

# PICO® 304 Series - 277V UL913 Intrinsically Safe Fuse











# **Agency Approvals**

Agency	Agency File Number	Ampere Rating		
$\langle E_X \rangle$	DEMKO 13 ATEX 1200U	50 - 750mA		
c <b>SU</b> °us	E358130	50 - 750mA		
IEC TECEX	IECEx UL 13.0077U	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
UL	UL 913, UL 60079-0, UL 60079-11
cUL	CAN/CSA C22.2 No. 157, CAN/CSA C22.2 No. 60079-0, CAN/CSA C22.2 No. 60079-11

# **Description**

The PICO® 304 Series offers a range of suface mountable encapsulated fuses certified under UL 913, the standard for intrinsically safe electrical equipment, to operate in hazardous locations. Ideal for use in oil, gas, mine, chemical, and pharmaceutical 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 an intrinsically safe apparatus and associated apparatus for peak voltage not exceeding 375V.

### **Features**

- High Interrupting Rating of Designed for operation
- Well suited for 277V application
- · Current rating options from 0.050 to 0.750A
- in a range of hazardous environments
- · Encapsulated and sealed (1mm minimum)
- Surface Mount Device

### **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

## **Electrical Characteristics for Series**

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

### **Electrical Specifications by Items**

Catalog	log Ampere Amp		Interrupting	Nominal Minimum Cold	Minimum Cold	Nominal Cold	Agency Approvals			
Number	Rating (A)	Code	Rating	Melting I <sup>2</sup> t (A <sup>2</sup> Sec.)	Resistance at -20°C (Ohms)	Resistance at -40°C (Ohms)	Resistance at 25°C (Ohms)	(Ex)	c <b>71</b> 2 us	IEC ECEX
0304.050	0.050	.050		0.00019	9.202	9.010	12.00	X	×	X
0304.080	0.080	.080		0.00035	6.031	5.963	8.19	X	X	Х
0304.100	0.100	.100		0.00070	2.709	2.668	5.00	X	X	X
0304.160	0.160	.160	1500A @	0.00202	2.297	2.292	3.00	X	X	X
0304.200	0.200	.200	277VAC/DC	0.00288	1.935	1.839	2.68	X	X	X
0304.250	0.250	.250		0.00662	1.268	1.105	1.60	X	X	X
0304.500	0.500	.500		0.04462	0.392	0.368	0.46	X	X	Х
0304.750	0.750	.750		0.13448	0.219	0.196	0.27	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



## **Product Characteristics**

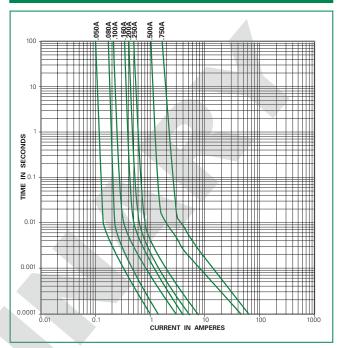
Operating Temperature				
Current Rating	Ambient Temperature			
≤0.200A	-40°C to +60°C			
0.250A	-40°C to +56°C			
0.500A	-40°C to +84°C			
0.750A	-40°C to +56°C			

#### Note

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

Thermal Shock	Withstands 5 cycles of -55°C to 125°C	
Vibration	Per MIL-STD-202	
Insulation Resistance (After Opening)	Greater than 10,000 ohms (at twice rated DC voltage)	

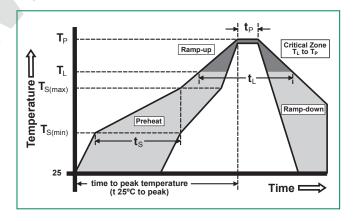
# **Average Time Current Curves**



# **Soldering Parameters**

Reflow Cond	Pb-free assembly			
	-Temperature Min (Ts(min))	150°C		
Pre Heat	-Temperature Max (Ts(max))	200°C		
	-Time (Min to Max) (t <sub>s</sub> )	60 - 120 seconds		
Average Ram (Liquidus Tem	p-up Rate np (TL) to peak)	5°C/second max		
Ts(max) to TL -	Ramp-up Rate	5°C/second max		
Reflow	-Temperature (TL) (Liquidus)	217°C		
Henow	- Temperature (tL)	60 - 90 seconds		
Peak Tempera	ature (T <sub>P</sub> )	260 <sup>+0/-5</sup> °C		
Time within 5 actual peak Te	20 -40 seconds			
Ramp-down I	5°C/second max			
Time 25°C to	Peak Temperature (T <sub>P</sub> )	8 minutes max		
Do not excee	d	260°C		

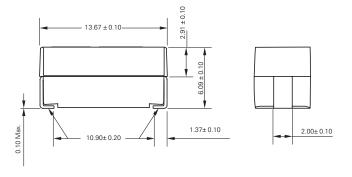
Wave Soldering	260°C, 10 sec. max
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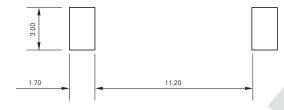


### **Dimensions (mm)**

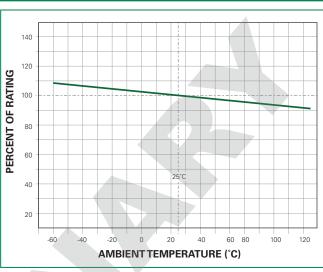




### RECOMMENDED PAD LAYOUT



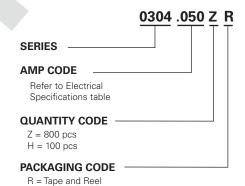
### **Temperature Rerating Curve**



Note:

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

### **Part Numbering System**



# **Packaging**

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