

Positive Temperature Coefficient (PTC) Datasheet

Features

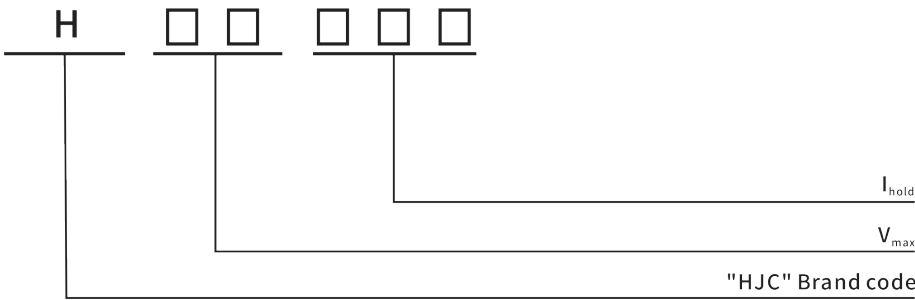
- Max Dc voltage 250V
- Radial leaded Devices
- Over-current protection
- Fast responding to fault current
- RoHS compliant & Lead-Free & Halogen Free
- Cured, flame retardant epoxy polymer insulating material meets UL94V-0

Max Dc voltage 250V
I Hold 20mA to 2000mA

Applications

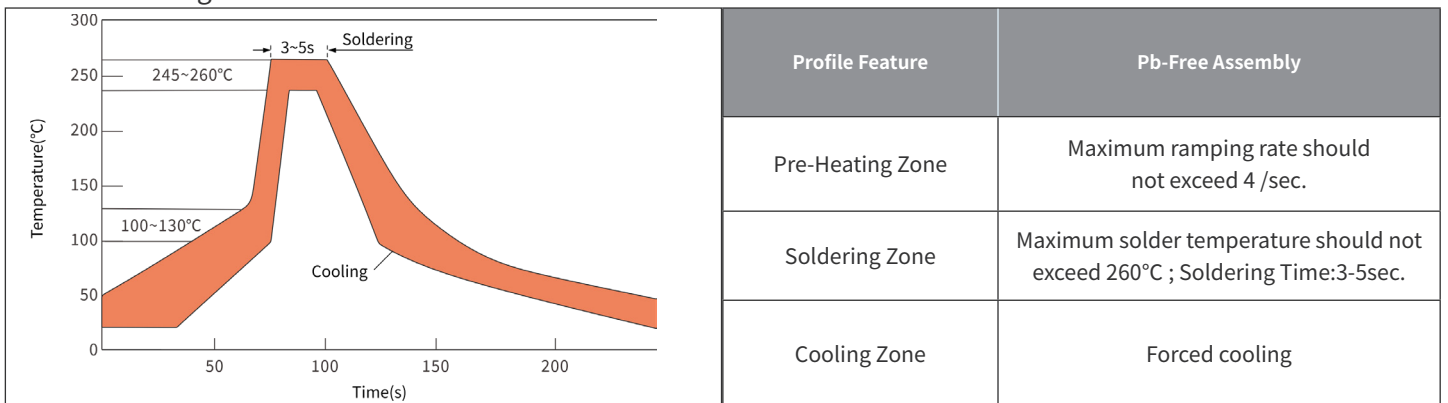
- Powered supplies
- General electronics
- Industrial controls
- Motor protection
- Game machines, Portable electronics, Battery
- Plug and play protection for motherboards and peripherals

Part Number Code



Recommended Soldering Conditions

Wave Soldering Recommendation Parameters



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. Iron should not contact the PPTC body except the leads.

● Electrical Characteristics (Ta=25°C Unless otherwise specified)

Part Number	Marking	I_{hold}	I_{trip}	V_{max}	I_{max}	$P_{d\ typ}$	Max. Time-to-trip		R_{min}	R_{max}
		(mA)	(mA)	(V) _{DC}	(A)	(W)	(A)	(Sec)	(Ω)	(Ω)
H250-020	H250 020	20	50	250	3	1.0	0.5	0.5	50.0	160.0
H250-030	H250 030	30	70	250	3	1.0	0.5	0.5	40.0	120.0
H250-040	H250 040	40	80	250	3	1.0	0.5	1.5	30.0	60.0
H250-050	H250 050	50	100	250	3	1.0	0.5	2.0	25.0	50.0
H250-060	H250 060	60	120	250	3	1.0	0.5	2.0	20.0	60.0
H250-080	H250 080	80	160	250	3	1.0	1.0	0.5	12.0	22.0
H250-090	H250 090	90	180	250	3	1.0	1.0	0.8	10.0	20.0
H250-100	H250 100	100	200	250	3	1.0	1.0	1.0	10.0	20.0
H250-110	H250 110	110	220	250	3	1.0	1.0	2.0	6.0	12.0
H250-120	H250 120	120	240	250	3	1.0	1.0	2.0	6.0	12.0
H250-145	H250 145	145	290	250	3	1.0	1.0	5.0	3.5	6.5
H250-180	H250 180	180	650	250	3	1.8	3.0	1.5	1.0	4.0
H250-200	H250 200	200	400	250	5	2.4	3.0	5.0	3.0	6.0
H250-400	H250 400	400	800	250	5	2.8	3.0	8.0	1.0	3.0
H250-600	H250 600	600	1200	250	5	3.2	3.0	12.0	0.6	2.0
H250-800	H250 800	800	1600	250	5	3.6	4.0	18.0	0.4	1.0
H250-1000	H250 1000	1000	2000	250	7	3.6	5.0	20.0	0.3	0.8
H250-1200	H250 1200	1200	2400	250	7	3.6	6.0	20.0	0.2	0.8
H250-1500	H250 1500	1500	3000	250	7	4.8	7.5	20.0	0.2	0.6
H250-2000	H250 2000	2000	4000	250	7	4.8	10.0	20.0	0.2	0.4

