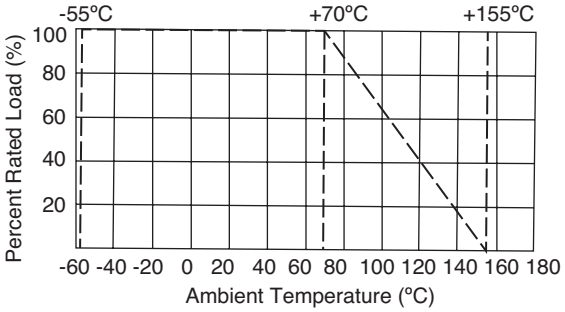
1% High Power Thick Film Resistors HP1-RC Series

(RoHS Compliant)

FEATURES

- Temperature Range:-55ºC ~ +155ºC (derated over 70ºC)
- Value Range: 10~1M
- Wave or Flow Solderable

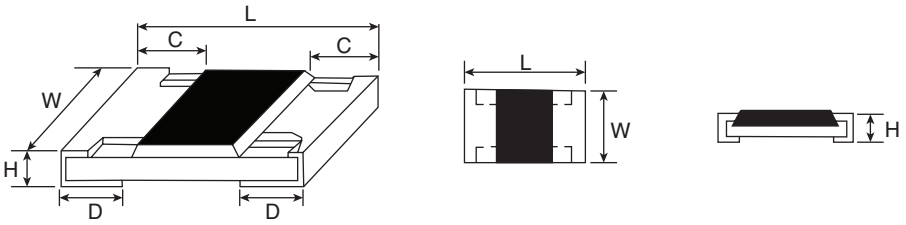
DERATING CURVE



PART NUMBERING SYSTEM

3	1	3	-	1	0	K	-	R	E	E	L	-	R	C
Series				Value				Package					Suffix (RoHS Compliant)	

SERIES, SIZE, WATTAGE, VOLTAGE, AND DIMENSIONS



Series	Case Size	Watts (W)	Voltage (V) (max.)		Dimension (mm)				
			W.V.	O.V.	L	W	H	C	D
313	0603	1/5	50	100	1.60±.10	.80±.15	.45±.10	.30±.20	.30±.20
315	0805	1/3	150	300	2.00±.15	1.25±.15	.55±.10	.40±.20	.40±.20
317	1206	1/2	200	400	3.10±.15	1.55±.15	.55±.10	.45±.20	.45±.20
319	2512	2	250	500	6.35±.10	3.20±.15	.55±.10	.60±.25	.50±.20

STANDARD VALUES (Ω)

10	18	36	68	120	221	390	680	1.6K	3.3K	5.1K	8.66K	18K	36K	62K	150K	432K	1.0M
10.2	20	39	68.1	130	240	430	750	1.8K	3.32K	5.23K	9.1K	20K	39K	68K	180K	470K	
10.7	22	43	71.5	150	270	470	820	2.0K	3.6K	5.6K	10K	22K	40.2K	75K	200K	510K	
11	24	47	75	160	300	499	1.0K	2.2K	3.83K	6.2K	11K	24K	43K	76.8K	220K	523K	
12	27	49.9	82	180	301	510	1.1K	2.21K	3.9K	6.8K	12K	27K	47K	82K	267K	560K	
13	30	51	91	182	330	549	1.2K	2.4K	4.3K	7.32K	13K	30K	51K	100K	270K	680K	
15	30.1	56	100	200	340	560	1.5K	2.7K	4.7K	7.5K	15K	33K	56K	120K	330K	750K	
16	33	62	110	220	360	620	1.5K	3.0K	4.99K	8.2K	16K	34.8K	56.2K	130K	390K	820K	

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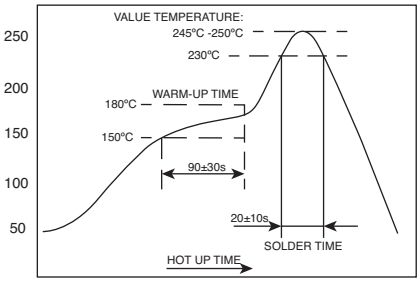
■ CHARACTERISTICS

Characteristics	Limits	Test Methods (JIS C 5201-1)
Dielectric withstanding voltage	No evidence of flashover mechanical damage, arcing or insulation break down	4.7 Clamped in the trough of a 90ºC metallic v-block and shall be tested at ac potential respectively specified in the type for 60-70 seconds
Temperature Coefficient	1Ω~10Ω≤±200PPM/ºC 10.1Ω~10MΩ≤±100PPM/ºC	4.8 Natural resistance change per temp. degree centigrade. $\frac{R2-R1}{R1(t2-t1)} \times 10^6$ (PPM/ºC) R1: Resistance value at room temperature (T1) R2: Resistance value at room tem. plus 100ºC(T2) Test pattern: room temp. (T1), room temp. +100ºC(T2)
Short time overload	Resistance change rate is ± 5% (2.0% + 0.1Ω) Max. ± 1% (1.0% + 0.1Ω) Max.	4.13 Permanent resistance change after the application of a potential of 2.5 times RCWV for 5 seconds
Solderability	95% coverage Min.	Wave Solder: Test temperature of solder: 245ºC±3ºC dipping time in solder: 2-3 seconds. Reflow: 
Soldering heat	Resistance change rate is + (1.0% + 0.05Ω) Max.	4.18 Dip the resistor into a solder bath having a temperature of 260ºC±3ºC and hold it for 10±1 seconds
Temperature Cycling	Resistance change rate is ± 5% (2.0% + 0.05Ω) Max. ± 1% (0.5% + 0.05Ω) Max.	4.19 Resistance change after continiuous 5 cycles for duty cycle specified below:

