

Fast-Acting Surface Mount Fuse

SEF 250V Fast-Acting Series

Descriptions

SEF 250V Fast-Acting Series provide board level primary and secondary circuit protection in a wide variety of applications. With excellent inrush current withstanding capability, excellent reliability for thermal and mechanic shock, also have a high reliability and stable solder ability, end caps are available in gold/silver/nickel plated.



Features

- ◆ Fast-Acting.
- ◆ Small size (6.1mm*2.5mm).
- ◆ Wide range of current rating available.
- ◆ Wide operating temperature range.
- ◆ Low temperature de-rating.
- ◆ RoHS compliant.
- ◆ Tape and Reel for automatic placement.
- ◆ Conflict free metals.

Applications

- ◆ LED lighting
- ◆ Notebook PC
- ◆ Battery devices
- ◆ LCD/PDP devices
- ◆ LCD backlight inverter
- ◆ Portable Devices
- ◆ Power supply
- ◆ Networking devices
- ◆ PC server
- ◆ Cooling fan system
- ◆ Storage system
- ◆ Telecom system
- ◆ Wireless base station
- ◆ White goods
- ◆ Game console
- ◆ Office equipment
- ◆ Digital camera
- ◆ Industrial equipment
- ◆ Medical equipment

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Electrical Characteristics

Part Number	Ampere Rating (A)	Voltage Rating Vac(V)	Breaking Capacity	Nominal Cold Resistance (Ohms)	I ² T Melting Integral(A ² .S)
SEF0250	0.25	250	50A@300V _{AC}	0.860	0.145
SEF0300	0.30	250		0.620	0.162
SEF0315	0.315	250		0.550	0.189
SEF0375	0.375	250		0.470	0.200
SEF0400	0.40	250		0.380	0.238
SEF0500	0.50	250		0.320	0.275
SEF0600	0.60	250		0.285	0.470
SEF0630	0.63	250		0.256	0.566
SEF0700	0.70	250		0.208	0.805
SEF0750	0.75	250		0.175	1.240
SEF0800	0.80	250	50A@250V _{AC}	0.155	1.880
SEF1100	1.00	250		0.148	3.500
SEF1125	1.25	250		0.102	4.760
SEF1150	1.50	250	200A@125V _{AC}	0.085	6.305
SEF1200	2.00	250		0.044	8.950
SEF1250	2.50	250		0.043	16.025
SEF1300	3.00	250		0.033	21.560
SEF1315	3.15	250		0.029	22.750
SEF1350	3.50	250		0.027	27.050
SEF1400	4.00	250		0.025	31.808
SEF1500	5.00	250		0.019	40.250
SEF1600	6.00	250		0.018	67.245
SEF1630	6.30	250		0.017	73.550
SEF1700	7.00	250	0.015	76.280	
SEF2150	15.00	250	0.012	160.680	

- ◆ Cold resistance and I²t value are pending due to fuse elements shall be customized;
- ◆ DC Cold Resistance are measured at <10% of rated current in ambient temperature of 25°C;
- ◆ Typical Pre-arching I²t are calculated at 10*In Current or 8ms;
- ◆ Min Interrupting Rating: 1.35*In.

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Material Details

Part Name	Material
End caps	Gold/Silver Plated Brass Cap
Body	Non-Transparent Square Ceramic Tube
Fuse element	Cu-Ag Alloy wire

