

High Power Resistors

HP06 Series



Features

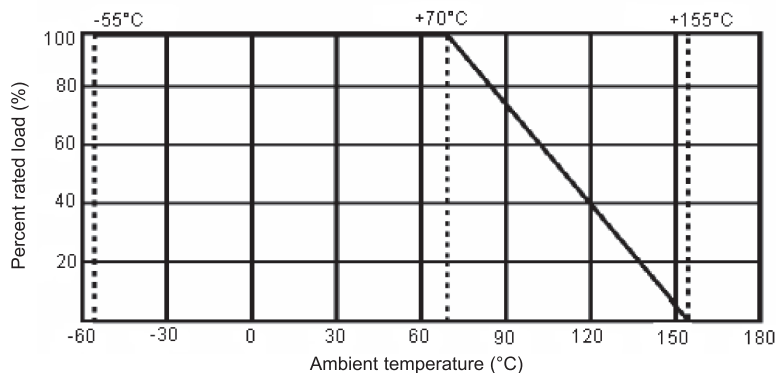
- High power in standard size
- Suitable for both wave and reflow soldering
- Application: AV adapters, LCD back light, Camera strobe
- Shipped in reels of 5K

Specification Table

Type	: MCHP06
Power Rating	: 0.50W
Maximum Working Voltage	: 50V
Maximum Overload Voltage	: 100V
Dielectric Withstanding Voltage	: 300V

Power Rating

Resistors shall have a power rating based on continuous load operation at an ambient temperature of 70°C. For temperature in excess of 70°C, the load shall be derate.



Voltage rating

Resistors shall have a rated direct-current (DC) continuous working voltage or an approximate sine-wave root-mean-square (RMS) alternating-current (AC) continuous working voltage at commercial line frequency and waveform corresponding to the power rating, as determined from the following formula :

$$RCWV = \sqrt{P \times R}$$

Where : RCWV = Rated DC or RMS AC continuous working voltage at commercial-line frequency and waveform (volt).

P = Power rating (watt)

R = Nominal resistance (ohm)

In no case shall the rated DC or RMS AC continuous working voltage be greater than the applicable maximum value.

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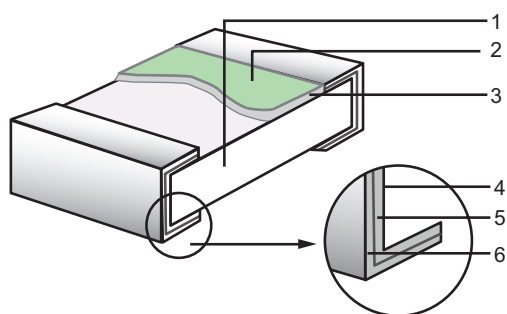
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Performance specification

