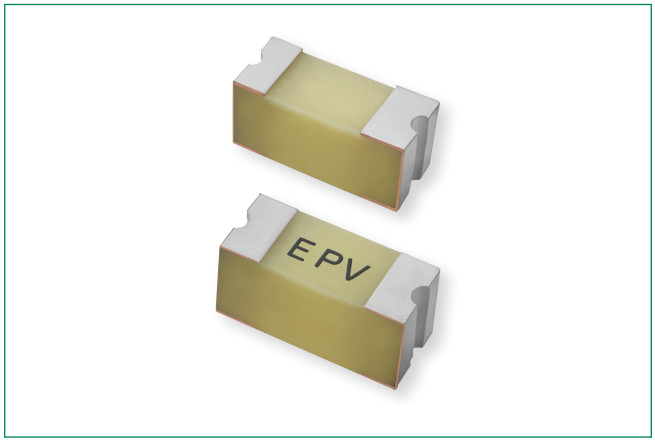
Surface Mount Fuse

400PV Series > 2410 Photovoltaic Fuse



Description

Littelfuse 400PV Series is a 2410 size Surface Mount Fuse which offers relatively low resistance. It provides UL 248-19 compliant overcurrent protection for photovoltaic (PV) cells.

The 400PV series meets environment standards and is able to operate at high temperatures.

Features & Benefits

- Wide operating temperature range
- 100% lead-free, halogen-free, and RoHS compliant
- Reliable overcurrent performance in high temperature environments
- Small and compact
- Surface mountable
- Compatible with common soldering assembly processes
- Recognized to UL/CSA 248-1 and UL/CSA 248-19

Applications

- Photovoltaic shingles
- Photovoltaic cells

Agency Approvals

Agency	Agency File Number	Ampere Rating
c UL us	E339112	0.375 A

Electrical Characteristics

% of Ampere Rating	Ampere Rating	Opening Time
100%	0.375 A	4 hours, Minimum
135%	0.375 A	3600 seconds Maximum
200%	0.375 A	240 seconds Maximum

Electrical Specifications

Ampere Rating (A)	Max Voltage Rating (V)	Interrupting Rating	Nominal Cold Resistance (Ohms)	Nominal Melting I^2t (A2 Sec.) [1]	Agency Approvals
					c UL us
0.375	86	10,000 A @ 86 VDC	0.31	0.010	X

Note
1. Nominal Melting I^2t measured at 1 msec. opening time

Additional Information

Resources | Accessories | Samples

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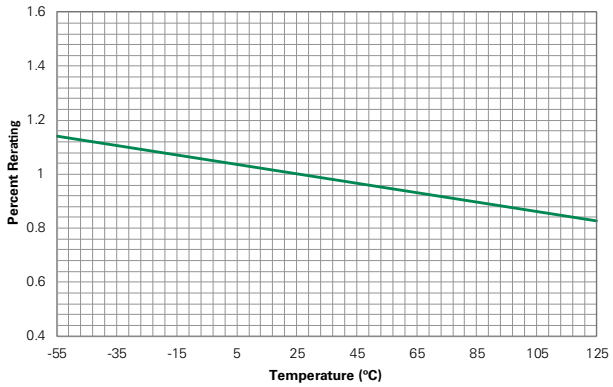
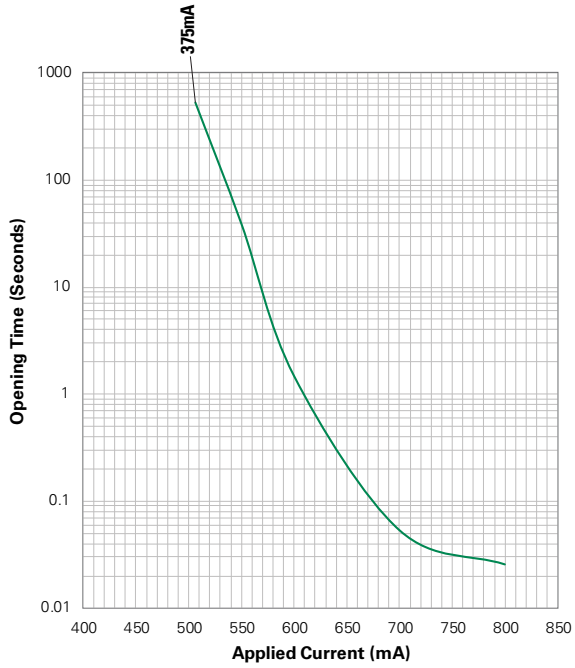
Temperature Re-rating Curve



Note
Rerating depicted in this curve is in addition to the standard derating of 25% for continuous operation.

