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PRODUCT DATASHEET

PTC Devices

A72 Series PTC Devices

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Description

The JDTFUSE A72 Series is designed to provide overcurrent protection to 72Vdc maximum voltage with a maximum 40A short circuit rating.

Features

- 72Vdc max voltage w/max 40A short circuit rating
- RoHS compliant, Lead-Free and HalogenFree*
- Resettable feature
- Ideal for a broad range of general electronics using a low voltage power supply

Agency Approvals

Agency	File Number
c UL us	E472196

Applications

- Load protection on wide range of low voltage power supplies
- Computers
- Computers peripherals
- General electronics

Regulation	Standard
RoHS	2002/95/EC
Halogen Free	EN14582

Performance Specification

Model	V max (V dc)	I max (A)	I hold @25°C (A)	I trip @25°C (A)	P d Typ. (W)	Maximum Time To Trip		Resistance		
						Current (A)	Time (Sec)	R i min (Ω)	R i max (Ω)	R1max (Ω)
A72-020	72	40	0.20	0.40	0.52	1.00	3.6	1.50	2.84	4.49
A72-025	72	40	0.25	0.50	0.52	1.25	3.2	1.00	1.95	3.00
A72-030	72	40	0.30	0.72	0.59	1.50	3.0	0.76	1.38	2.20
A72-040	72	40	0.40	0.80	0.66	2.00	3.8	0.45	0.88	1.40
A72-050	72	40	0.50	1.00	0.80	2.50	4.0	0.40	0.79	1.20
A72-065	72	40	0.65	1.30	0.90	3.25	5.3	0.27	0.50	0.74
A72-075	72	40	0.75	1.50	0.95	3.75	6.3	0.18	0.42	0.62
A72-090	72	40	0.90	1.80	1.00	4.50	7.2	0.14	0.33	0.49
A72-110	72	40	1.10	2.20	1.51	5.50	8.2	0.14	0.27	0.40
A72-135	72	40	1.35	2.70	1.71	6.75	9.6	0.12	0.21	0.32
A72-160	72	40	1.60	3.20	1.98	8.00	11.4	0.09	0.16	0.24
A72-185	72	40	1.85	3.70	2.10	9.25	12.6	0.08	0.14	0.21
A72-250	72	40	2.50	5.00	2.50	12.50	15.6	0.05	0.10	0.15
A72-300	72	40	3.00	6.00	2.80	15.00	19.8	0.04	0.08	0.12
A72-375	72	40	3.75	7.50	3.20	18.75	24.0	0.03	0.06	0.10
A72-500	72	40	5.00	10.0	4.20	25.00	30.0	0.015	0.05	0.08

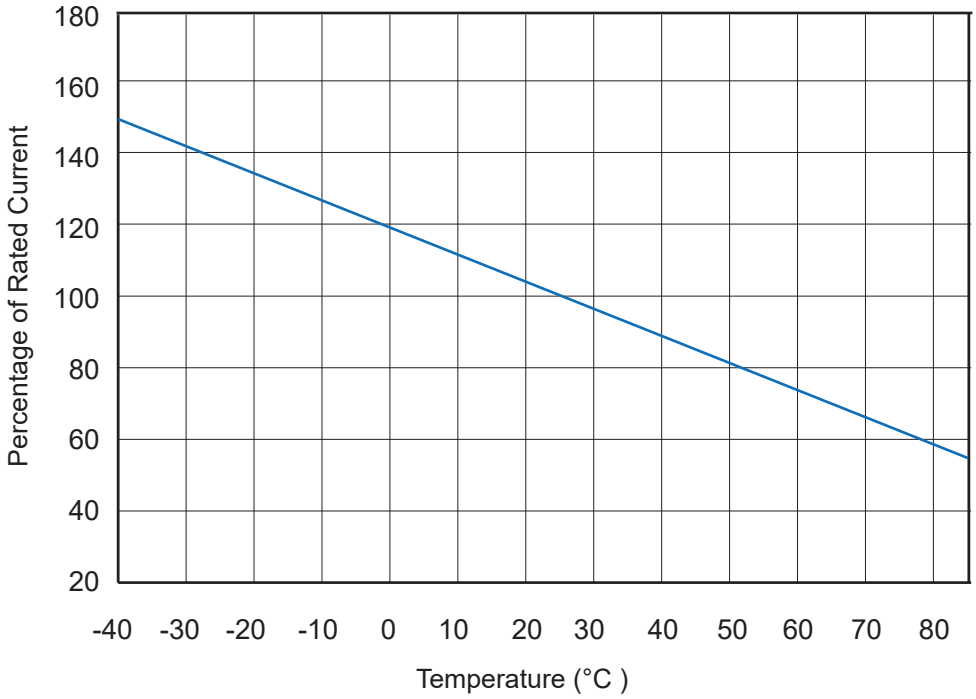
I_{hold} = Hold Current. Maximum current device will not trip in 25°C still air.
I_{trip} = Trip Current. Minimum current at which the device will always trip in 25°C still air.
V_{max} = Maximum operating voltage device can withstand without damage at rated current (Imax).
I_{max} = Maximum fault current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

