

# Ceramic Resettable Circuit Protectors



A **Nidec** Group Company

**COPAL ELECTRONICS**

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It is the over-current protective devices which realized low resistance and a miniaturization by the unique manufacturing process.

Specification of the 16 V series that have lower resistance are very suitable for such an application of low-voltage circuit protection, protection for PC & motor and the sensor for current detection.

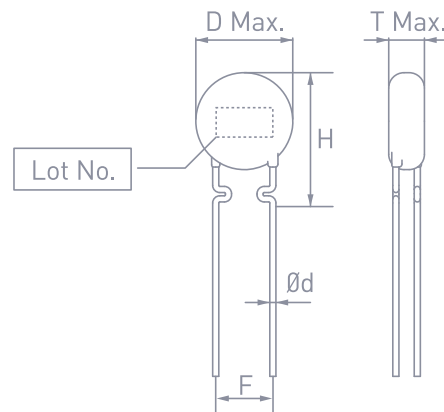
## FEATURES

- This device has faster response time for over current event.
- This device will protect the circuit until unusual condition is reset.
- This device can be used repeatedly when the device returns to the lower temperature and is reset the condition.
- This device will not create noise, because it does not have mechanical contacts.
- This device is capable of operating more than 100,000 times repeatedly within trip current.



## APPLICATIONS

- Switching power supply
- Personal computers
- Air-conditioner
- Rechargeable battery for EV/HEV
- AC/DC adaptor
- Printers
- Audio equipment



## PART NUMBER LIST

No.	Part Number	Resistance [Ω] (at 25°C)	V Max. [V]	Current Characteristic [mA]				I Max. [A]	D mm (Max.)	T mm (Max.)	H mm (Max.)	F mm	Ød mm
				Hold Current		Trip Current							
				(at +85°C)	(at +25°C)	(at +25°C)	(at -30°C)						
①	CR-CP 05P0 1R0M 160	1.0 ± 20%	16	250	470	880	1100	2	6.0	3.5	10.5	5.0	0.6
②	CR-CP 06P0 0R8M 160	0.8 ± 20%	16	270	500	960	1190	3	6.5	3.5	11.0	5.0	0.6
③	CR-CP 07P0 R47M 160	0.47 ± 20%	16	380	700	1310	1630	5	7.5	3.5	12.0	5.0	0.6
④	CR-CP 09P0 R33M 160	0.33 ± 20%	16	470	880	1630	2030	7	9.5	3.5	14.0	5.0	0.6
⑤	CR-CP 10P0 R27M 160	0.27 ± 20%	16	550	1030	1900	2370	8	10.0	3.5	15.0	5.0	0.6
⑥	CR-CP 12P0 0R2M 160	0.20 ± 20%	16	690	1300	2410	3000	9	12.0	3.5	17.0	5.0	0.6
⑦	CR-CP 14P0 R15M 160	0.15 ± 20%	16	820	1550	2860	3560	10	14.0	3.5	18.5	5.0	0.6

## PART NUMBER DESIGNATION

Product name	CR-CP	05	P0	1R0	M	160	-0	Packaging option -0=Bulk packaging -2=Tape and Reel
Diameter of element (05: 5mm)								Maximum voltage (160: 16V)
Switching temperature (P0: 120°C)				Resistance (1R0: 1×10 <sup>0</sup> Ω)				Tolerance of resistance (M: ±20%)

## ENVIRONMENTAL CHARACTERISTICS

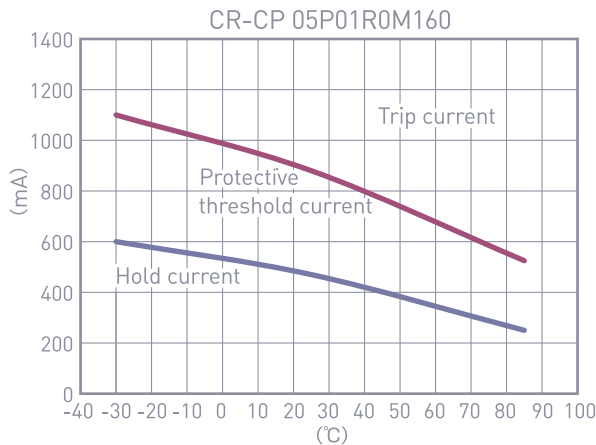
項目 Item	試験条件 Test conditions	仕様 Specifications
Operating temp.range	—————	-30 ~ +85 °C
Withstanding Voltage	DC voltage 110% that of the maximum voltage 180±5 seconds	Resistance change should be within ±20%
Humidity	60°C, 90%RH,500hours	Resistance change should be within ±20%

