

**Description**

- The USBR series radial leaded device is designed to provide overcurrent protection for USB applications where space is not a concern.

**Features**

- RoHS compliant and lead-free
- Fast time-to-trip
- Meets all USB protection requirements
- 40A short circuit rating
- Operating voltages of 6-16V

**Applications**

- Computers & peripherals
- Any USB application

**Agency Approvals**

AGENCY	AGENCY FILE NUMBER
	E183209
	R50082521

**Electrical Characteristics**

Part Number	I <sub>hold</sub> (A)	I <sub>trip</sub> (A)	V <sub>max</sub> (Vdc)	I <sub>max</sub> (A)	P <sub>d</sub> max. (W)	Maximum Time To Trip		Resistance		Agency Approvals	
						Current (A)	Time (Sec.)	R <sub>min</sub> (Ω)	R <sub>1max</sub> (Ω)		
06R075B	0.75	1.30	6	40	0.3	8.00	0.4	0.100	0.230	X	X
06R120B	1.20	2.00	6	40	0.6	8.00	0.5	0.065	0.140	X	X
06R155B	1.55	2.70	6	40	0.6	7.75	2.2	0.040	0.100	X	X
16R090B	0.90	1.80	16	40	0.6	8.00	1.2	0.070	0.180	X	X
16R110B	1.10	2.20	16	40	0.7	8.00	2.3	0.050	0.140	X	X
16R135B	1.35	2.70	16	40	0.8	8.00	4.5	0.040	0.120	X	X
16R160B	1.60	3.20	16	40	0.9	8.00	9.0	0.030	0.110	X	X
16R185B	1.85	3.70	16	40	1.0	8.00	10.0	0.030	0.090	X	X
16R250B	2.50	5.00	16	40	1.2	8.00	40.0	0.020	0.060	X	X

I<sub>hold</sub> = Hold current: maximum current device will pass without tripping in 20°C still air.  
 I<sub>trip</sub> = Trip current: minimum current at which the device will trip in 20°C still air.  
 V<sub>max</sub> = Maximum 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 dissipated from device when in the tripped state at 20°C still air.

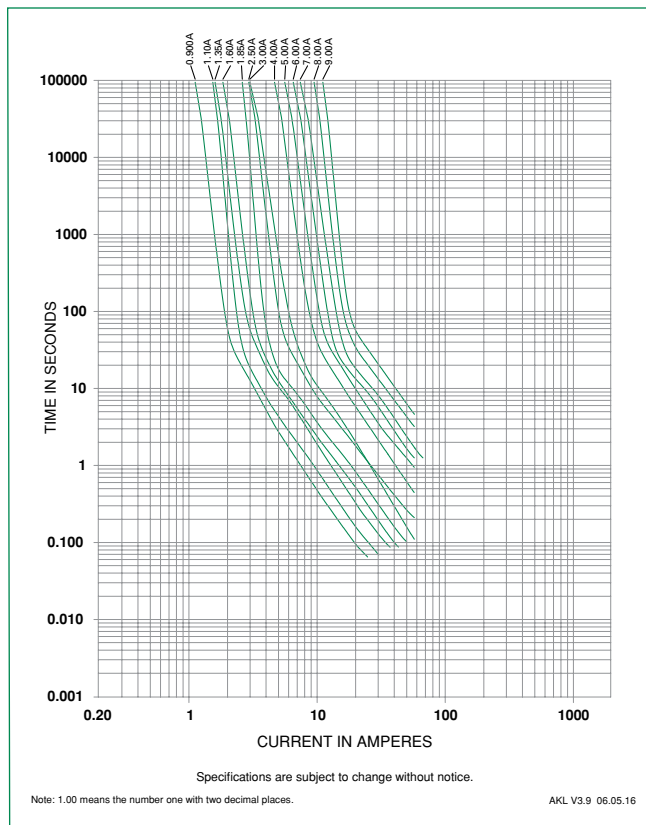
R<sub>min</sub> = Minimum resistance of device in initial (un-soldered) state.  
 R<sub>typ</sub> = Typical resistance of device in initial (un-soldered) state.  
 R<sub>1max</sub> = Maximum resistance of device at 20°C measured one hour after tripping or reflow soldering of 260°C for 20 sec.

