

Performance Specification

Model	V _{max} (Vdc)	I _{max} (A)	I _{hold} (A)	I _{trip} (A)	P _d Typ. (W)	Maximum Time		Resistance		
						To Trip				
						Current	Time	Rimin	Rimax	R1max
						(A)	(Sec)	(Ω)	(Ω)	(Ω)
60R005	60	40	0.05	0.10	0.30	0.25	5.0	16.0	26.0	30.0
60R010	60	40	0.10	0.20	0.38	0.50	4.0	2.50	4.50	6.00
60R017	60	40	0.17	0.34	0.48	0.85	3.0	2.00	3.20	4.50
60R020	60	40	0.20	0.40	0.41	1.00	2.2	1.50	2.84	3.80
60R025	60	40	0.25	0.50	0.45	1.25	2.5	1.00	1.95	2.80
60R030	60	40	0.30	0.60	0.49	1.50	3.0	0.76	1.36	1.80
60R040	60	40	0.40	0.80	0.56	2.00	3.8	0.52	0.86	1.10
60R050	60	40	0.50	1.00	0.77	2.50	4.0	0.41	0.77	1.00
60R065	60	40	0.65	1.30	0.88	3.25	5.3	0.27	0.48	0.60
60R075	60	40	0.75	1.50	0.92	3.75	6.3	0.28	0.40	0.63
60R090	60	40	0.90	1.80	0.99	4.50	7.2	0.14	0.31	0.42
60R110	60	40	1.10	2.20	1.50	5.50	8.2	0.14	0.25	0.33
60R135	60	40	1.35	2.70	1.70	6.75	9.6	0.12	0.19	0.26
60R160	60	40	1.60	3.20	1.90	8.00	11.4	0.09	0.14	0.19
60R185	60	40	1.85	3.70	2.10	9.25	12.6	0.08	0.12	0.16
60R250	60	40	2.50	5.00	2.50	12.50	15.6	0.05	0.09	0.13
60R300	60	40	3.00	6.00	2.80	15.00	19.8	0.04	0.06	0.09
60R375	60	40	3.75	7.50	3.20	18.75	24.0	0.03	0.05	0.08
60R400	60	40	4.00	8.00	3.20	20	20	0.014	0.038	0.06

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

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

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.

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

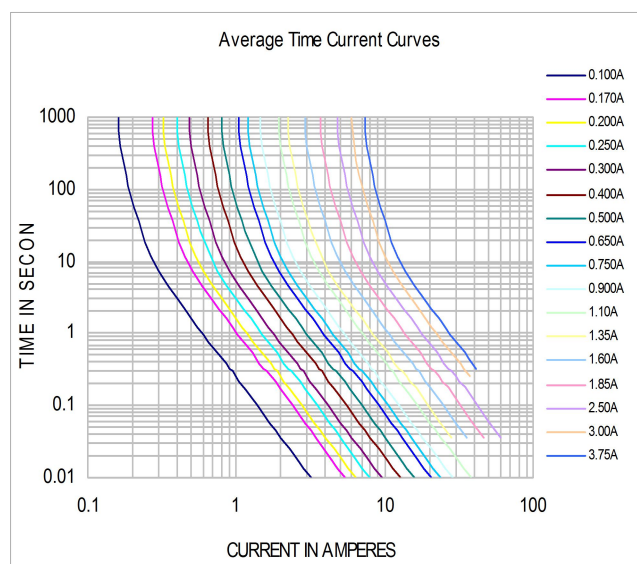
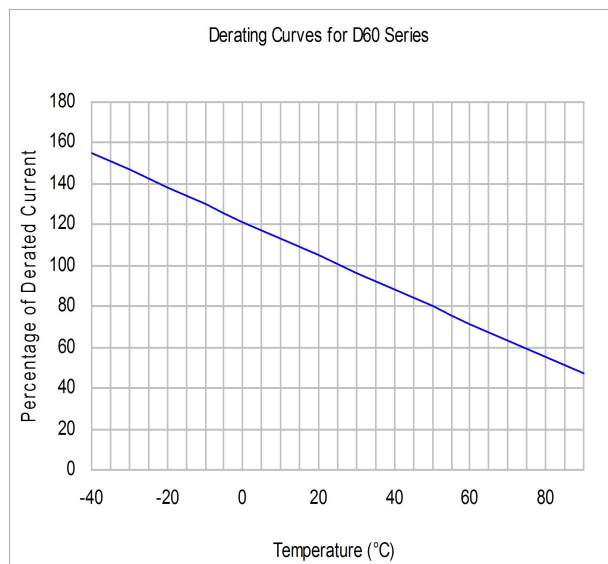
Test	Conditions	Resistance change
Passive aging	+85°C, 1000 hrs.	±5% typical
Humidity aging	+85°C, 85% R.H. , 168 hours	±5% typical
Thermal shock	+85°C to -40°C, 20 times	±33% typical
Resistance to solvent	MIL-STD-202,Method 215	No change
Vibration	MIL-STD-202,Method 201	No change
Ambient operating conditions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