● Vocabulary

- I_{hold} = Hold current: maximum current device will pass without tripping in 25°C still air.
 - I_{trip} = 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}).
 - I_{max} = Maximum fault current device can withstand without damage at rated voltage (V_{max}).
 - $P_{d\ typ.}$ = Typical power dissipated from device when in the tripped state at 25°C still air.
 - R_{min} = Minimum device resistance at 25°C prior to tripping.
 - R_{max} = Maximum device resistance at 25°C prior to tripping.
- Caution: Operation beyond the specified ratings may result in damage and possible arcing and flame.

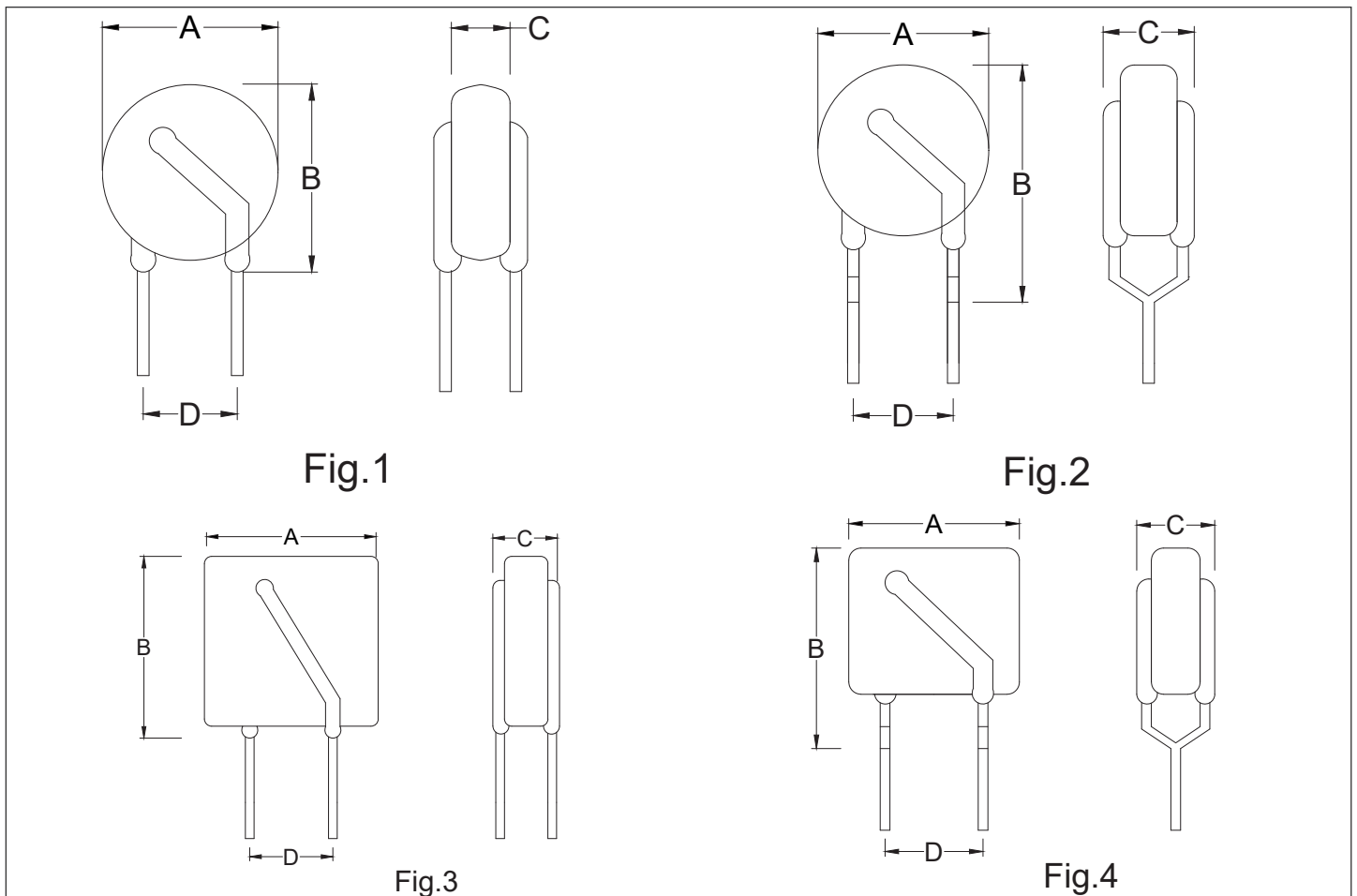
● Thermal Derating Chart - I Hold

Part Number	Ambient operating temperature hold current(I_{hold})									
	-40°C	-20°C	0°C	25°C	30°C	40°C	50°C	60°C	70°C	85°C
H250 SERIES	148%	132%	117%	100%	91%	85%	77%	68%	61%	45%

● Environmental Specifications

Operating / Storage temperature:	-40°C to +85°C
Passive Aging :	+85°C , 1000 hours
Humidity Aging :	+85°C , 85%R.H. 1000hours
Thermal Shock :	+125°C /-55°C 10 times
Solvent Resistance:	MIL-STD-202, Method 215 No change
Vibration:	MIL-STD-202,Method 201 No change
Moisture Level Sensitivity	Level 1, J-STD-020C
Storage Conditions:	Light-proof, Hermetically Sealed, Moisture-proof

● Physical Dimensions & Recommended Pad Layout



Part Number	Dimensions (mm)				Lead material	Shape
	A (max)	B (max)	C (max)	D (typ)	Tinned matel(mm)	Fig.
H250-020	7.4	12.7	4.5	5.1	22AWG/Φ0.6	1/2
H250-030	7.4	12.7	4.5	5.1	22AWG/Φ0.6	1/2
H250-040	7.4	12.7	4.5	5.1	22AWG/Φ0.6	1/2
H250-050	7.4	12.7	4.5	5.1	22AWG/Φ0.6	1/2
H250-060	7.4	12.7	4.5	5.1	22AWG/Φ0.6	1/2
H250-080	7.4	12.7	4.5	5.1	22AWG/Φ0.6	2
H250-090	7.4	12.7	4.5	5.1	22AWG/Φ0.6	2

H250 SERIES

Radial leaded PTC devices.