Product Characteristics

Item	Content	Reference Standards
Product Marking	Brand, Ampere Rating	Socay marking standards
Operating Temperature	-55°C to 125°C	IEC60068-2-1/2
Solderability	T=240°C±5°C , t=3sec±0.5sec, Coverage≥95%	MIL-STD-202, Method 208
Resistance to Soldering Heat	10 sec at 260°C	MIL-STD-202, Method 210, Test condition B
Insulation Resistance (after Opening)	10,000 ohms minimum	MIL-STD-202, Method 302, Test Condition A
Thermal Shock	5 cycles, -65°C / +125°C, 15 minutes at each extreme	MIL-STD-202, Method 107, Test Condition B
Mechanical Shock	100G's peak for 6 milliseconds, 3cycles	MIL-STD-202, Method 213, Test I
Vibration	0.03"amplitude, 10-55 Hz in 1 min. 2hrs each XYZ=6hrs	MIL-STD-202, Method 201
Moisture Resistance	10 cycles	MIL-STD-202, Method 106
Salt Spray	5% salt solution, 48hrs	MIL-STD-202, Method 101, Test Condition B

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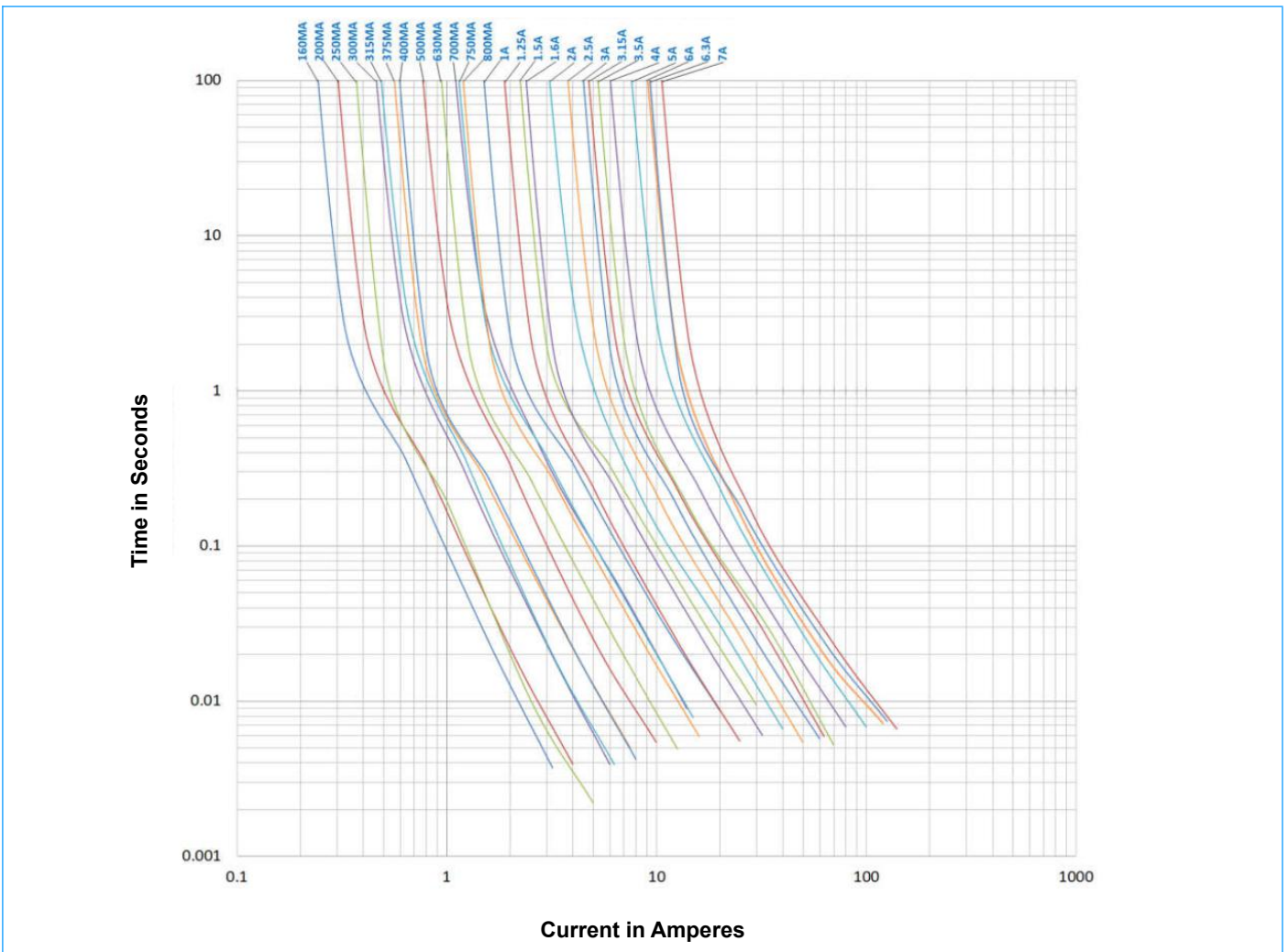
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Electrical Characteristics

