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PRODUCT DATASHEET

PTC Devices

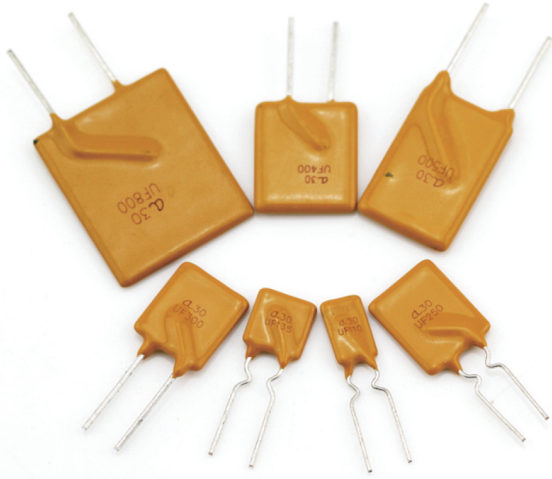
## A30 Series PTC Devices

## Description

The JDTFUSE A30 Series radial leaded device is designed to provide overcurrent protection for low voltage ( $\leq 30V$ ) applications where space is not a concern and resettable protection is preferred.

## Features

- Cured, flame retardant epoxy polymer insulating material meets UL 94V-0 requirements
- Fast time-to-trip
- RoHS compliant, Lead-Free and Halogen-Free\*





## Agency Approvals

Agency	File Number
	E472196

## Applications

- USB hubs, ports and peripherals
- Computers & peripherals
- Motor protection
- General electronics
- Automotive applications

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)
A30-030	30	40	0.30	0.60	0.44	1.50	3.00	0.300	1.100	1.600
A30-040	30	40	0.40	0.80	0.45	2.00	5.00	0.200	0.900	1.300
A30-050	30	40	0.50	1.00	0.5	2.50	4.10	0.250	0.600	1.200
A30-065	30	40	0.65	1.30	0.47	3.25	5.00	0.200	0.500	0.800
A30-070	30	40	0.70	1.40	0.6	3.50	4.30	0.140	0.220	0.350
A30-075	30	40	0.75	1.50	0.6	3.75	5.20	0.120	0.370	0.420
A30-090	30	40	0.90	1.80	0.6	4.50	5.90	0.070	0.220	0.300
A30-110	30	40	1.10	2.20	0.7	5.50	6.60	0.050	0.200	0.260
A30-135	30	40	1.35	2.70	0.8	6.75	7.30	0.040	0.160	0.220
A30-160	30	40	1.60	3.20	0.9	8.00	8.00	0.030	0.140	0.180
A30-185	30	40	1.85	3.70	1.0	9.25	8.70	0.030	0.120	0.150
A30-250	30	40	2.50	5.00	1.2	12.5	10.3	0.020	0.080	0.100
A30-300	30	40	3.00	6.00	2.0	15.0	10.8	0.020	0.070	0.100
A30-400	30	40	4.00	8.00	2.5	20.0	12.7	0.010	0.060	0.090
A30-500	30	40	5.00	10.00	3.0	25.0	14.5	0.010	0.050	0.080
A30-600	30	40	6.00	12.00	3.5	30.0	16.0	0.005	0.040	0.060
A30-700	30	40	7.00	14.00	3.8	35.0	17.5	0.005	0.030	0.050
A30-800	30	40	8.00	16.00	4.0	40.0	18.8	0.005	0.025	0.180
A30-900	30	40	9.00	18.00	4.2	40.0	20.0	0.005	0.020	0.025

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.

