

## Features

- Self-regulating heating
- Constant temperature control
- Simple circuit design
- Suitable for clamp-contacting
- Stable over long life
- Silver or aluminum metallization

## Additional Information

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# C-Series – Ceramic PTC Thermistor Heaters

## General Information

Bourns® C-Series Ceramic PTC Thermistor Heaters are designed and manufactured using proprietary blends of doped BaTiO<sub>3</sub> ceramic materials. The resulting products exhibit a large positive temperature coefficient (PTC) effect, rendering them useful in a wide range of self-regulating heating applications. Part numbers listed in this data sheet are representative of available product

characteristics. Customizations are available [upon request](#). Bourns' C-Series production site is IATF 16949 certified to support automotive programs, while AEC-Q200 compliance and PPAP documentation can be available upon request.

## Product Characteristics

Part Number	Electrical Characteristics				
	Curie Temperature T <sub>C</sub>	Surface Temperature T <sub>surf</sub>	Rated Resistance R <sub>N</sub> @ 25 °C	Maximum Voltage V <sub>max</sub>	Rated Voltage V <sub>N</sub>
	(°C)	(°C)	(Ω)	(V)	(V)
C-C1KW30/270	30	50	1000	270 AC	240 AC
C-C1KW55/270	55	75	1000	270 AC	240 AC
C-C15W65/60	65	75	15	60	42
C-R180W70/140	70	90	180	140 AC	110/120 AC
C-R300W70/140	70	85	300	140 AC	110/120 AC
C-R700W80/270	80	100	700	270 AC	220/240 AC
C-R500W90/270	90	110	500	270 AC	220/240 AC
C-C10X0/30	100	110	10	30	24
C-C18X0/30	100	110	18	30	24
C-C18X0/60	100	110	18	60	42
C-C1KX10/270	110	130	1000	270 AC	240 AC
C-C1KX10/270	110	130	1000	270 AC	240 AC
C-C500X30/270	130	150	500	270 AC	240 AC
C-C1KX35/270	135	155	1000	270 AC	240 AC
C-C500X35/270	135	155	500	270 AC	240 AC
C-C36X40/30	140	150	36	30	24
C-C68X45/60	145	155	68	60	42
C-S200X50/270	150	170	200	270 AC	220/240 AC
C-C15X50/60	150	160	15	60	42
C-C300X60/140	160	175	300	140 AC	110 AC
C-C1KX65/270	165	180	1000	270 AC	240 AC
C-C500X70/270	170	185	500	270 AC	240 AC
C-C3R6X70/60	170	180	3.6	60	42
C-C500X75/270	175	190	500	270 AC	220/240 AC
C-R800Y10/270	210	230	800	270 AC	220/240 AC
C-C1K5Y15/270	215	230	1500	270 AC	240 AC
C-R300Y30/140	230	250	300	140 AC	100/120 AC
C-C1K5Y35/270	235	250	1500	270 AC	240 AC
C-C3K6Y35/270	235	250	3600	270 AC	240 AC
C-R700Y40/270	240	255	700	270 AC	220/240 AC
C-R500Y40/270	240	255	500	270 AC	220/240 AC
C-R1KY60/270	260	275	1000	270 AC	220/240 AC
C-R1K5Y10/500	210	220	1500	500 DC	400 DC
C-R8KY05/855	205	225	8000	855 DC	800 DC



**WARNING**  
Cancer and Reproductive Harm  
[www.P65Warnings.ca.gov](http://www.P65Warnings.ca.gov)

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## Applications

Transportation:

- Cabin air heating
- Fuel heating
- Battery temperature control
- Camera lens de-icing

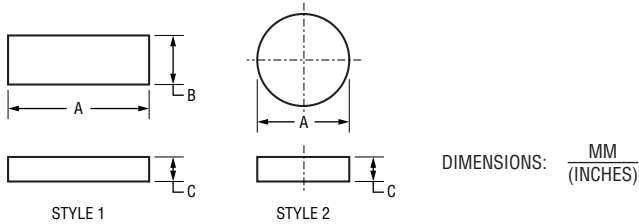
Appliances:

