

## Pulse-Loading Resistors

# Anti-Pulse Type

## Normal & Miniature Style [ APR Series ]



### INTRODUCTION

The APR Series Pulse-Loading Resistors have excellent capability in withstanding pulse; tinned connecting leads of electrolytic copper are welded to the end-caps. The resistors are coated with layers of gray color lacquer. The 5th color band is yellow to represent APR series.

### FEATURES

Power Rating	1/4W, 1/2W, 1W, 2W, 3W
Resistance Tolerance	5%
T.C.R.	$\pm 300\text{ppm}/^\circ\text{C}$
Flameproof Multi-layer Coating Meets	UL-94V-0
Flameproof Feature Meets Overload Test	UL-1412

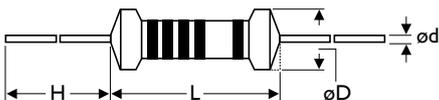
### DERATING CURVE

For resistors operated in ambient temperatures above 70°C, power rating must be derated in accordance with the curve below.



### DIMENSIONS

Unit: mm



5th color code: yellow

STYLE		DIMENSION			
Normal	Miniature	L	øD	H	ød
APR-25	APR50S	6.3±0.5	2.4±0.2	28±2.0	0.55±0.05
APR-50	APR1WS	9.0±0.5	3.3±0.3	26±2.0	0.55±0.05
APR100	APR2WS	11.5±1.0	4.5±0.5	35±2.0	0.80±0.05
APR200	APR3WS	15.5±1.0	5.0±0.5	33±2.0	0.80±0.05

Note:

### ELECTRICAL CHARACTERISTICS

STYLE	APR-25	APR50S	APR-50	APRIWS	APRI00	APR2WS	APR200	APR3WS
Power Rating at 70°C	1/4W	1/2W		1W		2W		3W
Maximum Working Voltage	250V	350V		400V	500V			
Maximum Overload Voltage	500V	600V	700V	800V	1,000V			
Voltage Proof	400V		500V	600V	750V			
Resistance Range	1 Ω - 100K Ω & 0 Ω for E24 series value							
Operating Temp. Range	-55°C to +200°C							
Temperature Coefficient	±300ppm/°C							

Note: Special value is available on request

### ENVIRONMENTAL CHARACTERISTICS

PERFORMANCE TEST	TEST METHOD	APPRAISE
Short Time Overload	IEC 60115-1 4.13 2.5 times RCWV for 5 Sec.	±0.75%+0.05 Ω
Voltage Proof	IEC 60115-1 4.7 in V-block for 60 Sec., test voltage by type	By type
Temperature Coefficient	IEC 60115-1 4.8 -55°C to +155°C	By type
Insulation Resistance	IEC 60115-1 4.6 in V-block for 60 Sec.	>10,000M
Solderability	IEC 60115-1 4.17 235±5°C for 3±0.5 Sec.	95% Min. coverage
Solvent Resistance of Marking	IEC 60115-1 4.30 IPA for 5±0.5 Min. with ultrasonic	No deterioration of coatings and markings
Robustness of Terminations	IEC 60115-1 4.16 Direct load for 10 Sec. in the direction of the terminal leads	≥2.5kg (24.5N)
Periodic-pulse Overload	IEC 60115-1 4.39 4 times RCWV 10,000 cycles (1 Sec. on, 25 Sec. off)	±1.0%+0.05 Ω
Damp Heat Steady State	IEC 60115-1 4.24 40±2°C, 90-95% RH for 56 days, loaded with 0.1 times RCWV	±3.0%+0.05 Ω
Endurance at 70°C	IEC 60115-1 4.25 70±2°C at RCWV for 1,000 Hr. (1.5 Hr. on, 0.5 Hr. off)	±3.0%+0.05 Ω
Temperature Cycling	IEC 60115-1 4.19 -55°C ⇌ Room Temp. ⇌ +155°C ⇌ Room Temp. (5 cycles)	±1.0%+0.05 Ω
Resistance to Soldering Heat	IEC 60115-1 4.18 260±3°C for 10±1 Sec., immersed to a point 3±0.5mm from the body	±1.0%+0.05 Ω
Accidental Overload Test	IEC 60115-1 4.26 4 times RCWV for 1 Min.	No evidence of flaming or arcing

Note: Rated Continuous Working Voltage (RCWV) =  $\sqrt{\text{Power Rating} \times \text{Resistance Value}}$