

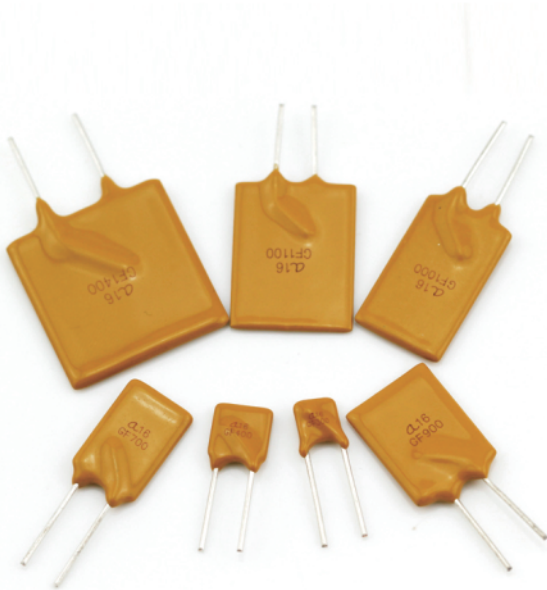


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PRODUCT DATASHEET

PTC Devices

## A16 Series PTC Devices




## Description

JDTFUSE A16 Series Radial Leaded PTCs are designed to provide resettable overcurrent protection serving a wide range of electronics applications. With maximum 16 voltage and maximum 40-ampere short circuit rating, they offer an ideal solution for USB protection.

## Features



- 100A short circuit rating
- 16V Operating voltages
- Fast time-to-trip
- Meets all USB protection requirements
- RoHS compliant, Lead-Free and Halogen-Free\*

## Agency Approvals

Agency	File Number
	E472196

## Applications

- Computers & peripherals
- Any USB applications
- Motor protection
- General Electronics

Regulation	Standard
	2002/95/EC
	EN14582

## Performance Specification

Model	V <sub>max</sub> (V <sub>dc</sub> )	I <sub>max</sub> (A)	I <sub>hold</sub> @25°C (A)	I <sub>trip</sub> @25°C (A)	P <sub>d</sub> Typ. (W)	Maximum Time To Trip		Resistance		
						Current (A)	Time (Sec)	R <sub>i min</sub> (Ω)	R <sub>i max</sub> (Ω)	R <sub>1max</sub> (Ω)
A16-030	16	40	0.30	0.60	0.30	1.50	1.00	0.300	0.900	1.30
A16-050	16	40	0.50	1.00	0.40	2.50	1.10	0.200	0.500	0.76
A16-065	16	40	0.65	1.30	0.60	3.25	5.00	0.120	0.480	0.65
A16-075	16	40	0.75	1.50	0.30	3.75	4.80	0.100	0.320	0.40
A16-090	16	40	0.90	1.80	0.60	4.50	1.20	0.090	0.180	0.25
A16-110	16	40	1.10	2.20	0.70	5.50	2.30	0.060	0.150	0.24
A16-120	16	40	1.20	2.40	0.60	6.00	5.50	0.050	0.180	0.24
A16-135	16	40	1.35	2.70	0.80	6.75	4.50	0.040	0.130	0.19
A16-160	16	40	1.60	3.20	0.90	8.00	9.00	0.030	0.110	0.20
A16-185	16	40	1.85	3.70	1.00	9.25	10.0	0.030	0.100	0.16
A16-200	16	40	2.00	4.00	2.40	10.0	15.0	0.018	0.075	0.14
A16-250	16	40	2.50	5.00	1.30	7.50	15.0	0.020	0.070	0.12
A16-300	16	40	3.00	5.10	2.30	15.0	2.00	0.020	0.070	0.11
A16-400	16	40	4.00	6.80	2.40	20.0	3.50	0.020	0.040	0.08
A16-500	16	40	5.00	8.50	2.60	25.0	3.60	0.014	0.025	0.033
A16-600	16	40	6.00	10.20	2.80	30.0	5.80	0.001	0.021	0.031
A16-700	16	40	7.00	11.90	3.00	35.0	8.00	0.008	0.015	0.022
A16-800	16	40	8.00	13.60	3.00	40.0	9.00	0.006	0.013	0.021
A16-900	16	40	9.00	15.30	3.30	40.0	12.0	0.004	0.012	0.018
A16-1000	16	40	10.00	17.00	3.60	40.0	12.5	0.004	0.011	0.015
A16-1100	16	40	11.00	18.70	3.70	40.0	13.5	0.003	0.009	0.013
A16-1200	16	40	12.00	20.40	4.20	40.0	16.0	0.003	0.008	0.012
A16-1400	16	40	14.00	23.80	4.60	40.0	20.0	0.003	0.007	0.011

I<sub>hold</sub> = Hold Current. Maximum current device will not trip in 25°C still air.

