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PRODUCT DATASHEET

PTC Devices

A250 Series PTC Devices

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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

- 0.03 - 1.0A 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
c UL us	E472196
BAUART GEPRUFT TYPE APPROVED	pending

Regulation	Standard
RoHS	2002/95/EC
Halogen Free	EN14582

Applications

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

Performance Specification

Model	I_{hold} @25°C (A)	I_{trip} @25°C (A)	Vmax Vint / Vop	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)
A250-030	0.03	0.06	250/60	3.0	1.00	0.15	0.40	40.0	90.0	140.0
A250-040	0.04	0.08	250/60	3.0	1.00	0.20	0.45	33.0	65.0	98.0
A250-050	0.05	0.10	250/60	3.0	1.00	0.25	0.45	24.0	60.0	90.0
A250-060	0.06	0.12	250/60	3.0	1.00	0.30	0.50	22.0	32.0	48.0
A250-080	0.08	0.16	250/60	3.0	1.00	0.40	3.00	14.0	22.0	33.0
A250-090	0.09	0.18	250/60	3.0	1.00	0.45	3.00	10.0	20.0	30.0
A250-110	0.11	0.22	250/60	3.0	1.00	0.50	0.75	7.0	11.0	17.0
A250-120	0.12	0.24	250/60	3.0	1.00	0.60	0.75	6.0	12.0	14.0
A250-145	0.145	0.29	250/60	3.0	1.00	0.725	2.50	3.5	6.5	12.0
A250-180	0.18	0.36	250/60	10.0	1.00	0.90	15.0	0.8	2.0	3.0
A250-200	0.20	0.40	250/60	10.0	1.50	1.00	15.0	1.5	3.0	5.0
A250-300	0.30	0.60	250/60	10.0	1.50	1.50	1.50	1.0	1.24	1.9
A250-400	0.40	0.80	250/60	10.0	2.50	2.00	10.0	0.75	1.10	1.7
A250-500	0.50	1.00	250/60	10.0	2.50	2.50	1.50	0.50	0.80	1.2
A250-600	0.60	1.20	250/60	10.0	3.00	3.00	10.0	0.5	0.75	1.2
A250-800	0.80	1.60	250/60	10.0	3.50	4.00	8.00	0.45	0.70	1.1
A250-1000	1.00	2.00	250/60	10.0	4.00	5.00	10.0	0.28	0.45	0.7

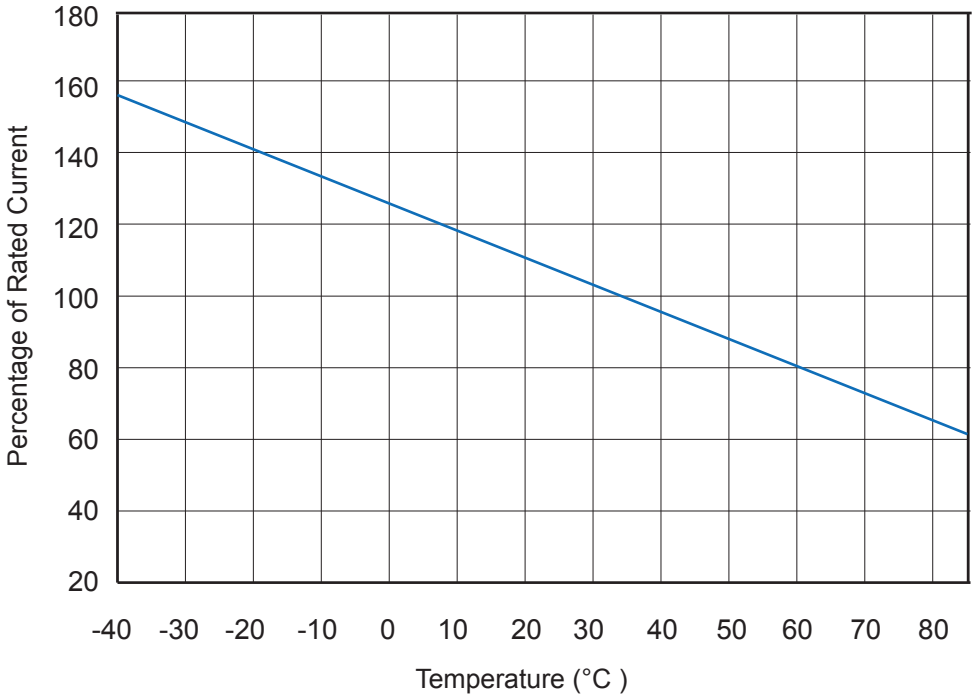
I_{hold} = Hold Current. Maximum current device will not trip in 25°C still air.
I_{trip} = Trip Current. Minimum current at which the device will always trip in 25°C still air.
V_{max} = Maximum operating voltage device can withstand without damage at rated current (Imax).
I_{max} = Maximum fault current 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

