

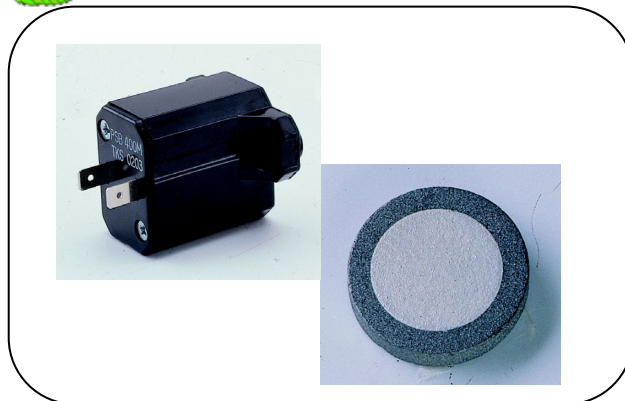
CPTC Thermistor: PS Series

Motor Starter



■ Features

1. RoHS compliant
Two versions available
PSA versions are uncased , metallized disk for clamp-contacting
PSB versions are cased
2. Voltage ratings: from 160V_{AC} to 500V_{AC}
3. Stable over a long life
4. No noise generated
5. Operating temperature range :
-10 ~ +85°C (V=V_{max})
-25 ~ +125°C (V=0)
6. Agency Recognition: UL / cUL / CQC / TUV



■ Recommended Applications

1. Home appliances (Fridge, Air conditioner)

■ Part No. Code

P	S	B	3	3	0	M	A	2	C	5	0	1	0	0	Y		
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16		
Product Code PSPTC Thermistor for Motor Starter		Resistance (R₂₅) 4R74.7Ω 33033Ω 101100Ω		Curie Temperature A0100℃ A2120℃ A3130℃ AG135℃		Structure Code 01~09		RoHS Control Code YRoHS Series		Internal Control Code		Series A Disc Type B Case Type		Tolerance of R₂₅ M±20% H±25% N±30% YSpecial		Maximum Voltage A4140V A8180V B5250V C5350V D2420V E0500V	