Example
For continuous operation at 85 degrees celsius, the fuse should be rerated as follows:
$I = (0.75)(0.90)I_n = (0.675)\ I_n$

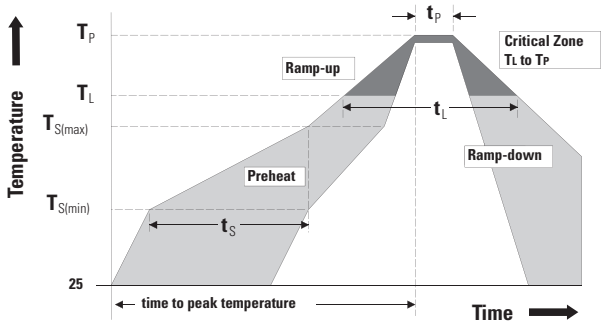
Average Time Current Curve



Soldering Parameters – Reflow Soldering

Reflow Condition		Pb-free assembly
Pre Heat	- Temperature Min ($T_{s(min)}$)	150° C
	Temperature Max ($T_{s(max)}$)	200° C
	- Time (Min to Max) (t_s)	60–180 secs
Average ramp up rate (Liquidus Temp (T_L) to peak		3° C/second max.
$T_{S(max)}$ to T_L - Ramp-up Rate		5° C/second max.
Reflow	- Temperature (T_L) (Liquidus)	217° C
	- Temperature (t_L)	60–150 seconds
Peak Temperature (T_P)		$260^{+0/-5}$ °C
Time within 5° C of actual peak Temperature (t_p)		10–30 seconds
Ramp-down Rate		6° C/second max.
Time 25° C to peak Temperature (T_P)		8 minutes max.
Do not exceed		260° C

Wave Soldering	260° C, 10 seconds max.



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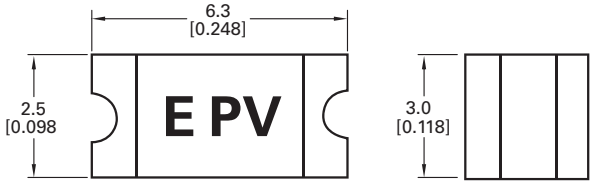
Product Characteristics

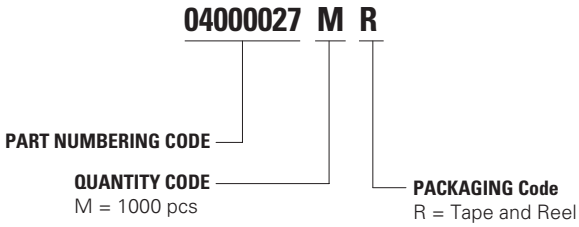
Materials	Body: Epoxy resin (UL 94 V-0 certified) Terminations: Cu/Ni/Sn (100% Pb-free)
Moisture Sensitivity Level	IPC/JEDEC J-STD-020C, Level 1
Solderability	IPC/EIC/JEDEC J-STD-002B, Condition B
Humidity	UL 248-19 Section 6.7.3
Resistance to Soldering Heat	MIL-STD-202, Method 210F, Condition B
Thermally Induced Drift	UL 248-19 Section 6.6.1
Moisture Resistance	MIL-STD-202, Method 106G

Thermal Shock	MIL-STD-202, Method 107G, Condition B-3
Mechanical Shock	MIL-STD-202, Method 213B, Condition A
Vibration	MIL-STD-202, Method 201A
Vibration, High Frequency	MIL-STD-202, Method 204D, Condition D
Dissolution of Metallization	IPC/EIC/JEDEC J-STD-002B, Condition D
Terminal Strength	IEC 60127-4
Temperature Extremes	UL 248-19 Section 6.6.2

Dimensions



Part Numbering System



Packaging

Packaging Option	Packaging Specification	Quantity	Quantity & Packaging Code
12 mm Tape and Reel	EIA-481/IEC 60286-3	1000	MR

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