**Caution:** Operation beyond the specified rating may result in damage and possible arcing and flame.

## Temperature Derating

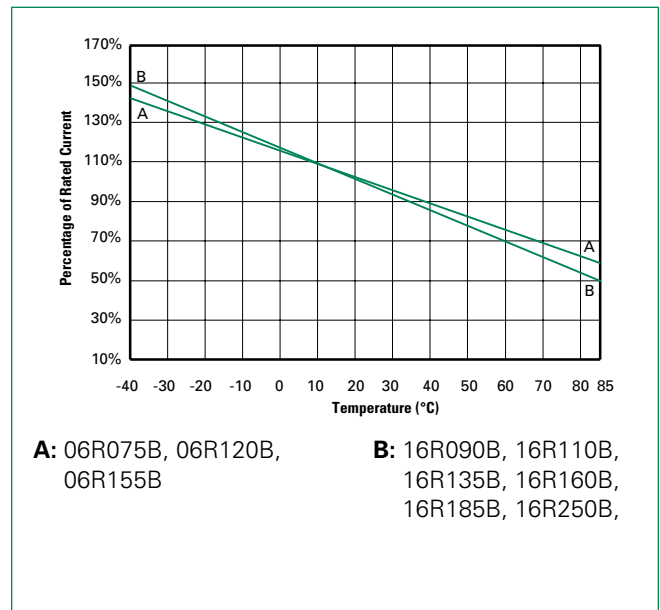
Part Number	Ambient Operation Temperature								
	-40°C	-20°C	0°C	23°C	40°C	50°C	60°C	70°C	85°C
06R075B	1.05	0.95	0.85	0.75	0.65	0.60	0.55	0.50	0.43
06R120B	1.69	1.52	1.36	1.20	1.04	0.96	0.88	0.80	0.68
06R155B	2.17	1.96	1.75	1.55	1.34	1.24	1.13	1.03	0.88
16R090B	1.31	1.17	1.04	0.90	0.75	0.69	0.61	0.55	0.47
16R110B	1.60	1.43	1.27	1.10	1.00	0.92	0.75	0.67	0.57
16R135B	1.96	1.76	1.55	1.35	1.12	1.04	0.92	0.82	0.70
16R160B	2.32	2.08	1.84	1.60	1.33	1.23	1.09	0.98	0.83
16R185B	2.68	2.41	2.13	1.85	1.54	1.42	1.26	1.13	0.96
16R250B	3.63	3.25	2.88	2.50	2.08	1.93	1.70	1.53	1.30

## Average Time Current Curves



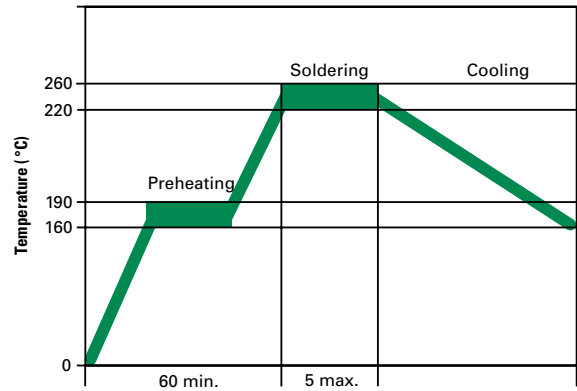
The average time current curves and temperature derating curve performance is affected by a number of variables, and these curves provided as guidance only. Customer must verify the performance in their application.

## Temperature Derating Curve



**Soldering Parameters - Wave Soldering**

<b>Pre-Heating Zone</b>	Refer to the condition recommended by the flux manufacturer. Max. ramping rate should not exceed 4°C/Sec.
<b>Soldering Zone</b>	Max. solder temperature should not exceed 260°C
<b>Cooling Zone</b>	Cooling by natural convection in air.


**Physical Specifications**

<b>Lead Material</b>	.90-2.50A: Tin-plated copper clad steel .75A: Tin-plated copper
<b>Soldering Characteristics</b>	Solderability per MIL-STD-202, Method 208E
<b>Insulating Material</b>	Cured, flame retardant epoxy polymer meets UL94V-0 requirements.
<b>Device Labeling</b>	Marked with LF, voltage, current rating, and date code.

**Environmental Specifications**

<b>Operating/Storage Temperature</b>	-40°C to +85°C
<b>Maximum Device Surface Temperature in Tripped State</b>	125°C
<b>Passive Aging</b>	+85°C, 1000 hours ±5% typical resistance change
<b>Humidity Aging</b>	+85°C, 85% R.H. 1000 hours ±5% typical resistance change
<b>Thermal Shock</b>	+85°C to -40°C 10 times ±5% typical resistance change
<b>Solvent Resistance</b>	MIL-STD-202, Method 215F