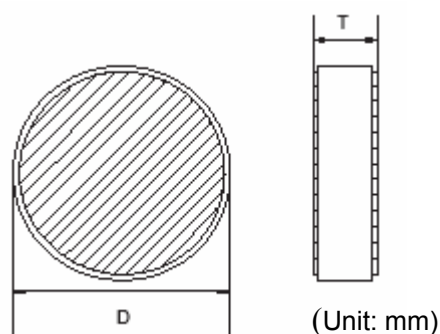
CPTC Thermistor: PS Series

Motor Starter



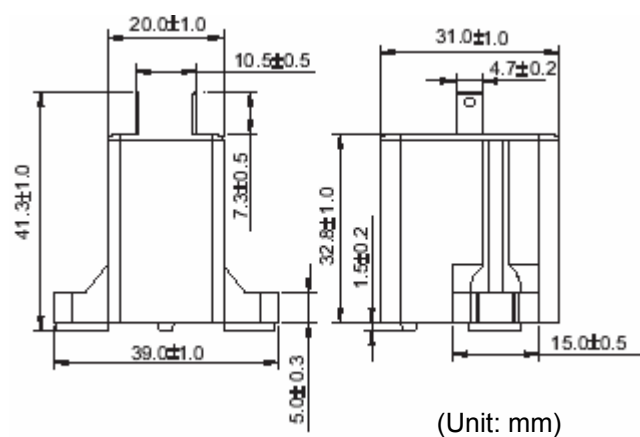
■ Dimensions

PSA Series

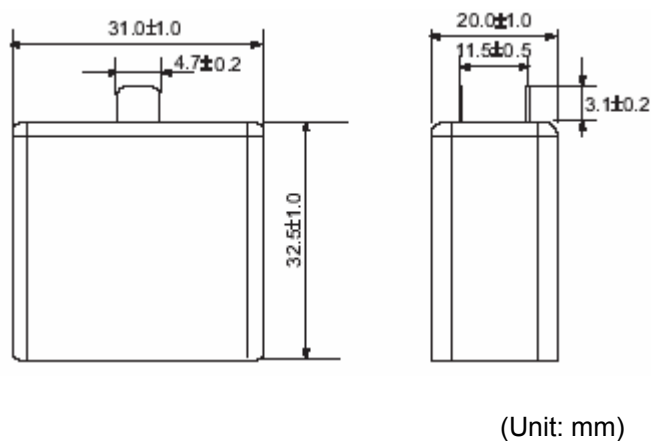


PSB Series

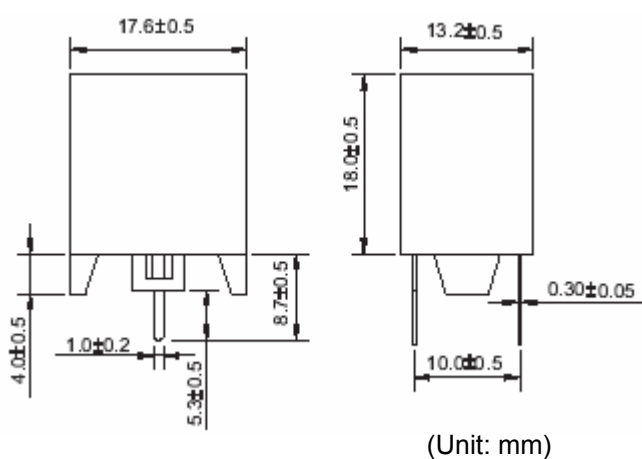
PSB□□□□□□□□01



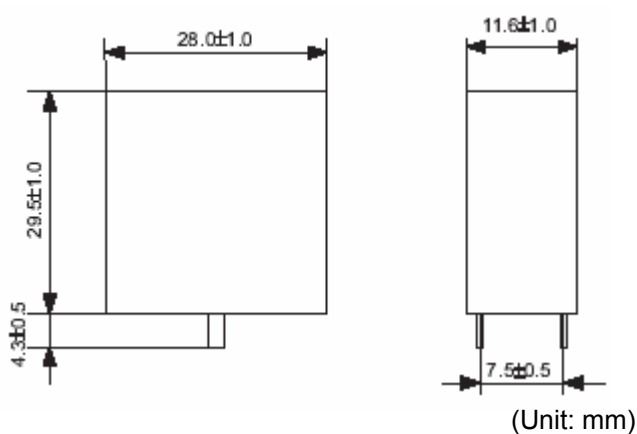
PSB□□□□□□□□02



PSB□□□□□□□□03



PSB□□□□□□□□09



CPTC Thermistor: PS Series

Motor Starter



■ Characteristics

PSA Series

Part No.	Curie Temperature	Nominal Zero-power Resistance	Max. Voltage	Max. Current	Operating Time	Equilibrium Power	Recovery Time	Reference Coil Resistance	Dimensions		Safety Approvals			
	T _c (°C)	R ₂₅ (Ω)	V _{max} (V _{AC})	I _{max} (A)	t _o (s)	P _{max} (W)	t _{rmax} (s)	R _{ref} (Ω)	D (mm)	T (mm)	UL	cUL	CQC	TUV
PSA3R3□A2A604	120±10	3.3	160	12	0.3-1.2	3.5	90	10	20.0 +0.5 -1.0	2.5 ±0.2	√	√	√	√
PSA3R9□A2A604		3.9	160	12	0.3-1.2	3.5	90	10			√	√	√	√
PSA4R7□A2A804		4.7	180	12	0.3-1.2	3.5	90	10			√	√	√	√
PSA5R6□A2A804		5.6	180	12	0.3-1.2	3.5	90	10			√	√	√	√
PSA6R8□A2B204		6.8	220	10	0.3-1.2	3.5	90	15			√	√	√	√
PSA100□A2B404		10	240	10	0.2-0.8	3	85	15			√	√	√	√
PSA150□A2B604		15	260	10	0.2-0.8	3	85	25			√	√	√	√
PSA220□A2C004		22	300	9	0.2-0.8	3	85	25			√	√	√	√
PSA330□A2C004		33	300	9	0.2-0.8	3	85	25			√	√	√	√
PSA470□A2C004		47	300	9	0.2-0.8	3	85	25			√	√	√	√