I<sub>trip</sub> = Trip Current. Minimum current at which the device will always trip in 25°C still air.

V<sub>max</sub> = Maximum operating voltage device can withstand without damage at rated current (I<sub>max</sub>).

I<sub>max</sub> = Maximum fault current device can withstand without damage at rated voltage (V<sub>max</sub>).

P<sub>d</sub> = Power dissipation when device is in the tripped state in 25°C still air environment at rated voltage.

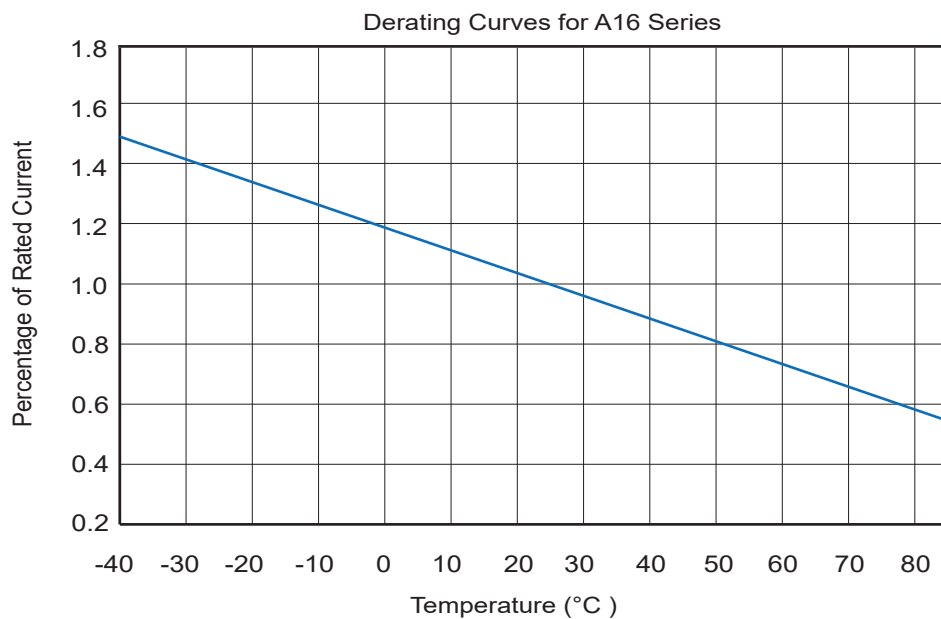
R<sub>i min/max</sub> = Minimum/Maximum device resistance prior to tripping at 25°C.

R<sub>1max</sub> = Maximum device resistance is measured one hour post reflow.

