

阅读申明

- 1.本站收集的数据手册和产品资料都来自互联网，版权归原作者所有。如读者和版权方有任何异议请及时告之，我们将妥善解决。
- 2.本站提供的中文数据手册是英文数据手册的中文翻译，其目的是协助用户阅读，该译文无法自动跟随原稿更新，同时也可能存在翻译上的不当。建议读者以英文原稿为参考以便获得更精准的信息。
- 3.本站提供的产品资料，来自厂商的技术支持或者使用者的心得体会等，其内容可能存在描述上的差异，建议读者做出适当判断。
- 4.如需与我们联系，请发邮件到marketing@iczoom.com，主题请标有“数据手册”字样。

Read Statement

1. The datasheets and other product information on the site are all from network reference or other public materials, and the copyright belongs to the original author and original published source. If readers and copyright owners have any objections, please contact us and we will deal with it in a timely manner.
2. The Chinese datasheets provided on the website is a Chinese translation of the English datasheets. Its purpose is for reader's learning exchange only and do not involve commercial purposes. The translation cannot be automatically updated with the original manuscript, and there may also be improper translations. Readers are advised to use the English manuscript as a reference for more accurate information.
3. All product information provided on the website refer to solutions from manufacturers' technical support or users the contents may have differences in description, and readers are advised to take the original article as the standard.
4. If you have any questions, please contact us at marketing@iczoom.com and mark the subject with "Datasheets" .

High Power Silicon Controlled Rectifier

1300 VOLTS 110 ARMS

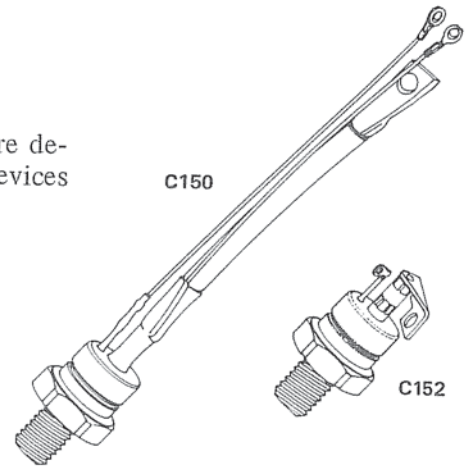
C150,2



The General Electric C150 and C152 Silicon Controlled Rectifiers are designed for phase control applications. These are all-diffused, Pic-Pac devices employing the field-proven amplifying gate.

FEATURES:

- High di/dt Rating
- High dv/dt Capability with Selections Available
- Excellent Surge and I²t Ratings Providing Easy Fusing
- Rugged Hermetic Package with Long Creepage Path



MAXIMUM ALLOWABLE RATINGS

| TYPE | REPETITIVE PEAK OFF-STATE VOLTAGE, V_{DRM}^1 $T_J = -40^\circ\text{C to } +125^\circ\text{C}$ | REPETITIVE PEAK REVERSE VOLTAGE, V_{RRM}^1 $T_J = -40^\circ\text{C to } +125^\circ\text{C}$ | NON-REPETITIVE PEAK REVERSE VOLTAGE, V_{RSM}^1 $T_J = +125^\circ\text{C}$ |
|--------------|--|--|--|
| C150, C152E | 500 Volts | 500 Volts | 600 Volts |
| C150, C152M | 600 | 600 | 720 |
| C150, C152S | 700 | 700 | 850 |
| C150, C152N | 800 | 800 | 950 |
| C150, C152T | 900 | 900 | 1075 |
| C150, C152P | 1000 | 1000 | 1200 |
| C150, C152PA | 1100 | 1100 | 1325 |
| C150, C152PB | 1200 | 1200 | 1450 |
| C150, C152PC | 1300 | 1300 | 1550 |

¹ Half sinewave waveform, 10 msec. max. pulse width.

| | |
|---|--|
| RMS On-State Current, $I_{T(RMS)}$ | 100 Amperes (All Conduction Angles) |
| Average On-State Current, $I_{T(AV)}$ | Depends on Conduction Angle (See Charts 1 and 4) |
| Peak One-Cycle Surge (Non-Repetitive) On-State Current, I_{TSM} (60 Hz) | 1500 Amperes |
| Peak One-Cycle Surge (Non-Repetitive) On-State Current, I_{TSM} (50 Hz) | 1400 Amperes |
| Critical Rate-of-Rise of On-State Current (Non-Repetitive)* | 800 A/ μ s |
| Critical Rate-of-Rise of On-State Current (Repetitive)* | 500 A/ μ s |
| I ² t (for fusing), for times \geq 1.5 milliseconds | 7000 (RMS Ampere) ² Seconds |
| Peak Gate Power Dissipation, P_{GM} | 10 Watts |
| Average Gate Power Dissipation, $P_{G(AV)}$ | 2 Watts |
| Storage Temperature, T_{stg} | -40°C to +150°C |
| Operating Temperature, T_J | -40°C to +125°C |
| Stud Torque | 125 Lbs.-In. (Min.) – 150 Lbs.-In. (Max.) 14 N-m (Min.) – 17 N-m (Max.) |

*di/dt ratings established in accordance with EIA-NEMA Standard RS-397, Section 5.2.2.6 for conditions of V_{DRM} stated above; 20 volts, 20 ohms gate trigger source with 0.5 μ sec short circuit trigger current rise time.