PSA680□A2C204		68	320	9	0.2-0.8	3	85	25			√	√	√	√
PSA4R7□A2A705	120±10	4.7	170	12	0.2-1.0	3.2	80	10	17.5 +0.5 -1.0	2.5 ±0.2	√	√	√	√
PSA5R6□A2A905		5.6	190	12	0.2-1.0	3.2	80	10			√	√	√	√
PSA6R8□A2B205		6.8	220	10	0.2-1.0	3.2	80	15			√	√	√	√
PSA100□A2B405		10	240	9	0.2-1.0	3	80	20			√	√	√	√
PSA150□A2B605		15	260	8	0.2-1.0	3	80	20			√	√	√	√
PSA220□A2B805		22	280	8	0.2-0.8	3	80	15			√	√	√	√
PSA330□A2B805		33	280	7	0.2-0.8	3	80	20			√	√	√	√
PSA470□A2C005		47	300	6	0.2-0.8	3	80	20			√	√	√	√
PSA680□A2C005		68	300	5	0.2-0.8	3	80	20			√	√	√	√
PSA3R3□AGA604	135±10	3.3	160	12	0.3-1.2	3.5	70	10	20.0 +0.5 -1.0	2.5 ±0.2	√	√	√	√
PSA3R9□AGA604		3.9	160	12	0.3-1.2	3.5	70	10			√	√	√	√
PSA4R7□AGA804		4.7	180	12	0.3-1.2	3.5	70	10			√	√	√	√
PSA5R6□AGA804		5.6	180	12	0.3-1.2	3.5	70	10			√	√	√	√
PSA6R8□AGB004		6.8	200	10	0.3-1.2	3.5	70	15			√	√	√	√
PSA100□AGB304		10	230	9	0.2-1.0	3.2	65	15			√	√	√	√
PSA150□AGB504		15	250	8	0.2-1.0	3.2	65	15			√	√	√	√
PSA220□AGC004		22	300	7	0.2-1.0	3.2	65	20			√	√	√	√
PSA330□AGC604		33	360	6	0.2-1.0	3.2	65	25			√	√	√	√
PSA470□AGD004		47	400	5	0.2-1.0	3.2	65	35			√	√	√	√
PSA680□AGD304		68	430	4	0.2-1.0	3.2	65	55			√	√	√	√

Note1: □=Tolerance of R₂₅

Note2: UL&cUL File No. E138827 , CQC File No. CQC03001008127~128 , TUV File No. R50030891

