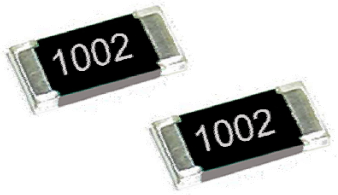
Features:

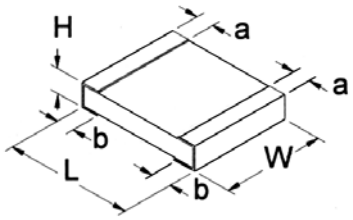
- Handles 2W of power
- Resistances from 0.1Ω to 1MΩ
- RoHS compliant / lead-free
- TCR of ± 100 ppm/ºC
- 1% and 5% tolerances
- Runs significantly cooler than standard thick film 2512 chip



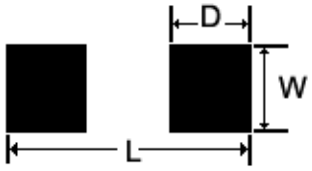
Electrical Specifications							
Type / Code	Package Type	Power Rating (Watts) @ 70ºC	Maximum Working Voltage (1)	Maximum Overload Voltage	Resistance Temperature Coefficient	Ohmic Range (Ω) and Tolerance	
						1%	5%
RHC2512	2512	2W	200V	400V	±100 ppm/ºC	0.1 - 1M	0.1 - 1M

(1) Lesser of √PR or maximum working voltage

Please refer to the High Power Resistor Application Note (page 4) for more information on designing and implementing high power resistor types.



Mechanical Specifications						
Type / Code	L Body Length	W Body Width	H Body Height	a Top Termination	b Bottom Termination	Unit
RHC2512	0.248 ± 0.008 6.30 ± 0.20	0.126 ± 0.008 3.20 ± 0.20	0.024 ± 0.004 0.60 ± 0.10	0.028 ± 0.008 0.70 ± 0.20	0.087 ± 0.008 2.20 ± 0.20	inches mm

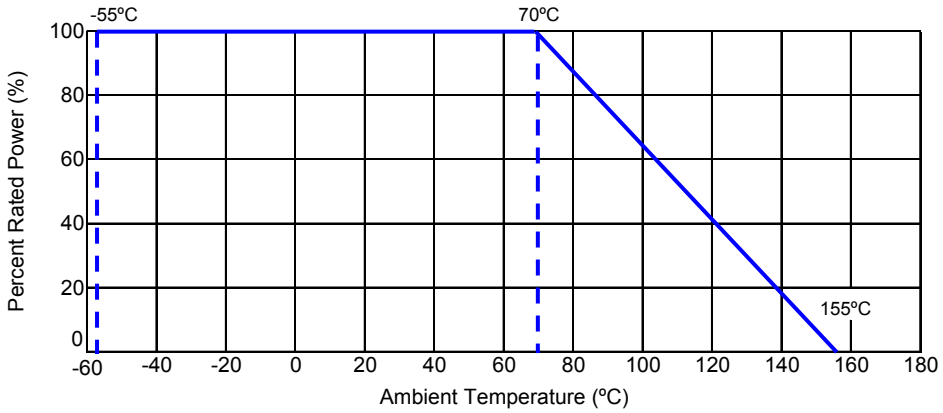


Solder Pad Dimensions				
Type / Code	L Total Length	W Total Width	D Pad Depth	Unit
RHC2512	0.315 8.00	0.138 3.50	0.118 3.00	inches mm

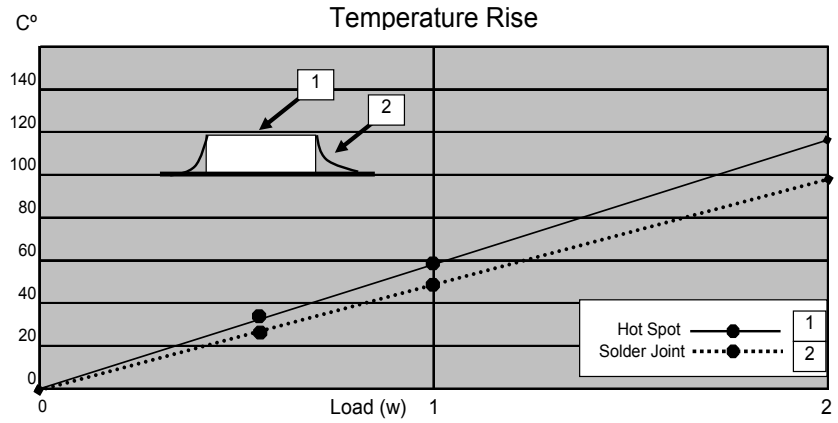
Performance Characteristics	
Test	Typical
Moisture Resistance	±1%
Load Life	±1%
Resistance to Soldering	±1%
Temperature Cycling	±1%
Thermal Shock	±1%
Short Time Overload	±1%
Insulation Resistance	≥1MΩ

