Surface Mount Fuses

Ceramic Fuse > 440 Series



ROHS 🕅 HF c 🔁 us 🕀

440 Series, 1206 High I²t Fuse

Agency Approvals			
AGENCY	AGENCY FILE NUMBER	AMPERE RANGE	
c RL us	E10480	0.25A - 8A	
SP.	29862	0.25A - 8A	

Electrical Characteristics for Series

% of Ampere Rating	Ampere Rating	OpeningTime at 25°C
100%	0.25A - 8A	4 hours, Minimum
350%	0.25A - 8A	5 secs., Maximum

Electrical Creations h

Description

The 440 Series is a 100% Lead-free, RoHS compliant and Halogen-free fuse series designed specifically to provide over-current protection to circuits that operate under high working ambient temperatures up to 150°C and high inrush currents. The general design ensures excellent temperature stability and performance reliability. This high I²t fuse series is designed to have ultra high inrush current withstand capability to avoid nuisance fuse open.

Features

- Operating Temperature from -55°C to +150°C
- Suitable for both leaded and lead-free reflow / wave soldering

 Scanners Data Modems

Hard Disk Drives

• 100% Lead-free, RoHS compliant and Halogen-free • Ultra high I²t values

Applications

- LCD Displays
- Servers
- Notebook Computers
- Printers

Additional Information







Samples

Electrical Specifications by Item									
Ampere Rating	Amp	Max. Voltage	Interrupting Rating	Nominal Resistance	Nominal Melting l²t	Nominal Voltage Drop At Rated	Nominal Power Dissipation At	Agency Approvals	
(A)	Code	Rating (V)	(AC/DC) ¹	(Ohms) ²	(A ² Sec.) ³	Current (V) ⁴	Rated Current (W)	c 🔁 us	۹.
0.250	.250	125	50 A @ 125 V AC/DC	2.140	0.00649	0.5260	0.132	х	Х
0.375	.375	125	50 A @ 125 V AC/DC	1.216	0.01455	0.4993	0.187	x	Х
0.500	.500	63	50 A @ 63 V AC/DC	0.8140	0.02642	0.4831	0.242	X	Х
0.750	.750	63	50 A @ 63 V AC/DC	0.4624	0.09312	0.3983	0.299	X	Х
1.00	001.	50	50 A @ 50 V DC 50 A @ 50 V AC	0.3096	0.21054	0.3457	0.346	X	Х
1.25	1.25	50		0.2265	0.379	0.3240	0.405	X	Х
1.50	01.5	50		0.1759	0.50652	0.3215	0.482	X	Х
1.75	1.75	32		0.0450	0.3312	0.0777	0.136	X	Х
2.00	002.	32		0.0385	0.4326	0.0792	0.158	x	Х
2.50	02.5	32		0.02850	0.8191	0.0747	0.187	x	Х
3.00	003.	32		0.02252	1.232	0.0742	0.223	x	Х
3.50	03.5	32	50 A @ 32 V AC/DC	0.01845	1.789	0.0757	0.265	X	Х
4.00	004.	32		0.01553	2.601	0.0709	0.284	x	Х
5.00	005.	32		0.0120	4.761	0.0654	0.327	x	Х
7.00	007.	32		0.00753	8.464	0.0696	0.487	X	Х
8.00	008.	32		0.00634	12.95	0.0655	0.524	X	Х

Notes:

1. AC Interrupting Rating tested at rated voltage with unity power factor. DC Interrupting Rating tested at rated voltage with time constant < 0.8 msec.

2. Nominal Resistance measured with < 10% rated current.

3. Contact Littelfuse if application transient surges are less than 1 ms.

4. Nominal Voltage Drop measured at rated current after temperature has stabilized.

© 2018 Littelfuse, Inc.

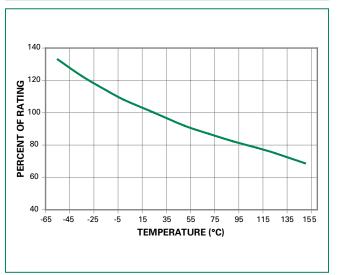
Specifications are subject to change without notice. Application testing is strongly recommended. Revised: 12/13/18

Devices designed to carry rated current for 4 hours minimum. It is recommended that devices be operated continuously at no more than 80% rated current. See "Temperature Derating Curve" for additional derating information.

Devices designed to be mounted with marking code facing up.