- ◆ Test Condition:
All electrical test is to be conducted with the ambient air at a temperature of $25\pm 5^{\circ}\text{C}$.
- ◆ Interrupting Rating:
Breaking Capacity: 50A@250Vac, 200A@125Vac.
- ◆ Operating Characteristics:

% of Ampere Rating(In)	Blowing Time
100% * In	4 hours Min
200% * In	120 secs Max
1000% * In	10ms Min

Average Time Current Curves

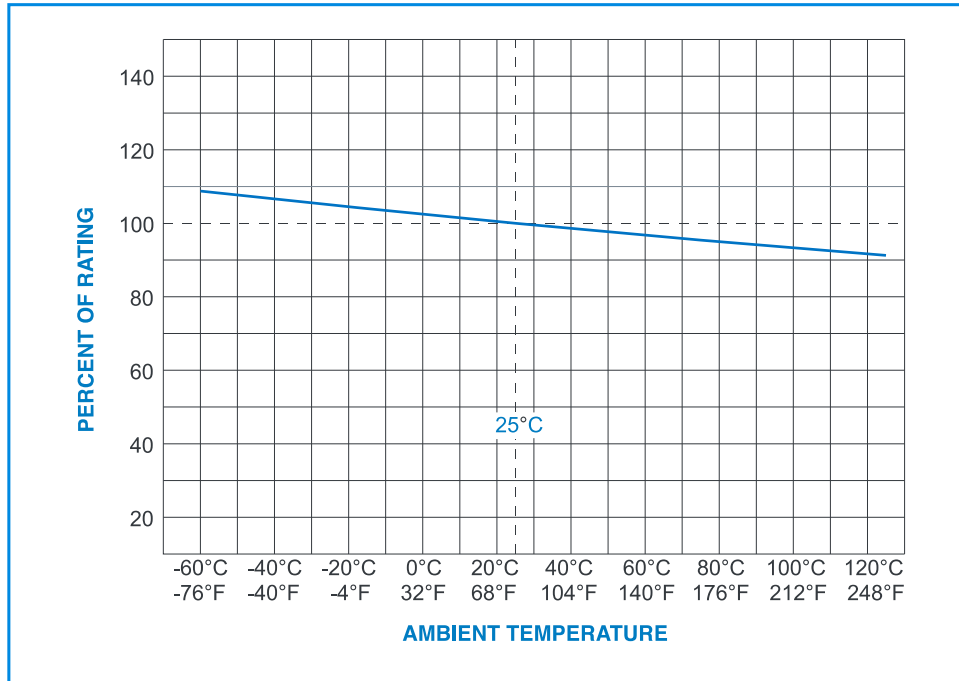


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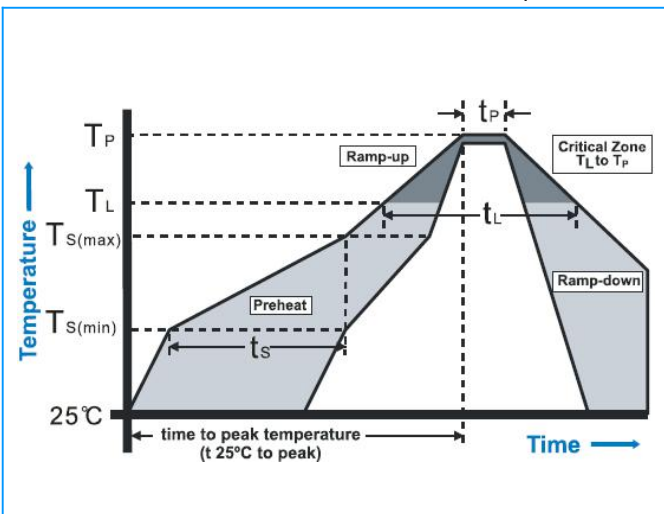
Environmental Characteristics

When choosing the fuse's specification, if the operating environmental temperature beyond the scope from 20~30°C, engineer should consider the environmental temperature's affection to fuses. Please refer: Temperature Rerating Curve:



