Anti-Surge Thick Film Chip Resistors

NRCP Series

FEATURES

- EXCELLENT ANTI-SURGE CHARACTERISTICS
- BOTH FLOW SOLDER AND REFLOW SOLDERING ARE APPLICABLE

RoHS Compliant
includes all homogeneous materials

*See Part Number System for Details

SPECIFICATIONS

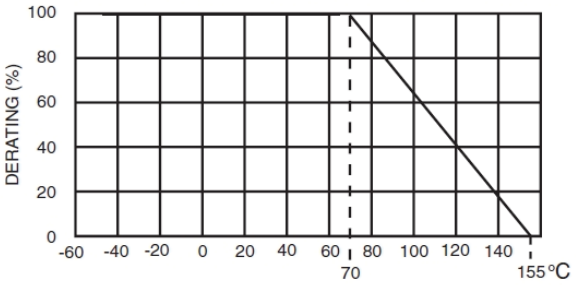
Type	EIA Size	Power Rating at 70°C	Max. *1 Working Voltage	Max. *2 Overload Voltage	Resistance Tolerance Code	Temperature Coefficient (ppm/°C)	Resistance Range (Ω)	Resistance Value	Operating Temperature Range
NRCP06	0603	1/10W	50	100	10% (K), 20% (M)	±200ppm	10 ~ 1Meg	E-24	-55°C ~ +155°C
NRCP10	0805	1/8W	150	300	5% (J), 10% (K), 20% (M)		10 ~ 1Meg		
NRCP12	1206	1/4W	200	400			10 ~ 1Meg		
NRCP25	1210	1/3W					1.1k ~ 1Meg		
		1/2W					10 ~ 1K		
NRCP35	1812	1/2W					10 ~ 1Meg		
NRCP50	2010	3/4W					10 ~ 1Meg		
NRCP100	2512	1W					10 ~ 1Meg		

Note *1 - Maximum allowable continuous Working Voltage for all resistors is the lower of the two values:
"Maximum Working Voltage" as specified above
(or)

$$\sqrt{\text{Power rating (Watts) x Resistance (Ohms)}}$$

Note *2 - Maximum allowable Overload voltage is 2 times the Maximum Working Voltage (see Note *1 above) or Maximum Overload Voltage as specified in the table whichever is lower

Power Derating Curve: For operation above 70°C, power rating must be derated according to the following chart:



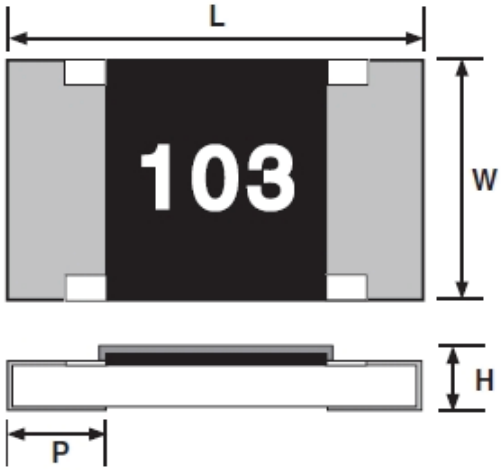
PART NUMBER SYSTEM (E-24 VALUES)

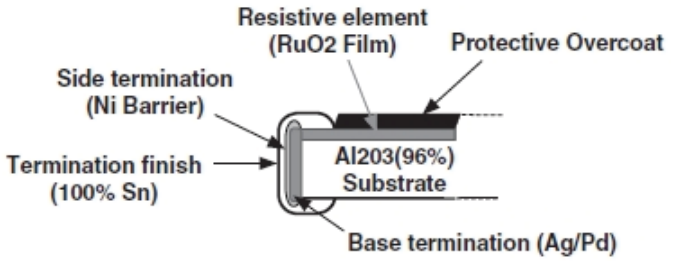
NRCP 12 K 226 TR F

- F — RoHS Compliant
- TR — Tape & Reel Packaging
- 226 — Resistance Code: First 2 figures are significant, 3rd digit is the multiplier, "R" indicates a decimal point.
- K — Tolerance Code: M=20%, K=10%, J=5%
- 12 — Size
- NRCP — Series

COMPONENT DIMENSIONS (mm)

Type	EIA Size	L	W	H	P
NRCP06	0603	1.60 ± 0.15	0.80 ± 0.15	0.45 ± 0.10	0.30 ± 0.20
NRCP10	0805	2.00 ± 0.10	1.25 ± 0.10	0.50 ± 0.10	0.40 ± 0.20
NRCP12	1206	3.20 ± 0.15	1.60 ± 0.15	0.60 ± 0.10	0.50 ± 0.20
NRCP25	1210	3.20 ± 0.15	2.50 ± 0.15	0.60 ± 0.10	0.50 ± 0.20
NRCP35	1812	4.50 ± 0.15	3.20 ± 0.15	0.60 ± 0.10	0.50 ± 0.20
NRCP50	2010	5.00 ± 0.15	2.50 ± 0.15	0.60 ± 0.10	0.50 ± 0.30
NRCP100	2512	6.30 ± 0.15	3.20 ± 0.15	0.60 ± 0.10	0.70 ± 0.20