Characteristics	Limits	Test Methods															
Temperature coefficient	$\pm 200\text{PPM} / ^\circ\text{C}$	Natural resistance change per temperature degree centigrade $R2-R1/ R1 (t2-t1) \times 10^6 (\text{PPM} / ^\circ\text{C})$. R1 : Resistance value at room temperature (t1) R2 : Resistance value at room temperature plus 100°C (t2). Test pattern : Room temperature(t1), Room temperature + 100°C (t2)															
Short time overload	Resistance change rate is $\pm 1\%$ ($1.0\% + 0.1\Omega$) maximum	Permanent resistance change after the application of a potential of 2.5 times RCWV for 5 seconds.															
Terminal bending	$\pm (1.0\% + 0.05\Omega)$ maximum	Twist of Test Board : Y/X = 3/90mm for 60 seconds.															
Dielectric withstanding voltage	No evidence of flashover mechanical damage, arcing or insulation break down.	Clamped in the trough of a 90°C metallic V-BLOCK and shall be tested at AC potential respectively specified in the type for 60 to 70 seconds.															
Solderability	Minimum 95% coverage	Test temperature of solder : $245 \pm 3^\circ\text{C}$; dipping time in Solder : 2 to 3 seconds.															
Soldering heat	Resistance change rate is $\pm (1\% + 0.05\Omega)$ Maximum	Dip the resistor into a solder bath having a temperature of $260^\circ\text{C} \pm 3^\circ\text{C}$ and hold it for 10 ± 1 seconds.															
Temperature cycling	$\pm 1\%$ ($0.5\% + 0.05\Omega$) maximum	Resistance change after continuous 5 cycles for duty cycle specified below: <table border="1"> <thead> <tr> <th>Step</th><th>Temperature</th><th>Time</th></tr> </thead> <tbody> <tr> <td>1</td><td>$-55^\circ\text{C} \pm 3^\circ\text{C}$</td><td>30 mins</td></tr> <tr> <td>2</td><td>Room temperature</td><td>10 mins to 15 mins</td></tr> <tr> <td>3</td><td>$+ 155^\circ\text{C} \pm 2^\circ\text{C}$</td><td>30 mins</td></tr> <tr> <td>4</td><td>Room temperature</td><td>10 mins to 15 mins</td></tr> </tbody> </table>	Step	Temperature	Time	1	$-55^\circ\text{C} \pm 3^\circ\text{C}$	30 mins	2	Room temperature	10 mins to 15 mins	3	$+ 155^\circ\text{C} \pm 2^\circ\text{C}$	30 mins	4	Room temperature	10 mins to 15 mins
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1	$-55^\circ\text{C} \pm 3^\circ\text{C}$	30 mins															
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3	$+ 155^\circ\text{C} \pm 2^\circ\text{C}$	30 mins															
4	Room temperature	10 mins to 15 mins															
Load life in humidity	Resistance change rate is $\pm 1\%$ ($1.0\% + 0.1\Omega$) maximum	Resistance change after 1,000 hours (1.5 hours "on", 0.5 hour "off") at RCWV in a humidity chamber controlled at $40^\circ\text{C} \pm 2^\circ\text{C}$ and 90 to 95% relative humidity.															
Load life	Resistance change rate is $\pm 1\%$ ($1.0\% + 0.1\Omega$) maximum	Permanent resistance change after 1,000 hours operating at RCWV with duty cycle of (1.5 hours "on", 0.5 hour "off") at $70^\circ\text{C} \pm 2^\circ\text{C}$ ambient.															

Construction:



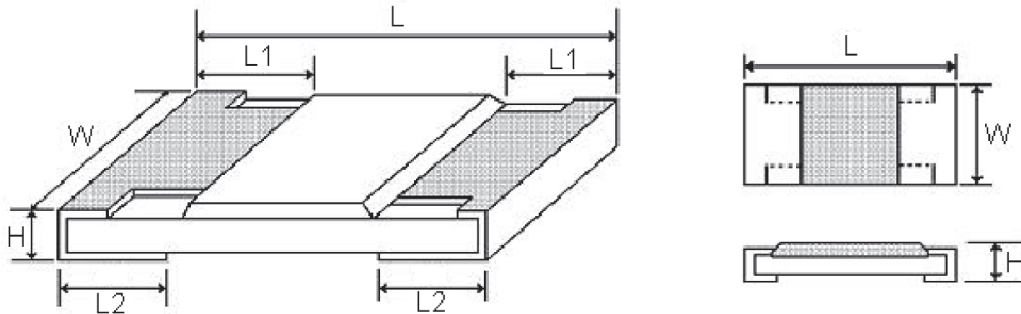
1. High Purity Alumina Substrate
2. Protective covering
3. Resistive covering
4. Termination inner (Ag/Pd)
5. Termination (between) Ni plating
6. Termination (outer) Sn plating

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Dimensions



Type	L	W	H	L1	L2
MCHP06	3.10 ± 0.15	1.55 + 0.15 - 0.10	0.55 ± 0.10	0.45 ± 0.20	0.45 ± 0.20

