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PRODUCT DATASHEET

PTC Devices

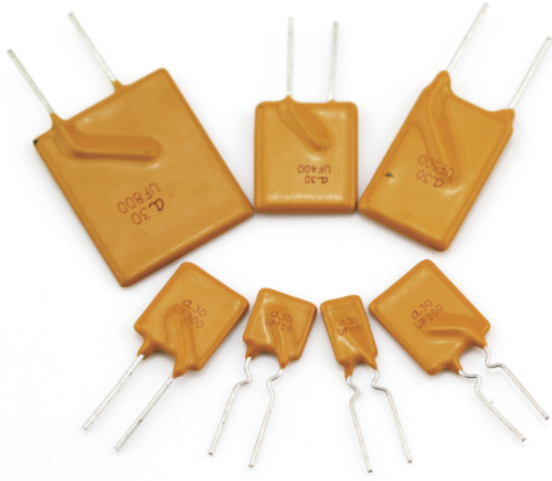
## A30 Series PTC Devices

## 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	0.50	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	0.60	3.50	4.30	0.140	0.220	0.350
A30-075	30	40	0.75	1.50	0.60	3.75	5.20	0.120	0.370	0.420
A30-090	30	40	0.90	1.80	0.60	4.50	5.90	0.070	0.220	0.300
A30-110	30	40	1.10	2.20	0.70	5.50	6.60	0.050	0.200	0.260
A30-135	30	40	1.35	2.70	0.80	6.75	7.30	0.040	0.160	0.220
A30-160	30	40	1.60	3.20	0.90	8.00	8.00	0.030	0.140	0.180
A30-185	30	40	1.85	3.70	1.00	9.25	8.70	0.030	0.120	0.150
A30-200	30	40	2.00	4.00	1.50	10.0	12.0	0.030	0.055	0.085
A30-250	30	40	2.50	5.00	1.20	12.5	10.3	0.020	0.080	0.100
A30-300	30	40	3.00	6.00	2.00	15.0	10.8	0.020	0.070	0.100
A30-400	30	40	4.00	8.00	2.50	20.0	12.7	0.010	0.060	0.090
A30-500	30	40	5.00	10.00	3.00	25.0	14.5	0.010	0.050	0.080
A30-600	30	40	6.00	12.00	3.50	30.0	16.0	0.005	0.040	0.060
A30-700	30	40	7.00	14.00	3.80	35.0	17.5	0.005	0.030	0.050
A30-800	30	40	8.00	16.00	4.00	40.0	18.8	0.005	0.025	0.180
A30-900	30	40	9.00	18.00	4.20	40.0	20.0	0.005	0.020	0.025
A30-1000	30	40	10.0	20.00	4.20	50.0	22.0	0.0065	0.0085	0.015

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.

