

DATA SHEET

POSITIVE TEMPERATURE COEFFICIENT AC/DC POWER SUPPLY

BK16 series

RoHS compliant & Halogen free



Product specification— November 05, 2018 V.0



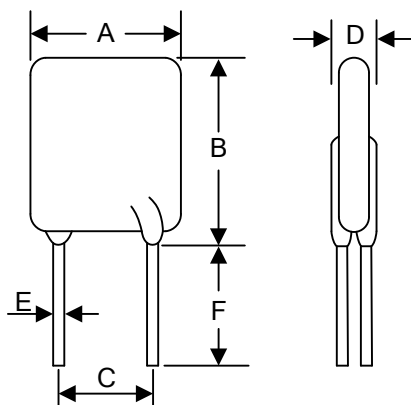
Positive Temperature Coefficient (PTC) Data Sheet

Features

- Radial leaded devices.
- Over-current protection
- Faster tripping, typical application in micro-motors for automobiles.
- Flame retardant epoxy polymer insulating material meets UL94 V-0 requirement.
- Available in lead-free version.
- Meets MSL level 1, per J-STD-020
- Safety certification: UL: E244500



Dimensions (Unit: mm)



SZ

Part Number	A	B	C	D	E	F
	Max.	Max.	±0.6	Max.	Typ.	Min.
BK16-300	9.0	12.0	5.1	3.1	0.8	7.6
BK16-400	10.0	13.0	5.1	3.1	0.8	7.6
BK16-500	10.7	15.0	5.1	3.1	0.8	7.6
BK16-600	13.5	15.0	5.1	3.1	0.8	7.6
BK16-700	13.5	18.0	5.1	3.1	0.8	7.6
BK16-800	14.5	20.0	5.1	3.1	0.8	7.6
BK16-900	15.0	23.0	5.1	3.1	0.8	7.6
BK16-1000	18.0	24.5	10.5	3.1	0.8	7.6
BK16-1100	18.0	24.5	10.5	3.1	0.8	7.6
BK16-1200	22.5	25.0	10.5	3.1	0.8	7.6
BK16-1400	24.0	28.0	10.5	3.1	0.8	7.6

Electrical Characteristics

Part Number	I_H	I_T	V_{MAX}	I_{MAX}	R_{MAX}	R_{MIN}	$Pd_{typ.}$
	(A)	(A)	(V _{DC})	(A)	(Ω)	(Ω)	(W)
BK16-300	3.0	6.0	16	100	0.072	0.020	2.3
BK16-400	4.0	8.0	16	100	0.043	0.018	2.4
BK16-500	5.0	10.0	16	100	0.030	0.014	2.6
BK16-600	6.0	12.0	16	100	0.025	0.009	2.8
BK16-700	7.0	14.0	16	100	0.019	0.008	3.0
BK16-800	8.0	16.0	16	100	0.0145	0.006	3.0
BK16-900	9.0	18.0	16	100	0.012	0.004	3.3
BK16-1000	10.0	20.0	16	100	0.011	0.004	3.7
BK16-1100	11.0	22.0	16	100	0.010	0.003	3.7
BK16-1200	12.0	24.0	16	100	0.009	0.003	4.2
BK16-1400	14.0	28.0	16	100	0.008	0.003	4.2

- I_H = Hold current: maximum current device will pass without tripping in 25°C still air.
- I_T = Trip current: minimum current at which the device will trip in 25°C still air.
- V_{MAX} = Maximum voltage device can withstand without damage at rated current.
- I_{MAX} = Maximum fault current device can withstand without damage at rated voltage.
- R_{MAX} = Maximum resistance of device in initial (un-soldered) state.
- R_{MIN} = Minimum resistance of device in initial (un-soldered) state.
- $Pd_{typ.}$ = Typical power dissipation from device when in the tripped state at 25°C still air.

