304 Series
PICO® 277V Intrinsically Safe Fuse

Description

The PICO® 304 Series offers a range of suface mountable encapsulated fuses certified as intrinsically safe components that can be used in hazardous locations. Ideal for use in oil, gas, mine, chemical, pharmaceutical and process industries, the PICO® 304 Series surface mountable fuse was designed to limit the energy and temperature generated during its operation. The fuse design and its encapsulant are suitable for use in intrinsically safe apparatus and associated apparatus for peak voltage not exceeding 375V.

Features

- Surface Mountable
- Encapsulated and sealed (1mm minimum)
- High breaking capacity of 1500A at 277V AC/DC
- Current rating options from 0.050 to 0.750A
- Global hazardous location certifications
- Suitable for Class I, Class II, Class III, and Zone 0 Hazardous Location.
- RoHS-compliant

Applications

- Testing, measuring or processing electronic and electrical equipment
- Motor controllers
- Communication handsets/two-way radios
- Process control and automation
- Sensors
- Lighting
- Flow/gas meters

Agency Approvals

Agency	Agency File Number	Ampere Rating
Ex	DEMKO 13 ATEX 1200U Ex II 1 G Ex ia IIC	50 - 750mA
c UL us	E358130	50 - 750mA
IEC IECEx	IECEx UL 13.0077U Ex ia IIC	50 - 750mA
CE	NA	50 - 750mA

Reference Standards

Agency	Standards
ATEX	EN 60079-0, EN 60079-11, EN 60079-26
IECEx	IEC 60079-0, IEC 60079-11, IEC 60079-26
United States	UL 913, UL 60079-0, UL 60079-11, UL 248-1, UL 248-14
Canada	CAN/CSA C22.2 No. 157, CAN/CSA C22.2 No. 60079-0,CAN/CSA C22.2 No. 60079-11, CSA 248-1, CSA 248-14

Electrical Characteristics for Series

% of Ampere Rating	Opening Time
110%	4 Hours, Minimum
300%	10 Seconds, Maximum

Electrical Specifications by Items

Catalog Number	Ampere Rating (A)	Amp Code	Interrupting Rating	Nominal Melting I²t (A² Sec.)	Minimum Cold Resistance at -20°C (Ohms)	Minimum Cold Resistance at -40°C (Ohms)	Nominal Cold Resistance at 25°C (Ohms)	Agency Approvals			
								Ex	c UL us	IEC IECEx	CE
0304.050	0.050	.050	1500A @ 277VAC/DC	0.00019	9.202	9.010	12.00	X	X	X	X
0304.080	0.080	.080		0.00035	6.031	5.963	8.19	X	X	X	X
0304.100	0.100	.100		0.00070	2.709	2.668	5.00	X	X	X	X
0304.160	0.160	.160		0.00202	2.297	2.292	3.00	X	X	X	X
0304.200	0.200	.200		0.00288	1.935	1.839	2.68	X	X	X	X
0304.250	0.250	.250		0.00662	1.268	1.105	1.60	X	X	X	X
0304.500	0.500	.500		0.04462	0.392	0.368	0.46	X	X	X	X
0304.750	0.750	.750		0.13448	0.219	0.196	0.27	X	X	X	X

Notes: 1. The fuse must be mounted so that creepage and clearance distances are not impaired in any way.
2. The fuse is suitable for use in intrinsically safe equipment and associated apparatus for voltage not exceeding 375V peak.
3. Maximum surface temperature rise at 170% rated current: ≤200mA = 88°C, 250mA = 52°C, 500mA = 52°C, and 750mA = 45°C.

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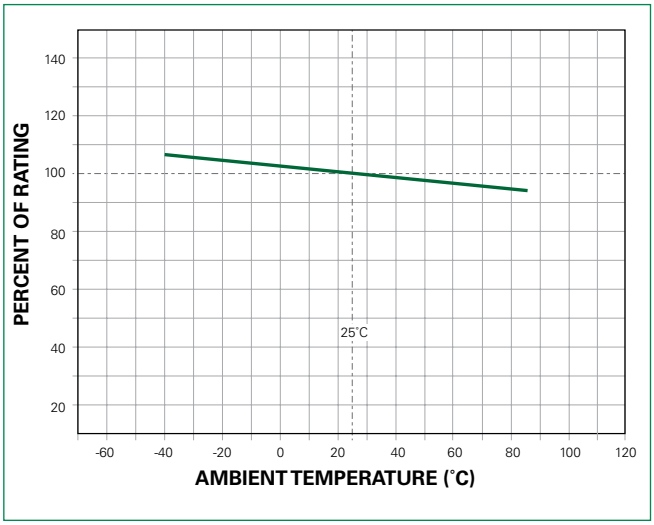
Temperature Rerating Curve



Notes:

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

2. The temperature rerating curve represents the nominal conditions. For questions about temperature rerating curve, please consult Littelfuse technical support for assistance.

Product Characteristics

Operating Temperature	
Current Rating	**Ambient Temperature**
≤0.200A	-40°C to +60°C
0.250A	-40°C to +56°C
0.500A	-40°C to +84°C
0.750A	-40°C to +56°C

Notes:

1. Any use of the 304 Series fuse outside of the ambient temperature ranges specified in the table is subject to additional investigation.