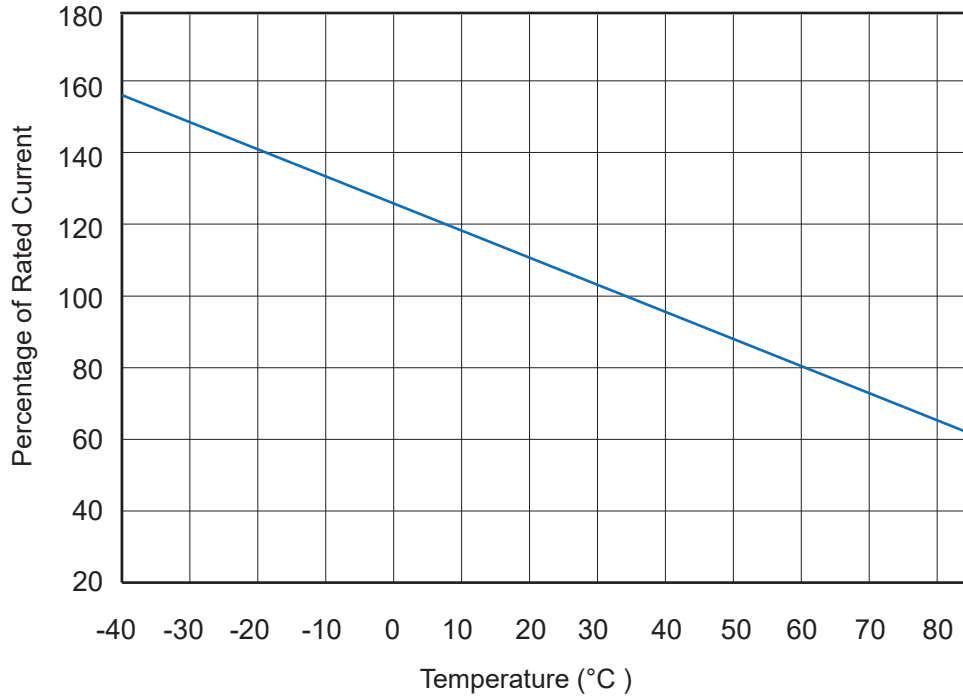
## Environmental Specifications

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		

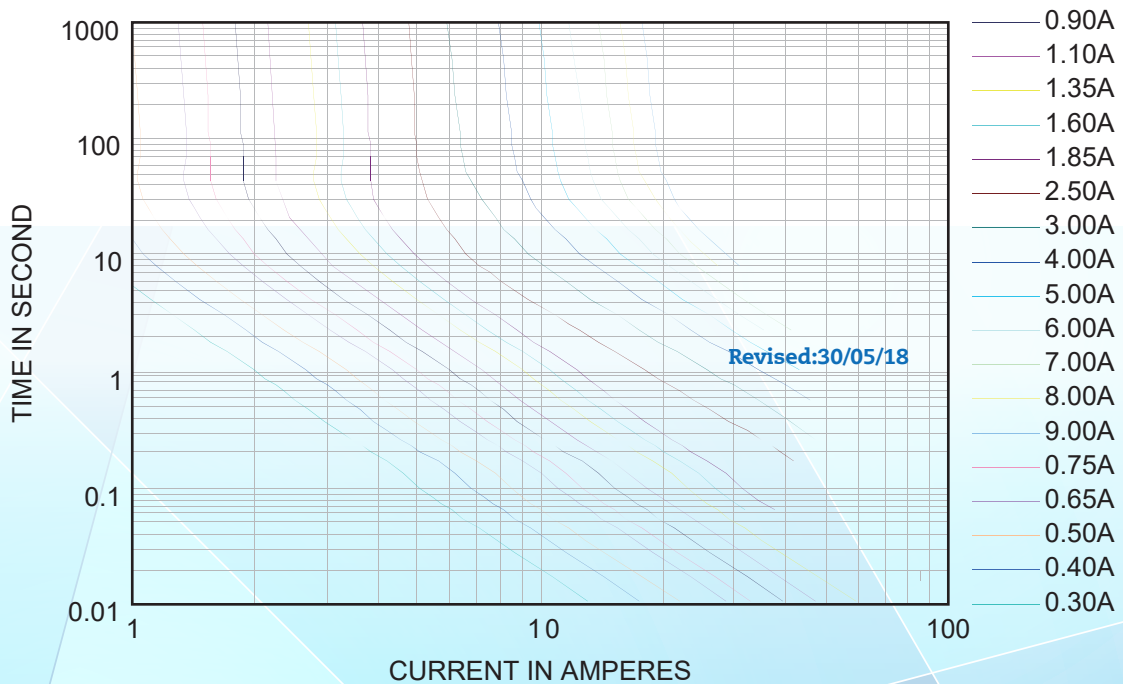
Maximum surface temperature of the device in the tripped state is 125 °C