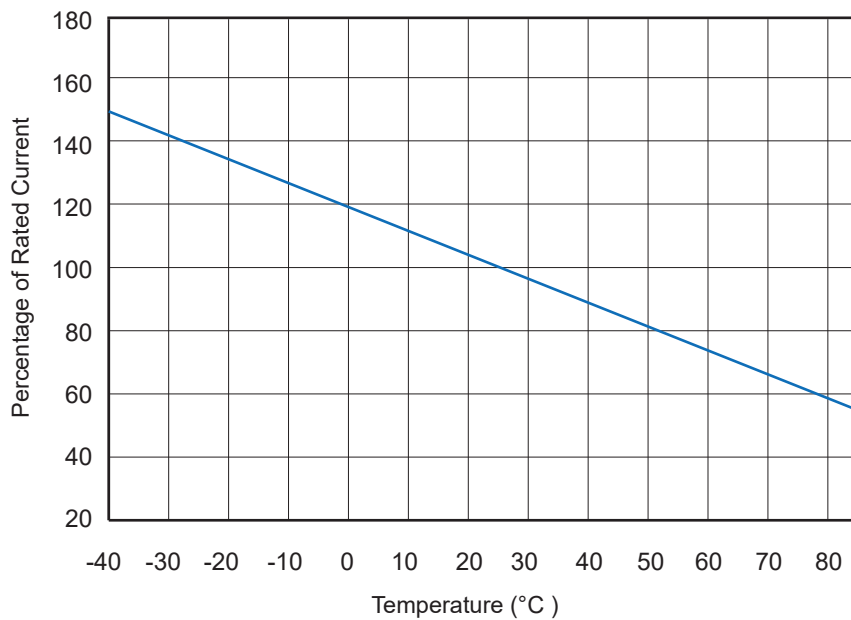
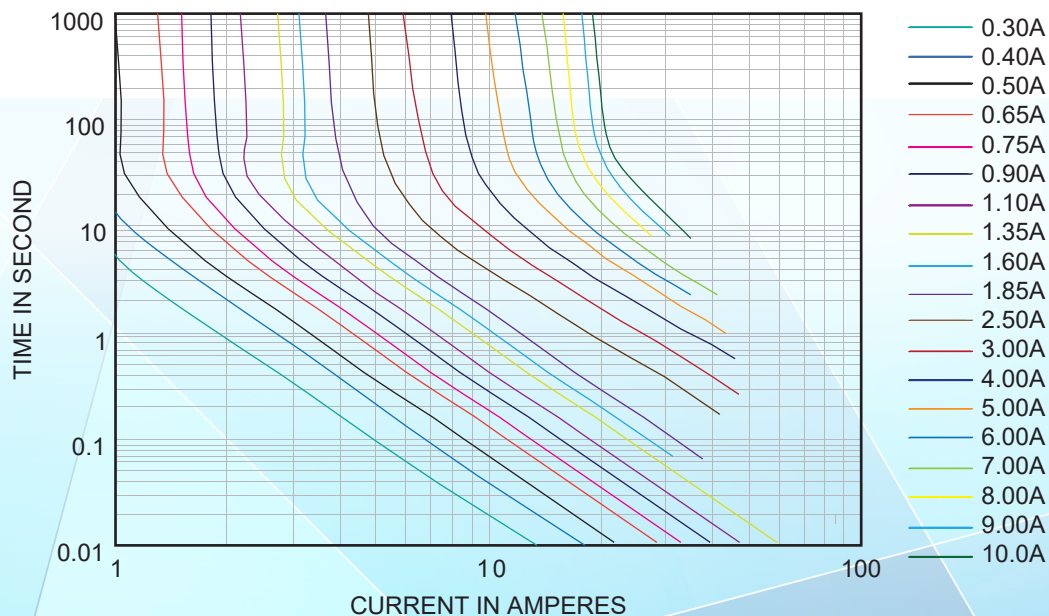
CAUTION : Operation beyond the specified ratings may result in damage and possible arcing and flame.

**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

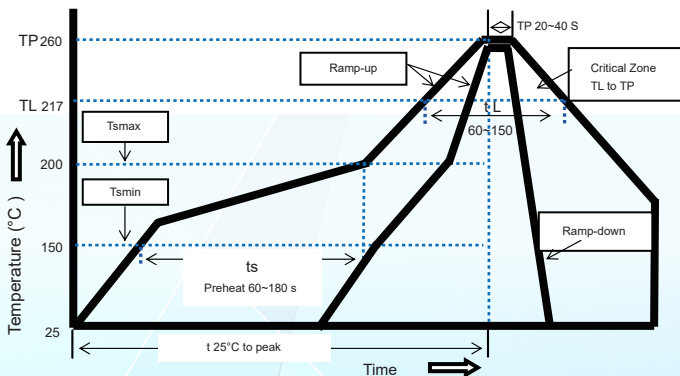
Maximum surface temperature of the device in the tripped state is 125 °C

**Thermal Derating Curve**

**Average Time-Current Curve**


## 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	0.36	0.30	0.26	0.24	0.21	0.20	0.17
A30-040	0.58	0.52	0.48	0.40	0.35	0.32	0.28	0.26	0.22
A30-050	0.73	0.65	0.60	0.50	0.44	0.40	0.36	0.33	0.28
A30-065	0.94	0.85	0.78	0.65	0.57	0.52	0.46	0.43	0.36
A30-070	1.02	0.91	0.84	0.70	0.62	0.56	0.50	0.46	0.39
A30-075	1.09	0.98	0.90	0.75	0.66	0.60	0.53	0.50	0.42
A30-090	1.31	1.17	1.08	0.90	0.79	0.72	0.64	0.59	0.50
A30-110	1.60	1.43	1.32	1.10	0.97	0.88	0.78	0.73	0.62
A30-135	1.96	1.76	1.62	1.35	1.19	1.08	0.96	0.89	0.76
A30-160	2.32	2.08	1.92	1.60	1.41	1.28	1.14	1.06	0.90
A30-185	2.68	2.41	2.22	1.85	1.63	1.48	1.31	1.22	1.04
A30-200	2.90	2.60	2.40	2.00	1.76	1.60	1.42	1.32	1.12
A30-250	3.63	3.25	3.00	2.50	2.20	2.00	1.78	1.65	1.40
A30-300	4.35	3.90	3.60	3.00	2.64	2.40	2.13	1.98	1.68
A30-400	5.80	5.20	4.80	4.00	3.52	3.20	2.84	2.64	2.24
A30-500	7.25	6.50	6.00	5.00	4.40	4.00	3.55	3.30	2.80
A30-600	8.70	7.80	7.20	6.00	5.28	4.80	4.26	3.96	3.36
A30-700	10.15	9.10	8.40	7.00	6.16	5.60	4.97	4.62	3.92
A30-800	11.60	10.40	9.60	8.00	7.04	6.40	5.68	5.28	4.48
A30-900	13.05	11.70	10.80	9.00	7.92	7.20	6.39	5.94	5.04
A30-1000	14.5	13.0	12.0	10.0	8.80	8.00	7.10	6.60	5.60