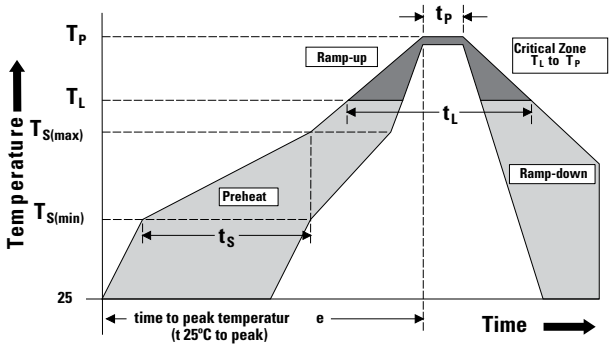
2. Specified ambient temperature range is for intrinsic safety certification.

Molding Material	Polyamide 6T/66 CTI 175 volts minimum Continuous Operating Temperature: 140°C
Thermal Shock	Withstands 5 cycles of –55°C to 125°C
Mechanical Shock	MIL-STD-202, Method 213
Insulation Resistance (After Opening)	Greater than 10,000 ohms (at twice rated DC voltage)
Resistance to Soldering Heat	MIL-STD-202, Method 210
Moisture Resistance	MIL-STD-202, Method 106
Salt Fog Test	MIL-STD-202, Method 101

Soldering Parameters

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 (Liquidus Temp (T_L) to peak)		5°C/second max
$T_{S(max)}$ to TL - 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)		20 – 40 seconds
Ramp-down Rate		5°C/second max
Time 25°C to Peak Temperature (T_P)		8 minutes max
Do not exceed		260°C

Wave Soldering	260°C, 10 sec. max



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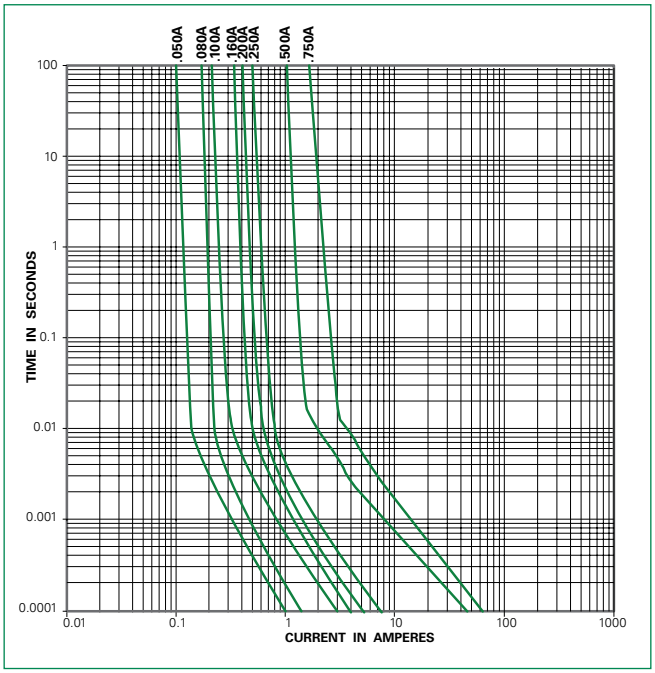
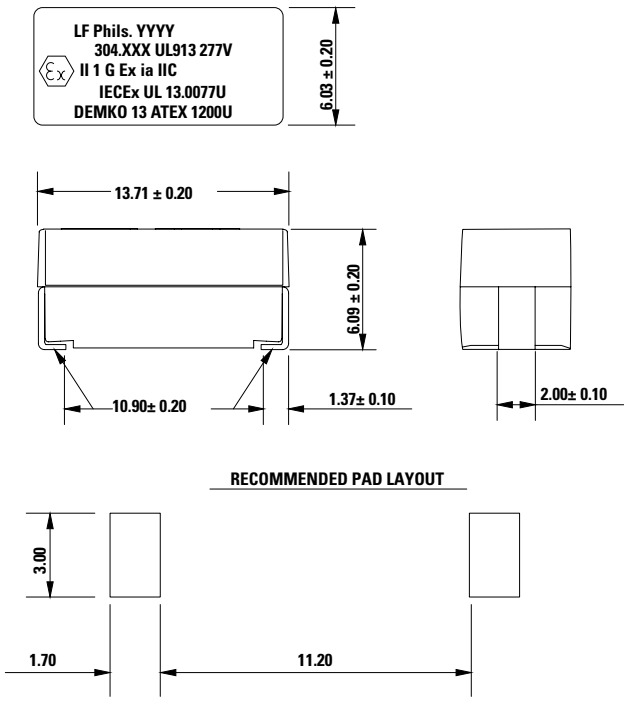
Average Time Current Curves



Dimensions (mm)



Part Numbering System

0304 .050 Z R

Series

AMP Code
Refer to Electrical Specifications table

Quantity Code
Z = 800 pcs
H = 100 pcs

Packaging Code
R = Tape and Reel

Packaging

Packaging Option	Packaging Specification	Quantity	Quantity & Packaging Code
24mm Tape and Reel	EIA 481-1	800	ZR
		100	HR

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Mouser Electronics

Authorized Distributor

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

Littelfuse:

0304.500HR 0304.750ZR 0304.200ZR 0304.160HR 0304.050HR 0304.100ZR 0304.250ZR 0304.750HR 0304.080HR 0304.500ZR 0304.160ZR 0304.100HR 0304.250HR 0304.200HR 0304.080ZR 0304.050ZR