CPTC Thermistor: PS Series

Motor Starter



PSA Series

Part No.	Curie Temperature	Nominal Zero-power Resistance	Maximum Voltage	Maximum Current	Operating Time	Equilibrium Power	Recovery Time	Reference Coil Resistance	Dimensions		Safety Approvals			
	T _c (°C)	R ₂₅ (Ω)	V _{max} (V _{AC})	I _{max} (A)	t _o (s)	P _{max} (W)	t _{rmax} (s)	R _{ref} (Ω)	D (mm)	T (mm)	UL	cUL	CQC	TUV
PSA4R7□AGA805	135±10	4.7	180	10	0.3-1.0	3.4	65	15	17.5 +0.5 -1.0	2.5 ±0.2	✓	✓	✓	✓
PSA5R6□AGA805		5.6	180	10	0.3-1.0	3.4	65	15			✓	✓	✓	✓
PSA6R8□AGB005		6.8	200	9	0.3-1.0	3.4	65	15			✓	✓	✓	✓
PSA100□AGB205		10	220	8	0.3-1.0	3.2	65	20			✓	✓	✓	✓
PSA150□AGB405		15	240	7	0.2-0.8	3.2	65	20			✓	✓	✓	✓
PSA220□AGB805		22	280	6	0.2-0.8	3.2	65	25			✓	✓	✓	✓
PSA330□AGC205		33	320	4	0.2-0.8	3.2	65	45			✓	✓	✓	✓
PSA470□AGC505		47	350	4	0.2-0.8	3.2	65	45			✓	✓	✓	✓
PSA680□AGD005		68	400	4	0.2-0.8	3.2	65	45			✓	✓	✓	✓
PSA4R7□AGA606	135±10	4.7	160	10	0.2-0.6	3	50	15	16 +0.5 -1.0	2.5 ±0.2	✓	✓	✓	✓
PSA5R6□AGA706		5.6	170	10	0.2-0.6	3	50	15			✓	✓	✓	✓
PSA6R8□AGA806		6.8	180	9	0.2-0.6	3	50	15			✓	✓	✓	✓
PSA100□AGB006		10	200	8	0.2-0.6	3	50	15			✓	✓	✓	✓
PSA150□AGB306		15	230	7	0.2-0.6	3	50	20			✓	✓	✓	✓
PSA220□AGB506		22	250	6	0.2-0.6	3	50	20			✓	✓	✓	✓
PSA6R8□AGA607	135±10	6.8	160	8	0.1-0.6	2.8	45	15	14 +0.5 -1.0	2.5 ±0.2	✓	✓	✓	✓
PSA100□AGA807		10	180	7	0.1-0.6	2.8	45	20			✓	✓	✓	✓
PSA150□AGB407		15	240	6	0.1-0.6	2.8	45	25			✓	✓	✓	✓
PSA220□AGB407		22	240	5	0.1-0.5	2.8	45	25			✓	✓	✓	✓
PSA330□AGB507		33	250	4	0.1-0.5	2.8	45	30			✓	✓	✓	✓

Note1: □=Tolerance of R₂₅

Note2: UL&cUL File No. E138827 , CQC File No. CQC03001008127~128 , TUV File No. R50030891

CPTC Thermistor: PS Series

Motor Starter



PSB Series

Part No.	Curie Temperature	Nominal Zero-power Resistance	Maximum Voltage	Maximum Current	Operating Time	Equilibrium Power	Recovery Time	Reference Coil Resistance	Safety Approvals			
	T _c (°C)	R ₂₅ (Ω)	V _{max} (V _{AC})	I _{max} (A)	t ₀ (s)	P _{max} (W)	t _{rmax} (s)	R _{ref} (Ω)	UL	cUL	CQC	TUV
PSB100□A2B2**	120 ±10	10	220	9	0.4-2.0	5	130	25	√	√	√	√
PSB150□A2B5**		15	250	8	0.4-2.0	5	130	25	√	√	√	√
PSB220□A2C0**		22	300	7	0.4-2.0	5	130	25	√	√	√	√
PSB330□A2C5**		33	350	6	0.2-2.0	5	130	30	√	√	√	√
PSB400□A2C0**		40	300	5	0.2-1.5	4	120	25	√	√	√	√
PSB470□A2D0**		47	400	5	0.2-1.5	4	120	25	√	√	√	√
PSB101□A2E0**		100	500	4	0.2-1.5	4	95	10	√	√	√	√
PSB330□A2B503		33	250	4.5	0.1-0.5	2.3	60	30				
PSB400□A2B503		40	250	4	0.1-0.5	2.3	60	30				
PSB470□A2B503		47	250	4	0.1-0.5	2.3	60	30				
PSB150□A3B5**	130 ±10	15	250	8	0.4-2.0	5	120	15	√	√	√	√
PSB220□A3C0**		22	300	7	0.4-2.0	5	120	25	√	√	√	√
PSB330□A3C5**		33	350	6	0.2-2.0	5	120	25	√	√	√	√
PSB470□A3B5**		47	250	5	0.2-2.0	5	120	25	√	√	√	√

