ~500MΩ
						±1000	510MΩ~1GΩ

## ■ Part Number

HMR	0805	J	R	-	110MR
Type	Size	Tolerance	Packing		Resistance
	0805	J: ± 5%	R : Paper tape- 5Kpcs		110MR= 110MΩ
	1206				1GR= 1GΩ

## ■ Resistance Marking E-24 series



3 digits marking for ±5% E-24 Series

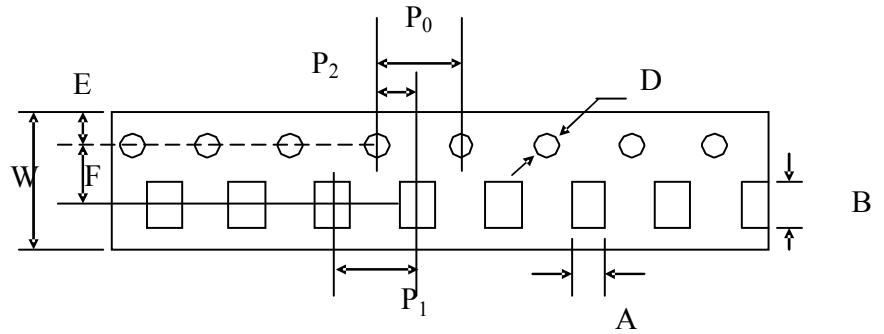
examples: **477**  $47 \times 10^7 = 470\text{M}\Omega$

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## GENERAL SPECIFICATION

### ■ Tape And Reel Package

• Taping specs are according to EIA RS-481

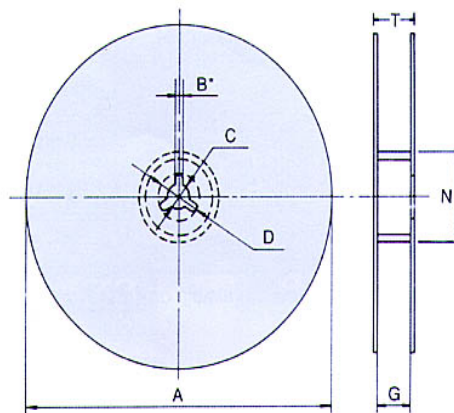


Accumulated dimensional tolerance  $40 \pm 0.2 \text{ mm}$

Size	A	B	W	F	E	P1	P2	P0	D
0805	$1.65 \pm 0.20$	$2.40 \pm 0.20$	$8.00 \pm 0.30$	$3.50 \pm 0.05$	$1.75 \pm 0.10$	$4.00 \pm 0.10$	$2.00 \pm 0.05$	$4.00 \pm 0.10$	$1.50 + 0.10 / -0$
1206	$2.00 \pm 0.20$	$3.60 \pm 0.20$	$8.00 \pm 0.30$	$3.50 \pm 0.05$	$1.75 \pm 0.10$	$4.00 \pm 0.10$	$2.00 \pm 0.05$	$4.00 \pm 0.10$	$1.50 + 0.10 / -0$

(unit: mm)

### ■ Reel Package



Si	Packaging Q'ty	A	N	C	D	B	G	T
0805, 1206	5Kpcs / Reel	$178.0 \pm 2.0$	$60.0 \pm 0.5$	$13.0 \pm 0.5$	20min	$2.0 \pm 0.5$	$10.0 \pm 1.5$	14.9 max.

(unit: mm)

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## ■ Specification And Test Methods

ITEM	SPECIFICATION	TEST METHOD
DC Resistance	J: $\pm 5\%$	<b>JIS C 5202 5.1 / IEC 115-1 4.5</b> Measure the resistance value.
Short time Overload	J: $\Delta R \leq \pm 2\%$	<b>IEC 115-1 4.13 / JIS C 5202 5.5</b> 2×Rated voltage or Max. Overload Voltage for 5 sec. measure resistance after 30 minutes
Solderability	Over 95% of termination must be covered with (Sn+Ag+Cu)	<b>JIS C 5202 6.5/ IEC 115-1 4.17</b> After immersing flux, dip in the 245±5°C molten solder bath for 2±0.5 sec.
Resistance to Solder Heat	J: $\Delta R \leq \pm 2\%$	<b>JIS C 5202 6.4 / IEC 115-1 4.18</b> With 260±5°C for 10±1 sec.
Temperature Coefficient of Resistance (TCR)	As specification	<b>JIS C 5202 5.2 / IEC 115-1 4.8.4.2</b> T1 T2 Test temperature: 25°C → -55°C 25°C → 125°C $TCR(\text{ppm}/^\circ\text{C}) = \frac{R_2 - R_1}{R_1} \times \frac{1}{T_2 - T_1} \times 10^6$ T1: 25°C T2: Test temperature R1: Resistance at reference temperature (T1) R2: Resistance at test temperature (T2)
Load Life Humidity	J: $\Delta R \leq \pm 5\%$	<b>JIS C 5202 7.9/ IEC 115-1 4.24.2</b> Maintain the temperature of the resistor at 40±2°C and 90~95% RH with the rated voltage applied. Cycle ON for 1.5 hours and OFF for 0.5 hour for 1000+48/-0 hours. After 1~4 hour, measure the resistance value.
Load Life	J: $\Delta R \leq \pm 5\%$	<b>JIS C 5202 7.10/ IEC 115-1 4.25.1</b> Permanent resistance change after 1000+48/-0 hours (1.5 hours ON, 0.5 hour OFF) at RCWV or Max. Keep the resistor at 70±2°C ambient
Temperature Cycle	J: $\Delta R \leq \pm 5\%$	<b>JIS C 5202 7.4 / IEC 115-1 4.19</b> Repeat 5 cycles as follows -55°C (30 min.)+25°C (2~3 min.) +155°C (30 min.)+25°C (2~3 min.)
Insulation Resistance	Between termination and coating must be over 10GΩ	<b>JIS C 5202 5.6 / IEC 115-1 4.6.1.1</b> Test voltage: 100±15V
Bending Strength	J: $\Delta R \leq \pm 2\%$ No mechanical damage	<b>IEC 115-1 4.33</b> Resistance change after bended on the 90mm PCB. Bend: 2mm for 1206, 2010, 2512
Voltage Proof	No breakdown or flashover	1.42 times RCWV (RMS) for 1 minutes