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

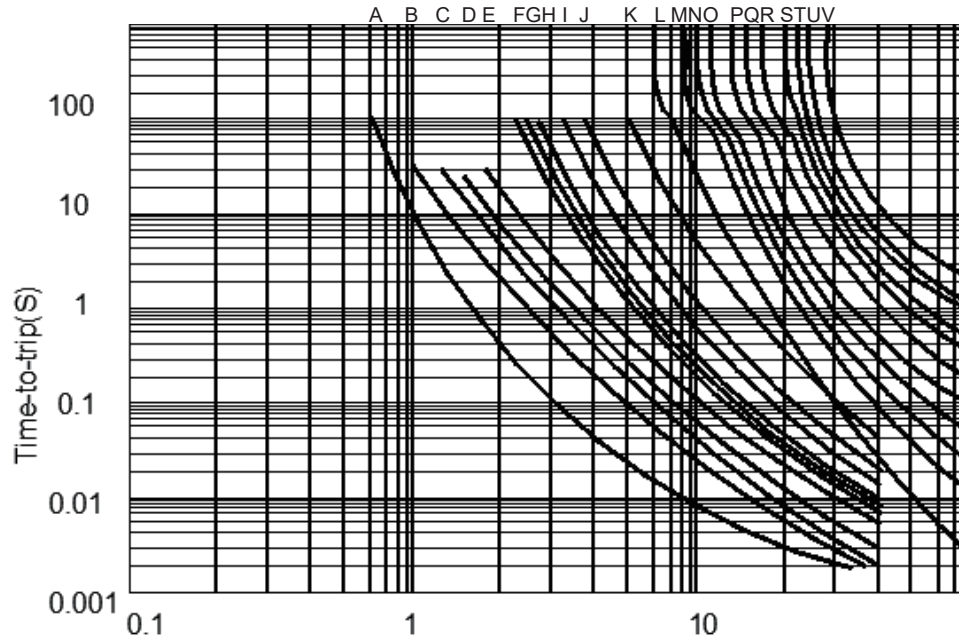
**Environmental Specifications**

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		

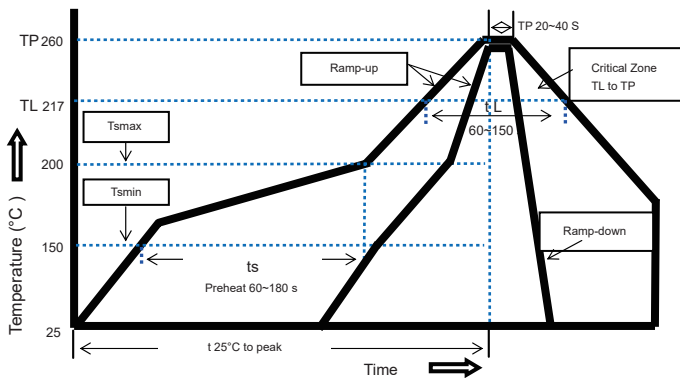
**Thermal Derating Curve**


## Average Time-Current Curve

- A=A16-030
- B=A16-050
- C=A16-065
- D=A16-075
- E=A16-090
- F=A16-110
- G=A16-120
- H=A16-135
- I=A16-160
- J=A16-185
- K=A16-250
- L=A16-300
- M=A16-400
- N=A16-500
- O=A16-600
- P=A16-700
- Q=A16-800
- R=A16-900
- S=A16-1000
- T=A16-1100
- U=A16-1200
- V=A16-1400

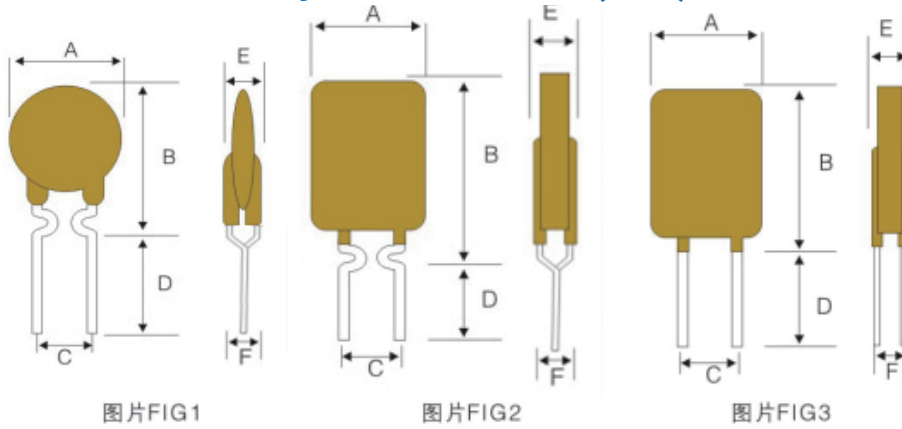


## Soldering Parameters



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.