Note1: □=Tolerance of R₂₅

Note2: **= Dimensions code for 01 , 02 or 09

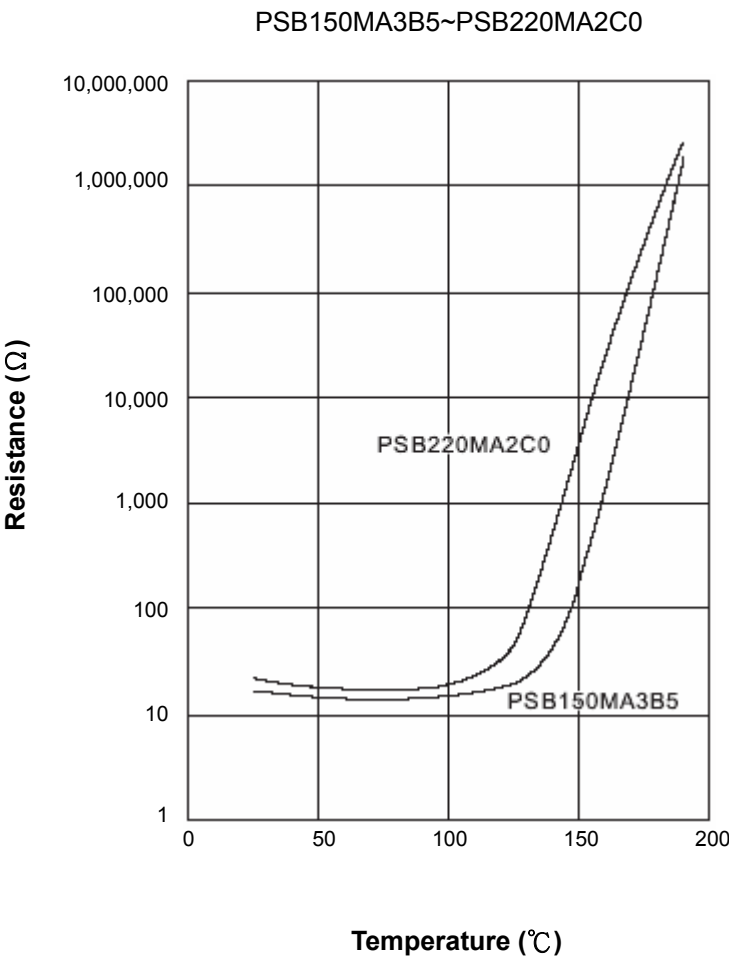
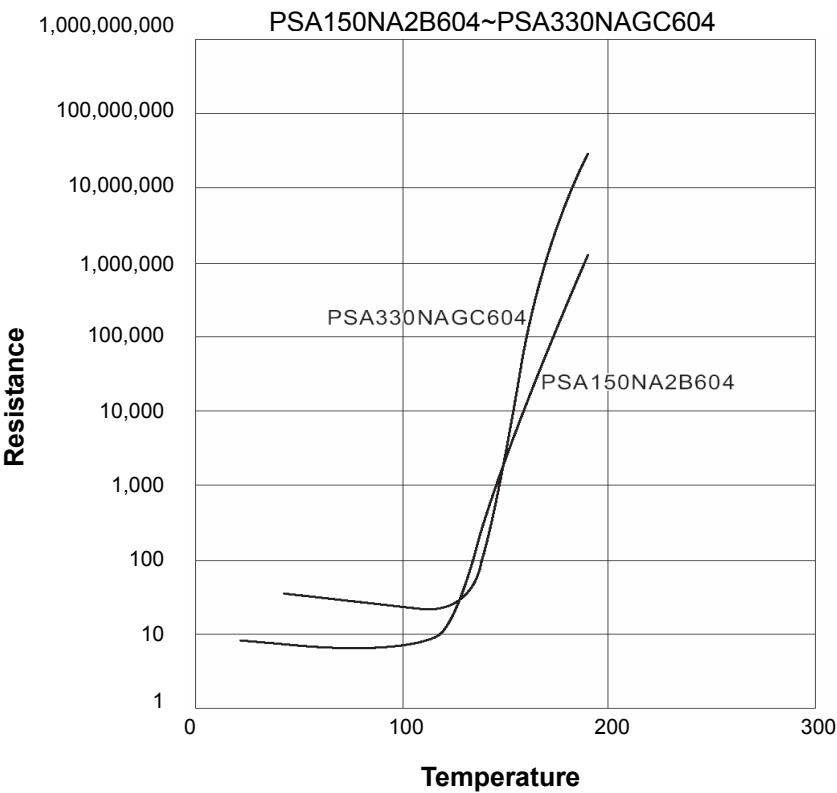
Note3: UL&cUL File No. E138827 , CQC File No. CQC03001008127~128 , TUV File No. R50031360