Operating Temperature Range: -55ºC to +155ºC

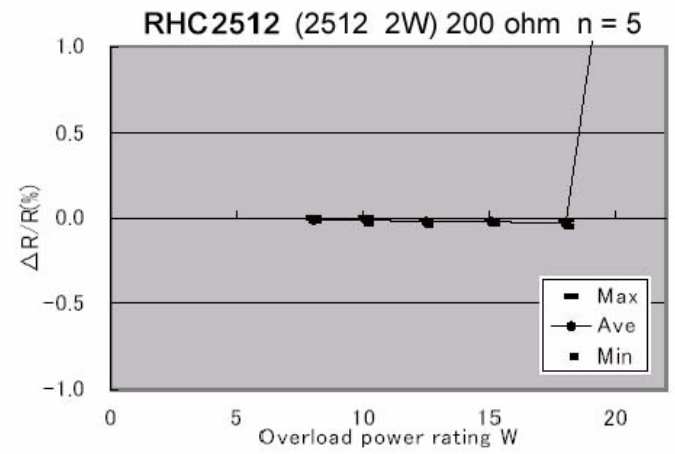
Power Derating Curve:

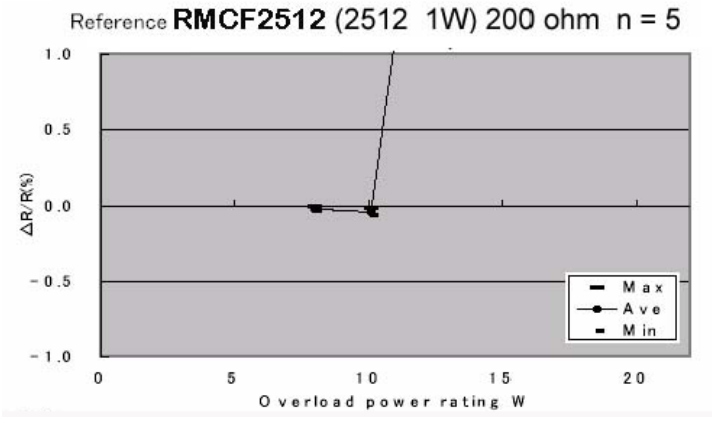


Temperature Rise:



Repeated Overload:





Test condition:
Voltage (Power): 2.0, 2.25, 2.5, 2.75, 3.0, 3,25 times of rated voltage. (8W, 10.1W, 12.5W, 15.1W, 18W, 21.1W)

Applied time:
Each voltage 5 seconds.
As a reference test, the RMC was tested with the same rated voltage and testing substrate.

How to Order

1	2	3	4	5	6	7	8	9	10	11	12	13
R	H	C	2	5	1	2	F	T	1	0	K	0

Product Series	
RHC	High Power

Size	Power Rating
2512	2W

Tolerance		
Code	Tol	Value
F	1%	E96, E24
J	5%	E24

Packaging			
Code	Description	Size	Quantity
T	7" Reel Plastic Tape	2512	4,000

Resistance Value
Four characters with the multiplier used as the decimal holder.
0.1 ohm = R100 4.75 ohm = 4R75 10.2 Kohm = 10K2 1 Mohm = 1M00

Legacy Part Number (before January 3, 2011):

