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PRODUCT DATASHEET

PTC Devices

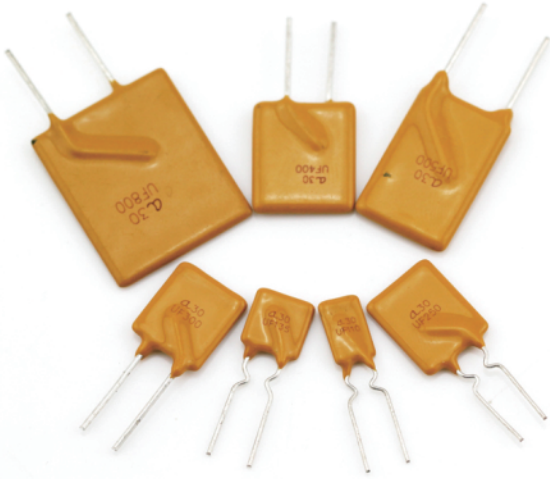
## A30 Series PTC Devices

## 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
	pending

## 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>1max</sub> (Ω)
A30-030	30	40	0.30	0.60	0.44	8.00	0.3	0.370	1.080
A30-040	30	40	0.40	0.80	0.45	8.00	0.3	0.250	0.645
A30-050	30	40	0.50	1.00	0.46	8.00	0.3	0.150	0.600
A30-065	30	40	0.65	1.30	0.47	8.00	0.4	0.180	0.450
A30-075	30	40	0.75	1.50	0.48	8.0	0.4	0.100	0.375
A30-090	30	40	0.90	1.80	0.6	4.50	5.9	0.070	0.200
A30-110	30	40	1.10	2.20	0.7	5.50	6.6	0.050	0.170
A30-135	30	40	1.35	2.70	0.8	6.75	7.3	0.070	0.220
A30-160	30	40	1.60	3.20	0.9	8.00	8.0	0.030	0.110
A30-185	30	40	1.85	3.70	1.0	9.25	8.7	0.030	0.090
A30-250	30	40	2.50	5.00	1.2	12.5	10.3	0.020	0.070
A30-300	30	40	3.00	6.00	2.0	15.0	10.8	0.020	0.080
A30-400	30	40	4.00	8.00	2.5	20.0	12.7	0.010	0.050
A30-500	30	40	5.00	10.00	3.0	25.0	14.5	0.010	0.050
A30-600	30	40	6.00	12.00	3.5	30.0	16.0	0.005	0.040
A30-700	30	40	7.00	14.00	3.8	35.0	17.5	0.005	0.030
A30-800	30	40	8.00	16.00	4.0	40.0	18.8	0.005	0.020
A30-900	30	40	9.00	18.00	4.2	40.0	20.0	0.005	0.020

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.

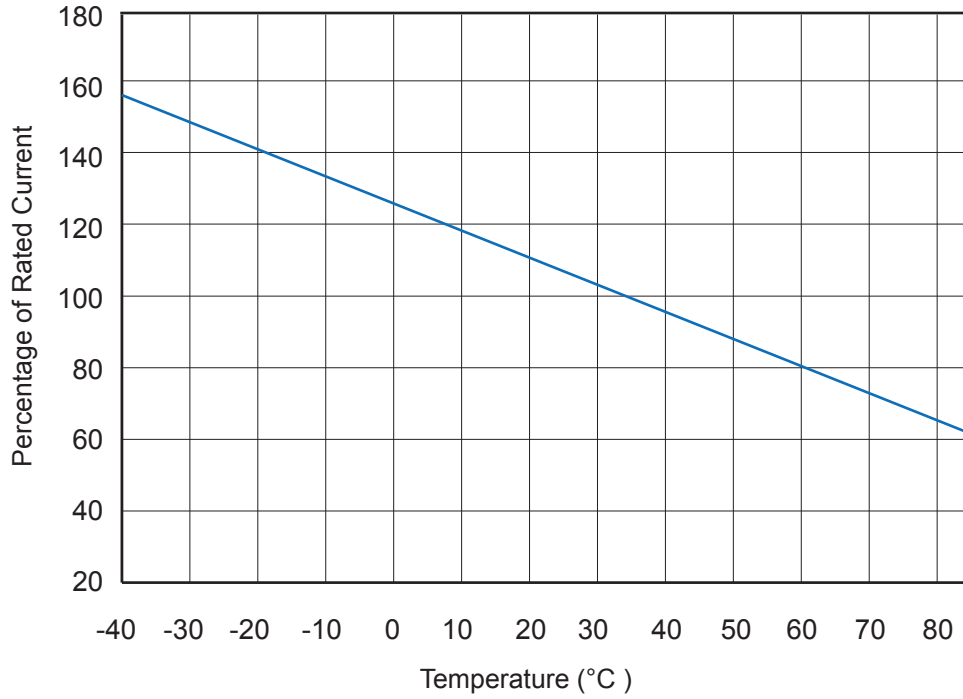
CAUTION : Operation beyond the specified ratings may result in damage and possible arcing and flame.