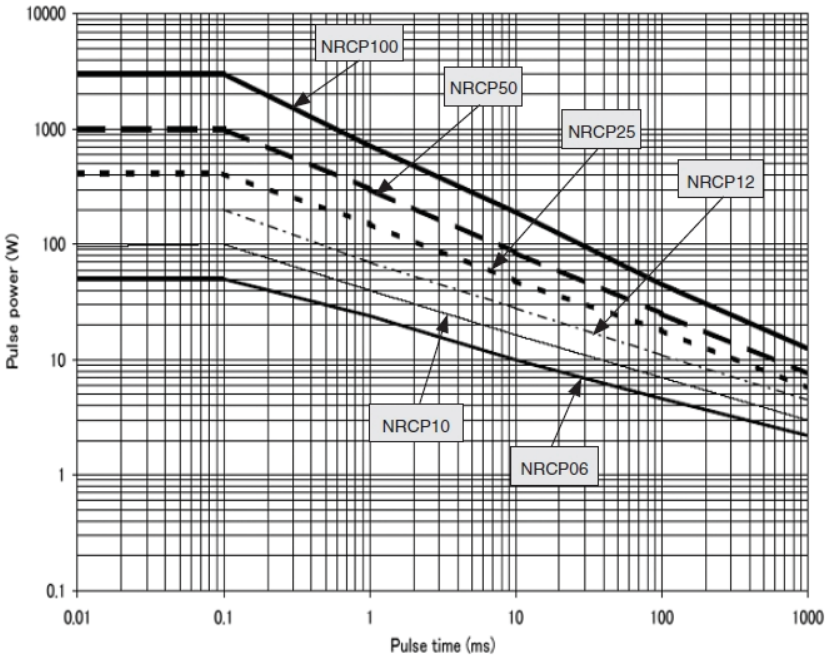




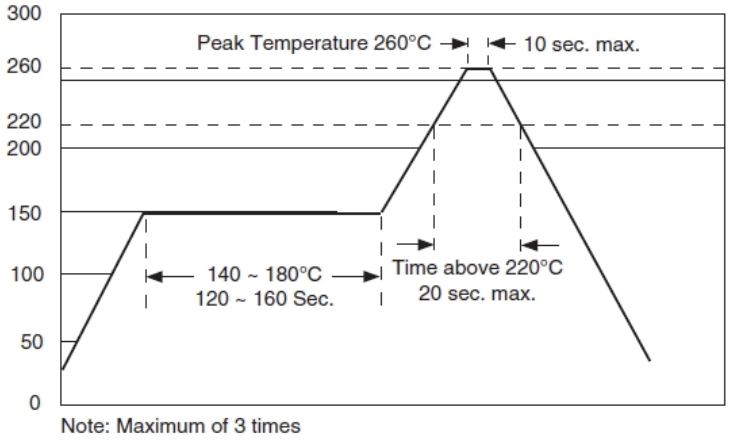
PERFORMANCE CHARACTERISTICS

Test Items	Requirement ΔR ± ([ ] +0.1Ω)	Test Method (JISC5201-1)
Voltage proof	No breakdown or flashover	Maximum Overload Voltage, 60 seconds
Variation of resistance with temperature	See Specifications Table	+20°C/-55°C/+20°C/+125°C/+20°C or
		+20°C/-55°C/+20°C/+155°C/+20°C
Shorttime Overload	[2%]	Rated Voltage x 2.5 or Max. Overload Voltage x 2 Whichever is the greater, 2 seconds
Resistance to Soldering Heat	[1%]	Immersion into solder bath at 260°C for 5 seconds
Temperature Cycling	[1%]	100 times at -55°C 30 minutes/+125°C 30 minutes
Humidity Test (Steady State)	[1%]	+60°C, 90% ~ 95% RH, 1,000 hours
Load Life	[3%]	Rated Voltage, 1.5 hrs ON/0.5 hrs OFF Cycle, +70°C, 1,000 hrs
Humidity Load Life	[3%]	+60°C, 90% ~ 95% RH, 1,000 hours Rated Voltage, 1.5 hrs ON/0.5 hrs OFF cycle, 1,000 hrs

ONE-PULSE LIMITING POWER



REFLOW SOLDERING TEMPERATURE PROFILE



Note: Maximum of 3 times

LAND PATTERN DIMENSIONS (mm)

Type	EIA Size	a	b	c
NRCP06	0603	0.9	2.6	0.78
NRCP10	0805	1.35	3.45	1.1
NRCP12	1206	2.2	4.7	1.4
NRCP25	1210	2.2	5.2	2.15
NRCP35	1812	3.5	6.1	2.75
NRCP50	2010	3.7	6.2	2.15
NRCP100	2512	4.7	7.6	2.75