

BOURNS®

Features

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

Additional Information

Click these links for more information:



[PRODUCT SELECTOR](#) [TECHNICAL LIBRARY](#) [INVENTORY](#) [SAMPLES](#) [CONTACT](#)

C-Series – Ceramic PTC Thermistor Heaters

General Information

Bourns® C-Series Ceramic PTC Thermistor Heaters are designed and manufactured using proprietary blends of doped BaTiO₃ 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 _C	Surface Temperature T _{surf}	Rated Resistance R _N @ 25 °C	Maximum Voltage V _{max}	Rated Voltage V _N
	(°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

Specifications are subject to change without notice. Users should verify actual device performance in their specific applications. The products described herein and this document are subject to specific legal disclaimers as set forth on the last page of this document, and at www.bourns.com/docs/legal/disclaimer.pdf.

Applications

Transportation:

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

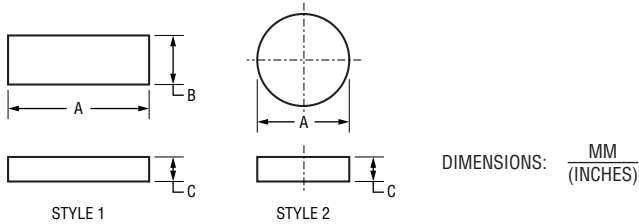
Appliances:

- HVAC systems
- Portable space heaters

C-Series – Ceramic PTC Thermistor Heaters

BOURNS®

Product Dimensions



Part Number	Style	Dimensions		
		Dim. A	Dim. B	Dim. C
		± 0.1 ($\pm .004$)	± 0.1 ($\pm .004$)	± 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
		± 0.1 ($\pm .004$)	± 0.1 ($\pm .004$)	± 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	$\frac{28}{(1.102)}$	$\frac{20}{(.787)}$	$\frac{2.6}{(.102)}$

Specifications are subject to change without notice.
Users should verify actual device performance in their specific applications.
The products described herein and this document are subject to specific legal disclaimers as set forth on the last page of this document, and at www.bourns.com/docs/legal/disclaimer.pdf.

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

Typical Working Temperature Range	For V=0: -40 °C to +220 °C For V=V _r : -40 °C to +100 °C For V=V _r with T _c ≤ 60 °C: -40 °C to +60 °C
Moisture Sensitivity Level (MSL)	1
ESD Classification (HBM)	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 _{max} 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 _{max} 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 _{max} 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



Asia-Pacific:

Tel: +886-2 2562-4117

Email: asiacus@bourns.com

Europe:

Tel: +36 88 885 877

Email: eurocus@bourns.com

Mexico:

Tel: +52 614 478 0400

Email: mexicus@bourns.com

The Americas:

Tel: +1-951 781-5500

Email: americus@bourns.com

www.bourns.com

This legal disclaimer applies to purchasers and users of Bourns® products manufactured by or on behalf of Bourns, Inc. and its affiliates (collectively, "Bourns").

Unless otherwise expressly indicated in writing, Bourns® products and data sheets relating thereto are subject to change without notice. Users should check for and obtain the latest relevant information and verify that such information is current and complete before placing orders for Bourns® products.

The characteristics and parameters of a Bourns® product set forth in its data sheet are based on laboratory conditions, and statements regarding the suitability of products for certain "typical" applications are based on Bourns' knowledge of typical requirements in generic applications. Bourns assumes that "typical" applications include failsafe/backup features to address critical risks to users and are designed to allow rework of Bourns® product to avoid scrap of a device solely due to malfunctioning Bourns® product. The characteristics and parameters of a Bourns® product in a user application may vary from the data sheet characteristics and parameters due to (i) the combination of the Bourns® product with other components in the user's application, or (ii) the environment of the user application itself. The characteristics and parameters of a Bourns® product also can and do vary in different applications and actual performance may vary over time. Thus, users should always verify the actual performance of the Bourns® product in their specific devices and applications and make their own independent judgments regarding the suitability of Bourns® product and the amount of additional test margin to design into their device or application to compensate for differences between laboratory and real-world conditions.

