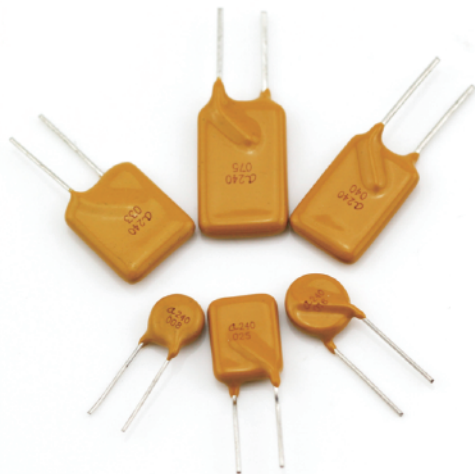


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PRODUCT DATASHEET

PTC Devices

A240 Series PTC Devices



Features

- Low hold current
 - Solid state
 - Radial leaded product idea for up to 265V_{dc/ac}
 - Cured, flame retardant epoxy polymer insulating material meets UL 94V-0 requirements
- RoHS compliant, Lead-Free and Halogen-Free*

Applications

- Line voltage power supply
- Transformers and appliances
- General Electronics

Agency Approvals

Agency	File Number
	Pending

Regulation	Standard
	2002/95/EC
	EN14582

Performance Specification

Model	V _{max} (V _{ac/dc})	V _r (V)	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 _{1max} (Ω)
A240-005	240	60-120	3.0	0.05	0.12	1.00	0.25	15.0	18.0	54.4
A240-008	240	60-120	3.0	0.08	0.19	1.00	0.40	15.0	7.40	20.4
A240-012	240	60-120	3.0	0.12	0.30	1.00	0.60	15.0	3.00	11.9
A240-016	240	60-120	3.0	0.16	0.37	1.50	0.80	15.0	2.50	7.65
A240-025	240	60-120	3.0	0.25	0.56	1.50	1.25	18.5	1.30	3.57
A240-033	240	60-120	3.0	0.33	0.74	2.00	1.65	21.0	1.20	3.40
A240-040	240	60-120	5.0	0.40	0.90	2.00	2.00	24.0	0.81	2.55
A240-055	240	60-120	5.0	0.55	1.25	3.50	2.75	26.0	0.45	1.10
A240-075	240	60-120	5.0	0.75	1.50	3.00	3.75	14.0	0.40	1.02
A240-100	240	60-120	10.0	1.00	2.00	3.50	5.00	13.6	0.20	0.50
A240-125	240	60-120	10.0	1.25	2.50	4.00	6.25	18.0	0.12	0.27
A240-135	240	60-120	10.0	1.35	2.70	4.00	6.75	20.0	0.10	0.23
A240-200	240	60-120	10.0	2.00	4.20	4.50	10.0	36.0	0.089	0.20

I_{hold} = Hold Current. Maximum current device will not trip in 23°C still air.

I_{trip} = Trip Current. Minimum current at which the device will always trip in 23°C still air.

V_{max} = Maximum operating voltage device can withstand without damage at rated current (I_{max}).

V_r = Normal working voltage.

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 23°C still air environment at rated voltage.

$R_{i min/max}$ = Minimum/Maximum device resistance prior to tripping at 23°C.

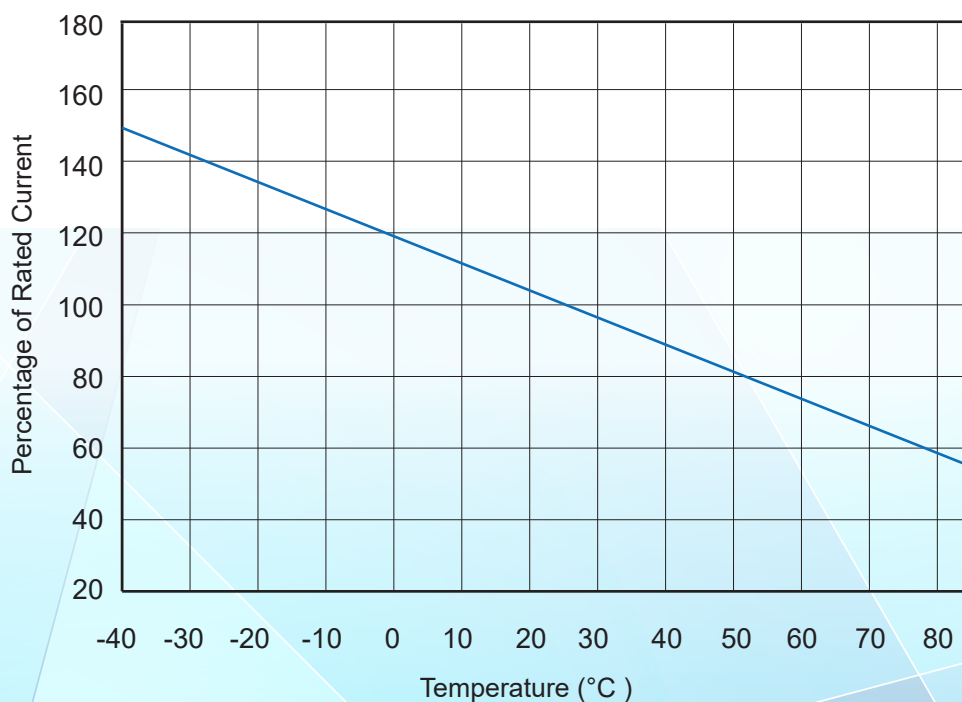
R_{1max} = Maximum device resistance is measured one hour post reflow.