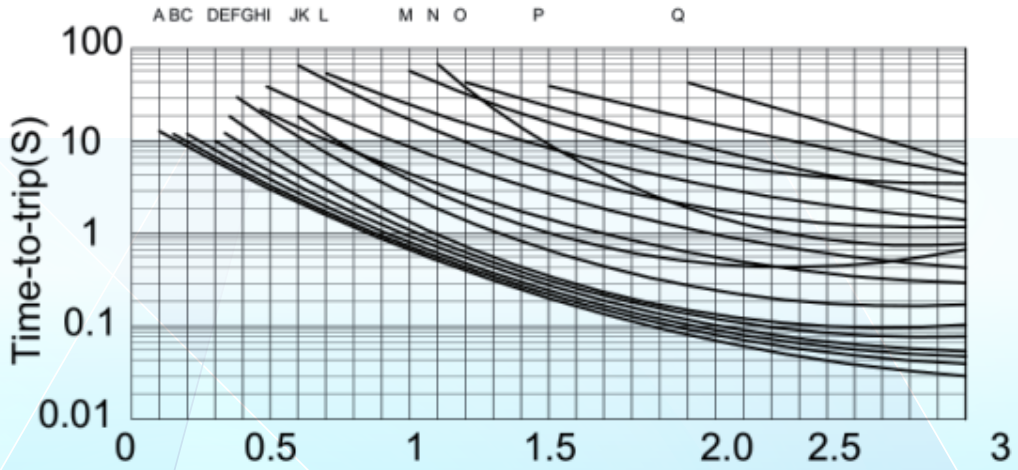
Test	Conditions	Resistance change
Passive aging	+85°C, 1000 hrs.	±5% typical
Humidity aging	+85°C, 85% R.H. , 168 hours	±5% typical
Thermal shock	+85°C to -40°C, 20 times	±33% typical
Resistance to solvent	MIL-STD-202,Method 215	No change
Vibration	MIL-STD-202,Method 201	No change
Ambient operating conditions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



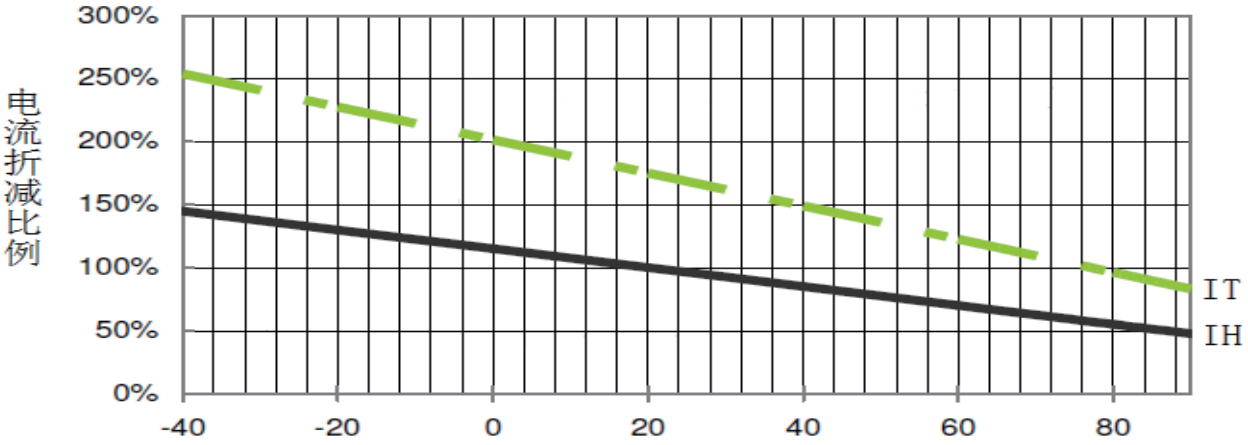
Average Time-Current Curve



A=A250-030
B=A250-040
C=A250-050
D=A250-060
E=A250-080
F=A250-090
G=A250-110
H=A250-120
I=A250-145
J=A250-180
K=A250-200
L=A250-300
M=A250-400
N=A250-500
O=A250-600
P=A250-800
Q=A250-1000