## PACKAGING SPECIFICATIONS

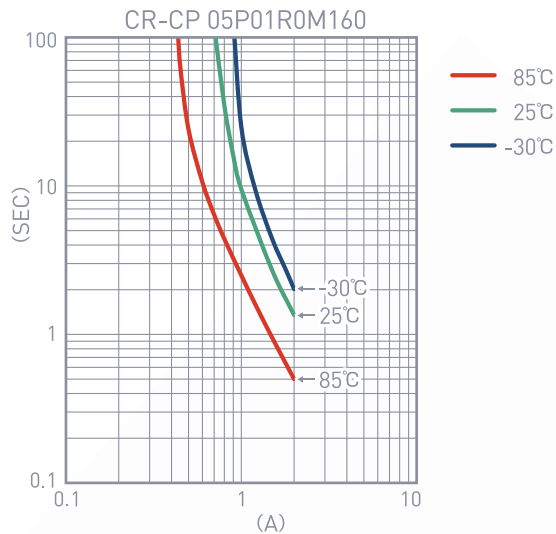
No.	Part Number	Packaging option	bulk	Reel
		code	-0	-2
		Quantity (pos)	200	3000
①	CR-CP 05P0 1R0M 160		○	○
②	CR-CP 06P0 0R8M 160		○	○
③	CR-CP 07P0 R47M 160		○	○
④	CR-CP 09P0 R33M 160		○	○
⑤	CR-CP 10P0 R27M 160		○	○
⑥	CR-CP 12P0 0R2M 160		○	○
⑦	CR-CP 14P0 R15M 160		○	—

## Example ELECTRICAL CHARACTERISTICS

### • Protective Threshold Current range



### • Operating time



## SELECTION GUIDE

- ① Select a suitable CR-CP model which has the maximum voltage greater than the maximum circuit voltage.
- ② Select a suitable CR-CP model which has the I<sub>hold</sub> current greater than "Normal operating current" at "Operating Temperature".
- ③ Check the time to tripped state using the "Operating Time" for selected model.

## PRECAUTIONS FOR USING

- Please adhere to the following matters, cause of performance degradation and destruction of the PTC element may result smoke and Ignition of device.
  - ① Please do not use it more than the maximum voltage and the maximum current.
  - ② Please check that surrounding parts and material are not damaged by the influence of generation of heat of Thermistor.  
Please design to account for heat resistance. Since the rise of heat is large at feeding part (terminal for drawer and a substrate, etc.),
  - ③ Thermistors are not designed as waterproofing structure, medicine-proof structure, and solvent-proof structure.  
Please do not soak in water or do not pour the liquid of medicine and a solvent.
  - ④ Please keep in mind that there is a possibility of damaging if a strong vibration, shocks (fall etc.), and pressure are applied.
  - ⑤ The storage place should avoid from the atmosphere which has a rapid temperature change, direct rays, corrosive gas, dust, and dirt.  
It should be kept it with a packing state not applying load stress.
  - ⑥ Please do not use it under a gas atmosphere with corrosiveness, inflammability, and reduction nature, or in a vacuum.
- Since a PTC thermistor generates heat by energizing and will cause the risk of electric shock or burns.  
Please do not let you touch a Thermistor with the body.
- Be careful to the following matter, since PTC Thermistors do not fulfill the function of body or there is a risk of damage or malfunction of equipment.
  - ① The Thermistor is designed according to the specific applications. Please do not use it any purpose other than that specified.
  - ② Please do the reliability assessment examination of a Thermistor after mounting and check that it is normal. (At new design only)
  - ③ Please take into consideration the current capacity of the wiring to be used for a Fuse, a Breaker, a Switch, and a Connection place depending on the amount of inrush current and normal current which flows into a Thermistor.

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CR-CP

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**NIDEC COPAL ELECTRONICS CORP.**

7-5-25 Nishi-Shinjuku, Shinjuku-ku, Tokyo 160-0023 JAPAN Phone:+81-3-3364-7055 Fax:+81-3-3364-7098

[www.nidec-copal-electronics.com/](http://www.nidec-copal-electronics.com/)

**NIDEC COPAL ELECTRONICS, INC.**

367 Van Ness Way, suite 621  
Torrance, CA 90501 U.S.A  
Phone:+1-310-618-0225 Fax:+1-310-618-9984

**NIDEC COPAL ELECTRONICS (SHANGHAI) CO.,LTD.**

Unit A, 4/F, No.4 Bldg., No.253, Ai Du Rd., Wai Gao Qiao  
Free Trade Zone, Shanghai, CHINA P.C.200131  
Phone:+86-21-5046-3009 Fax:+86-21-5046-3115

**NIDEC COPAL ELECTRONICS (TAIWAN) CO., LTD.**

18F-1, No.57, Sec.2, Tun Hwa S.Rd., Taipei, TAIWAN  
Phone:+886-2-27030577 Fax:+886-2-27010577

**NIDEC COPAL ELECTRONICS GMBH**

Mergenthalerallee 79-81  
65760 Eschborn GERMANY  
Phone:+49-6196-92775-0 Fax:+49-6196-92775-75

**NIDEC COPAL ELECTRONICS KOREA CORP.**

2F Jin-il Bldg., 52-7 Banpo-Dong, Seocho-Gu,  
Seoul 137-040 KOREA  
Phone:+82-2-3482-5861 Fax:+82-2-3482-5860

**NIDEC COPAL ELECTRONICS SINGAPORE PTE. LTD.**

180B Bencoolen Street #07-05 The Bencoolen Singapore 189648  
Phone:+65-6535-0056 Fax:+65-6535-0087