

# Polymer PTC Resettable Fuse For Battery Protection

JK-P

Series

#### Features:

- ♦ Strap devices, Axial leaded
- ♦ Protection for NiCd/NiMH rechargesble battery packs,Li-ion/Polymer Li-ion battery
- ♦ Available in lead-free version
- ♦ Agency recognition:UL, CSA, TUV



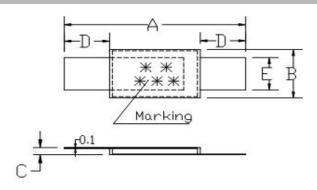






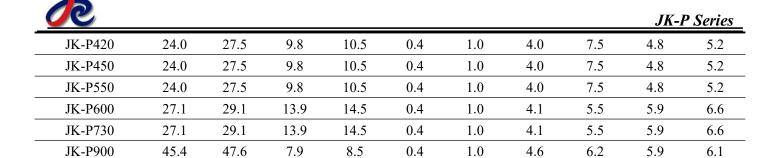


## **Product Dimensions**



Unit: mm JK-P Series

A		В		С		D		Е	
Min	Max	Min	Max	Min	Max	Min	Max	Min	Max
17.0	22.1	4.9	5.5	0.4	1.0	3.5	6.0	3.8	4.2
17.0	22.1	4.9	5.5	0.4	1.0	3.5	6.0	3.8	4.2
17.0	22.1	4.9	5.5	0.4	1.0	3.5	6.0	3.8	4.2
20.9	23.1	4.6	5.5	0.4	1.0	3.5	6.0	3.8	4.2
20.9	23.1	4.6	5.5	0.4	1.0	3.5	6.0	3.8	4.2
20.9	23.1	4.6	5.5	0.4	1.0	3.5	6.0	3.8	4.2
20.9	23.1	4.6	5.5	0.4	1.0	3.5	6.0	3.8	4.2
20.9	23.1	4.6	5.5	0.4	1.0	3.5	6.0	3.8	4.2
20.9	23.1	4.6	5.5	0.4	1.0	3.5	6.0	3.8	4.2
24.0	27.5	6.9	7.5	0.4	1.0	4.0	7.5	4.8	5.2
24.0	27.5	6.9	7.5	0.4	1.0	4.0	7.5	4.8	5.2
24.0	27.5	6.9	7.5	0.4	1.0	4.0	7.5	4.8	5.2
	Min 17.0 17.0 17.0 20.9 20.9 20.9 20.9 20.9 20.9 24.0 24.0	Min         Max           17.0         22.1           17.0         22.1           17.0         22.1           20.9         23.1           20.9         23.1           20.9         23.1           20.9         23.1           20.9         23.1           20.9         23.1           20.9         23.1           24.0         27.5           24.0         27.5	Min         Max         Min           17.0         22.1         4.9           17.0         22.1         4.9           17.0         22.1         4.9           20.9         23.1         4.6           20.9         23.1         4.6           20.9         23.1         4.6           20.9         23.1         4.6           20.9         23.1         4.6           20.9         23.1         4.6           20.9         23.1         4.6           24.0         27.5         6.9           24.0         27.5         6.9           24.0         27.5         6.9	Min         Max         Min         Max           17.0         22.1         4.9         5.5           17.0         22.1         4.9         5.5           17.0         22.1         4.9         5.5           20.9         23.1         4.6         5.5           20.9         23.1         4.6         5.5           20.9         23.1         4.6         5.5           20.9         23.1         4.6         5.5           20.9         23.1         4.6         5.5           20.9         23.1         4.6         5.5           20.9         23.1         4.6         5.5           24.0         27.5         6.9         7.5           24.0         27.5         6.9         7.5	Min         Max         Min         Max         Min           17.0         22.1         4.9         5.5         0.4           17.0         22.1         4.9         5.5         0.4           17.0         22.1         4.9         5.5         0.4           20.9         23.1         4.6         5.5         0.4           20.9         23.1         4.6         5.5         0.4           20.9         23.1         4.6         5.5         0.4           20.9         23.1         4.6         5.5         0.4           20.9         23.1         4.6         5.5         0.4           20.9         23.1         4.6         5.5         0.4           20.9         23.1         4.6         5.5         0.4           20.9         23.1         4.6         5.5         0.4           24.0         27.5         6.9         7.5         0.4           24.0         27.5         6.9         7.5         0.4	Min         Max         Min         Max         Min         Max           17.0         22.1         4.9         5.5         0.4         1.0           17.0         22.1         4.9         5.5         0.4         1.0           17.0         22.1         4.9         5.5         0.4         1.0           20.9         23.1         4.6         5.5         0.4         1.0           20.9         23.1         4.6         5.5         0.4         1.0           20.9         23.1         4.6         5.5         0.4         1.0           20.9         23.1         4.6         5.5         0.4         1.0           20.9         23.1         4.6         5.5         0.4         1.0           20.9         23.1         4.6         5.5         0.4         1.0           20.9         23.1         4.6         5.5         0.4         1.0           24.0         27.5         6.9         7.5         0.4         