## Environmental Specifications

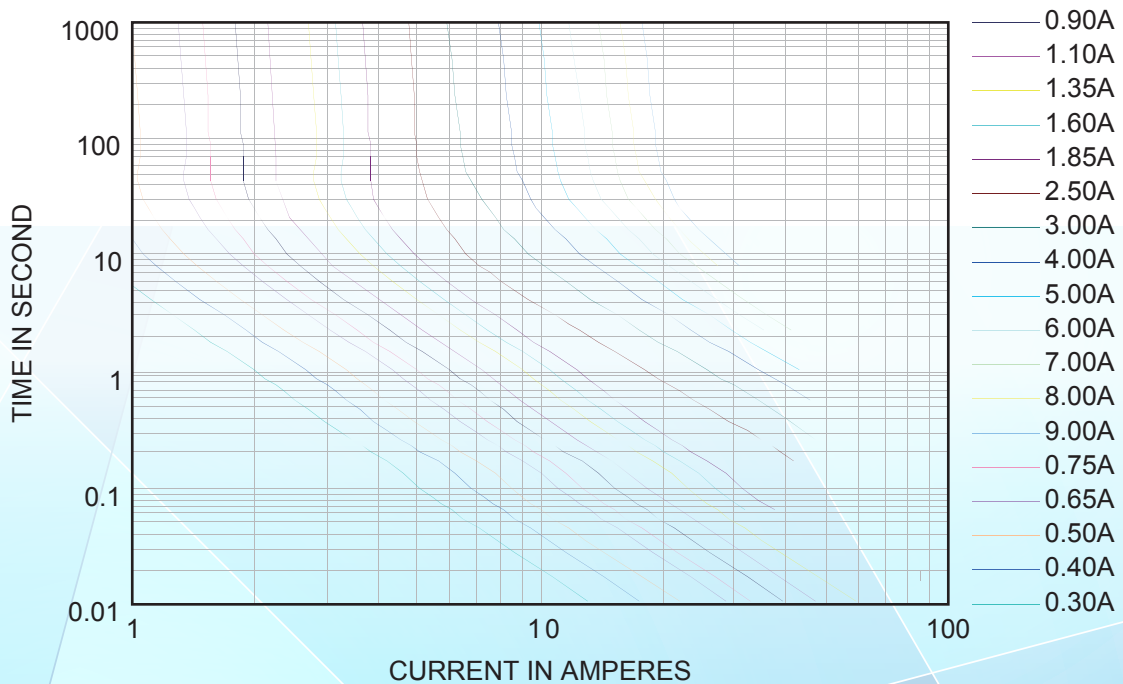
Test	Conditions	Resistance change
Passive aging	+85°C, 1000 hrs.	±5% typical
Humidity aging	+85°C, 85% R.H. , 168 hours	±5% typical
Thermal shock	+85°C to -40°C, 20 times	±33% typical
Resistance to solvent	MIL-STD-202,Method 215	No change
Vibration	MIL-STD-202,Method 201	No change
Ambient operating conditions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



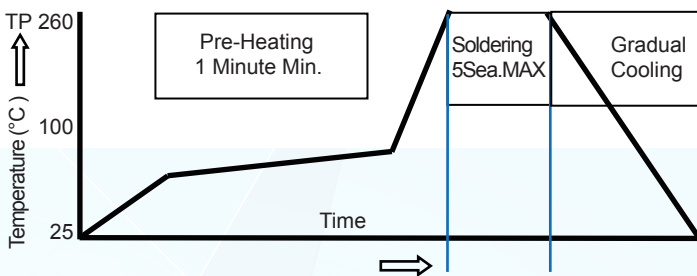
### Average Time-Current Curve



## 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
A30-075	0.00	0.00	0.00	0.75	0.00	0.00	0.00	0.00	0.00
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