Part Number	Dimensions (mm)				Lead material	Shape
	A max	B max	C max	D E min	Tinned matel(mm)	Fig.
H250-100	7.8	12.6	4.5	5.1	22AWG/Φ0.6	1
H250-110	7.0	12.6	4.5	5.1	22AWG/Φ0.6	4
H250-120	7.0	12.6	4.5	5.1	22AWG/Φ0.6	4
H250-145	7.0	12.6	4.5	5.1	22AWG/Φ0.6	4
H250-180	9.0	11.0	4.5	5.1	22AWG/Φ0.6	4
H250-200	12.0	17.0	4.5	5.1	22AWG/Φ0.6	3
H250-400	12.0	17.0	4.5	5.1	22AWG/Φ0.6	3
H250-600	12.0	17.0	4.5	5.1	22AWG/Φ0.6	3
H250-800	20.0	22.5	4.5	5.1	20 AWG/Φ0.8	3
H250-1000	20.0	22.5	4.5	5.1	20 AWG/Φ0.8	3
H250-1200	22.0	28.0	4.5	5.1	20 AWG/Φ0.8	3
H250-1500	25.0	30.0	4.5	5.1	20 AWG/Φ0.8	3
H250-2000	26.0	32.0	4.5	10.2	20 AWG/Φ0.8	3

Note: Dimensions A, B, and C are the maximum values, and the standard tolerance for value D is $\pm 0.75\text{mm}$.

● Ordering Information

DELIVERY MODE	Part Number	MPQ(PCS)
Bulk	H250-020~H250-180	1,000
	H250-200~H250-600	500
	H250-800~H250-2000	200

● Warning

- Users shall independently assess the suitability of these devices for each of their applications.
- Operation of these devices beyond the stated maximum ratings could result in damage to the devices and lead to electrical arcing and/or fire.
 - These devices are intended to protect against the effects of temporary over-current or over-temperature conditions and are not intended to perform as protective devices where such conditions are expected to be repetitive or prolonged in duration.
 - Exposure to silicon-based oils, solvents, electrolytes, acids, and similar materials can adversely affect the prolonged of these PPTC devices.
 - These devices undergo thermal expansion under fault conditions, and thus shall be provided with adequate space and be protected against mechanical stresses.
 - Circuits with inductance may generate a voltage ($L di/dt$) above the rated voltage of the PPTC device.