Recommended Soldering Parameters

- ◆ Wave / Reflow Soldering Parameters: Solder paste process; Solder Pot Temperature: 260°C Max; Solder Dwell Time: 5 seconds max.
- ◆ Hand-Solder Parameters: Solder Iron Temperature: 300±5°C; Heating Time: 1~2s Max.

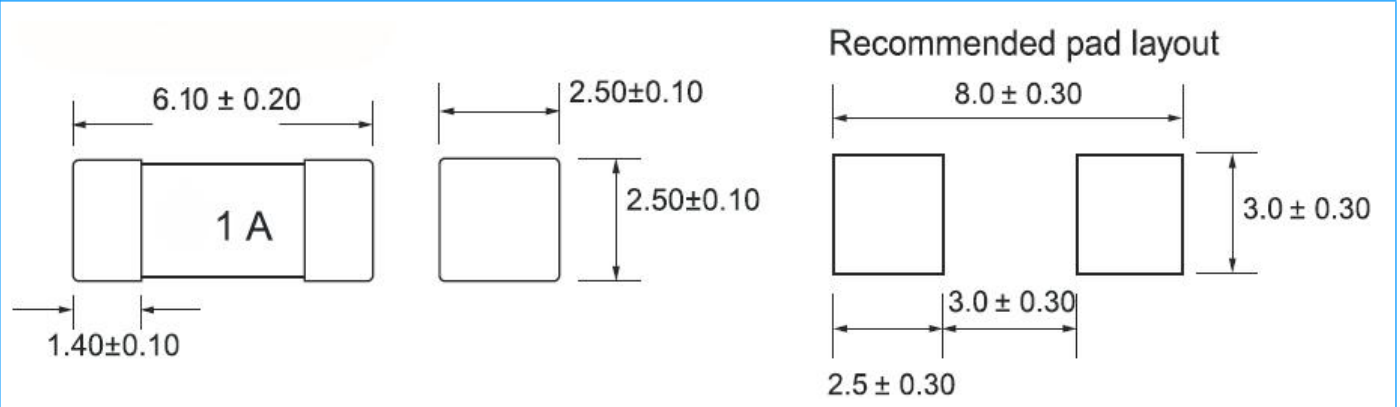


Reflow Condition		Pb-free assembly
Pre Heat	- Temperature Min ($T_{s(min)}$)	150°C
	- Temperature Max ($T_{s(max)}$)	200°C
	- Time (min to max) (t_s)	60 -120 seconds
Average ramp up rate ($T_{s(max)}$ to T_p)		5°C /second max.
Reflow	- Temperature (T_L)	220°C
	- Time Max (T_L)	60 seconds
Peak Temperature (T_P)		260°C max
Ramp-down Rate		5°C/second max
Time 25°C to peak Temperature (T_p)		8 minutes max