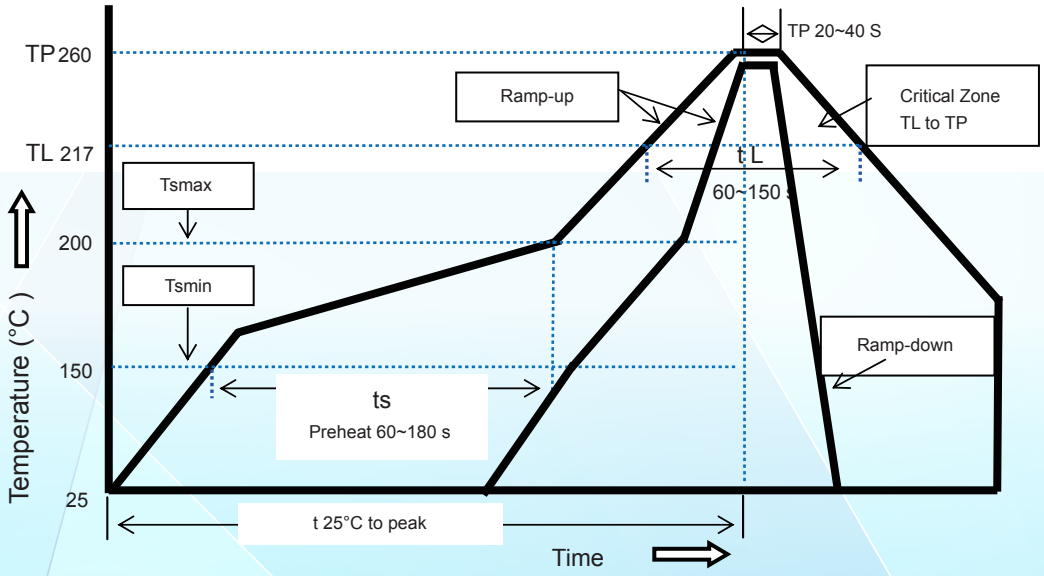
I_{hold} Versus Temperature

温度	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
折减百分比	0.124	0.110	0.095	0.080	0.066	0.059	0.051	0.044	0.033



引线材料：AR030-AR1000镀锡铜包钢线
绝缘材料：环氧树脂聚合物符合UL94-V-0要求

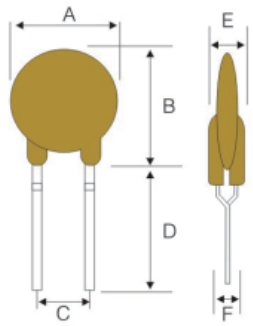
Soldering Parameters



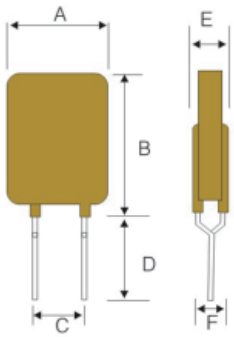
Profile Feature	Pb-Free Assembly
Average Ramp-Up Rate (Ts max to T p)	3℃/second mac.
Preheat	
-Temperature Min(Ts min)	150℃
-Temperature Max(Ts max)	200℃
-Time(Ts min to Ts max)	60~180 seconds
Time maintained above:	
-Temperature(TL)	217℃
-Time(tL)	60~150 seconds
Peak Temperature(Tp)	260℃
Ramp-Down Rate	6℃/second max.
Time 25℃ to Peak Temperature	8 minutes max
Storage Condition	0℃~35℃,≤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.

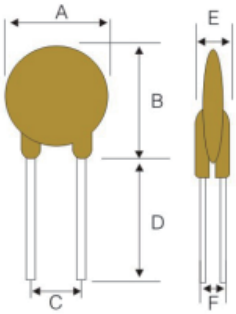
Physical Dimensions(mm.)



图片FIG1



图片FIG2



图片FIG3

Model	A Max.	B Typ.	C Max.	D Min.	E Max.	FIG
A250-030	5.8	9.9	5.1	7.6	3.8	1
A250-040	5.8	9.9	5.1	7.6	3.8	1
A250-050	5.8	9.9	5.1	7.6	3.8	1
A250-060	5.8	9.9	5.1	7.6	3.8	1
A250-080	5.8	9.9	5.1	7.6	3.8	1
A250-090	5.8	9.9	5.1	7.6	3.8	1
A250-110	7.8	11.5	5.1	7.6	3.8	2
A250-120	7.8	11.5	5.1	7.6	3.8	2
A250-145	7.8	11.5	5.1	7.6	3.8	2
A250-180	9.0	13.0	5.1	7.6	3.5	1
A250-200	9.0	13.0	5.1	7.6	3.5	1
A250-300	9.0	13.0	5.1	7.6	3.5	1
A250-400	9.5	16.0	5.1	7.6	3.5	3
A250-500	11.0	15.8	5.1	7.6	3.5	3
A250-600	11.0	15.8	5.1	7.6	3.5	3
A250-800	11.0	15.8	5.1	7.6	3.5	3
A250-1000	14.0	19.1	5.1	7.6	3.5	3

PHYSICAL SPECIFICATIONS :

Materials : A250- 030~400: Tin-plated copper, 22AWG, Φ0.6mm(0.026 in) A250-500~1000Φ0.8mm(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	Hold	T= Pre-tripped	Rx=	B-x.x=	K=Kink leads		
name	Current	U= Uncoated	Resistance	Resistance Bin	R=Tape&Reel		
250V	(mA)	Blank= Standard	range	Range within 0.5ohm	U=Bulk package	1500	500
			(Optional)	in one lot. (Optional)			

Tape & Reel packaging per EIA468-B standard.

Cross Reference

Model	Cross Reference		
	Tyco / PolySwitch®	Bourns / POLY-FUSE®	Polytronics / EVERFUSE®
A250-030	-	-	-
A250-040	-	-	-
A250-050	-	-	-
A250-060	-	-	-
A250-080	TRF250-080	-	HVR250P080CF
A250-090	-	-	-
A250-110	TRF250-110	-	-
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	-	-	-
A250-300	-	-	-
A250-400	-	-	-
A250-500	-	-	-
A250-600	-	-	-
A250-800	-	-	-
A250-1000	-	-	-