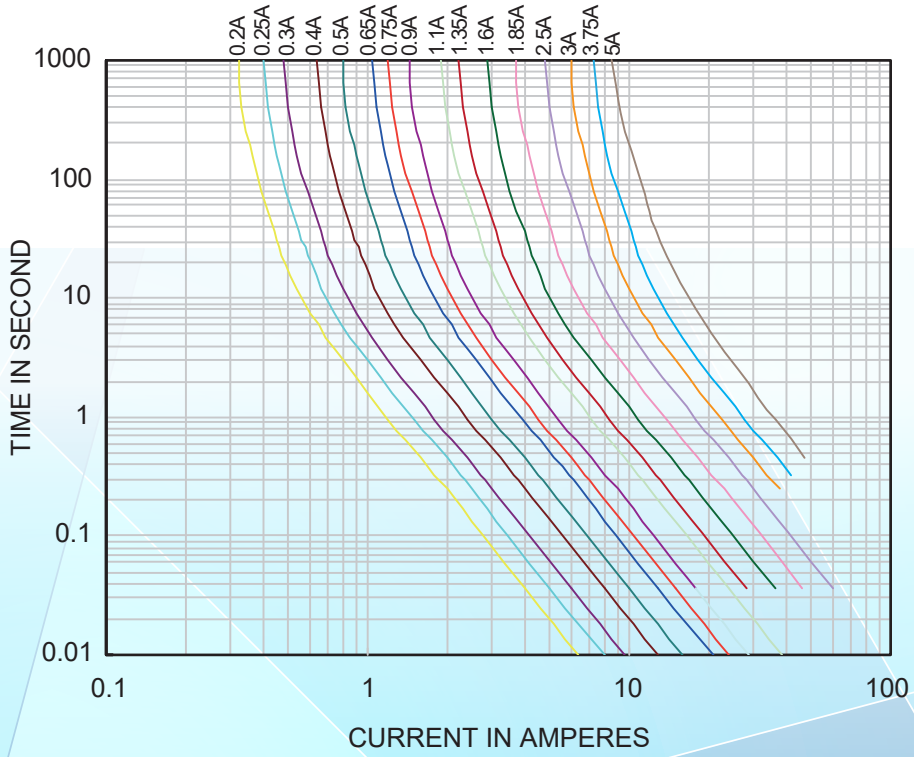
Test	Conditions	Resistance change
Passive aging	+85°C, 1000 hrs.	±5% typical
Humidity aging	+85°C, 85% R.H. , 168 hours	±5% typical
Thermal shock	+85°C to -40°C, 20 times	±33% typical
Resistance to solvent	MIL-STD-202,Method 215	No change
Vibration	MIL-STD-202,Method 201	No change
Ambient operating conditions : - 40 °C to +85 °C		
Maximum surface temperature of the device in the tripped state is 125 °C		