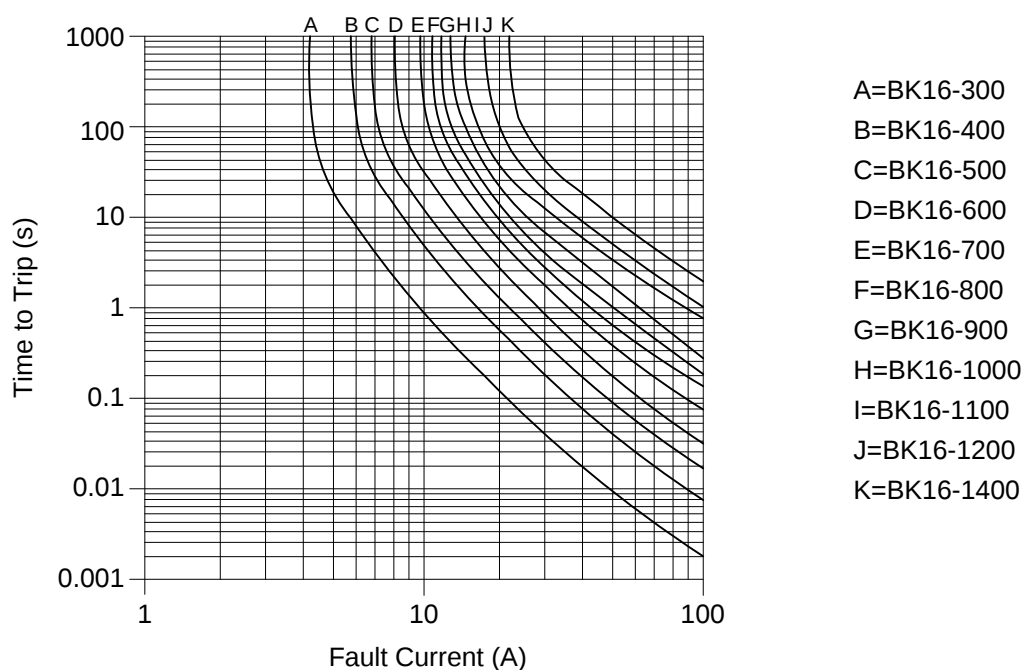
Thermal Derating Chart – I_H (A)

Part Number	Maximum Ambient Operating Temperatures (°C)								
	-20	0	25	30	40	50	60	70	85
BK16-300	3.96	3.60	3.00	2.88	2.64	2.40	2.13	1.83	1.56
BK16-400	5.28	4.80	4.00	3.84	3.52	3.20	2.84	2.44	2.08
BK16-500	6.60	6.00	5.00	4.80	4.40	4.00	3.55	3.05	2.60
BK16-600	7.92	7.20	6.00	5.76	5.28	4.80	4.26	3.66	3.12
BK16-700	9.24	8.40	7.00	6.72	6.16	5.60	4.97	4.27	3.64
BK16-800	10.56	9.60	8.00	7.68	7.04	6.40	5.68	4.88	4.16
BK16-900	11.88	10.80	9.00	8.64	7.92	7.20	6.39	5.49	4.68
BK16-1000	13.20	12.00	10.00	9.60	8.80	8.00	7.10	6.10	5.20
BK16-1100	14.52	13.20	11.00	10.56	9.68	8.80	7.81	6.71	5.72
BK16-1200	15.84	14.40	12.00	11.52	10.56	9.60	8.52	7.32	6.24
BK16-1400	18.48	16.80	14.00	13.44	12.32	11.20	9.94	8.54	7.28

Test Procedures and Requirement

Items	Test Conditions	Accept/Reject Criteria
Resistance	In still air @25°C	$R_{\min} \leq R \leq R_{\max}$
Time to Trip	Specified current, $V_{\max}$, 25°C	$T \leq \max.$ Time to trip (T_{trip})
Hold Current	30 min, at I_H	No trip
Trip Cycle Life	$V_{\max}$, $I_{\max}$, 100 cycles	No arcing or burning
Trip Endurance	$V_{\max}$, 24hours	No arcing or burning