- HVAC systems
- Portable space heaters

## C-Series – Ceramic PTC Thermistor Heaters

**BOURNS®**

### Product Dimensions



Part Number	Style	Dimensions		
		Dim. A	Dim. B	Dim. C
		$\pm 0.1$ ( $\pm .004$ )	$\pm 0.1$ ( $\pm .004$ )	$\pm 0.2$ ( $\pm .008$ )
C-C1KW30/270	2	$\frac{8}{(.315)}$	—	$\frac{3}{(.118)}$
C-C1KW55/270	2	$\frac{13}{(.512)}$	—	$\frac{2.3}{(.091)}$
C-C15W65/60	2	$\frac{13}{(.512)}$	—	$\frac{1.5}{(.059)}$
C-R180W70/140	1	$\frac{16}{(.630)}$	$\frac{11}{(.433)}$	$\frac{2.5}{(.098)}$
C-R300W70/140	1	$\frac{16}{(.630)}$	$\frac{11}{(.433)}$	$\frac{2.5}{(.098)}$
C-R700W80/270	1	$\frac{16}{(.630)}$	$\frac{11}{(.433)}$	$\frac{2.5}{(.098)}$
C-R500W90/270	1	$\frac{23.5}{(.925)}$	$\frac{10}{(.394)}$	$\frac{2.2}{(.087)}$
C-C10X0/30	2	$\frac{8}{(.315)}$	—	$\frac{1.5}{(.059)}$
C-C18X0/30	2	$\frac{8}{(.315)}$	—	$\frac{1.5}{(.059)}$
C-C18X0/60	2	$\frac{10}{(.394)}$	—	$\frac{2.5}{(.098)}$
C-C1KX10/270	2	$\frac{8}{(.315)}$	—	$\frac{2.3}{(.091)}$
C-C1KX10/270	2	$\frac{20}{(.787)}$	—	$\frac{2.3}{(.091)}$
C-C500X30/270	2	$\frac{10}{(.394)}$	—	$\frac{2.3}{(.091)}$
C-C1KX35/270	2	$\frac{10}{(.394)}$	—	$\frac{2.3}{(.091)}$
C-C500X35/270	2	$\frac{10}{(.394)}$	—	$\frac{2.3}{(.091)}$
C-C36X40/30	2	$\frac{13}{(.512)}$	—	$\frac{1.3}{(.051)}$
C-C68X45/60	2	$\frac{13}{(.512)}$	—	$\frac{1.3}{(.051)}$
C-S200X50/270	1	$\frac{10}{(.394)}$	$\frac{10}{(.394)}$	$\frac{2.3}{(.091)}$

Part Number	Style	Dimensions		
		Dim. A	Dim. B	Dim. C
		$\pm 0.1$ ( $\pm .004$ )	$\pm 0.1$ ( $\pm .004$ )	$\pm 0.2$ ( $\pm .008$ )
C-C15X50/60	2	$\frac{17}{(.669)}$	—	$\frac{1.4}{(.056)}$
C-C300X60/140	2	$\frac{10}{(.394)}$	—	$\frac{2.3}{(.091)}$
C-C1KX65/270	2	$\frac{10}{(.394)}$	—	$\frac{2.3}{(.091)}$
C-C500X70/270	2	$\frac{10}{(.394)}$	—	$\frac{2.3}{(.091)}$
C-C3R6X70/60	2	$\frac{20}{(.787)}$	—	$\frac{1.4}{(.056)}$
C-C500X75/270	2	$\frac{14}{(.551)}$	—	$\frac{2.3}{(.091)}$
C-R800Y10/270	1	$\frac{19}{(.748)}$	$\frac{12}{(.472)}$	$\frac{2.2}{(.087)}$
C-C1K5Y15/270	2	$\frac{13}{(.512)}$	—	$\frac{2.5}{(.098)}$
C-R300Y30/140	1	$\frac{23.5}{(.925)}$	$\frac{10}{(.394)}$	$\frac{2.2}{(.087)}$
C-C1K5Y35/270	2	$\frac{13}{(.512)}$	—	$\frac{2.5}{(.098)}$
C-C3K6Y35/270	2	$\frac{20}{(.787)}$	—	$\frac{2.5}{(.098)}$
C-R700Y40/270	1	$\frac{23.5}{(.925)}$	$\frac{10}{(.394)}$	$\frac{2.2}{(.087)}$
C-R500Y40/270	1	$\frac{36}{(1.417)}$	$\frac{6}{(.236)}$	$\frac{2.3}{(.091)}$
C-R1KY60/270	1	$\frac{24}{(.945)}$	$\frac{15}{(.591)}$	$\frac{2.2}{(.087)}$
C-R1K5Y10/500	1	$\frac{34.5}{(1.358)}$	$\frac{15}{(.591)}$	$\frac{2.1}{(.083)}$
C-R8KY05/855	1	$\frac{28}{(1.102)}$	$\frac{20}{(.787)}$	$\frac{2.6}{(.102)}$