## Soldering Parameters



Recommended reflow methods: IR, vapor phase oven, hot air oven, N2 environment for lead-free

Recommended maximum paste thickness is 0.25mm

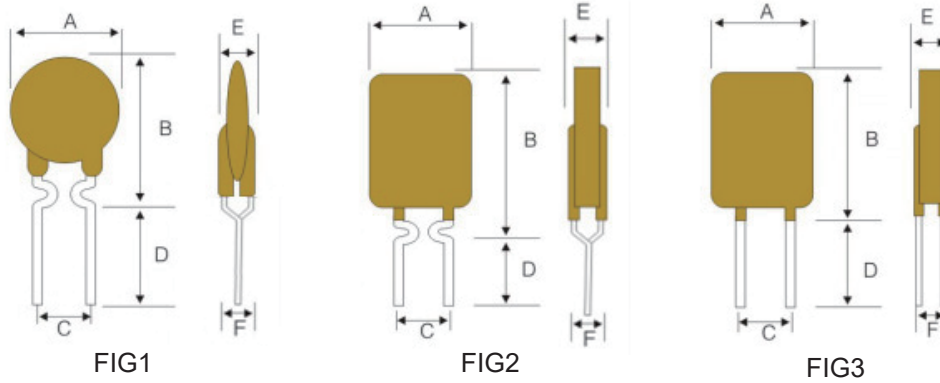
Devices can be cleaned using standard industry methods and solvents.

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 Min.	E Max.	F Typ.	FIG
A30-030	7.40	12.7	5.10±0.5	7.6	3.0	0.90	1
A30-040	7.40	12.7	5.10±0.5	7.6	3.0	0.90	1
A30-050	7.40	12.7	5.10±0.5	7.6	3.0	0.90	1
A30-065	7.40	13.0	5.10±0.5	7.6	3.0	0.90	1
A30-070	7.40	14.2	5.10±0.5	7.6	3.0	0.90	2
A30-075	7.40	14.2	5.10±0.5	7.6	3.0	0.90	1
A30-090	7.40	18.5	5.10±0.5	7.6	3.0	0.90	2
A30-110	7.40	18.5	5.10±0.5	7.6	3.0	0.90	2
A30-135	9.20	17.6	5.10±0.5	7.6	3.0	0.90	2
A30-160	9.20	20.2	5.10±0.5	7.6	3.0	0.90	2
A30-185	10.2	20.2	5.10±0.5	7.6	3.0	0.90	2
A30-200	10.2	17.7	5.10±0.5	7.6	3.0	0.90	2
A30-250	13.2	22.4	5.10±0.5	7.6	3.0	0.90	2
A30-300	13.2	20.4	5.10±0.5	7.6	3.0	1.20	3
A30-400	14.0	23.7	5.10±0.5	7.6	3.0	1.20	3
A30-500	14.0	24.9	10.2±0.5	7.6	3.0	1.20	3
A30-600	17.2	27.0	10.2±0.5	7.6	3.0	1.20	3
A30-700	19.1	27.0	10.2±0.5	7.6	3.0	1.20	3
A30-800	23.5	29.2	10.2±0.5	7.6	3.0	1.20	3
A30-900	25.5	30.0	10.2±0.5	7.6	3.0	1.20	3
A30-1000	26.0	31.0	10.2±0.5	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 ~ 1000: 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 ~ A30-1000	-	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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