## Dimensions (mm)

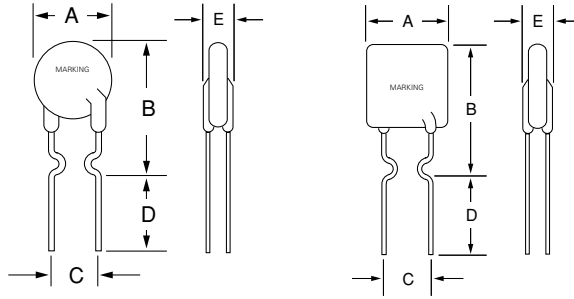
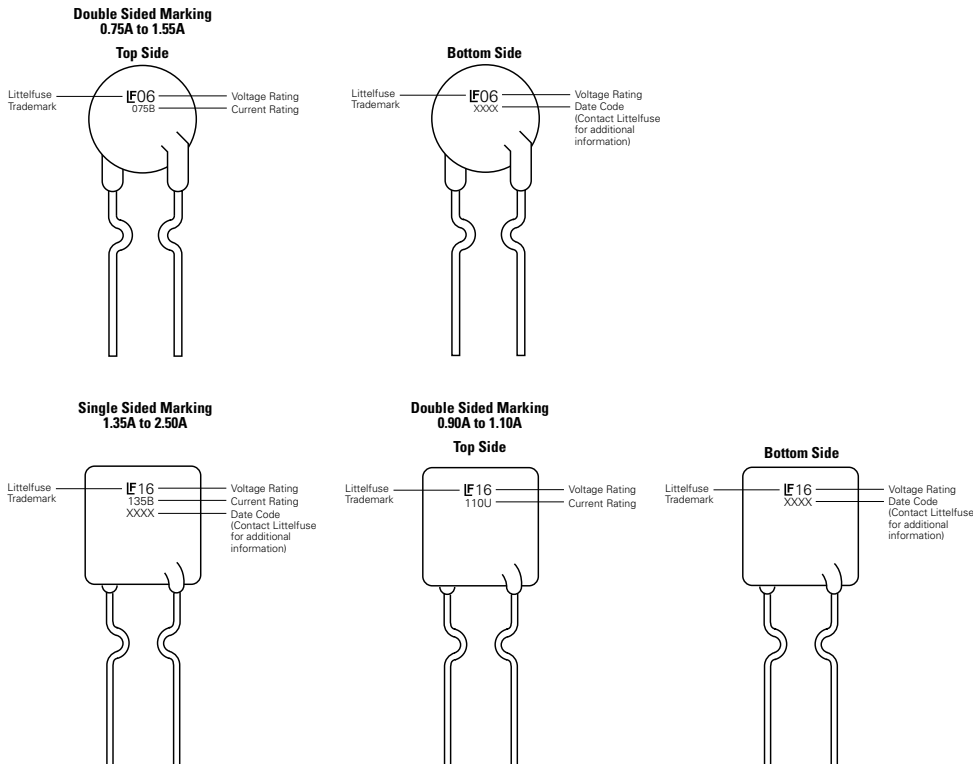


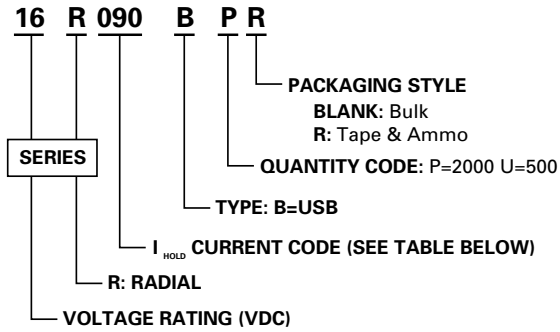
Figure 1

Figure 2

Part Number	A		B		C		D		E		Physical Characteristics			
	Inches	mm	Inches	mm	Inches	mm	Inches	mm	Inches	mm	Lead (dia)		Material	Figure
	Max.	Max.	Max.	Max.	Typ.	Typ.	Min.	Min.	Max.	Max.	Inches	mm		
06R075B	0.27	6.9	0.45	11.4	0.20	5.1	0.30	7.6	0.12	3	0.020	0.51	Sn/Cu	1
06R120B	0.27	6.9	0.46	11.7	0.20	5.1	0.30	7.6	0.12	3	0.020	0.51	Sn/CuFe	1
06R155B	0.27	6.9	0.46	11.7	0.20	5.1	0.30	7.6	0.12	3	0.020	0.51	Sn/CuFe	1
16R090B	0.29	7.4	0.48	12.2	0.20	5.1	0.30	7.6	0.12	3	0.020	0.51	Sn/CuFe	2
16R110B	0.29	7.4	0.56	14.2	0.20	5.1	0.30	7.6	0.12	3	0.020	0.51	Sn/CuFe	2
16R135B	0.35	8.9	0.53	13.5	0.20	5.1	0.30	7.6	0.12	3	0.020	0.51	Sn/CuFe	2
16R160B	0.35	8.9	0.60	15.2	0.20	5.1	0.30	7.6	0.12	3	0.020	0.51	Sn/CuFe	2
16R185B	0.40	10.2	0.62	15.7	0.20	5.1	0.30	7.6	0.12	3	0.020	0.51	Sn/CuFe	2
16R250B	0.45	11.4	0.72	18.3	0.20	5.1	0.30	7.6	0.12	3	0.020	0.51	Sn/CuFe	2

## Part Marking System



**Part Numbering System**

**Packaging**

I <sub>hold</sub> (A)	I <sub>hold</sub> Code	Voltage	Packaging Option	Quantity	Quantity & Packaging Codes
0.75	075	6	Bulk	500	U
			Tape and Ammo	2000	PR
1.20	120	6	Bulk	500	U
			Tape and Ammo	2000	PR
1.55	155	6	Bulk	500	U
			Tape and Ammo	2000	PR
0.90	080	16	Bulk	500	U
			Tape and Ammo	2000	PR
1.10	110	16	Bulk	500	U
			Tape and Ammo	2000	PR
1.35	135	16	Bulk	500	U
			Tape and Ammo	2000	PR
1.60	160	16	Bulk	500	U
			Tape and Ammo	2000	PR
1.85	185	16	Bulk	500	U
			Tape and Ammo	2000	PR
2.50	250	16	Bulk	500	U
			Tape and Ammo	2000	PR