Agency Approval and Environmental Compliance

Agency	File Number	Regulation	Standard
UL	pending		2002/95/EC
TUV	pending		EN14582

Thermal Derating Curve

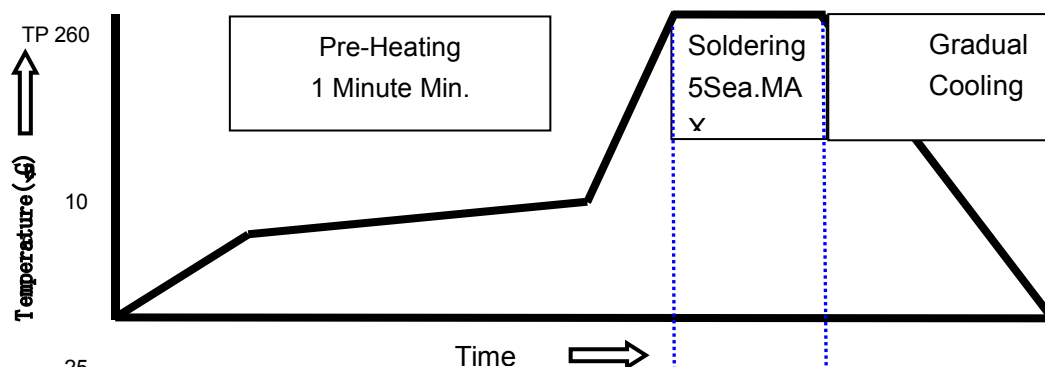
Average Time-Current Curve



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
60R005	0.080	0.07	0.06	0.05	0.04	0.035	0.030	0.025	0.020
60R010	0.16	0.14	0.12	0.10	0.08	0.07	0.06	0.05	0.04
60R017	0.26	0.23	0.20	0.17	0.14	0.12	0.11	0.09	0.07
60R020	0.31	0.27	0.24	0.20	0.16	0.14	0.13	0.11	0.08
60R025	0.39	0.34	0.30	0.25	0.20	0.18	0.16	0.14	0.10
60R030	0.47	0.41	0.36	0.30	0.24	0.22	0.19	0.16	0.12
60R040	0.62	0.54	0.48	0.40	0.32	0.29	0.25	0.22	0.16
60R050	0.78	0.68	0.60	0.50	0.41	0.36	0.32	0.27	0.20
60R065	1.01	0.88	0.77	0.65	0.53	0.47	0.41	0.35	0.26
60R075	1.16	1.02	0.89	0.75	0.61	0.54	0.47	0.41	0.30
60R090	1.40	1.22	1.07	0.90	0.73	0.65	0.57	0.49	0.36
60R110	1.71	1.50	1.31	1.10	0.89	0.79	0.69	0.59	0.44
60R135	2.09	1.84	1.61	1.35	1.09	0.97	0.85	0.73	0.54
60R160	2.48	2.18	1.90	1.60	1.30	1.15	1.01	0.86	0.64
60R185	2.87	2.52	2.20	1.85	1.50	1.33	1.17	1.00	0.74
60R250	3.88	3.40	2.98	2.50	2.03	1.80	1.58	1.35	1.00
60R300	4.65	4.08	3.57	3.00	2.43	2.16	1.89	1.62	1.20
60R375	5.81	5.10	4.46	3.75	3.04	2.70	2.36	2.03	1.50
60R400	6.20	5.440	4.76	4.00	3.24	2.88	2.52	2.16	1.60