Step	Temperature	Time
1	-55ºC ±3ºC	30 mins
2	Room temp.	10~15 mins
3	+155ºC ±2C	30 mins
4	Room temp.	10`15 mins

CHARACTERISTICS (CON'T)

Characteristics	Limits	Test Methods (JIS C 5201-1)
Humidity	Resistance change rate is ± 5% (3.0% + 0.1Ω) Max. ± 1% (0.5% + 0.1Ω) Max.	4.24 Temporary resistance change after 240 hours exposure in a humidity test chamber controlled at 40±2ºC and 90-95% humidity
Load life in humidity	Resistance change rate is ± 5% (3.0% + 0.1Ω) Max. ± 1% (0.5% + 0.1Ω) Max.	7.9 Resistance change after 1,000 hours (1.5 hours "on", 0.5 hour "off") at RCWV in a humidity chamber controlled at 40ºC ± 2ºC and 90 to 95% relative humidity
Load Life	Resistance change rate is ± 5% (3.0% + 0.1Ω) Max. ± 1% (0.5% + 0.1Ω) Max.	4.25.1 Permanent resistance change after 1,000 hours operating at RCWV, with duty cycle of (1.5 hours"on", 0.5 hour"0ff") at 70ºC ± 2ºC ambient
Terminal bending	Resistance change rate is ± (1.0% + 0.05Ω) Max.	4.33 Twist of Test Board: Y/X - 3/90 mm for 60 seconds

Mouser Electronics

Authorized Distributor

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Xicon:

319-220K/REEL-RC 313-22/REEL-RC 317-120K/REEL-RC 313-82K/REEL-RC 319-2.2K/REEL-RC 315-1.5K/REEL-RC 315-270K/REEL-RC 313-75/REEL-RC 317-100/REEL-RC 319-20K/REEL-RC 315-15/REEL-RC 317-560K/REEL-RC 313-82/REEL-RC 317-390K/REEL-RC 317-220K/REEL-RC 317-27K/REEL-RC 319-6.2K/REEL-RC 315-560/REEL-RC 313-1.0M/REEL-RC 317-22/REEL-RC 319-30/REEL-RC 319-100K/REEL-RC 319-1.8K/REEL-RC 313-47K/REEL-RC 319-3.32K/REEL-RC 317-40.2K/REEL-RC 313-27/REEL-RC 313-220K/REEL-RC 317-47/REEL-RC 319-18/REEL-RC 317-12/REEL-RC 319-33/REEL-RC 313-15K/REEL-RC 319-1.3K/REEL-RC 319-39K/REEL-RC 315-56K/REEL-RC 315-1.8K/REEL-RC 315-120/REEL-RC 317-27/REEL-RC 319-11K/REEL-RC 315-7.32K/REEL-RC 319-16/REEL-RC 313-270/REEL-RC 319-100/REEL-RC 315-100/REEL-RC 317-56K/REEL-RC 319-390K/REEL-RC 319-68/REEL-RC 315-680/REEL-RC 315-150K/REEL-RC 313-120K/REEL-RC 315-4.7K/REEL-RC 319-47K/REEL-RC 317-47K/REEL-RC 319-43K/REEL-RC 315-270/REEL-RC 315-180/REEL-RC 317-39K/REEL-RC 319-10K/REEL-RC 319-750K/REEL-RC 317-22K/REEL-RC 317-220/REEL-RC 317-180/REEL-RC 313-47/REEL-RC 319-71.5/REEL-RC 317-3.3K/REEL-RC 319-36K/REEL-RC 319-150/REEL-RC 313-3.9K/REEL-RC 317-15K/REEL-RC 319-180/REEL-RC 317-8.66K/REEL-RC 315-10/REEL-RC 313-68/REEL-RC 319-75K/REEL-RC 319-11/REEL-RC 315-22/REEL-RC 319-9.1K/REEL-RC 317-1.5K/REEL-RC 313-120/REEL-RC 317-6.8K/REEL-RC 319-130/REEL-RC 319-51/REEL-RC 319-15/REEL-RC 317-470/REEL-RC 313-27K/REEL-RC 317-4.7K/REEL-RC 319-33K/REEL-RC 315-220K/REEL-RC 313-56K/REEL-RC 317-5.23K/REEL-RC 317-10/REEL-RC 313-1.0K/REEL-RC 313-5.6K/REEL-RC 313-2.2K/REEL-RC 319-430/REEL-RC 319-470/REEL-RC 313-15/REEL-RC 319-390/REEL-RC 317-180K/REEL-RC