Dimensions : Millimetres

Part Number Table

Description	Part Number
Resistor, 1206, 1R, 1%, 0.5W	MCHP06W2F100KT5E
Resistor, 12R, 1206 1% 0.5W	MCHP06W2F120JT5E
Resistor, 15R, 1206 1% 0.5W	MCHP06W2F150JT5E
Resistor, 18R, 1206 1% 0.5W	MCHP06W2F180JT5E
Resistor, 22R, 1206 1% 0.5W	MCHP06W2F220JT5E
Resistor, 27R, 1206 1% 0.5W	MCHP06W2F270JT5E
Resistor, 33R, 1206 1% 0.5W	MCHP06W2F330JT5E
Resistor, 39R, 1206 1% 0.5W	MCHP06W2F390JT5E
Resistor, 47R, 1206 1% 0.5W	MCHP06W2F470JT5E
Resistor, 56R, 1206 1% 0.5W	MCHP06W2F560JT5E
Resistor, 68R, 1206 1% 0.5W	MCHP06W2F680JT5E
Resistor, 82R, 1206 1% 0.5W	MCHP06W2F820JT5E
Resistor, 100R, 1206 1% 0.5W	MCHP06W2F1000T5E
Resistor, 120R, 1206 1% 0.5W	MCHP06W2F1200T5E
Resistor, 150R, 1206 1% 0.5W	MCHP06W2F1500T5E
Resistor, 180R, 1206 1% 0.5W	MCHP06W2F1800T5E
Resistor, 220R, 1206 1% 0.5W	MCHP06W2F2200T5E
Resistor, 270R, 1206 1% 0.5W	MCHP06W2F2700T5E
Resistor, 330R, 1206 1% 0.5W	MCHP06W2F3300T5E

Description	Part Number
Resistor, 390R, 1206 1% 0.5W	MCHP06W2F3900T5E
Resistor, 470R, 1206 1% 0.5W	MCHP06W2F4700T5E
Resistor, 560R, 1206 1% 0.5W	MCHP06W2F5600T5E
Resistor, 680R, 1206 1% 0.5W	MCHP06W2F6800T5E
Resistor, 820R, 1206 1% 0.5W	MCHP06W2F8200T5E
Resistor, 1K, 1206, 1%, 0.5W	MCHP06W2F1001T5E
Resistor, 1K2, 1206 1% 0.5W	MCHP06W2F1201T5E
Resistor, 1K5, 1206 1% 0.5W	MCHP06W2F1501T5E
Resistor, 1K8, 1206 1% 0.5W	MCHP06W2F1801T5E
Resistor, 2K2, 1206 1% 0.5W	MCHP06W2F2201T5E
Resistor, 2K7, 1206 1% 0.5W	MCHP06W2F2701T5E
Resistor, 3K3, 1206 1% 0.5W	MCHP06W2F3301T5E
Resistor, 3K9, 1206 1% 0.5W	MCHP06W2F3901T5E
Resistor, 4K7, 1206 1% 0.5W	MCHP06W2F4701T5E
Resistor, 5K6, 1206 1% 0.5W	MCHP06W2F5601T5E
Resistor, 6.8K, 1206 1% 0.5W	MCHP06W2F6801T5E
Resistor, 8.2K, 1206 1% 0.5W	MCHP06W2F8201T5E
Resistor, 10K, 1206 1% 0.5W	MCHP06W2F1002T5E
Resistor, 12K, 1206 1% 0.5W	MCHP06W2F1202T5E