CPTC Thermistor: PS Series

Motor Starter



R-T Characteristic Curve (Representative)



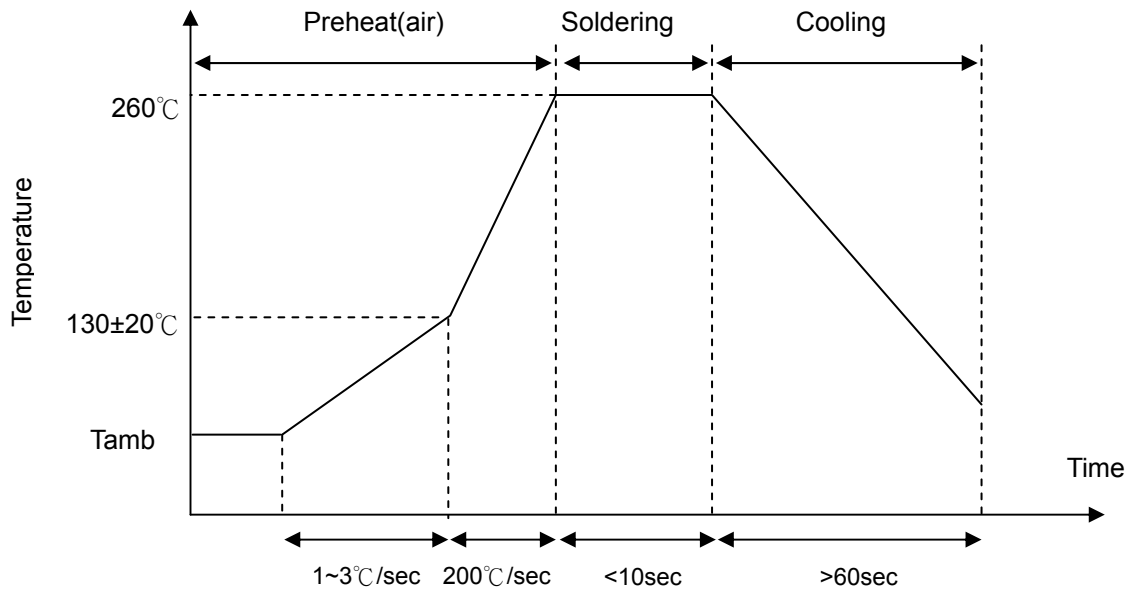
CPTC Thermistor: PS Series

Motor Starter



■ Soldering Recommendation

● Wave Flow Soldering Profile



● Recommended Reworking Conditions With Soldering Iron

Item	Conditions
Temperature of Soldering Iron-tip	360°C (max.)
Soldering Time	2 sec (max.)
Distance from coating	6 mm (min.)