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

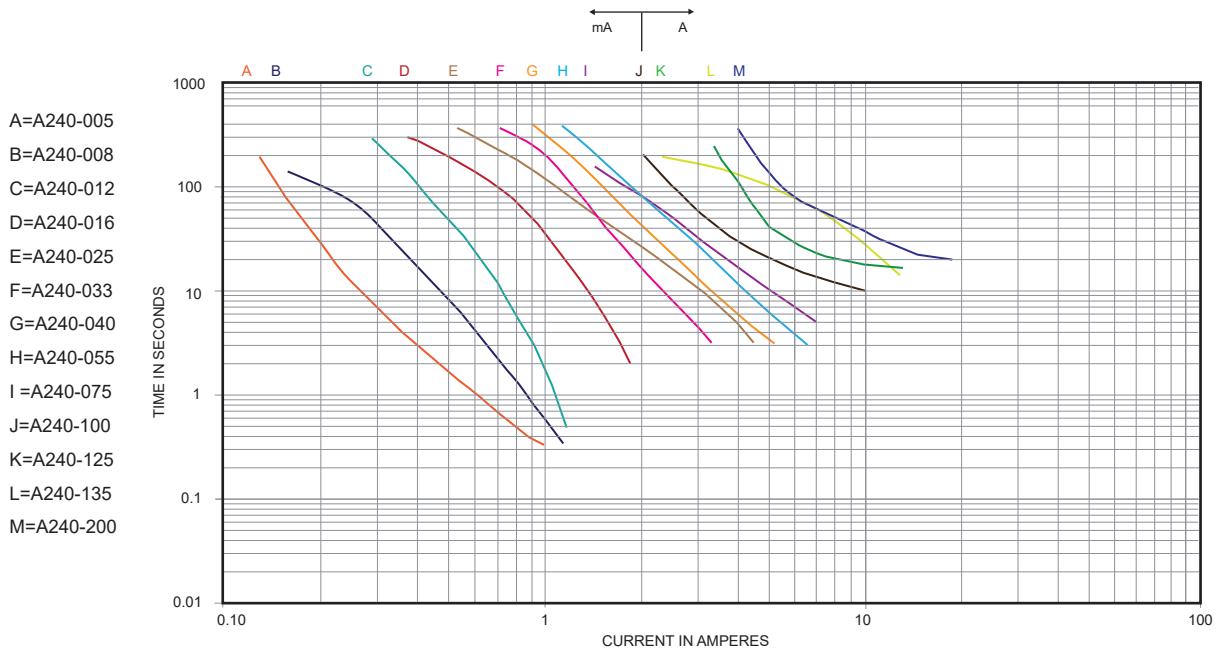
Environmental Specifications

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



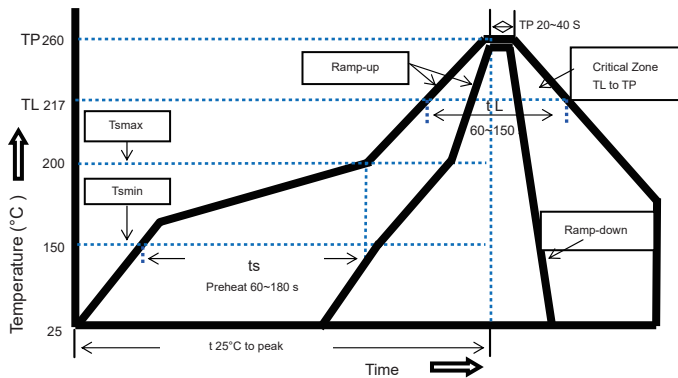
Thermal Derating Curve



I_{hold} Versus Temperature

Model	Maximum ambient operating temperature (T _{mao}) vs. hold current (I _{hold})									
	- 40°C	- 20°C	0°C	23°C	30°C	40°C	50°C	60°C	70°C	85°C
A240-005	0.075	0.067	0.058	0.050	0.045	0.041	0.037	0.033	0.029	0.022
A240-008	0.120	0.107	0.093	0.080	0.072	0.065	0.059	0.052	0.046	0.035
A240-012	0.180	0.161	0.139	0.120	0.108	0.097	0.089	0.078	0.070	0.053
A240-016	0.240	0.214	0.186	0.160	0.144	0.130	0.118	0.104	0.093	0.070
A240-025	0.375	0.335	0.290	0.250	0.225	0.203	0.185	0.163	0.145	0.110
A240-033	0.495	0.442	0.383	0.330	0.297	0.267	0.244	0.215	0.191	0.145
A240-040	0.600	0.536	0.464	0.400	0.360	0.324	0.296	0.260	0.232	0.176
A240-055	0.825	0.737	0.638	0.550	0.495	0.446	0.407	0.358	0.319	0.242
A240-075	1.125	1.005	0.870	0.750	0.675	0.608	0.555	0.488	0.435	0.330
A240-100	1.500	1.340	1.160	1.000	0.900	0.810	0.740	0.650	0.580	0.440
A240-125	1.875	1.675	1.450	1.250	1.125	1.013	0.925	0.813	0.725	0.550
A240-135	2.025	1.809	1.566	1.350	1.215	1.094	0.999	0.878	0.783	0.594
A240-200	3.000	2.680	2.320	2.000	1.800	1.620	1.480	1.300	1.160	0.880

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.)

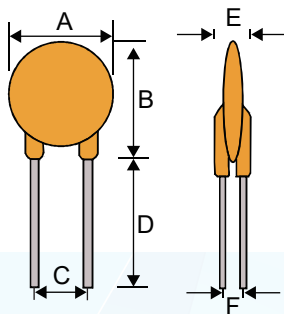


Fig 1

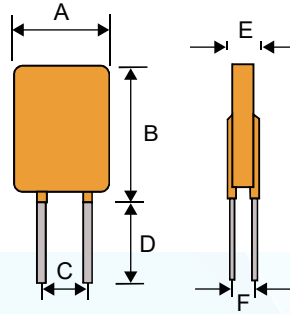


Fig 2