Thermal Derating Curve

Derating Curves for A72 Series



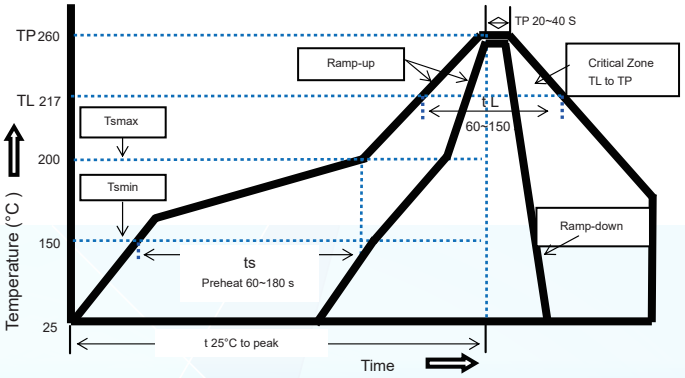
Average Time-Current Curve



Ihold Versus Temperature

Model	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
A72-020	0.290	0.260	0.240	0.200	0.176	0.160	0.142	0.132	0.112
A72-025	0.363	0.325	0.300	0.250	0.220	0.200	0.178	0.165	0.140
A72-030	0.435	0.390	0.360	0.300	0.264	0.240	0.213	0.198	0.168
A72-040	0.580	0.520	0.480	0.400	0.352	0.320	0.284	0.264	0.224
A72-050	0.725	0.650	0.600	0.500	0.440	0.400	0.355	0.330	0.280
A72-065	0.943	0.845	0.780	0.650	0.572	0.520	0.462	0.429	0.364
A72-075	1.088	0.975	0.900	0.750	0.660	0.600	0.533	0.495	0.420
A72-090	1.305	1.170	1.080	0.900	0.792	0.720	0.639	0.594	0.504
A72-110	1.595	1.430	1.320	1.100	0.968	0.880	0.781	0.726	0.616
A72-135	1.958	1.755	1.620	1.350	1.188	1.080	0.959	0.891	0.756
A72-160	2.320	2.080	1.920	1.600	1.408	1.280	1.136	1.056	0.896
A72-185	2.683	2.405	2.220	1.850	1.628	1.480	1.314	1.221	1.036
A72-250	3.625	3.250	3.000	2.500	2.200	2.000	1.775	1.650	1.400
A72-300	4.350	3.900	3.600	3.000	2.640	2.400	2.130	1.980	1.680
A72-375	5.438	4.875	4.500	3.750	3.300	3.000	2.663	2.475	2.100
A72-500	7.250	6.500	6.000	5.000	4.400	4.000	3.550	3.300	2.800

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.)

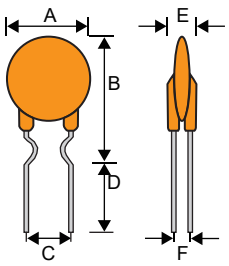


FIG 1

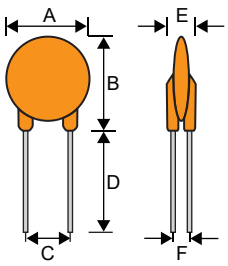


FIG 2

Model	A Max.	B Max.	C Typ.	D Min.	E Max.	F Typ.	FIG
A72-020	7.40	12.7	5.10±0.5	7.6	3.1	1.0	1
A72-025	7.40	12.7	5.10±0.5	7.6	3.1	1.0	1
A72-030	7.40	13.0	5.10±0.5	7.6	3.1	1.0	1
A72-040	7.80	16.2	5.10±0.5	7.6	3.1	1.2	1
A72-050	7.90	16.2	5.10±0.5	7.6	3.1	1.2	1
A72-065	9.70	17.8	5.10±0.5	7.6	3.1	1.5	1
A72-075	10.4	18.4	5.10±0.5	7.6	3.1	1.5	1
A72-090	11.7	18.4	5.10±0.5	7.6	3.1	1.5	1
A72-110	13.0	18.0	5.10±0.5	7.6	3.1	1.2	2
A72-135	14.5	19.6	5.10±0.5	7.6	3.1	1.2	2
A72-160	16.3	21.3	5.10±0.5	7.6	3.1	1.5	2
A72-185	17.8	22.9	5.10±0.5	7.6	3.1	1.5	2
A72-250	21.3	26.4	10.2±0.5	7.6	3.1	1.7	2
A72-300	23.9	28.6	10.2±0.5	7.6	3.1	2.0	2
A72-375	28.5	33.5	10.2±0.5	7.6	3.1	2.0	2
A72-500	29.5	32.5	10.2±0.5	7.6	3.1	1.4	2

PHYSICAL SPECIFICATIONS :

Materials : Leads A72-020 ~ 050: Tin-plJted copper-clJd steel, 0.205mm² (24JWG), Φ0.51mm(0.020 in).
A72-065 ~ 090: Tin-plJted copper , 0.205mm² (24JWG), Φ0.6mm(0.023 in).
A72-110 ~ 500: Tin-plJted copper , 0.52mm² (20JWG), Φ0.81mm(0.032 in).
Lead Solderability : MIL-STD-202, Method 208E

Packaging Quantity

Model	Bag QTY
A72 Series	500

Tape & Reel packaging per EIA468-B standard.

Cross Reference

Model	Cross Reference		
	Tyco / PolySwitch®	Bourns / POLY-FUSE®	Polytronics / EVERFUSE®
A72-020	RXEF020	MF-R020	RLD72P020XF
A72-025	RXEF025	MF-R025	RLD72P025XF
A72-030	RXEF030	MF-R030	RLD72P030XF
A72-040	RXEF040	MF-R040	RLD72P040XF
A72-050	RXEF050	MF-R050	RLD72P050XF
A72-065	RXEF065	MF-R065	RLD72P065XF
A72-075	RXEF075	MF-R075	RLD72P075XF
A72-090	RXEF090	MF-R090	RLD72P090XF
A72-110	RXEF110	MF-RX110	RLD72P110XF
A72-135	RXEF135	MF-RX135	RLD72P135XF
A72-160	RXEF160	MF-RX160	RLD72P160XF
A72-185	RXEF185	MF-RX185	RLD72P185XF
A72-250	RXEF250	MF-RX250	RLD72P250XF
A72-300	RXEF300	MF-RX300	RLD72P300XF
A72-375	RXEF375	MF-RX375	RLD72P375XF
A72-500	RXEF500	MF-RX500	RLD72P500XF