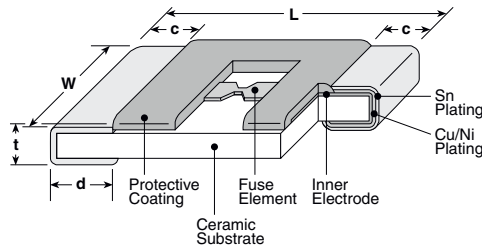




**features**

- Small, lightweight design
- Special manufacturing method stabilizing fusing characteristics and occupying less area
- Low power consumption and less voltage drop due to low internal resistance
- Suitable for overcurrent protection of circuit block in electronic devices
- Suitable for flow and reflow soldering
- Marking: Black body color with white marking: TF10BN, TF10SN; white marking: TF10AT
- Products with lead-free terminations meet EU RoHS and China RoHS requirements

**dimensions and construction**



Type (Inch Size Code)	Dimensions inches (mm)				
	L	W	c	d	t
<b>TF10BN (0402)</b>	.04±.004 (1.0±0.1)	.02±.002 (0.5±0.05)	.008±.004 (0.2±0.1)	.01±.004 (0.25±0.1)	.015±.002 (0.4±0.05)
<b>TF16AT (0603)</b>	.063±.004 (1.6±0.1)	.031±.003 (0.8±0.08)	.012±.004 (0.3±0.1)	.012±.004 (0.3±0.1)	.018±.002 (0.45±0.05)
<b>TF16SN (0603)</b>	.063±.008 (1.6±0.2)	.031±.004 (0.8±0.1)	.012±.004 (0.3±0.1)	.012±.004 (0.3±0.1)	.015+ <sup>+0.04</sup> <sub>-.002</sub> (0.4+ <sup>+0.1</sup> <sub>-.05</sub> )

**ordering information**

New Part #	<b>TF</b>	<b>16S</b>	<b>N</b>	<b>1.25</b>	<b>T</b>	<b>TE</b>
	Type	Size	Fusing Characteristic	Rated Current	Termination Material	Packaging
		10B: 1.0x0.5mm 16A: 1.6x0.8mm 16S: 1.6x0.8mm	N: Normal blow T: Anti pulse (16A only)	Reference rating chart	T: Sn	TB: 2mm pitch punched paper (TF10BN only, 10,000 pieces/reel) TD: 4mm pitch punched paper (TF16 only, 5,000 pieces/reel)

**applications and ratings**

Part Designation	Marking	Rated Current	Fusing Time	Internal R. Maximum (mΩ)	Rated Voltage	Rated Ambient Temperature	Operating Temperature Range
TF10BN0.20	A	0.20A	Open within 5 sec. at 200% rated current (Refer to Fusing Characteristics graph)	1990	24V	+70°C	-55°C to +125°C
TF10BN0.25	C	0.25A		1270			
TF10BN0.315	D	0.315A		850			
TF10BN0.50	F	0.50A		320			
TF10BN0.63	I	0.63A		200			
TF10BN0.80	K	0.80A		135			
TF10BN1.00	L	1.00A		115			
TF10BN1.25	M	1.25A		90			
TF10BN1.60	N	1.60A		58			
TF10BN2.00	S	2.00A		42			
TF10BN2.50	T	2.50A		35			
TF10BN3.00	V	3.00A		30			
TF16AT0.25	C	0.25A		Open within 5 sec. at 200% rated current (Refer to Fusing Characteristics graph)			
TF16AT0.315	D	0.315A	384				
TF16AT0.50	F	0.50A	198				
TF16AT0.63	J	0.63A	143				
TF16AT0.80	K	0.80A	120				
TF16AT1.00	L	1.00A	94				
TF16AT1.25	M	1.25A	73				
TF16AT1.60	N	1.60A	59				
TF16AT2.00	S	2.00A	42				
TF16AT2.50	T	2.50A	32				

For further information on packaging, please refer to Appendix A.

Specifications given herein may be changed at any time without prior notice. Please confirm technical specifications before you order and/or use.

