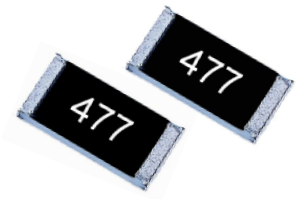
Features:

- R Value extension of RMCF product, values up to 10G
- E24 values
- RoHS compliant, REACH compliant, and halogen free

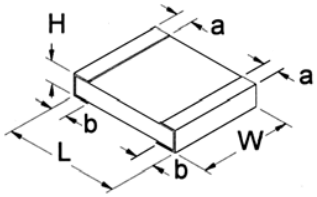



## Electrical Specifications

| Type/Code | Power Rating (W) @ 70ºC | Maximum Working Voltage (V) (1) | Maximum Overload Voltage (V) | TCR (ppm/ºC) | Ohmic Range (Ω) and Tolerance | | |
|---|---|---|---|---|---|---|---|
| | | | | | 1% | 5% | 10% |
| HMC0402 | 0.063 | 50 | 100 | ± 200 | 11M - 20M | - | |
| | | | | ± 400 | 22M - 100M | | |
| HMC0603 | 0.1 | 50 | 100 | ± 200 | 11M - 20M | - | |
| | | | | ± 400 | 22M - 100M | | |
| | | | | ± 500 | - | 110M - 1G | |
| HMC0805 | 0.125 | 150 | 300 | ± 200 | 11M - 20M | - | |
| | | | | ± 400 | 22M - 100M | | |
| | | | | ± 500 | - | 110M - 500M | |
| | | | | ± 1000 | - | 510M - 1G | |
| | | | | ± 1500 | - | 1.2G - 10G | |
| HMC1206 | 0.25 | 200 | 400 | ± 200 | 11M - 20M | - | |
| | | | | ± 400 | 22M - 100M | 30M - 100M | |
| | | | | ± 500 | - | 110M - 500M | |
| | | | | ± 1000 | - | 510M - 1G | |
| | | | | ± 1500 | - | 1.2G - 10G | |
| HMC1210 | 0.33 | 200 | 400 | ± 200 | 11M - 20M | - | 11M - 20M |
| | | | | ± 400 | 22M - 100M | | |
| HMC2010 | 0.75 | 200 | 400 | ± 200 | 11M - 20M | | |
| | | | | ± 400 | 22M - 100M | | |
| HMC2512 | 1 | 250 | 500 | ± 200 | 11M - 20M | | |
| | | | | ± 400 | 22M - 100M | | |

(1) Lesser of √(P*R) or maximum working voltage.

## Mechanical Specifications




| Type/Code | L<br>Body Length | W<br>Body Width | H<br>Body Height | a<br>Top Termination | b<br>Bottom Termination | Unit |
|---|---|---|---|---|---|---|
| HMC0402 | 0.039 ± 0.002<br>1.00 ± 0.05 | 0.020 ± 0.002<br>0.50 ± 0.05 | 0.014 ± 0.002<br>0.35 ± 0.05 | 0.008 ± 0.004<br>0.20 ± 0.10 | 0.008 ± 0.004<br>0.20 ± 0.10 | inches<br>mm |
| HMC0603 | 0.063 ± 0.004<br>1.60 ± 0.10 | 0.031 ± 0.004<br>0.80 ± 0.10 | 0.018 ± 0.004<br>0.45 ± 0.10 | 0.012 ± 0.008<br>0.30 ± 0.20 | 0.012 ± 0.008<br>0.30 ± 0.20 | inches<br>mm |
| HMC0805 | 0.079 ± 0.008<br>2.00 ± 0.20 | 0.049 ± 0.004<br>1.25 ± 0.10 | 0.020 ± 0.004<br>0.50 ± 0.10 | 0.016 ± 0.008<br>0.40 ± 0.20 | 0.016 ± 0.008<br>0.40 ± 0.20 | inches<br>mm |