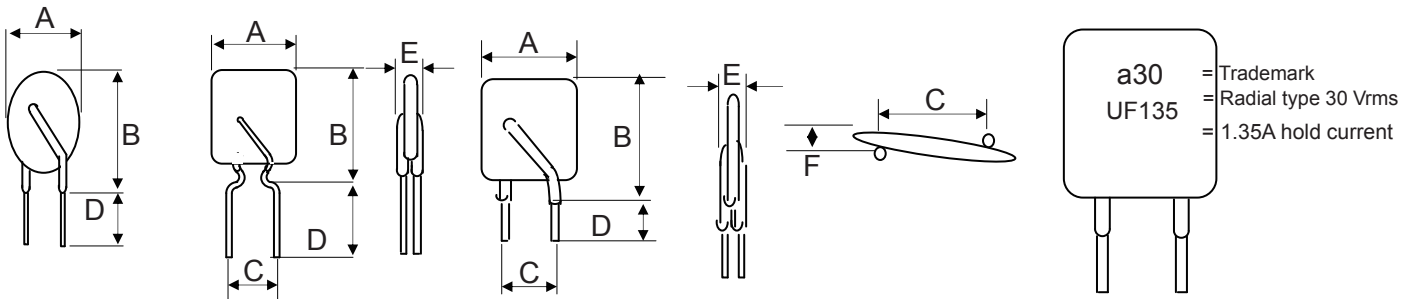
Recommended reflow methods: IR, vapor phase oven, hot air oven, N2 environment for lead-free  
 Recommended maximum paste thickness is 0.25mm  
 Devices can be cleaned using standard industry methods and solvents.

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 (Ts max to T p)	3°C/second mac.
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 Max.	D Max.	E Max.	F Max.	Lead Style
A30-030	7.4/0.29	10.2/0.4	5.1/0.20	7.6/0.3	3.0/0.12	1.2/0.05	Straight
A30-040	7.4/0.29	11.4/0.45	5.1/0.20	7.6/0.3	3.0/0.12	1.2/0.05	Straight
A30-050	7.4/0.29	11.4/0.45	5.1/0.20	7.6/0.3	3.0/0.12	1.2/0.05	Straight
A30-065	7.4/0.29	11.4/0.45	5.1/0.20	7.6/0.3	3.0/0.12	1.2/0.05	Straight
A30-075	7.4/0.29	11.4/0.45	5.1/0.20	7.6/0.3	3.0/0.12	1.2/0.05	Straight
A30-090	7.4/0.29	12.2/0.48	5.1/0.20	7.6/0.3	3.0/0.12	1.2/0.05	Kink
A30-110	7.4/0.29	14.2/0.56	5.1/0.20	7.6/0.3	3.0/0.12	1.2/0.05	Kink
A30-135	8.9/0.35	13.5/0.53	5.1/0.20	7.6/0.3	3.0/0.12	1.2/0.05	Kink
A30-160	8.9/0.35	15.2/0.60	5.1/0.20	7.6/0.3	3.0/0.12	1.2/0.05	Kink
A30-185	10.2/0.40	15.7/0.62	5.1/0.20	7.6/0.3	3.0/0.12	1.2/0.05	Kink
A30-250	11.4/0.45	18.3/0.72	5.1/0.20	7.6/0.3	3.0/0.12	1.2/0.05	Kink
A30-300	11.4/0.45	17.3/0.68	5.1/0.20	7.6/0.3	3.0/0.12	1.2/0.05	Straight
A30-400	14.0/0.55	20.1/0.79	5.1/0.20	7.6/0.3	3.0/0.12	1.2/0.05	Straight
A30-500	14.0/0.55	24.9/0.98	10.2/0.40	7.6/0.3	3.0/0.12	1.2/0.05	Straight
A30-600	16.5/0.65	24.9/0.98	10.2/0.40	7.6/0.3	3.0/0.12	1.2/0.05	Straight
A30-700	19.1/0.75	26.7/1.05	10.2/0.40	7.6/0.3	3.0/0.12	2.0/0.08	Straight
A30-800	21.6/0.85	29.2/1.15	10.2/0.40	7.6/0.3	3.0/0.12	2.0/0.08	Straight
A30-900	24.1/0.95	29.7/1.17	10.2/0.40	7.6/0.3	3.0/0.12	2.0/0.08	Straight

### 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	-	-	-
A30-090	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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“POLY-FUSE” is a registered trademark of Littelfuse, Inc.

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