### Thermal Derating Curve

Derating Curves for A30 Series



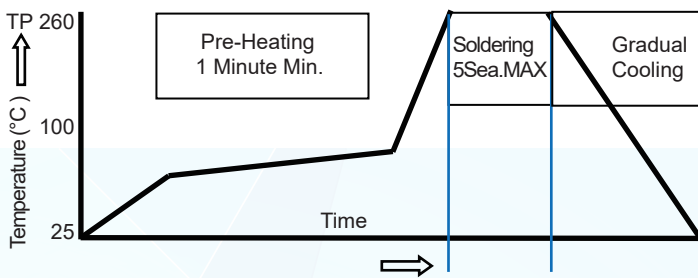
### Average Time-Current Curve



## I<sub>hold</sub> Versus Temperature

Model	Maximum ambient operating temperature (T <sub>mao</sub> ) vs. hold current (I <sub>hold</sub> )								
	- 40°C	- 20°C	0°C	25°C	40°C	50°C	60°C	70°C	85°C
A30-030	0.44	0.39	0.35	0.30	0.25	0.23	0.20	0.18	0.16
A30-040	0.58	0.52	0.46	0.40	0.33	0.31	0.27	0.24	0.21
A30-050	0.73	0.65	0.58	0.50	0.42	0.38	0.34	0.31	0.26
A30-065	0.95	0.85	0.75	0.65	0.54	0.50	0.44	0.40	0.34
A30-070	1.01	0.95	0.84	0.70	0.63	0.58	0.50	0.47	0.38
A30-075	1.10	1.13	0.93	0.75	0.69	0.63	0.54	0.51	0.42
A30-090	1.31	1.17	1.04	0.90	0.75	0.69	0.61	0.55	0.47
A30-110	1.60	1.43	1.27	1.10	0.91	0.85	0.75	0.67	0.57
A30-135	1.96	1.76	1.55	1.35	1.12	1.04	0.92	0.82	0.70
A30-160	2.32	2.08	1.84	1.60	1.33	1.23	1.09	0.98	0.83
A30-185	2.68	2.41	2.13	1.85	1.54	1.42	1.26	1.13	0.96
A30-250	3.63	3.25	2.88	2.50	2.08	1.93	1.70	1.53	1.30
A30-300	4.35	3.90	3.45	3.00	2.49	2.31	2.04	1.83	1.56
A30-400	5.80	5.20	4.60	4.00	3.32	3.08	2.72	2.44	2.08
A30-500	7.25	6.50	5.75	5.00	4.15	3.85	3.40	3.05	2.60
A30-600	8.70	7.80	6.90	6.00	4.98	4.62	4.08	3.66	3.12
A30-700	10.15	9.10	8.05	7.00	5.81	5.39	4.76	4.27	3.64
A30-800	11.60	10.40	9.20	8.00	6.64	6.16	5.44	4.88	4.16
A30-900	13.05	11.70	10.35	9.00	7.47	6.93	6.12	5.49	4.68

## 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 (T<sub>s</sub> max to T<sub>p</sub>) 3°C/second max.

#### Preheat

-Temperature Min(T<sub>s</sub> min) 150°C  
 -Temperature Max(T<sub>s</sub> max) 200°C  
 -Time(T<sub>s</sub> min to T<sub>s</sub> max) 60~180 seconds