Profile Feature	Pb-Free Assembly
Average Ramp-Up Rate (Ts max to T p)	3°C/second max.
Preheat	
-Temperature Min(Ts min)	150°C
-Temperature Max(Ts max)	200°C
-Time(Ts min to Ts max)	60~180 seconds
Time maintained above:	
-Temperature(TL)	217°C
-Time(tL)	60~150 seconds
Peak Temperature(Tp)	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

**Physical Dimensions(mm.)**


Model	A Max.	B Max.	C Typ.	D Min.	E Max.	FIG
A16-030	5.50	13.0	5.10±0.5	7.6	3.1	1
A16-050	5.50	12.0	5.10±0.5	7.6	3.0	1
A16-065	6.90	12.0	5.10±0.5	7.6	3.0	1
A16-075	7.40	13.0	5.10±0.5	7.6	3.0	1
A16-090	7.40	13.0	5.10±0.5	7.6	3.0	1
A16-110	7.40	14.4	5.10±0.5	7.6	3.0	1
A16-120	7.40	14.4	5.10±0.5	7.6	3.0	2
A16-135	8.90	15.9	5.10±0.5	7.6	3.0	2
A16-160	8.90	16.7	5.10±0.5	7.6	3.0	2
A16-185	10.7	17.7	5.10±0.5	7.6	3.0	2
A16-200	8.9	14.8	5.10±0.5	7.6	3.0	2
A16-250	9.00	14.0	5.10±0.5	7.6	3.0	2
A16-300	9.00	12.0	5.10±0.5	7.6	3.0	3
A16-400	10.0	13.0	5.10±0.5	7.6	3.0	3
A16-500	10.7	17.5	5.10±0.5	7.6	3.0	3
A16-600	13.5	17.5	5.10±0.5	7.6	3.0	3
A16-700	13.5	23.0	5.10±0.5	7.6	3.0	3
A16-800	13.5	23.0	5.10±0.5	7.6	3.0	3
A16-900	15.0	24.0	5.10±0.5	7.6	3.0	3
A16-1000	18.0	26.0	5.10±0.5	7.6	3.0	3
A16-1100	18.0	26.0	5.10±0.5	7.6	3.0	3
A16-1200	22.5	28.0	5.10±0.5	7.6	3.5	3
A16-1400	24.5	30.0	10.2±0.5	7.6	3.5	3

**PHYSICAL SPECIFICATIONS :**

Materials : Leads A16-030 ~ 250: Tin plated copper-clad steel,24AWG(0.51mm/0.020" Dia.)  
A16-300 ~ 1100: Tin plated copper, 20AWG(0.81mm/0.032"Dia)  
A16-1200 ~ 1400: Tin plated copper, 18 AWG(1.0mm/0.04" Dia.)

Lead Solderability : MIL-STD-202, Method 208E

Device Labeling : Device is marked with Logo, amperage rating, voltage rating & date code.

**Packaging Quantity**

Model	Reel QTY	Bag QTY
A16-030 ~ A16-600	3000	500
A16-700 ~ A16-900	1500	500
A16-1000 ~ A16-1400	-	500

Tape & Reel packaging per EIA468-B standard.

**Cross Reference**

Model	Cross Reference		
	Tyco / PolySwitch®	Bourns / POLY-FUSE®	Polytronics / EVERFUSE®
A16-030	-	-	-
A16-050	-	-	-
A16-065	-	-	-
A16-075	-	MF-RHT070	-
A16-090	RUEF090	MF-RHT090	RLD16P090BF
A16-110	RUEF110	-	RLD16P110BF
A16-120	RUEF120	-	-
A16-135	RUEF135	-	RLD16P135BF
A16-160	RUEF160	-	RLD16P160BF
A16-185	RUEF185	-	RLD16P185BF
A16-250	RUSBF250/RUEF250	-	RLD16P250BF
A16-300	RUEF300	MF-RG300	RLD16P300BF
A16-400	RUEF400	MF-RHT450	RLD16P400BF
A16-500	RUEF500	MF-RG500	RLD16P500BF
A16-600	RUEF600	MF-RHT650	RLD16P600BF
A16-700	RUEF700	MF-RHT750	RLD16P700BF
A16-800	RUEF800	-	RLD16P800BF
A16-900	RUEF900	-	RLD16P900BF
A16-1000	RUEF1000	-	RLD16P1000BF
A16-1100	RUEF1100	MF-R1100	RLD16P1100BF
A16-1200	RUEF1200	-	RLD16P1200BF
A16-1400	RUEF1400	MF-RHT1300	RLD16P1400BF

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