

INTRON precision thin film resistors are made by vacuum depositing a controlled film of NiCr on high purity prescored alumina substrate. The resistor is formed using high resolution photolithography. The patterns are designed such that no hot spots are created. The values are microtrimmed using laser to the exact value within a tolerance of 0.05%. The TCR and tolerance is obtained by process capability and does not rely on selection process. The leads are mechanically attached far from the soldering point with no chance of open circuit. The resistors are coated with electronic grade epoxy powder using fluidized bed coating machine. Resistors are printed with value, tolerance and TCR for easy identification.

### APPLICATIONS

- Precision weighing scales
- Temperature and Chart recorders
- Calibration Equipment
- RTD Simulation
- 4-20mA current to voltage conversion


### MATERIAL OF CONSTRUCTION

- Resistive Material: NiCr
- Substrate : High purity Alumina
- Body: Electronic grade powder Epoxy
- Leads: Tinned Copper Wire
- RoHS compliant

### FEATURES

- Temperature Co-efficient (TCR) :  $\pm 5, \pm 10, \pm 15, \pm 25$  ppm/ $^{\circ}\text{C}$  (Tested between  $+25^{\circ}\text{C}$  &  $+75^{\circ}\text{C}$ )
- Rated Power: 1/4W @  $70^{\circ}\text{C}$
- High Precision :  $\pm 0.05\%, \pm 0.1\%, \pm 0.2\%, \pm 0.5\%, \pm 1\%$
- Resistance Range:  $1\Omega$  to  $1\text{M}\Omega$  with any odd value possible
- Radial lead design: Lead pitch of 0.4" replaces axial resistors
- Non-inductive, non-capacitive design
- Matched sets are available on request
- For lower or higher values and for lower TCR of  $\pm 2$ ppm/ $^{\circ}\text{C}$  contact us
- Customized printing option on resistors
- No MOQ, we can supply just 1 pc.

### DIMENSIONS :

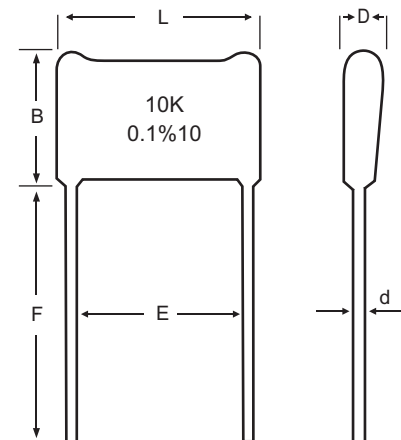
PHOTO	TYPE	POWER RATING	LEAD PITCH	MAXIMUM WORKING VOLTAGE	RESISTOR RANGE	DIMENSIONS IN MM					
						L	B	D	E	F	d
	SMA	1/4W	10.16mm 0.4"	350V	$1\Omega$ to $1\text{M}\Omega$	12.0 $\pm 0.2$	4.3 $\pm 0.2$	2.3 $\pm 0.2$	10.16 $\pm 0.2$	15 $\pm 2$	0.6 $\pm 0.05$

### MARKING

The resistors are marked with value, tolerance and TCR for easy identification. Any customer code can be printed on resistor depending on the space. Temperature printed for RTD simulator resistors.

### ORDERING INFORMATION:

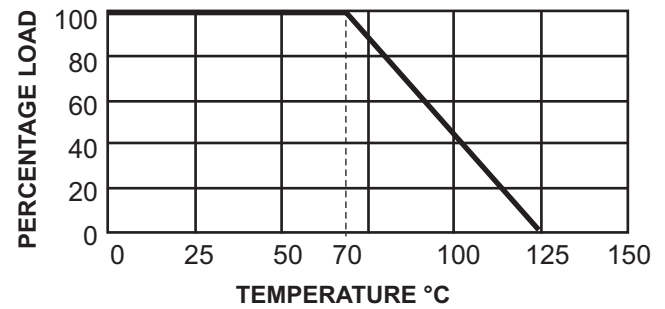
1/4 W	SMA	10K	0.1 %	10ppm/ $^{\circ}\text{C}$
Wattage	Series	Value	Tolerance	TCR



## STANDARD TESTING PROCEDURE FOR 100% OF OUR RESISTORS

1. Short time Overload in which 2.5 times the rated voltage (6.25 X rated power) or maximum rated overload voltage is applied for 5 seconds
2. TCR measurement done at +25°C and +75°C
3. Ageing at rated voltage done for 0.1% and 0.05% resistors to improve stability
4. Tolerance measurement on 7½ DMM at +25°C ± 2°C
5. Visual and mechanical inspection

## DERATING CURVE:



## PERFORMANCE:

Parameters	Specifications	Test Conditions
Operating Temperature Range	-55°C to +125°C	
Insulation Resistance	10,000M Ω	Apply 100 Vdc for 1 minute
Temperature Cycling	+/-0.05%	-55°C 30min, +125°C 30min, 5 cycles
Damp Heat	+/-0.1%	40 ± 2°C, 90-95%RH, DC 0.1W, 1,000 hours
Short Time Overload	+/- 0.05%	2.5 times the Rated Voltage or Max. Overload Voltage whichever is lower for 5 seconds
Load Life	+/-0.1%	Rated Power at 70°C, 90min ON, 30min OFF 1000 hours
Soldering Heat	+/- 0.03%	350°C, 3 seconds
Moisture Resistance	+/-0.1%	+65°C to -10°C, 90-100%RH, Rated Voltage, 10 cycles (240 hrs)
Solvent Test	No damage	IPA test
Solderability	Min. 95% coverage	235°C, 2 seconds
Noise	< -43dB	
Shelf Life Stability	+/- 0.03%	One year at 25°C

Reference Standards : MIL-STD-202, JSS 50401  
MIL-PRF-SS342

All product's, product specifications and other data are subject to change without notice.

# INTRON

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