Temperature Rerating Curve



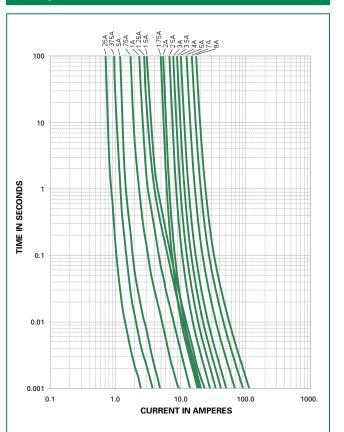
Note:

1. Rerating depicted in this curve is in addition to the standard derating of 20% for continuous operation.

Example:

 $I = (0.80)(0.85)I_{RAT} = (0.68)I_{RAT}$



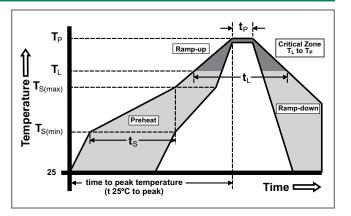


Soldering Parameters

Reflow Condition		Pb-free assembly
	-Temperature Min (T _{s(min)})	150°C
Pre Heat	-Temperature Max (T _{s(max)})	200°C
	-Time (Min to Max) (t _s)	60 – 180 seconds
Average R (T _L) to pea	amp-Up Rate (Liquidus Temp k)	3°C/second max.
T _{S(max)} to T _L - Ramp-up Rate		5°C/second max.
Reflow	-Temperature (T _L) (Liquidus)	217°C
nellow	-Temperature (t _L)	60 – 150 seconds
PeakTemperature (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.



For continuous operation at 75 degrees celsius, the fuse should be derated as follows:

Surface Mount Fuses

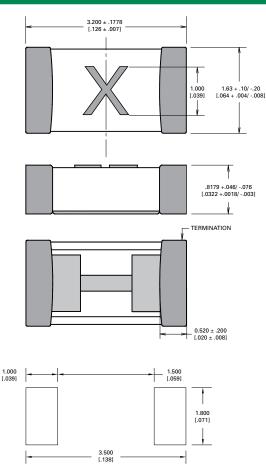
Ceramic Fuse > 440 Series



Product Characteristics

Materials	Body: Advanced Ceramic Terminations: Ag / Ni / Sn (100% Lead-free) Element Cover Coating: Lead-free Glass	
Moisture Sensitivity Level IPC/JEDEC J-STD-020, Level 1		
Solderability	IPC/ECA/JEDEC J-STD-002, Condition C	
Humidity Test	MIL-STD-202, Method 103, Conditions D	
Resistance to Solder Heat	MIL-STD-202, Method 210, Condition B	

.				
DT	me	ns	lor	IS.

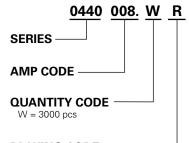


Moisture Resistance	MIL-STD-202, Method 106
Thermal Shock	MIL-STD-202, Method 107, Condition B
Mechanical Shock	MIL-STD-202, Method 213, Condition A
Vibration	MIL-STD-202, Method 201
Vibration, High Frequency	MIL-STD-202, Method 204, Condition D
Dissolution of Metallization	IPC/ECA/JEDEC J-STD-002, Condition D
Terminal Strength	IEC 60127-4

Part Marking System

Amp Code	Marking Code	Amp Code	Marking Code
.250	D	002.	N
.375	E	02.5	0
.500	F	003.	Р
.750	G	03.5	R
001.	Н	004.	S
1.25	J	005.	Т
01.5	К	007.	W
1.75	L	008.	X

Part Numbering System



PACKING CODE -R = Reel Pack

Packaging				
Packaging Option	Packaging Specification	Quantity	Quantity & Packaging Code	
8mm Tape and Reel	EIA-481, IEC 60286, Part 3	3000	WR	

Disclaimer Notice - Littelfuse products are not designed for, and shall not be used for, any purpose (including, without limitation, automotive, military, aerospace, medical, life-saving, life-sustaining or nuclear facility applications, devices intended for surgical implant into the body, or any other application in which the failure or lack of desired operation of the product may result in personal injury, death, or property damage) other than those expressly set forth in applicable Littelfuse product documentation. Warranties granted by Littelfuse shall be deemed void for products used for any purpose not expressly set forth in applicable Littelfuse documentation. Littelfuse shall not be liable for any claims or damages arising out of products used in applications not expressly intended by Littelfuse as set forth in applicable Littelfuse and the by Littelfuse documentation. The sale and use of Littelfuse products used for any claims or damages arising out of products used in applications for expressly intended by Littelfuse as set forth in applicable Littelfuse forms and Conditions of Sale, unless otherwise agreed by Littelfuse. Information furnished is believed to be accurate and reliable. However, users should independently evaluate the suitability of and test each product selected for their own applications. Littelfuse are not designed for, and may not be used in, all applications. Read complete Disclaimer Notice at www.littelfuse.com/disclaimer-electronics.

© 2018 Littelfuse, Inc. Specifications are subject to change without notice. Revised: 12/13/18

Mouser Electronics

Authorized Distributor

Click to View Pricing, Inventory, Delivery & Lifecycle Information:

Littelfuse:

<u>0440.250WR</u> <u>0440.375WR</u> <u>0440.500WR</u> <u>0440.750WR</u> <u>0440001.WR</u> <u>0440002.WR</u> <u>0440003.WR</u> <u>0440004.WR</u> 0440005.WR 0440007.WR 0440008.WR 044001.5WR 044002.5WR 044003.5WR 04401.25WR 04401.75WR