## Mechanical Specifications (cont.)

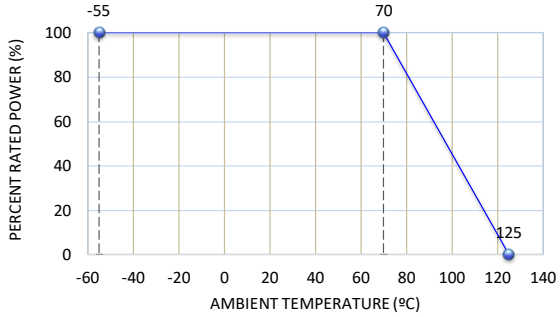
| Type/Code | L<br>Body Length | W<br>Body Width | H<br>Body Height | a<br>Top Termination | b<br>Bottom Termination | Unit |
|---|---|---|---|---|---|---|
| HMC1206 | 0.122 ± 0.006<br>3.10 ± 0.15 | 0.061 ± 0.004<br>1.55 ± 0.10 | 0.022 ± 0.006<br>0.55 ± 0.15 | 0.020 ± 0.010<br>0.50 ± 0.25 | 0.020 ± 0.008<br>0.50 ± 0.20 | inches<br>mm |
| HMC1210 | 0.126 ± 0.008<br>3.20 ± 0.20 | 0.102 ± 0.006<br>2.60 ± 0.15 | 0.022 ± 0.004<br>0.55 ± 0.10 | 0.020 ± 0.008<br>0.50 ± 0.20 | 0.020 ± 0.008<br>0.50 ± 0.20 | inches<br>mm |
| HMC2010 | 0.197 ± 0.008<br>5.00 ± 0.20 | 0.098 ± 0.006<br>2.50 ± 0.15 | 0.022 ± 0.004<br>0.55 ± 0.10 | 0.024 ± 0.010<br>0.60 ± 0.25 | 0.020 ± 0.008<br>0.50 ± 0.20 | inches<br>mm |
| HMC2512 | 0.250 ± 0.008<br>6.35 ± 0.20 | 0.126 ± 0.006<br>3.20 ± 0.15 | 0.022 ± 0.004<br>0.55 ± 0.10 | 0.024 ± 0.010<br>0.60 ± 0.25 | 0.020 ± 0.008<br>0.50 ± 0.20 | inches<br>mm |

## Performance Characteristics

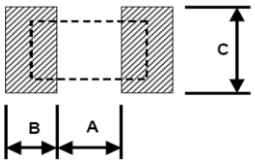
| Test | Test Condition (JIS C 5202) | Test Result |
|---|---|---|
| Long Term Stability | Nominal temperature & humidity for 1000 hours | ± 0.5% |
| High Temperature Loading | 15 VDC, 1.5 hour ON, 0.5 hour OFF, 1000 hours 70ºC | ± 3% |
| Resistance to Solder Heat | 260ºC ± 5ºC, 10 seconds +1/-0 | ± 1% |
| Short Time Overload | 5 seconds at maximum overload voltage | ± 2% |

Operating temperature range is -55ºC to +125ºC

Power Derating Curve:




## Recommended Pad Layouts




| Type/Code | A | B | C | Unit |
|---|---|---|---|---|
| HMC0402 | 0.020<br>0.50 | 0.018<br>0.45 | 0.024<br>0.60 | inches<br>mm |
| HMC0603 | 0.035<br>0.90 | 0.024<br>0.60 | 0.035<br>0.90 | inches<br>mm |
| HMC0805 | 0.047<br>1.20 | 0.028<br>0.70 | 0.051<br>1.30 | inches<br>mm |
| HMC1206 | 0.079<br>2.00 | 0.035<br>0.90 | 0.063<br>1.60 | inches<br>mm |
| HMC1210 | 0.079<br>2.00 | 0.035<br>0.90 | 0.110<br>2.80 | inches<br>mm |
| HMC2010 | 0.150<br>3.80 | 0.035<br>0.90 | 0.110<br>2.80 | inches<br>mm |
| HMC2512 | 0.193<br>4.90 | 0.063<br>1.60 | 0.138<br>3.50 | inches<br>mm |

## Recommended Solder Profile

This information is intended as a reference for solder profiles for Stackpole resistive components. These profiles should be compatible with most soldering processes. These are only recommendations. Actual numbers will depend on board density, geometry, packages used, etc., especially those cells labeled with "*".