SEI Type	Code	Nominal Resistance	Tolerance	Packaging
RHC	2512	10K	1%	R

Type	Description
RHC	High Power

Code	Wattage	Size
2512	2W	2512

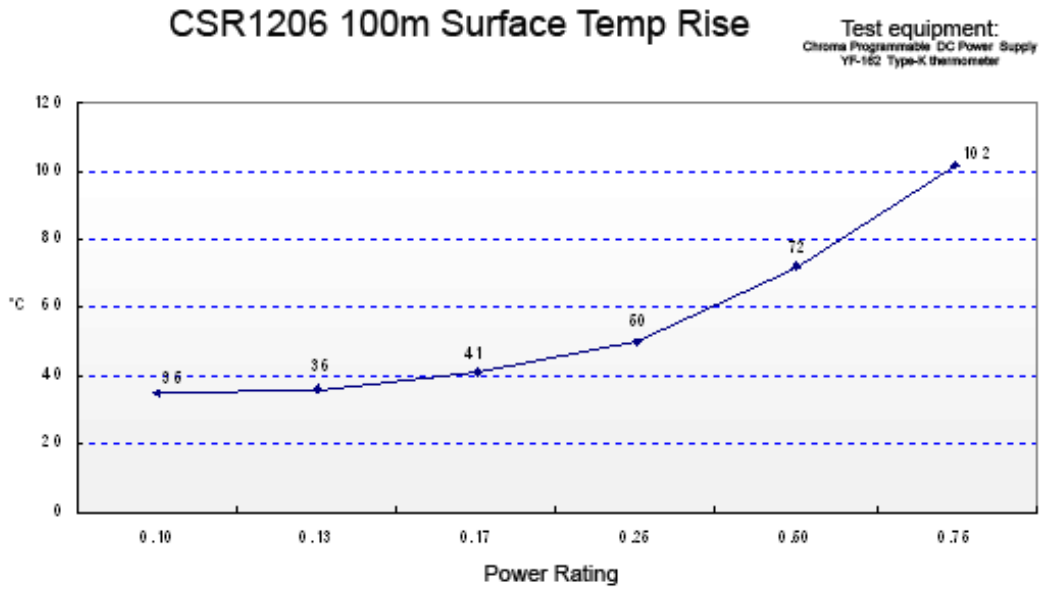
Tolerance	Values
1%	E24, E96
5%	E24

SEI Types	Pkg Qty	Description	Code
2512	4,000	7" reel plastic tape	R

High Power Chip Resistors and Thermal Management

Stackpole has developed several surface mount resistor series in addition to our current sense resistors, which have had higher power ratings than standard resistor chips. This has caused some uncertainty and even confusion by users as to how to reliably use these resistors at the higher power ratings in their designs.

The data sheets for the RHC, RMCP, RNCP, CSR, CSRN, CSRF, CSS, and CSSH state that the rated power assumes an ambient temperature of no more than 100 degrees C for the CSS / CSSH series and 70 degrees C for all other high power resistor series. In addition, IPC and UL best practices dictate that the combined temperature on any resistor due to power dissipated and ambient air shall be no more than 105C. At first glance this wouldn't seem too difficult, however the graph below shows typical heat rise for the CSR ½ 100 milliohm at full rated power. The heat rise for the RMCP and RNCP would be similar. The RHC with its unique materials, design, and processes would have less heat rise and therefore would be easier to implement for any given customer.



The 102 degrees C heat rise shown here would indicate there will be additional thermal reduction techniques needed to keep this part under 105C total hot spot temperature if this part is to be used at 0.75 watts of power. However, this same part at the usual power rating for this size would have a heat rise of around 72 degrees C. This additional heat rise may be dealt with using wider conductor traces, larger solder pads and land patterns under the solder mask, heavier copper in the conductors, vias through PCB, air movement, and heat sinks, among many other techniques. Because of the variety of methods customers can use to lower the effective heat rise of the circuit, resistor manufacturers simply specify power ratings with the limitations on ambient air temperature and total hot spot temperatures and leave the details of how to best accomplish this to the design engineers. Design guidelines for products in various market segments can vary widely so it would be unnecessarily constraining for a resistor manufacturer to recommend the use of any of these methods over another.

Note: The final resistance value can be affected by the board layout and assembly process, especially the size of the mounting pads and the amount of solder used. This is especially notable for resistance values ≤ 50 mΩ. This should be taken into account when designing.