1.0           24.0         27.5         6.9         7.5         0.4         1.0	Min         Max         Min         Max         Min         Max         Min           17.0         22.1         4.9         5.5         0.4         1.0         3.5           17.0         22.1         4.9         5.5         0.4         1.0         3.5           17.0         22.1         4.9         5.5         0.4         1.0         3.5           20.9         23.1         4.6         5.5         0.4         1.0         3.5           20.9         23.1         4.6         5.5         0.4         1.0         3.5           20.9         23.1         4.6         5.5         0.4         1.0         3.5           20.9         23.1         4.6         5.5         0.4         1.0         3.5           20.9         23.1         4.6         5.5         0.4         1.0         3.5           20.9         23.1         4.6         5.5         0.4         1.0         3.5           20.9         23.1         4.6         5.5         0.4         1.0         3.5           20.9         23.1         4.6         5.5         0.4         1.0         3.5           24.0	Min         Max         Min         Max         Min         Max         Min         Max           17.0         22.1         4.9         5.5         0.4         1.0         3.5         6.0           17.0         22.1         4.9         5.5         0.4         1.0         3.5         6.0           17.0         22.1         4.9         5.5         0.4         1.0         3.5         6.0           20.9         23.1         4.6         5.5         0.4         1.0         3.5         6.0           20.9         23.1         4.6         5.5         0.4         1.0         3.5         6.0           20.9         23.1         4.6         5.5         0.4         1.0         3.5         6.0           20.9         23.1         4.6         5.5         0.4         1.0         3.5         6.0           20.9         23.1         4.6         5.5         0.4         1.0         3.5         6.0           20.9         23.1         4.6         5.5         0.4         1.0         3.5         6.0           20.9         23.1         4.6         5.5         0.4         1.0         3.5 <td>Min         Max         Min         Max         Min         Max         Min         Max         Min           17.0         22.1         4.9         5.5         0.4         1.0         3.5         6.0         3.8           17.0         22.1         4.9         5.5         0.4         1.0         3.5         6.0         3.8           17.0         22.1         4.9         5.5         0.4         1.0         3.5         6.0         3.8           20.9         23.1         4.6         5.5         0.4         1.0         3.5         6.0         3.8           20.9         23.1         4.6         5.5         0.4         1.0         3.5         6.0         3.8           20.9         23.1         4.6         5.5         0.4         1.0         3.5         6.0         3.8           20.9         23.1         4.6         5.5         0.4         1.0         3.5         6.0         3.8           20.9         23.1         4.6         5.5         0.4         1.0         3.5         6.0         3.8           20.9         23.1         4.6         5.5         0.4         1.0         3.5</td>	Min         Max         Min         Max         Min         Max         Min         Max         Min           17.0         22.1         4.9         5.5         0.4         1.0         3.5         6.0         3.8           17.0         22.1         4.9         5.5         0.4         1.0         3.5         6.0         3.8           17.0         22.1         4.9         5.5         0.4         1.0         3.5         6.0         3.8           20.9         23.1         4.6         5.5         0.4         1.0         3.5         6.0         3.8           20.9         23.1         4.6         5.5         0.4         1.0         3.5         6.0         3.8           20.9         23.1         4.6         5.5         0.4         1.0         3.5         6.0         3.8           20.9         23.1         4.6         5.5         0.4         1.0         3.5         6.0         3.8           20.9         23.1         4.6         5.5         0.4         1.0         3.5         6.0         3.8           20.9         23.1         4.6         5.5         0.4         1.0         3.5