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# C-Series – Ceramic PTC Thermistor Heaters



## Packaging

C-Series ceramic PTC thermistor heater products are packaged in bulk packaging boxes according to each model's specific requirements. Standard and custom packaging options are available upon request.

## Environmental Characteristics

<b>Typical Working Temperature Range</b>	For V=0: -40 °C to +220 °C For V=V <sub>r</sub> : -40 °C to +100 °C For V=V <sub>r</sub> with T <sub>c</sub> ≤ 60 °C: -40 °C to +60 °C
<b>Moisture Sensitivity Level (MSL)</b>	1
<b>ESD Classification (HBM)</b>	Class 6

## Test Procedures and Requirements

Test	Test Condition and Method	Standard	Requirement
Endurance at maximum operating temperature and maximum voltage	At 80 +2/-0 °C, V <sub>max</sub> Test duration: 1000 ±2 hours Final check: Appearance and rated resistance	IEC 60738-1	No visible damage   (R2-R1) / R1   ≤25 % R1: resistance before test R2: resistance after test
Endurance at room temperature, cycling	At 25 ±5 °C, V <sub>max</sub> Power-on 60 ±5 s, Power-off 120 ±10 s, 10,000 cycles Final check: Appearance and rated resistance	IEC 60738-1	No visible damage   (R2-R1) / R1   ≤25 % R1: resistance before test R2: resistance after test
Invariable damp heat	At temperature: 40 ±5 °C Relative humidity: 90-95 %, Voltage: 0.25 V <sub>max</sub> Test duration: 1000 ±2 hours Final check: Appearance and rated resistance	IEC 60738-1	No visible damage   (R2-R1) / R1   ≤25 % R1: resistance before test R2: resistance after test

## How To Order

**C - R 3R5 X20 / 120 A - 0**

Model Series \_\_\_\_\_  
Ceramic PTC Thermistor Heater Designator

Family \_\_\_\_\_  
R = Rectangular    D = Donut  
S = Square        A = Assembly  
C = Circular       L = Radial Leaded

Rated Resistance (see Electrical Characteristics tables) \_\_\_\_\_  
3R6 = 3.6 Ω        36 = 36 Ω        3K6 = 3600 Ω

Curie Temperature (see Electrical Characteristics tables) \_\_\_\_\_  
W30 = 30 °C       X30 = 130 °C     Y30 = 230 °C

Maximum Operating Voltage (see Electrical Characteristics tables) \_\_\_\_\_  
120 = 120 V

Dimension Code \_\_\_\_\_  
(blank) = Standard dimensions according to Product Dimension tables  
Non-standard dimensions will be treated as custom products  
and assigned alpha-numeric dimension codes (A, B, C, etc.)

Packaging Designator \_\_\_\_\_  
-0 = Standard bulk packing



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