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PRODUCT DATASHEET

PTC Devices

A250 Series PTC Devices

Description

The JDTFUSE A250 Series is designed to protect against short duration high voltage fault currents (power cross or power induction surge) typically found in telecom applications (250Vrms). The series can be used to help telecom networking equipment meet the protection requirements specified in ITU K.20 and K.21.

Features

- 0.08 - 0.18A hold current range, 60VDC operating voltage
- 250VAC interrupt rating
- Fast time-to-trip
- Binned and sorted narrow resistance ranges available
- RoHS compliant, Lead-Free and Halogen-Free*

Agency Approvals

Agency	File Number
	E472196
	pending

Applications

- Customer Premises Equipment (CPE)
- Central Office (CO)/telecom centers
- LAN/WAN equipment
- Access equipment

Regulation	Standard
	2002/95/EC
	EN14582

Performance Specification

Model	I _{hold} @25°C (A)	I _{trip} @25°C (A)	V _{max} Operating (V dc)	V _{max} Interrupt (Vrms)	I _{max} (A)	P _d Typ. (W)	Maximum Time To Trip		Resistance		
							Current (A)	Time (Sec)	R _{i min} (Ω)	R _{i max} (Ω)	R _{1max} (Ω)
A250-080	0.080	0.160	60	250	3.0	1.00	0.35	3.00	12.0	22.0	33.0
A250-110	0.110	0.220	60	250	3.0	1.00	1.00	1.10	6.0	12.0	16.0
A250-120	0.120	0.240	60	250	3.0	1.00	1.00	1.50	6.5	10.5	16.0
A250-145	0.145	0.290	60	250	3.0	1.00	1.00	2.50	3.5	6.5	14.0
A250-180	0.180	0.360	60	250	10.0	1.50	1.00	18.00	1.0	2.0	2.50
A250-200	0.200	0.400	60	250	10.0	1.50	1.00	15.00	1.5	3.0	4.50

I_{hold} = Hold Current. Maximum current device will not trip in 25°C still air.

I_{trip} = Trip Current. Minimum current at which the device will always trip in 25°C still air.

V_{max} = Maximum operating voltage device can withstand without damage at rated current (I_{max}).

I_{max} = Maximum fault current device can withstand without damage at rated voltage (V_{max}).

P_d = Power dissipation when device is in the tripped state in 25°C still air environment at rated voltage.

R_{i min/max} = Minimum/Maximum device resistance prior to tripping at 25°C.

R_{1max} = Maximum device resistance is measured one hour post reflow.

CAUTION : Operation beyond the specified ratings may result in damage and possible arcing and flame.

Environmental Specifications

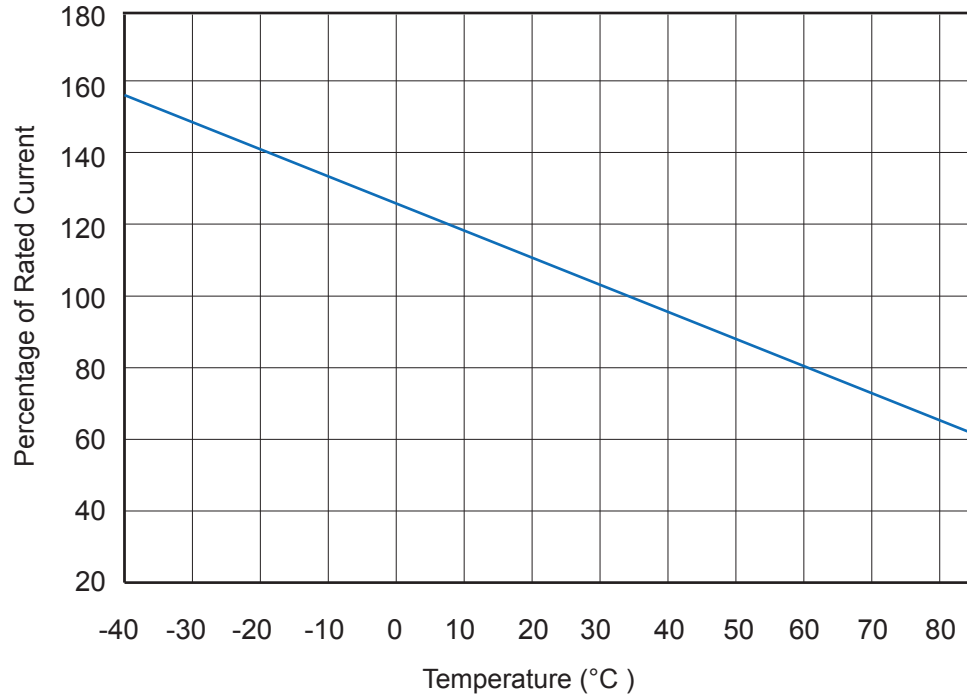
Test	Conditions	Resistance change
Passive aging	+85°C, 1000 hrs.	±5% typical
Humidity aging	+85°C, 85% R.H. , 168 hours	±5% typical
Thermal shock	+85°C to -40°C, 20 times	±33% typical
Resistance to solvent	MIL-STD-202,Method 215	No change
Vibration	MIL-STD-202,Method 201	No change