#### Time maintained above:

-Temperature(T<sub>L</sub>) 217°C  
 -Time(t<sub>L</sub>) 60~150 seconds

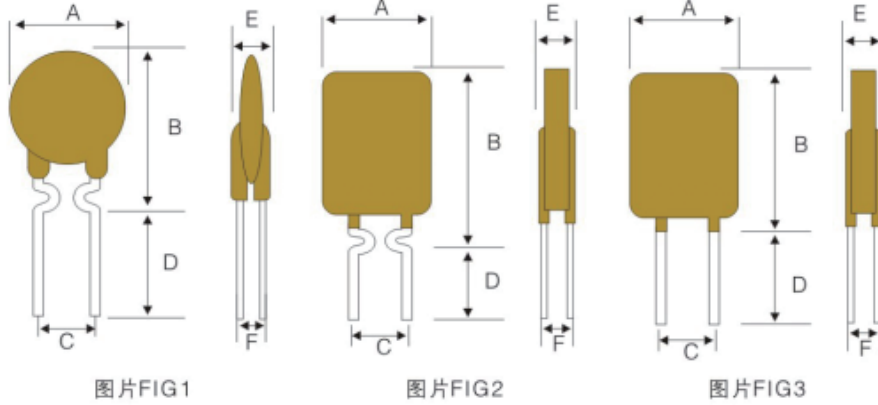
Peak Temperature(T<sub>p</sub>) 260°C

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 Max.	D Max.	E Max.	F Max.	Lead Style
A30-030	7.40	12.7	5.10	7.6	3.0	0.90	1
A30-040	7.40	12.7	5.10	7.6	3.0	0.90	1
A30-050	7.40	12.7	5.10	7.6	3.0	0.90	1
A30-065	7.40	13.0	5.10	7.6	3.0	0.90	1
A30-070	7.40	14.2	5.10	7.6	3.0	0.90	2
A30-075	7.40	14.2	5.10	7.6	3.0	0.90	1
A30-090	7.40	18.5	5.10	7.6	3.0	0.90	2
A30-110	7.40	18.5	5.10	7.6	3.0	0.90	2
A30-135	9.20	17.6	5.10	7.6	3.0	0.90	2
A30-160	9.20	20.2	5.10	7.6	3.0	0.90	2
A30-185	10.2	20.2	5.10	7.6	3.0	0.90	2
A30-250	13.2	22.4	5.10	7.6	3.0	0.90	2
A30-300	13.2	20.4	5.10	7.6	3.0	1.20	3
A30-400	14.0	23.7	5.10	7.6	3.0	1.20	3
A30-500	14.0	24.9	10.2	7.6	3.0	1.20	3
A30-600	17.2	27.0	10.2	7.6	3.0	1.20	3
A30-700	19.1	27.0	10.2	7.6	3.0	1.20	3
A30-800	23.5	29.2	10.2	7.6	3.0	1.20	3
A30-900	24.1	29.7	10.2	7.6	3.0	1.20	3

### PHYSICAL SPECIFICATIONS :

Materials : Leads A30-030 ~ 250: Tin-platedcopper-cladsteel,0.205mm<sup>2</sup>(24AWG),Φ0.51mm(0.020in).  
A30-300 ~ 900: Tin-plated copper, 0.52mm<sup>2</sup> (20AWG), Φ0.81mm(0.032 in).

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

## Packaging Quantity

A30	135	K or S	R or U	Model	Reel QTY	Bag QTY
Radial type	Hold	K= Kink leads		A30-030 ~ A30-075	-	500
30 V	Current		R=Tape&reel	A30-090 ~ A30-250	3000	500
	(A)	S=Straight	U= Bulk	A30-300 ~ A30-400	1500	500
		leads	packaged	A30-500 ~ A30-900	-	500

Tape & Reel packaging per EIA468-B standard.

## Cross Reference

Model	Cross Reference		
	Tyco / PolySwitch®	Bourns / POLY-FUSE®	Polytronics / EVERFUSE®
A30-030	-	-	-
A30-040	-	-	-
A30-050	-	-	-
A30-065	-	-	-
A30-075	-	-	-
A30-075	-	-	-
A30-090	RUEF090	MF-R090-0-9	RLD30P090UF
A30-110	RUEF110	MF-R110	RLD30P110UF
A30-135	RUEF135	MF-R135	RLD30P135UF
A30-160	RUEF160	MF-R160	RLD30P160UF
A30-185	RUEF185	MF-R185	RLD30P185UF
A30-250	RUEF250	MF-R250	RLD30P250UF
A30-300	RUEF300	MF-R300	RLD30P300UF
A30-400	RUEF400	MF-R400	RLD30P400UF
A30-500	RUEF500	MF-R500	RLD30P500UF
A30-600	RUEF600	MF-R600	RLD30P600UF
A30-700	RUEF700	MF-R700	RLD30P700UF
A30-800	RUEF800	MF-R800	RLD30P800UF
A30-900	RUEF900	MF-R900	RLD30P900UF

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