CPTC Thermistor: PS Series

Motor Starter



■ Reliability Test

Item	Standard	Test conditions / Methods	Specifications
Tensile Strength of Terminals *	IEC60068-2-21	Fasten body and apply a force gradually to each lead until $40\pm0.5\text{N}$ for 10 ± 1 sec. in the direction of lead axis.	$ \Delta R/R25 \leq 20\%$ No damage observed
Bending Strength of Terminals *	IEC60068-2-21	Hold body and apply a force to each lead until $20\pm0.5\text{N}$ gradually at 90° to lead axis in the direction of body, and keep for 10 ± 1 sec., and do this in the opposite direction.	$ \Delta R/R25 \leq 20\%$ No damage observed
Temp. cycle	IEC60068-2-14	$-40\pm3^\circ\text{C} \times 30\text{min.} \rightarrow +85\pm2^\circ\text{C} \times 30\text{min.} \times 5\text{Cycles}$ excessive time: $2\text{min} < T < 3\text{min}$	$ \Delta R/R25 \leq 20\%$ No damage observed
Vibration *	IEC60068-2-6	Fasten body to baseboard with solder perfectly and supply sine wave oscillation at frequency from 10 HZ to 55HZ all oscillation with of 0.75 mm Vibrato for 24 cycles in each of 3 naturally perpendicular plane for a total of 6 hours	$ \Delta R/R25 \leq 20\%$ No damage observed
Shock *	IEC60068-2-27	Putting the PTC product in the shock equipment shock wave: half-sine $\Delta V=1.0\text{m/s}$; Acceleration: 50m/s^2 ; Pulse time: 30ms	$ \Delta R/R25 \leq 20\%$ No damage observed
The highest temperature and max. voltage load	IEC60738-1	$85\pm5^\circ\text{C}$, V_{max} , R_{cref} , for $1000\pm5\text{hrs}$. At 25°C to check exterior, normal resistance,	$ \Delta R/R25 \leq 20\%$ No damage observed
The highest temperature storage	IEC60068-2-2	$85\pm5^\circ\text{C}$, for 1000hrs	$ \Delta R/R25 \leq 20\%$ No damage observed
Room Temperature Intermittent Load	IEC60738-1	$25\pm5^\circ\text{C}$, V_{max} , R_{cref} , 1min. on and 5min. off $\times 100,000$ cycles At 25°C to check exterior, normal resistance, operating times, Recovery Times, Power Consumption.	$ \Delta R/R25 \leq 20\%$ No damage observed
Climatic sequence	IEC60738-1	$+40^\circ\text{C}$, 20%R.H X 24hrs $\rightarrow 100^\circ\text{C}$ X 16hrs $\rightarrow 25^\circ\text{C}$ X 2hrs $\rightarrow +40^\circ\text{C}$, 95%R.H X 24hrs $\rightarrow 0^\circ\text{C}$ X 2hrs $\rightarrow +40^\circ\text{C}$, 95%R.H X 24hrs $\rightarrow 25^\circ\text{C}$ X (1~2)hrs to check exterior, normal resistance	$ \Delta R/R25 \leq 20\%$ No damage observed
Humidity	IEC60068-2-3	$40\pm5^\circ\text{C}$, 90~95%RH, $40\pm5\text{VDC}$, For $1000\pm2\text{hrs}$	$ \Delta R/R25 \leq 20\%$ No damage observed

* : Only application for PSB series

CPTC Thermistor: PS Series

Motor Starter



■ Packaging

● PSA series :

Disc Size/mm	Quantity (PCS/Box)
$\Phi \geq 17.5$	1000
$\Phi \leq 16$	1500

● PSB series : Bulk packing 50pcs/bag

■ Storage condition of products

(I) Storage Conditions:

Storage Temperature: $-10^{\circ}\text{C} \sim +40^{\circ}\text{C}$

Relative humidity: $\leq 75\% \text{RH}$

Varistor must be kept away from sunlight and stored in a non-corrosive atmosphere.

(II) Period of Storage: 1 year