Ambient operating conditions : - 40 °C to +85 °C

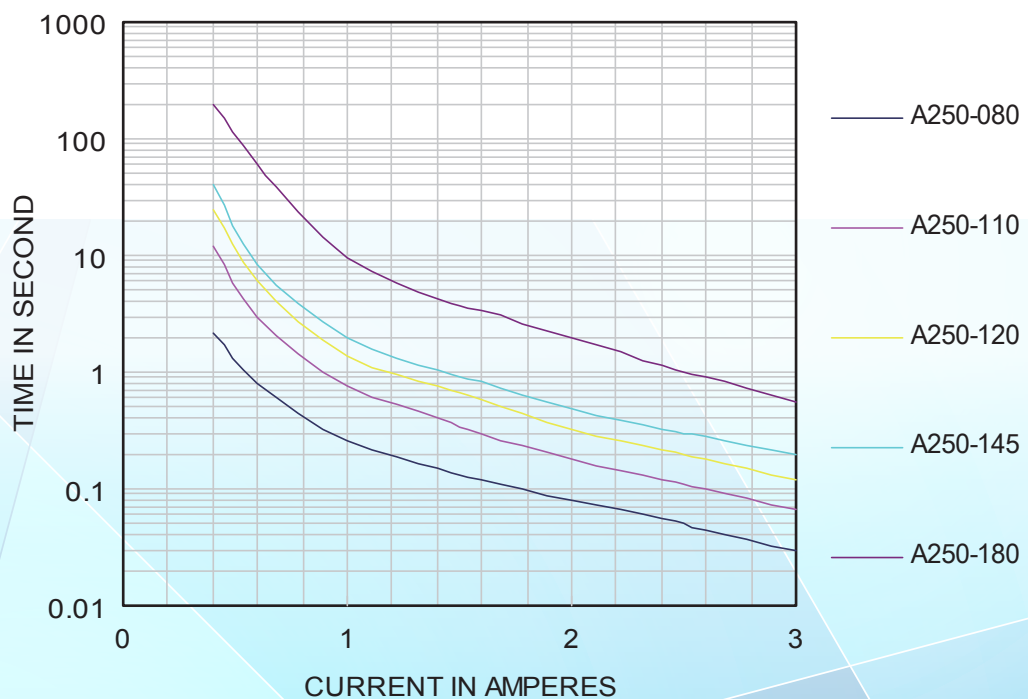
Maximum surface temperature of the device in the tripped state is 125 °C

Thermal Derating Curve

Derating Curves for A250 Series



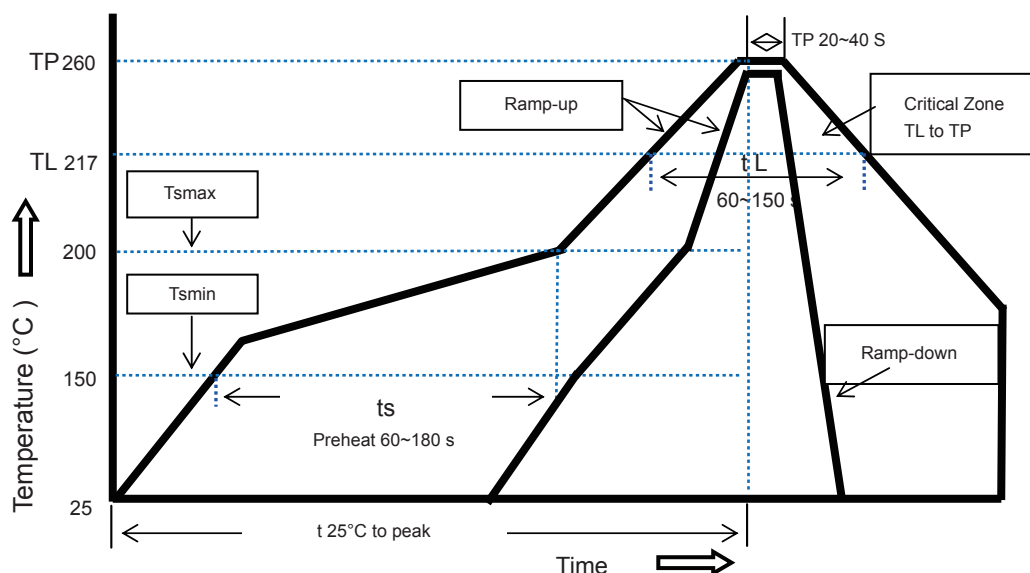
Average Time-Current Curve



I_{hold} Versus Temperature

Model	Maximum ambient operating temperature (T _{mao}) vs. hold current (I _{hold})								
	- 40°C	- 20°C	0°C	25°C	40°C	50°C	60°C	70°C	85°C
A250-080	0.124	0.110	0.095	0.080	0.066	0.059	0.051	0.044	0.033
A250-110	0.171	0.151	0.131	0.110	0.091	0.081	0.071	0.061	0.046
A250-120	0.186	0.165	0.143	0.120	0.099	0.088	0.077	0.066	0.050
A250-145	0.225	0.199	0.172	0.145	0.119	0.106	0.093	0.080	0.060
A250-180	0.279	0.247	0.213	0.180	0.147	0.131	0.115	0.099	0.074
A250-200	0.264	0.243	0.220	0.200	0.182	0.175	0.163	0.154	0.143

Soldering Parameters



Profile Feature

Pb-Free Assembly

Average Ramp-Up Rate 3°C/second max.

