

## Fast Acting | 0.04x0.02 inch Thick Film Chip Fuses

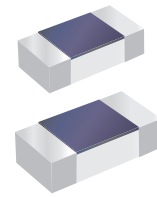
## 0402FA Series



The 0402FA Series ultra-small size makes them ideal for secondary protection of circuits used in space constrained applications. Fast-acting chip fuses help provide overcurrent protection.

### Features

- Ultra-small size 0.04x0.02 inch
- Ceramic and glass construction
- Halogen free, lead free and RoHS compliant
- Excellent environmental integrity
- One time positive disconnect



### Applications

- Flat panel displays and televisions
- Automotive infotainment and ECU
- Computer servers
- Portable electronics
- Mobile device chargers

### Electrical Characteristics

Amp Rating	% of Amp Rating	Opening Time
0.20~4A	100%	4 Hours Min.
0.20~0.75A	250%	5 Seconds Max.
1~4A	300%	5 Seconds Max.

### Specifications

Part Number	Ampere Rating (A)	Voltage Rating (Vdc)	Interrupting Rating	Typical Cold Resistance (Ohms)	Typical Melting I <sup>2</sup> t (A <sup>2</sup> Sec)
0402FA-R200	0.200	32	32V@35A	1.751	0.0006
0402FA-R250	0.250	32	32V@35A	1.520	0.0013
0402FA-R315	0.315	32	32V@35A	1.003	0.0015
0402FA-R375	0.375	32	32V@35A	0.783	0.0018
0402FA-R500	0.500	32	32V@35A	0.503	0.0045
0402FA-R750	0.750	32	32V@35A	0.218	0.0109
0402FA-1A	1.00	32	32V@35A	0.133	0.0405
0402FA-1.5A	1.50	32	32V@35A	0.077	0.0590
0402FA-2A	2.00	32	32V@35A	0.036	0.1306
0402FA-2.5A	2.50	32	32V@35A	0.023	0.1889
0402FA-3A	3.00	32	32V@35A	0.021	0.3302
0402FA-3.5A	3.50	32	32V@35A	0.016	0.4630
0402FA-4A	4.00	32	32V@35A	0.013	0.5960

- DC Interrupting Rating - Measured at designated voltage, time constant < 50 microseconds.
- DC Cold Resistance are measured at <10% of rated current in ambient temperature of 25°C.
- Typical Melting I<sup>2</sup>t measured at 1 msec opening time.
- Typical Voltage Drop measured at rated current after temperature has stabilized.

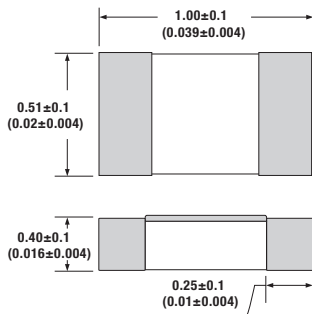
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## Thick Film Chip Fuses

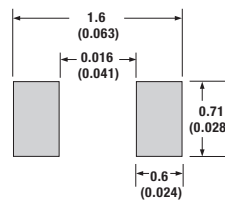
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### Dimension

Unit: mm/inch



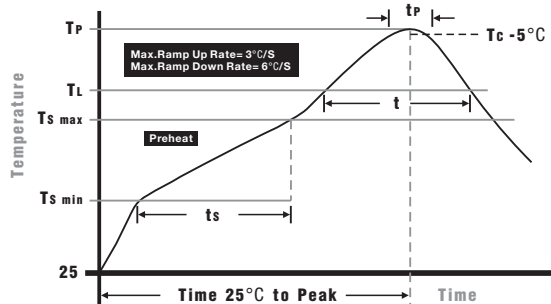
### Pad layout



### Packaging

- Quantity: 10,000pcs
- 8mm wide tape on 178mm(7 inch) diameter reel -specification EIA Standard 481.

### Soldering Parameters

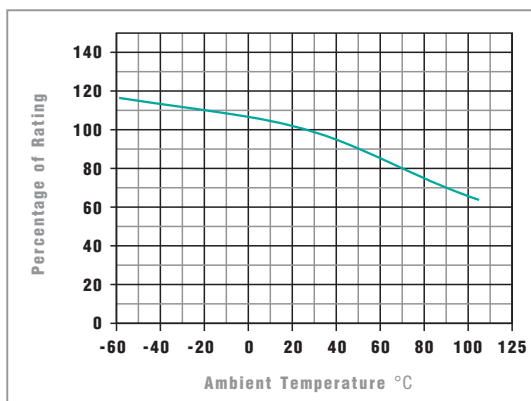


Wave Soldering: 260°C, 10 seconds max.  
Infrared Reflow: 260°C, 30 seconds max.