Unless Bourns has explicitly designated an individual Bourns® product as meeting the requirements of a particular industry standard (e.g., IATF 16949) or a particular qualification (e.g., UL listed or recognized), Bourns is not responsible for any failure of an individual Bourns® product to meet the requirements of such industry standard or particular qualification even if such industry standard or qualification is a "state of art". Users of Bourns® products are responsible for ensuring compliance with safety-related requirements and standards applicable to their devices or applications.

Bourns® products are not recommended, authorized or intended for use in applications where failure or malfunction may result in personal injury, death, or severe property or environmental damage, such as without limitation nuclear, life-critical medical and certain automotive and aviation applications. Except as set forth in the bullet points below or unless expressly and specifically approved in writing on a case-by-case basis by an authorized Bourns' representative, use of any Bourns® products in such unauthorized high-risk applications is at the user's sole risk.

- Bourns considers implantable/invasive devices and devices/procedures designed as life-supporting or life-sustaining by the U.S. Food and Drug Administration or equivalent organizations outside of the United States as "life-critical" medical applications. Bourns expressly identifies those Bourns® standard products that are suitable for use in typical medical applications that are not life-critical in its publication entitled "Bourns Medical Grade Component Guide."
- Bourns expressly identifies those Bourns® standard products that are suitable for use in typical automotive applications associated with any Automate Safety Integrity Level (ASIL) in its publication entitled "Bourns Automotive Grade Component Guide." Bourns' designation of Bourns® product as compliant with the AEC-Q standard does not by itself mean that Bourns has approved such product for use in an automotive application.
- Bourns expressly identifies Bourns® standard products that are suitable for use in the typical aviation applications/systems requiring System Design Assurance Level (RTCA DO-254 DAL) of C, D or E in its publication entitled "Bourns Civilian Aerospace/Aviation Grade Component Guide." Bourns does not test its products for compliance with United States Federal Aviation Administration standards or any other generally equivalent governmental organization standard applicable to products designed or manufactured for use in aviation applications. Use of Bourns® standard components in aviation applications associated with RTCA DO-254 DAL A or B without proper approval noted above shall be at the user's sole risk.
- Bourns will review and authorize on a case-by-case basis the use of Bourns® standard products which are at least AEC-Q compliant in space-related civil applications (rockets, satellites) with a negotiated cross-waiver and indemnity agreement.

The use and level of testing applicable to Bourns® custom products shall be negotiated on a case-by-case basis by Bourns and the user for which such Bourns® custom products are specially designed. Absent a written agreement between Bourns and the user regarding the use and level of such testing, the above provisions applicable to Bourns® standard products shall also apply to such Bourns® custom products.

Use of Bourns® products or Bourns' technology in military/defense applications must be reviewed with Bourns for compliance with applicable export control laws and embargoes. Users shall not sell, transfer, export or re-export (which includes transfers within a country) any Bourns® products or technology or technical data for use in activities which involve the design, development, production, use or stockpiling of nuclear, chemical or biological weapons or missiles, nor shall they use Bourns® products or technology or technical data in any facility which engages in activities relating to such devices. Further, Bourns® products and Bourns' technology and technical data may not under any circumstance be exported or re-exported to countries subject to international sanctions or embargoes. Bourns® products and technology may not, without prior authorization from Bourns and/or the Government of a country where such product/technology is designed and/or manufactured, be resold, transferred, or re-exported (including within the same country) to any party not eligible to receive commodities, software, and technical data originating in such country.

To the maximum extent permitted by applicable law, Bourns disclaims (i) any and all liability for special, punitive, consequential, incidental or indirect damages or lost revenues or lost profits, and (ii) any and all implied warranties (those not based on parameters specified in Bourns' data sheets and/or specifications), including implied warranties of fitness for particular purpose, non-infringement and merchantability.

For your convenience, copies of this Legal Disclaimer Notice with German, Spanish, Japanese, Traditional Chinese and Simplified Chinese bilingual versions are available at:

Web Page: <https://www.bourns.com/legal/disclaimers-terms-and-policies>

PDF: <https://www.bourns.com/docs/Legal/disclaimer.pdf>