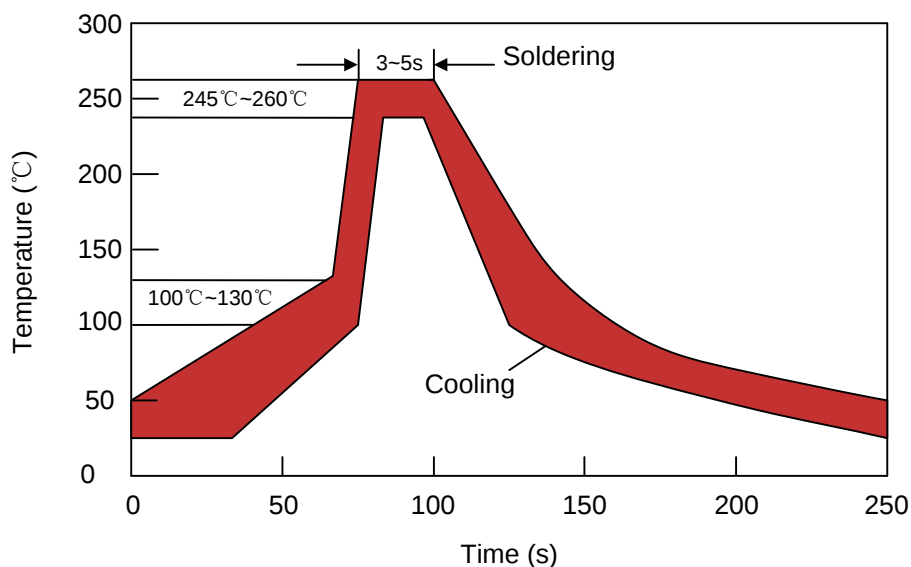
Typical Time-to-Trip Charts @25°C



Storage Recommendations

- Storage Temperature: -10°C ~ +40°C
- Relative Humidity: ≤80%RH
- Keep away from corrosive atmosphere and sunlight.
- Period of Storage: 1 year.

Wave Soldering Recommendation Parameters



Items	Conditions
Pre-Heating Zone	Refer to the condition recommended by the flux manufacturer. Maximum ramping rate should not exceed 4°C/sec.
Soldering Zone	Maximum solder temperature should not exceed 260°C
Cooling Zone	Forced cooling

Manual Soldering Recommendation Parameters

Items	Conditions
Soldering condition	The highest power of the manual soldering iron should be 30W or less, soldering temperature should not be higher than 280°C.
Soldering time	The soldering time should be kept within 3 seconds, otherwise it might cause insulation layer cracking, and increased part resistance.
Soldering position	The distance on the leads between the soldering point and bottom of the PPTC body should be equal or greater than 4mm.
Other	The soldering iron should not contact the PPTC body except the leads. If the soldering conditions are kept to lower temperature, less time and larger distance, the outcome of the soldering will be better.

- Notes: 1. Before using the device must be stored in the original bags, if the storage conditions do not guarantee, the device may not be able to meet the given value.
2. The devices can't used for reflow soldering.

Mechanical Characteristics



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Items	Specifications	Test Conditions/Methods
Tensile strength	No visible damage	1.0Kgf, 10 seconds
Bending strength	No visible damage	0.5Kgf, 90°, 3 times
Vibration	No visible damage	Freq: 10-55Hz, Amp: 0.75mm, 1min

Reliability Test

Items	Specifications	Test Conditions/Methods
Solder ability	No visible damage, Solder OK, Solder area $\geq 95\%$	245 $\pm$ 5°C, 2 $\pm$ 1s, dipping depth=0.5inch max from the body
Resistance to soldering heat	No visible damage, Electrical OK, $ \Delta R/R0 \leq 50\%$	260 $\pm$ 5°C, 10+2/-0s
Damp heat, steady state	No visible damage, Electrical OK, $ \Delta R/R0 \leq 20\%$	40 $\pm$ 2°C, 90~95 % RH, total 48Hrs, after 4Hrs test electrical parameter
Temperature cycling	No visible damage, Electrical OK, $ \Delta R/R0 \leq 20\%$	Ta=-10+0/-1°C 30min, Ta=70+1/-0°C 30min, 5cycles, after 1hr test electrical parameter

Packaging

Bag	Part Number	Dimension A×B (mm)	Quantity
	BK16-300	150×200	1000pcs/bag 4000pcs/box
	BK16-400		
Inner Box	BK16-500	120×150	500pcs/bag 2000pcs/box
	BK16-600		
	BK16-700	150×200	500pcs/bag 2000pcs/box
	BK16-800		
	BK16-900		
	BK16-1000	150×200	200pcs/bag 800pcs/box
	BK16-1100		
	BK16-1200		
	BK16-1400		