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Description	Part Number
Resistor, 15K, 1206 1% 0.5W	MCHP06W2F1502T5E
Resistor, 18K, 1206 1% 0.5W	MCHP06W2F1802T5E
Resistor, 22K, 1206 1% 0.5W	MCHP06W2F2202T5E
Resistor, 27K, 1206 1% 0.5W	MCHP06W2F2702T5E
Resistor, 33K, 1206 1% 0.5W	MCHP06W2F3302T5E
Resistor, 39K, 1206 1% 0.5W	MCHP06W2F3902T5E
Resistor, 47K, 1206 1% 0.5W	MCHP06W2F4702T5E
Resistor, 56K, 1206 1% 0.5W	MCHP06W2F5602T5E
Resistor, 68K, 1206 1% 0.5W	MCHP06W2F6802T5E
Resistor, 82K, 1206 1% 0.5W	MCHP06W2F8202T5E
Resistor, 100K, 1206 1% 0.5W	MCHP06W2F1003T5E
Resistor, 120K, 1206 1% 0.5W	MCHP06W2F1203T5E
Resistor, 150K, 1206 1% 0.5W	MCHP06W2F1503T5E
Resistor, 180K, 1206 1% 0.5W	MCHP06W2F1803T5E
Resistor, 220K, 1206 1% 0.5W	MCHP06W2F2203T5E
Resistor, 270K, 1206 1% 0.5W	MCHP06W2F2703T5E
Resistor, 330K, 1206 1% 0.5W	MCHP06W2F3303T5E
Resistor, 390K, 1206 1% 0.5W	MCHP06W2F3903T5E
Resistor, 470K, 1206 1% 0.5W	MCHP06W2F4703T5E
Resistor, 560K, 1206 1% 0.5W	MCHP06W2F5603T5E
Resistor, 680K, 1206 1% 0.5W	MCHP06W2F6803T5E
Resistor, 820K, 1206 1% 0.5W	MCHP06W2F8203T5E
Resistor, 1M, 1206 1% 0.5W	MCHP06W2F1004T5E
Resistor, 1M2, 1206 1% 0.5W	MCHP06W2F1204T5E
Resistor, 1M5, 1206 1% 0.5W	MCHP06W2F1504T5E
Resistor, 1M8, 1206 1% 0.5W	MCHP06W2F1804T5E
Resistor, 2M2, 1206 1% 0.5W	MCHP06W2F2204T5E
Resistor, 2M7, 1206 1% 0.5W	MCHP06W2F2704T5E
Resistor, 3M3, 1206 1% 0.5W	MCHP06W2F3304T5E
Resistor, 3M9, 1206 1% 0.5W	MCHP06W2F3904T5E
Resistor, 4M7, 1206 1% 0.5W	MCHP06W2F4704T5E
Resistor, 5M6, 1206 1% 0.5W	MCHP06W2F5604T5E
Resistor, 6M8, 1206 1% 0.5W	MCHP06W2F6804T5E
Resistor, 8M2, 1206 1% 0.5W	MCHP06W2F8204T5E
Resistor, 10M, 1206 1% 0.5W	MCHP06W2F1005T5E
Resistor, 1R, 1206 5% 0.5W	MCHP06W2J010JT5E
Resistor, 12R, 1206 5% 0.5W	MCHP06W2J0120T5E
Resistor, 15R, 1206 5% 0.5W	MCHP06W2J0150T5E
Resistor, 18R, 1206 5% 0.5W	MCHP06W2J0180T5E

Description	Part Number
Resistor, 22R, 1206 5% 0.5W	MCHP06W2J0220T5E
Resistor, 27R, 1206 5% 0.5W	MCHP06W2J0270T5E
Resistor, 33R, 1206 5% 0.5W	MCHP06W2J0330T5E
Resistor, 39R, 1206 5% 0.5W	MCHP06W2J0390T5E
Resistor, 47R, 1206 5% 0.5W	MCHP06W2J0470T5E
Resistor, 56R, 1206 5% 0.5W	MCHP06W2J0560T5E
Resistor, 68R, 1206 5% 0.5W	MCHP06W2J0680T5E
Resistor, 82R, 1206 5% 0.5W	MCHP06W2J0820T5E
Resistor, 100R, 1206 5% 0.5W	MCHP06W2J0101T5E
Resistor, 120R, 1206 5% 0.5W	MCHP06W2J0121T5E
Resistor, 150R, 1206 5% 0.5W	MCHP06W2J0151T5E
Resistor, 180R, 1206 5% 0.5W	MCHP06W2J0181T5E
Resistor, 220R, 1206 5% 0.5W	MCHP06W2J0221T5E
Resistor, 270R, 1206 5% 0.5W	MCHP06W2J0271T5E
Resistor, 330R, 1206 5% 0.5W	MCHP06W2J0331T5E
Resistor, 390R, 1206 5% 0.5W	MCHP06W2J0391T5E
Resistor, 470R, 1206 5% 0.5W	MCHP06W2J0471T5E
Resistor, 560R, 1206 5% 0.5W	MCHP06W2J0561T5E
Resistor, 680R, 1206 5% 0.5W	MCHP06W2J0681T5E
Resistor, 820R, 1206 5% 0.5W	MCHP06W2J0821T5E
Resistor, 1K, 1206 5% 0.5W	MCHP06W2J0102T5E
Resistor, 1K2, 1206 5% 0.5W	MCHP06W2J0122T5E
Resistor, 1K5, 1206 5% 0.5W	MCHP06W2J0152T5E
Resistor, 1K8, 1206 5% 0.5W	MCHP06W2J0182T5E
Resistor, 2K2, 1206 5% 0.5W	MCHP06W2J0222T5E
Resistor, 2K7, 1206 5% 0.5W	MCHP06W2J0272T5E
Resistor, 3K3, 1206 5% 0.5W	MCHP06W2J0332T5E
Resistor, 3K9, 1206 5% 0.5W	MCHP06W2J0392T5E
Resistor, 4K7, 1206 5% 0.5W	MCHP06W2J0472T5E
Resistor, 5K6, 1206 5% 0.5W	MCHP06W2J0562T5E
Resistor, 6K8, 1206 5% 0.5W	MCHP06W2J0682T5E
Resistor, 8K2, 1206 5% 0.5W	MCHP06W2J0822T5E
Resistor, 10K, 1206 5% 0.5W	MCHP06W2J0103T5E
Resistor, 12K, 1206 5% 0.5W	MCHP06W2J0123T5E
Resistor, 15K, 1206 5% 0.5W	MCHP06W2J0153T5E
Resistor, 18K, 1206 5% 0.5W	MCHP06W2J0183T5E
Resistor, 22K, 1206 5% 0.5W	MCHP06W2J0223T5E
Resistor, 27K, 1206 5% 0.5W	MCHP06W2J0273T5E
Resistor, 33K, 1206 5% 0.5W	MCHP06W2J0333T5E