## 100% Matte Tin / RoHS Compliant Terminations

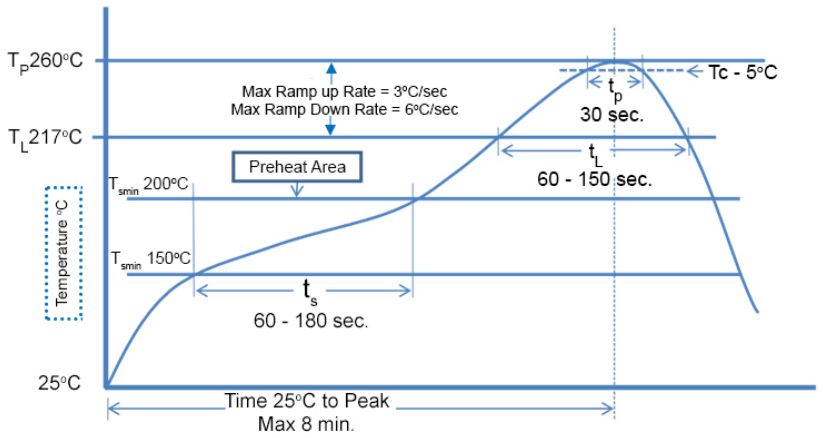
Soldering iron recommended temperatures: 330°C to 350°C with minimum duration.
Maximum number of reflow cycles: 3.

| Wave Soldering | | | |
|---|---|---|---|
| Description | Maximum | Recommended | Minimum |
| Preheat Time | 80 seconds | 70 seconds | 60 seconds |
| Temperature Diff. | 140°C | 120°C | 100°C |
| Solder Temp. | 260°C | 250°C | 240°C |
| Dwell Time at Max | 10 seconds | 5 seconds | * |
| Ramp DN (°C/sec) | N/A | N/A | N/A |

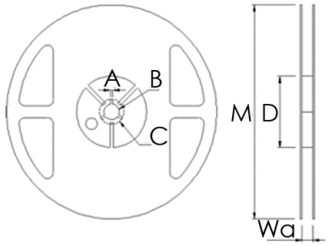
Temperature Diff. = Difference between final preheat stage and soldering stage.

| Convection IR Reflow | | | |
|---|---|---|---|
| Description | Maximum | Recommended | Minimum |
| Ramp Up (°C/sec) | 3°C/sec | 2°C/sec | * |
| Dwell Time > 217°C | 150 seconds | 90 seconds | 60 seconds |
| Solder Temp. | 260°C | 245°C | * |
| Dwell Time at Max. | 30 seconds | 15 seconds | 10 seconds |
| Ramp DN (°C/sec) | 6°C/sec | 3°C/sec | * |

### Recommended Lead Free Resistor Reflow Profile

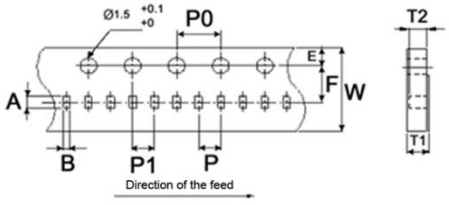


## Reel Specifications



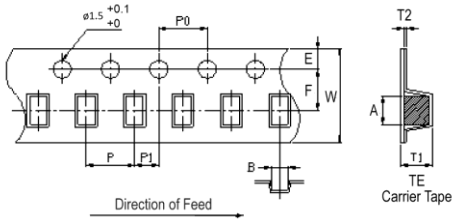

| Reel Type | Wa | M | A | B | C | D | Unit |
|---|---|---|---|---|---|---|---|
| 7" reel for 8 mm tape | 0.354 ± 0.020<br>9.00 ± 0.50 | 7.008 ± 0.079<br>178.00 ± 2.00 | 0.079 ± 0.020<br>2.00 ± 0.50 | 0.531 ± 0.020<br>13.50 ± 0.50 | 0.827 ± 0.020<br>21.00 ± 0.50 | 2.362 ± 0.039<br>60.00 ± 1.00 | inches<br>mm |