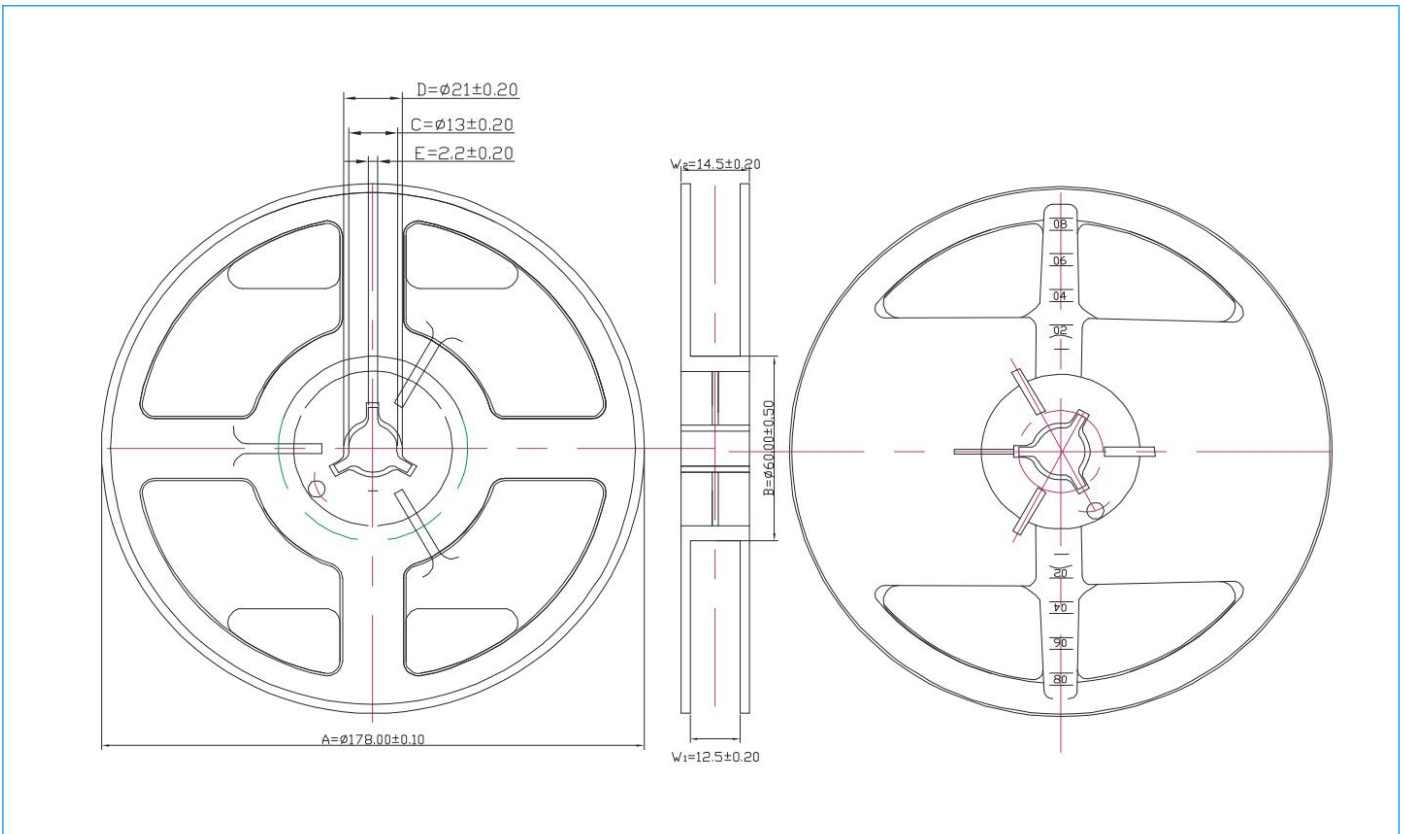
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Dimensions and Structure (Unit: mm)



Packaging (Unit: mm)