0.4

14.0

4.2

5.8

5.9

6.1

1.0

### Thermal Derating Chart-IH (A)

58.0

60.0

13.4

#### JK-P Series

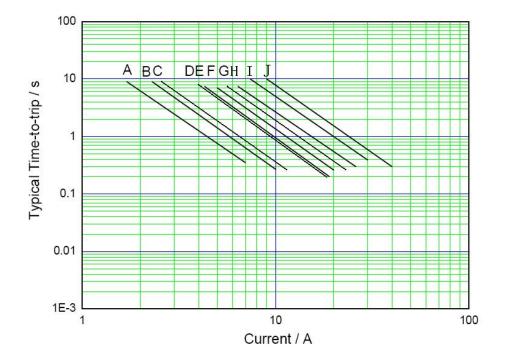
JK-P1410

M - 1 - 1			Max	imum amb	oient opera	ting tempe	eratures (	℃)		
Model	-40	-20	0	25	40	50	60	70	80	85
JK-P070	1.1	1.0	0.8	0.7	0.5	0.4	0.3	0.2	0.2	0.1
JK-P100	1.8	1.6	1.4	1.0	0.8	0.7	0.6	0.4	0.3	0.2
JK-P120	1.9	1.7	1.5	1.2	1.0	0.9	0.8	0.6	0.5	0.4
JK-P175	2.5	2.2	2.0	1.75	1.4	1.3	1.2	1.0	0.9	0.8
JK-P180	2.6	2.3	2.1	1.8	1.4	1.3	1.2	1.0	0.9	0.8
JK-P190	2.8	2.5	2.3	1.9	1.5	1.4	1.3	1.1	0.9	0.8
JK-P200	3.1	2.8	2.5	2.0	1.7	1.5	1.4	1.2	1.0	0.9
JK-P210	3.3	3.0	2.7	2.1	1.8	1.6	1.5	1.3	1.1	1.0
JK-P260	3.8	3.4	3.1	2.6	2.2	2.0	1.9	1.7	1.4	1.3
JK-P300	5.1	4.4	3.7	3.0	2.3	1.9	1.6	1.2	0.9	0.7
JK-P350	5.3	4.8	4.3	3.5	3.0	2.7	2.5	2.1	1.8	1.7
JK-P380	5.4	4.9	4.4	3.8	3.3	3.0	2.8	2.5	2.3	2.1
JK-P420	6.3	5.7	5.1	4.2	3.6	3.3	3.0	2.6	2.2	2.1
JK-P450	6.5	5.8	5.3	4.5	3.9	3.6	3.3	2.9	2.6	2.4
JK-P550	7.6	6.9	6.2	55	4.7	4.3	4.0	3.6	3.2	3.0
JK-P600	8.7	7.8	7.1	6.0	5.2	4.7	4.4	3.9	3.4	3.2
JK-P730	10.5	9.5	8.6	7.3	6.3	5.7	5.4	4.7	4.2	4.0
JK-P900	12.7	11.4	10	9.0	7.5	6.8	6.2	5.5	4.9	4.5
JK-P1410	19.9	17.8	15.7	14.1	11.8	10.8	9.7	8.7	7.7	7.2

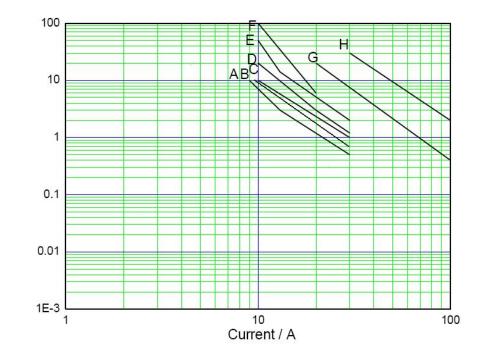


Typical Time-to-trip / s

## Typical Time-to-Trip Charts at 25℃



A----JK-P070
B----JK-P100
C----JK-P120
D----JK-P175
E----JK-P180
F----JK-P190
G----JK-P200
H----JK-P210
I----JK-P260
J----JK-P300



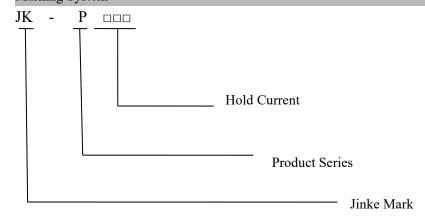
A--- JK-P350
B--- JK-P420
C--- JK-P450
D--- JK-P550
E--- JK-P600
F--- JK-P730
G--- JK-P900
H--- JK-P1410