(T_s max to T_p)

Preheat

-Temperature Min(T _s min)	150°C
-Temperature Max(T _s max)	200°C
-Time(T _s min to T _s max)	60~180 seconds

Time maintained above:

-Temperature(T _L)	217°C
-Time(t _L)	60~150 seconds

Peak Temperature(T_p) 260°C

Ramp-Down Rate 6°C/second max.

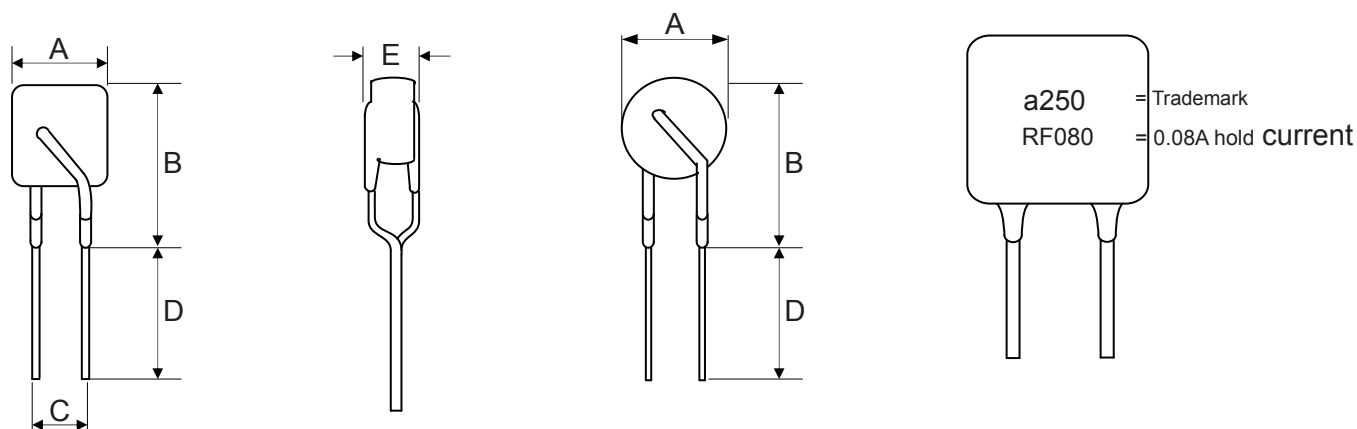
Time 25°C to Peak Temperature 8 minutes max

Storage Condition 0°C~35°C, ≤70%RH

Recommended reflow methods: IR, vapor phase oven, hot air oven, N₂ environment for lead-free
Recommended maximum paste thickness is 0.25mm
Devices can be cleaned using standard industry methods and solvents.

Note 1: All temperature refer to topside of the package, measured on the package body surface.

Note 2: If reflow temperatures exceed the recommended profile, devices may not meet the performance requirements.

Physical Dimensions(mm.)


Model	A Max.	B Typ.	C Max.	D Min.	E Max.
A250-080	5.8	9.9	5.1	5.0	3.8
A250-110	6.5	11.0	5.1	5.0	3.8
A250-120	7.1	11.0	5.1	5.0	3.8
A250-145	7.1	11.0	5.1	5.0	3.8
A250-180	9.0	12.6	5.1	5.0	3.8
A250-200	9.0	12.6	5.1	5.0	4.7

PHYSICAL SPECIFICATIONS :

Materials : A250- 080~180: Tin-plated copper, 22AWG, $\Phi 0.65\text{mm}$ (0.026 in).
Lead Solderability : MIL-STD-202, Method 208E

Packaging Quantity

A250	120	T	RA	B-0.5	KR or KU	Reel QTY	Bag QTY
Product name	Hold Current	T= Pre-tripped U= Uncoated Blank= Standard	Rx= Resistance range (Optional)	B-x.x= Resistance Bin Range within 0.5ohm in one lot. (Optional)	K=Kink leads R=Tape&Reel U=Bulk package	1500	500

Tape & Reel packaging per EIA468-B standard.

Cross Reference

Model	Cross Reference		
	Tyco / PolySwitch®	Bourns / POLY-FUSE®	Polytronics / EVERFUSE®
A250-080	TRF250-080	-	HVR250P080CF
A250-110	-	-	-
A250-120	TRF250-120	MF-RX012/250	HVR250P120CF
A250-145	TRF250-145	MF-RX014/250	HVR250P145CF
A250-180	TRF250-180	MF-RX018/250	HVR250P180CF
A250-200	TRF250-200	MF-RX020/250	HVR250P200CF

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