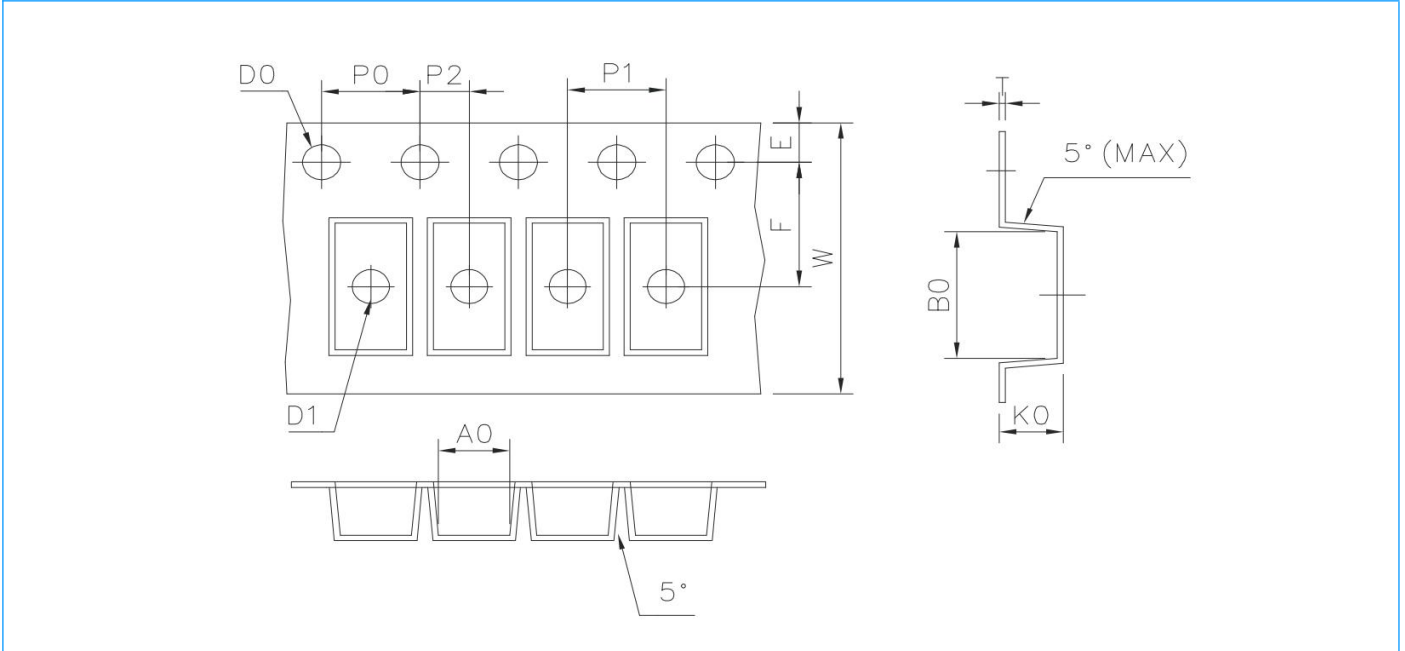


Symbol	A	B	C	D	E	W1	W2
Spec.(mm)	178 ± 0.10	60 ± 0.50	13 ± 0.20	21 ± 0.20	2.2 ± 0.20	12.5 ± 0.20	14.5 ± 0.20

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Packaging (Unit: mm) (Continue)



Symbol	A0	B0	D0	D1	E	F
Spec.(mm)	2.70±0.10	6.40±0.10	1.50+0.10	1.50+0.25	1.75±0.10	5.50±0.10
Symbol	K0	P0	P1	P2	W	t
Spec.(mm)	2.70±0.10	4.00±0.10	4.00±0.10	2.00±0.10	12.00±0.15	0.25±0.05

Packaging Quantity

Part Number	Rated Current (A)	Packaging Option	Quantity
SEF 250V Fast-Acting Series	≤1A	Tape & Reel	1500 PCS
	>1A	Tape & Reel	1000 PCS