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Description	Part Number
Resistor, 39K, 1206 5% 0.5W	MCHP06W2J0393T5E
Resistor, 47K, 1206 5% 0.5W	MCHP06W2J0473T5E
Resistor, 56K, 1206 5% 0.5W	MCHP06W2J0563T5E
Resistor, 68K, 1206 5% 0.5W	MCHP06W2J0683T5E
Resistor, 82K, 1206 5% 0.5W	MCHP06W2J0823T5E
Resistor, 100K, 1206 5% 0.5W	MCHP06W2J0104T5E
Resistor, 120K, 1206 5% 0.5W	MCHP06W2J0124T5E
Resistor, 150K, 1206 5% 0.5W	MCHP06W2J0154T5E
Resistor, 180K, 1206 5% 0.5W	MCHP06W2J0184T5E
Resistor, 220K, 1206 5% 0.5W	MCHP06W2J0224T5E
Resistor, 270K, 1206 5% 0.5W	MCHP06W2J0274T5E
Resistor, 330K, 1206 5% 0.5W	MCHP06W2J0334T5E
Resistor, 390K, 1206 5% 0.5W	MCHP06W2J0394T5E
Resistor, 470K, 1206 5% 0.5W	MCHP06W2J0474T5E
Resistor, 560K, 1206 5% 0.5W	MCHP06W2J0564T5E

Description	Part Number
Resistor, 680K, 1206 5% 0.5W	MCHP06W2J0684T5E
Resistor, 820K, 1206 5% 0.5W	MCHP06W2J0824T5E
Resistor, 1M, 1206 5% 0.5W	MCHP06W2J0105T5E
Resistor, 1M2, 1206 5% 0.5W	MCHP06W2J0125T5E
Resistor, 1M5, 1206 5% 0.5W	MCHP06W2J0155T5E
Resistor, 1M8, 1206 5% 0.5W	MCHP06W2J0185T5E
Resistor, 2M2, 1206 5% 0.5W	MCHP06W2J0225T5E
Resistor, 2M7, 1206 5% 0.5W	MCHP06W2J0275T5E
Resistor, 3M3, 1206 5% 0.5W	MCHP06W2J0335T5E
Resistor, 3M9, 1206 5% 0.5W	MCHP06W2J0395T5E
Resistor, 4M7, 1206 5% 0.5W	MCHP06W2J0475T5E
Resistor, 5M6, 1206 5% 0.5W	MCHP06W2J0565T5E
Resistor, 6M8, 1206 5% 0.5W	MCHP06W2J0685T5E
Resistor, 8M2, 1206 5% 0.5W	MCHP06W2J0825T5E
Resistor, 10M, 1206 5% 0.5W	MCHP06W2J0106T5E

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