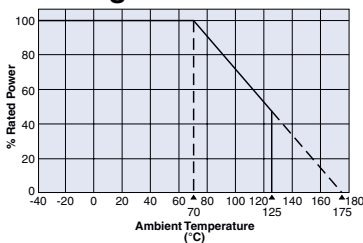
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**applications and ratings (continued)**

Part Designation	Marking	Rated Current	Fusing Time	Internal R. Maximum (mΩ)	Rated Voltage	Rated Ambient Temperature	Operating Temperature Range
TF16AT3.15	U	3.15A	Open within 5 sec. at 200% rated current (Refer to Fusing Characteristics graph)	24	32V	+70°C	-55°C to +125°C
TF16AT4.00	X	4.00A		17			
TF16AT5.00	Y	5.00A		14			
TF16SN0.20	A	0.20A	Open within 1 sec. at 200% rated current (Refer to Fusing Characteristics graph)	1500	32V	+70°C	-40°C to +125°C
TF16SN0.25	C	0.25A		960			
TF16SN0.315	D	0.315A		600			
TF16SN0.40	H	0.40A		440			
TF16SN0.50	F	0.50A		300			
TF16SN0.63	I	0.63A		190			
TF16SN0.70	J	0.70A		170			
TF16SN0.80	K	0.80A		135			
TF16SN1.00	L	1.00A		103			
TF16SN1.25	M	1.25A		78			
TF16SN1.60	N	1.60A		58			
TF16SN2.00	S	2.00A		47			
TF16SN2.50	T	2.50A		38			
TF16SN3.15	U	3.15A		28			

**environmental applications**

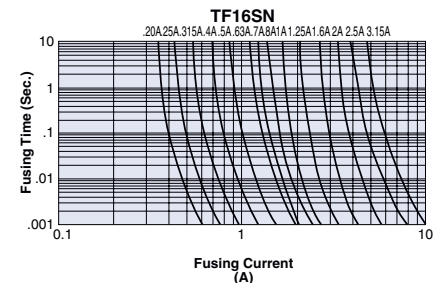
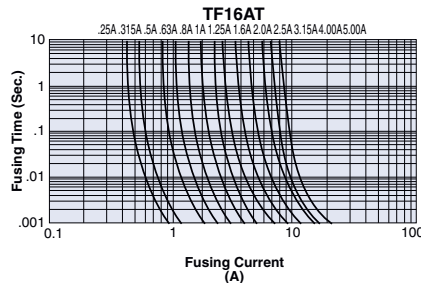
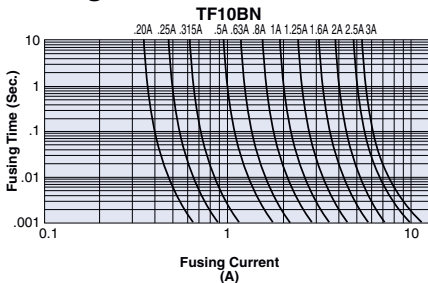
**Derating Curve**



Stationary Current: Regard the peak of stationary current waveform as stationary current value when the stationary current is repeated pulse.

Temperature Derating: Rated current needs to be derated if used at an ambient temperature 70°C or above. Refer to the derating coefficient on the left figure.

**Fusing Characteristics**



**Performance Characteristics**

Parameter	Requirement		Test Method
	Limit	Typical	
Clearing Time	Within 1 second (16AT, SN) Within 5 seconds (10BN)	—	200% of rated voltage shall be carried (@25°C)
Bending Test	No mechanical damages	—	Distance between holding points: 90mm, Bending: 3mm, 1 time (BN, AT), 2mm, 1 time (SN)
Resistance to Solder Heat	±10%	±4.5% (16SN) ±5% (10BN, 16AT)	260°C ± 5°C, 10 seconds ± 0.5 <sup>rd</sup> second
Solderability	95% coverage minimum	—	230°C ± 5°C, 3 seconds ± 0.5 second
Load Life	±10%	±4.5% (16SN) ±5% (10BN, 16AT)	70°C ± 2°C, 1000 hours, rated current x 100%, 1.5 hr ON, 0.5 hr OFF cycle
Load Life Moisture	±10%	±3% (10BN) ±4.5% (16SN), 5% (16AT)	40°C ± 2°C, 90 - 95% RH, 1000 hours, rated current x 100% (10BN, 16SN), x 75% (16AT), 1.5 hr ON, 0.5 hr OFF cycle
Rapid Change of Temperature	±10%	±4% (16SN) ±5% (10BN, 16AT)	16SN: -40°C ± 2°C (30 minutes), 10BN, 16AT: -55°C ± 2°C, +125°C (30 minutes), 10 cycles
Resistance to Solvent	No evidence of damages to protective coating and marking	—	Conforming to MIL-STD-202F
Residual Resistance	10kΩ and more	—	Measure DC resistance after fusing

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12/07/16