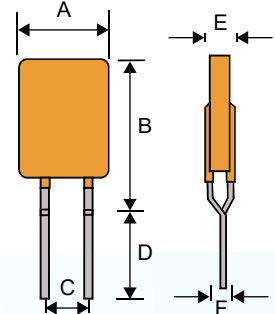


Fig 3

PHYSICAL SPECIFICATIONS :

Lead Materials : A240-005~A240-075/A240-125~A240-135:Tinned copper clad steel wire (CP wire);
A240-100/A240-200:Tinned copper wire.

Lead Solderability: MIL-STD-202.

Encapsulation: Flame retardant epoxy resin, This meets the requirements of UL-94V-0.

Model	A Max	B Max	C Typ	D Min	E Max	F Typ	Lead φ	FIG
A240-005	8.30	11.7	5.1	7.6	4.1	2.2	0.5	1
A240-008	8.30	11.7	5.1	7.6	4.1	2.2	0.5	1
A240-012	8.30	11.7	5.1	7.6	4.1	2.2	0.5	1
A240-016	9.90	15.5	5.1	7.6	4.1	2.2	0.6	1
A240-025	10.5	18.5	5.1	7.6	4.1	/	0.6	3
A240-033	13.5	19.0	5.1	7.6	4.4	2.2	0.8	2
A240-040	11.5	20.9	5.1	7.6	4.4	2.2	0.8	2
A240-055	15.0	23.0	5.1	7.6	4.4	2.2	0.8	2
A240-075	13.0	23.0	5.1	7.6	4.4	2.2	0.8	2
A240-100	14.5	19.0	10.2	7.6	4.4	2.2	0.8	1
A240-125	15.0	23.0	5.1	7.6	4.4	2.2	0.8	2
A240-135	15.0	23.0	5.1	7.6	4.4	2.2	0.8	2
A240-200	20.5	31.8	10.2	7.6	4.4	2.2	0.8	2

Packaging Quantity

Model	Reel QTY	Bag QTY
A240 Series	2000	500
Tape & Reel packaging per EIA468-B standard.		

Cross Reference

Model	Cross Reference		
	Tyco / PolySwitch®	Bourns / POLY-FUSE®	Polytronics / EVERFUSE®
A240-005	LVR005	-	-
A240-008	LVR008	-	-
A240-012	LVR012	-	-
A240-016	LVR016	-	-
A240-025	LVR025	-	-
A240-033	LVR033	-	-
A240-040	LVR040	-	-
A240-055	LVR055	-	-
A240-065	LVR065	-	-
A240-075	LVR075	-	-
A240-100	LVR100	-	-
A240-125	LVR125	-	-
A240-200	LVR200	-	-

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“EVERFUSE” is a registered trademark of Polytronics Technology Corp.