### IR Reflow Profile

<b>Preheat Heat</b>	
Temperature min (T <sub>min</sub> )	150°C
Temperature max (T <sub>max</sub> )	200°C
Time (T <sub>min</sub> to T <sub>max</sub> ) (ts)	60 -120 seconds
Average ramp-up rate (T <sub>max</sub> to T <sub>p</sub> )	3°C/second max.
<b>Liquidous temperature (T<sub>L</sub>)</b>	
Time at liquidous (t <sub>L</sub> )	60 - 150 seconds
<b>Peak temperature(T<sub>p</sub>)</b>	
Peak temperature(T <sub>p</sub> )	260+0/-5°C
<b>Time within 5°C of actual peak Temperature (tp)</b>	
Time within 5°C of actual peak Temperature (tp)	10 - 30 seconds
<b>Average ramp-down rate (T<sub>p</sub> to T<sub>max</sub>)</b>	
Average ramp-down rate (T <sub>p</sub> to T <sub>max</sub> )	6°C/second max.
<b>Time 25 °C to peak temperature</b>	
Time 25 °C to peak temperature	8 minutes max.

### Temperature Derating Curve



- Normal Operating Temperature: 23°C ± 2
- Operating Temperature: -20 to 105°C
- The fuse rating is determined by the equation below:

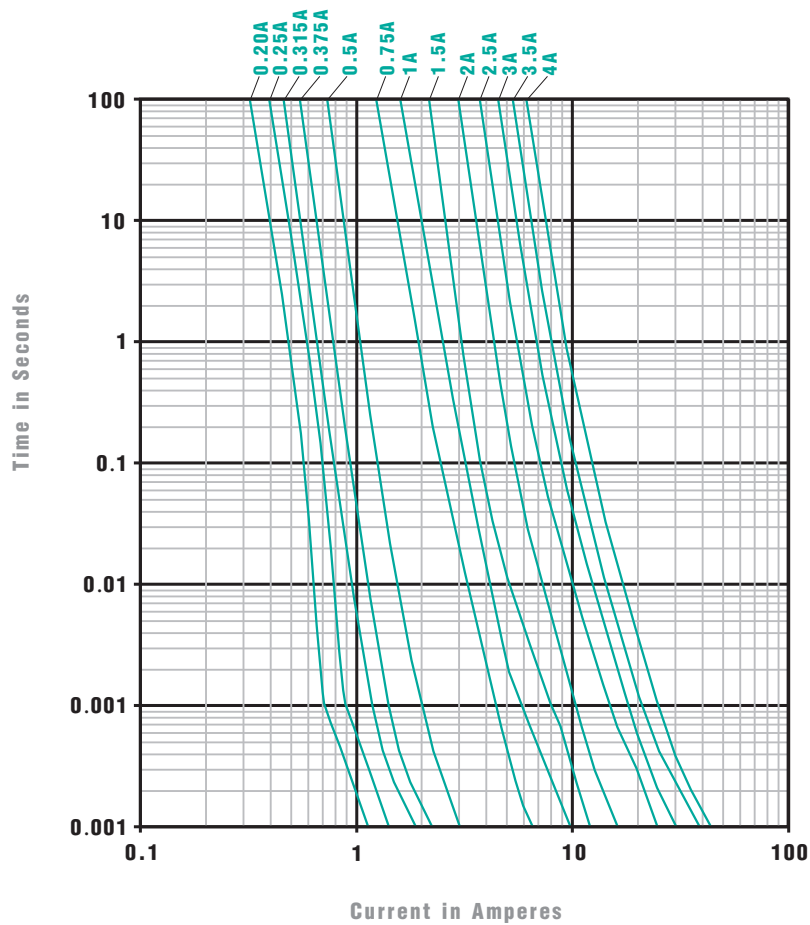
$$I_n = \frac{I_{input \ max.}}{0.70 \times K_{temp}}$$

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### Average Time Current Curves



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