Soldering Parameters

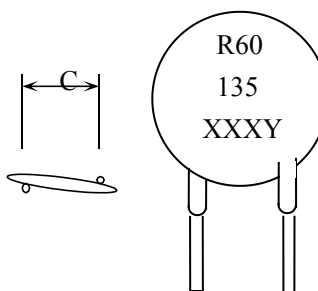
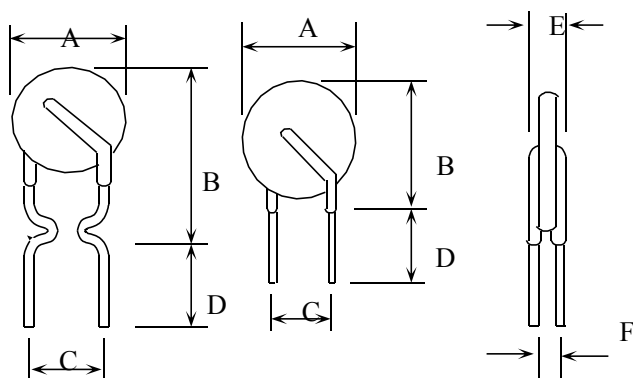


WAVE SOLDERING INFORMATION

Pre-Heating Zone	Max. ramping rate should not exceed 4°C/Sec.
Soldering Zone	Max. solder temperature should not exceed 260°C
Cooling Zone	Cooling by natural convection in air.

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Physical Dimensions(mm.)



R= Trademark
 60 = Radial type 60 V
 135 = 1.35A hold current
 XXX= Date code
 Y = Factory code

Model	A	B	C	D	E	Lead
	Max.	Max.	Typ.	Min.	Max.	Style
60R005	5.7	10.5	5.1	7.6	3.1	Kink
60R010	5.7	10.5	5.1	7.6	3.1	Kink
60R017	5.9	11.2	5.1	7.6	3.1	Kink
60R020	5.9	11.2	5.1	7.6	3.1	Kink
60R025	6.1	11.4	5.1	7.6	3.1	Kink
60R030	7.6	13.4	5.1	7.6	3.1	Kink
60R040	7.7	13.6	5.1	7.6	3.1	Kink
60R050	7.9	13.7	5.1	7.6	3.1	Kink
60R065	9.7	14.5	5.1	7.6	3.1	Kink
60R075	10.7	15.5	5.1	7.6	3.1	Kink
60R090	11.7	16.5	5.1	7.6	3.1	Kink
60R110	13.0	16.7	5.1	7.6	3.1	Straight
60R135	15.7	17.6	5.1	7.6	3.1	Straight
60R160	16.7	19.7	5.1	7.6	3.1	Straight
60R185	17.8	22.9	5.1	7.6	3.1	Straight

60R250	21.3	23.5	10.2	7.6	3.1	Straight
60R300	24.9	27.4	10.2	7.6	3.1	Straight
60R375	28.5	32.5	10.2	7.6	3.1	Straight
60R400	21	26	10.2	7.6	3.1	Straight

PHYSICAL SPECIFICATIONS :

Materials : 60R010: Tin-plated nickel-copper alloy, 0.205mm² (24AWG), Φ0.51mm(0.020 in).

60R017 ~ 040: Tin-plated copper-clad steel, 0.205mm² (24AWG), Φ0.51mm(0.020 in).

60R050 ~ 090: Tin-plated copper , 0.205mm² (24AWG), Φ0.51mm(0.020 in).

60R110 ~ 375: Tin-plated copper , 0.52mm² (20AWG), Φ0.81mm(0.032 in).

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

Packaging Quantity

Order information				Packing		
60	185	K or S	R or U	Model	Reel Q'ty	Bag Q'ty
Radial type	Hold	K=Kink leads	R= Tape &	60R005 ~ 60R090	3000	500
60 V	Current		Reel	60R017	2500	500
	(A)	S=Straight	U= Bulk	60R110 ~ 60R185	1500	500
		leads	packaged	60R250 ~ 60R375	-	500

Tape & Reel packaging per EIA468-B standard.