## Packaging Specifications – Paper Tape




| Type/Code | Nominal Typical Full Reel Weight (g) | Tape Width | A | B | W | E | F | T1 | T2 | P | P0 | P1 | Unit |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| HMC0402 | 94.5 | 0.315<br>8.00 | 0.047 ± 0.006<br>1.20 ± 0.15 | 0.028 ± 0.006<br>0.70 ± 0.15 | 0.315 ± 0.008<br>8.00 ± 0.20 | 0.069 ± 0.004<br>1.75 ± 0.10 | 0.138 ± 0.002<br>3.50 ± 0.05 | 0.016 ± 0.008<br>0.40 ± 0.20 | 0.016 ± 0.002<br>0.40 ± 0.05 | 0.079 ± 0.004<br>2.00 ± 0.10 | 0.157 ± 0.004<br>4.00 ± 0.10 | 0.079 ± 0.002<br>2.00 ± 0.05 | inches<br>mm |
| HMC0603 | 118.3 | | 0.071 ± 0.008<br>1.80 ± 0.20 | 0.041 ± 0.008<br>1.05 ± 0.20 | | | | 0.024 ± 0.008<br>0.60 ± 0.20 | 0.024 ± 0.004<br>0.60 ± 0.10 | | | | inches<br>mm |
| HMC0805 | 139.2 | | 0.093 ± 0.010<br>2.35 ± 0.25 | 0.063 ± 0.010<br>1.60 ± 0.25 | | | | 0.030 ± 0.008<br>0.75 ± 0.20 | 0.030 ± 0.004<br>0.75 ± 0.10 | 0.157 ± 0.004<br>4.00 ± 0.10 | 0.157 ± 0.004<br>4.00 ± 0.10 | 0.079 ± 0.002<br>2.00 ± 0.05 | inches<br>mm |
| HMC1206 | 151.4 | | 0.140 ± 0.010<br>3.55 ± 0.25 | 0.077 ± 0.010<br>1.95 ± 0.25 | | | | 0.030 ± 0.008<br>0.75 ± 0.20 | 0.030 ± 0.004<br>0.75 ± 0.10 | | | | inches<br>mm |
| HMC1210 | 175.7 | | 0.138 ± 0.008<br>3.50 ± 0.20 | 0.110 ± 0.010<br>2.80 ± 0.25 | | | | 0.030 ± 0.008<br>0.75 ± 0.20 | 0.030 ± 0.004<br>0.75 ± 0.10 | | | | inches<br>mm |

## Packaging Specifications – Plastic Tape




| Type/Code | Nominal Typical Full Reel Weight (g) | Tape Width | A | B | W | E | F | T1 | T2 | P | P0 | P1 | Unit |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| HMC2010 | 183.1 | 0.472<br>12.00 | 0.217 ± 0.012<br>5.50 ± 0.30 | 0.110 ± 0.008<br>2.80 ± 0.20 | 0.472 ± 0.008<br>12.00 ± 0.20 | 0.069 ± 0.004<br>1.75 ± 0.10 | 0.217 ± 0.002<br>5.50 ± 0.05 | 0.041 ± 0.008<br>1.05 ± 0.20 | 0.009 ± 0.006<br>0.23 ± 0.15 | 0.157 ± 0.004<br>4.00 ± 0.10 | 0.157 ± 0.004<br>4.00 ± 0.10 | 0.079 ± 0.002<br>2.00 ± 0.05 | inches<br>mm |
| HMC2512 | 255.3 | | 0.264 ± 0.008<br>6.70 ± 0.20 | 0.134 ± 0.008<br>3.40 ± 0.20 | | | | | | | | | inches<br>mm |

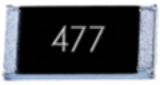
## Part Marking Instructions

**E24 Values for 0603 - 2512**

The nominal resistance is marked on the surface of the overcoating with the use of **three character markings**.

1. First and second digits are E24 code; third digit is the multiplier
2. 0402 size is unmarked


11 MΩ




470 MΩ

## RoHS Compliance

Stackpole Electronics has joined the worldwide effort to reduce the amount of lead in electronic components and to meet the various regulatory requirements now prevalent, such as the European Union's directive regarding "Restrictions on Hazardous Substances" (RoHS 3). As part of this ongoing program, we periodically update this document with the status regarding the availability of our compliant components. All our standard part numbers are compliant to EU Directive 2011/65/EU of the European Parliament as amended by Directive (EU) 2015/863/EU as regards the list of restricted substances.