## Electrical Characteristic

M- 1-1	$I_{hold}$	$I_{trip}$	$V_{\text{max}}$	$I_{\text{max}}$	$P_{d}$	$I_{trip}$	$T_{trip}$	$R_{min}$	$R_{\text{max}}$	R <sub>1max</sub>
Model	(A)	(A)	(V)	(A)	(W)	Current(A)	Time(S)	$(\Omega)$	$(\Omega)$	$(\Omega)$
JK-P070	0.70	1.45	16	100	1.60	3.5	5.0	100	200	400
JK-P100	1.00	2.50	16	100	1.60	5.0	5.0	70	130	260
JK-P120	1.20	2.70	16	100	1.60	6.0	5.0	60	120	240
JK-P175	1.75	3.80	16	100	1.60	8.5	5.0	30	65	130
JK-P180	1.80	3.80	16	100	1.60	9.0	5.0	30	60	120
JK-P190	1.90	4.20	16	100	1.60	9.5	5.0	25	45	90
JK-P200	2.00	4.40	16	100	1.60	10.0	5.0	20	40	80
JK-P210	2.10	4.40	16	100	1.60	10.5	5.0	20	35	70
JK-P260	2.60	5.20	16	100	1.60	13.0	5.0	15	30	60
JK-P300	3.00	6.30	24	100	2.40	15.0	5.0	15	31	62
JK-P350	3.50	7.00	24	100	2.40	17.5	5.0	17	31	62
JK-P380	3.80	7.60	24	100	2.40	19.0	5.0	13	22	44
JK-P420	4.20	8.30	24	100	2.00	21.0	5.0	12	24	48
JK-P450	4.50	9.00	20	100	2.00	22.5	5.0	11	20	40
JK-P550	5.50	10.50	20	100	2.00	27.5	5.0	9	16	32
JK-P600	6.00	11.70	20	100	2.80	30.0	5.0	7	14	28
JK-P730	7.30	14.10	20	100	3.30	36.5	5.0	5	12	24
JK-P900	9.00	16.70	20	100	3.80	45.0	5.0	6	10	20
JK-P1410	14.10	26.20	20	100	6.00	70.5	5.0	3	5	10

## Marking System





#### Test Procedures And Requirements

Test	<b>Test Conditions</b>	Accept/Reject Criteria
Resistance	In still air @ 25℃	$R_{min} \leq R \leq R_{max}$
Time to Trip	Specified current, V <sub>max</sub> , 25℃	Tmaximum Time to Trip
Hold Current	30min, at I <sub>H</sub>	No trip
Trip Cycle Life	Vmax, Imax, 1000cycles	No arcing or burning
Trip Endurance	Vmax, 24hours	No arcing or burning

#### Physical Characteristics and Environmental Specifications

#### **Physical Characteristics**

Lead material	0.125mm nominal hickness,quarter-hard nickel
Tape material	Polyester

#### **Environmental Specifications**

Test	Conditions	Resistance Change
Passive aging	70°C,1000hours	$\pm 10\%$
Humidity aging	85℃/85%RH.7days	±5%
Vibration	MIL-STD-883C, Test Condition A	No chage

#### **Electrical Specifications:**

 $I_{hold}$ =Hold current: maximum current device will not trip in 25°C still air.

I<sub>trip</sub>= Trip current: minimum current device will always trip in 25°C still air.

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

I<sub>max</sub>=Maximum fault current device can withstand without damage at rated voltage(v<sub>max</sub>).

 $P_{d \text{ max}}$ = Power dissipated when device is in the tripped state in 25°C still air environment at rated voltage.

Max Time-to-trip=Maximum time to trip(s) at assigned current.

 $R_{min}$ =Minimum device resistance prior to tripping at 25 °C.

 $R_{max}$ =Maximum device resistance prior to tripping at 25 °C.

 $R_{1\text{max}}\!\!=\!\!Maximum$  device resistance one hour after it is tripped at  $25\,^\circ\!\text{C}$ 

#### Packaging and Storage

#### **Packaging**

Bulk,500/1000pcs per bag



#### Storage

The maximum ambient temperature shall not exceed 40°C. Storage temperatures higher than 40°C couldresult in the deformation of packaging materials. The maximum relative humidity recommended for storage is70%. High humidity with high temperature can accelerate the oxidation of the solder plating on the terminationand reduce the solderability of the components. Sealed plastic bags with desiccant shall be used to reduce the oxidation of the termination and shall only be opened prior to use. The products shall not be stored inareas where harmful gases containing sulfur or chlorine are present.

#### Warning:

Operation beyond the maximum ratings or improper use may result in device damage and possibleelectrical arcing and flame. The devices are intended for protection against occasional overcurrent or overtemperature fault conditions and should not be used when repeated fault conditions or prolonged trip events are anticipated. Contamination of the PPTC material with certain silicon based oils or some aggressive solvents canadversely impact the performance of the devices. Device performance can be impacted negatively if devices are handled in a manner inconsistent with a large inductance can generate a circuit voltage (L di/dt) above the rated voltage of the resettable device.

#### Notes:

The specification is intended to present application, product and technical data to assist the user in selecting PPTC circuit production devices, However, users should imdependently evaluate and test the suitability of each product. JinRui makes on warranties as to the acduracy or completeness of the information and disclaims any liatility resulting form its use, JinRui's only obligations are those im the JinRui Standard Rerms and Conditions of Sale and in no case will JinRui be liable for any incidental, imdirect, or consequential damages arising from the sale, resale, or misues of its products. Jinrui reserves the right to change of update, without notice, any information contained in this specification.

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