## RoHS Compliance Status

| Standard Product Series | Description | Package / Termination Type | Standard Series RoHS Compliant | Lead-Free Termination Composition | Lead-Free Mfg. Effective Date (Std Product Series) | Lead-Free Effective Date Code (YY/WW) |
|---|---|---|---|---|---|---|
| HMC | High Resistance Thick Film Chip Resistor | SMD | YES(1) | 100% Matte Sn over Ni | Jan-04 | 04/01 |

Note (1): RoHS Compliant by means of exemption 7c-I.

## "Conflict Metals" Commitment

We at Stackpole Electronics, Inc. are joined with our industry in opposing the use of metals mined in the "conflict region" of the eastern Democratic Republic of the Congo (DRC) in our products. Recognizing that the supply chain for metals used in the electronics industry is very complex, we work closely with our own suppliers to verify to the extent possible that the materials and products we supply do not contain metals sourced from this conflict region. As such, we are in compliance with the requirements of Dodd-Frank Act regarding Conflict Minerals.

## Compliance to "REACH"

We certify that all passive components supplied by Stackpole Electronics, Inc. are SVHC (Substances of Very High Concern) free and compliant with the requirements of EU Directive 1907/2006/EC, "The Registration, Evaluation, Authorization and Restriction of Chemicals", otherwise referred to as REACH. Contact us for complete list of REACH Substance Candidate List.

## Environmental Policy

It is the policy of Stackpole Electronics, Inc. (SEI) to protect the environment in all localities in which we operate. We continually strive to improve our effect on the environment. We observe all applicable laws and regulations regarding the protection of our environment and all requests related to the environment to which we have agreed. We are committed to the prevention of all forms of pollution.

## How to Order

| H | M | C | 0 | 8 | 0 | 5 | F | T | 4 | 7 | M | 0 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|

**Product Series**

| Code | Description |
|---|---|
| HMC | High Resistance Thick Film |

**Size**

| Code | W |
|---|---|
| 0402 | 0.063 |
| 0603 | 0.1 |
| 0805 | 0.125 |
| 1206 | 0.25 |
| 1210 | 0.33 |
| 2010 | 0.75 |
| 2512 | 1 |

**Tolerance**

| Code | Tol | Value |
|---|---|---|
| F | 1% | E24 |
| J | 5% | |
| K | 10% | |

**Packaging**

| Code | Description | Size | Quantity |
|---|---|---|---|
| T | 7" Reel Paper Tape | 0402 | 10000 |
| | | 0603, 0805 1206, 1210 | 5000 |
| | 7" Reel Plastic Tape | 2010 2512 | 4000 |

**Resistance Value**

| |
|---|
| Four characters with the multiplier used as the decimal holder. |
| 30 Mohm = 30M0<br>100 Mohm = 100M<br>1.2 Gohm = 1G20 |

# X-ON Electronics

Largest Supplier of Electrical and Electronic Components

***Click to view similar products for*** Thick Film Resistors - SMD ***category:***

***Click to view products by*** Stackpole ***manufacturer:***

Other Similar products are found below :

CR-05FL7--150R CR-05FL7--698K CR-12JP4--680R M55342K08B46E4SWL M55342K08B62J0SUL M55342K08B6J20SWB MCR01MZPF1202 MCR01MZPF1601 MCR01MZPF1800 MCR01MZPF6201 MCR01MZPF9102 MCR01MZPJ113 MCR01MZPJ121 MCR01MZPJ125 MCR01MZPJ751 MCR03EZHJ103 MCR03EZPFX2004 MCR03EZPJ270 MCR03EZPJ821 MCR10EZPF1102 RC1005F1152CS RC1005F1372CS RC1005F2052CS RC1005F471CS RC1005F4751CS RC1005F5621CS RC1005F6041CS RC1005J121CS RC1005J122CS RC1005J180CS RC1005J181CS RC1005J202CS RC1005J391CS RC1005J512CS RC1005J683CS RC1005J823CS RC1608F333CS RC1608F5110CS RC1608J121CS RC2012F2493CS RC2012F2740CS RC2012J105CS RC2012J470CS RC2012J561CS RC2012J8R2CS RC3216F100CS RC3216F272CS RC3225F30R1CS RCP0603W100RGED RCWP1100100KFKS3