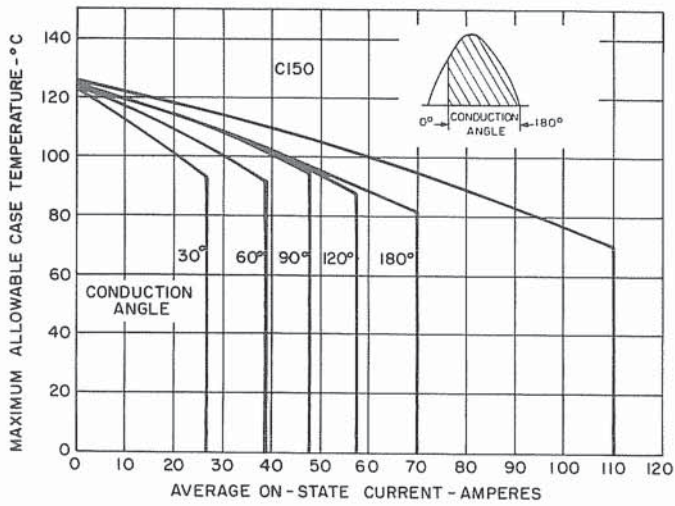
CHARACTERISTICS

| TEST | SYMBOL | MIN. | TYP. | MAX. | UNITS | TEST CONDITIONS |
|---|-------------------------|------|------|------|------------------------------|---|
| Repetitive Peak Reverse and Off-State Current | I_{DRM} and I_{RRM} | | | | mA | $T_J = +25^\circ\text{C}$ $V_{DRM} = V_{RRM} =$ |
| C150, C152E | | — | 3 | 10 | | 500 Volts Peak |
| C150, C152M | | — | 3 | 10 | | 600 |
| C150, C152S | | — | 3 | 10 | | 700 |
| C150, C152N | | — | 3 | 10 | | 800 |
| C150, C152T | | — | 3 | 10 | | 900 |
| C150, C152P | | — | 3 | 10 | | 1000 |
| C150, C152PA | | — | 3 | 10 | | 1100 |
| C150, C152PB | | — | 3 | 6 | | 1200 |
| C150, C152PC | | — | 3 | 5 | | 1300 |
| Repetitive Peak Reverse and Off-State Current | I_{DRM} and I_{RRM} | | | | mA | $T_J = +125^\circ\text{C}$ $V_{DRM} = V_{RRM}$ |
| C150, C152E | | — | 15 | 20 | | 500 Volts Peak |
| C150, C152M | | — | 15 | 20 | | 600 |
| C150, C152S | | — | 15 | 20 | | 700 |
| C150, C152N | | — | 15 | 20 | | 800 |
| C150, C152T | | — | 15 | 20 | | 900 |
| C150, C152P | | — | 15 | 20 | | 1000 |
| C150, C152PA | | — | 15 | 20 | | 1100 |
| C150, C152PB | | — | 10 | 13 | | 1200 |
| C150, C152PC | | — | 8 | 11 | | 1300 |
| Thermal Resistance | $R_{\theta JC}$ | — | .2 | .3 | $^\circ\text{C}/\text{Watt}$ | Junction-to-Case |
| Critical Rate-of-Rise of Off-State Voltage (Higher values may cause device switching) | dv/dt | 200 | 500 | — | $\text{V}/\mu\text{sec}$ | $T_J = +125^\circ\text{C}$, Rated V_{DRM} , Using Linear Exponential Rising Waveform. Gate Open Circuited. Exponential $dv/dt = \frac{V_{DRM}}{\tau} (.632)$ |
| Higher minimum dv/dt selections available – consult factory. | | | | | | |
| Holding Current | I_H | — | 20 | 500 | mAdc | $T_C = +25^\circ\text{C}$, Anode Supply = 24 Vdc. Initial Forward Current = 2 Amps. |
| Turn-On Delay Time | t_d | — | 1 | — | μsec | $T_C = +25^\circ\text{C}$, $I_T = 50$ Adc, $V_{DRM} =$ Rated. Gate Supply: 10 Volt Open Circuit, 20 Ohm, 0.1 μsec max. rise time |
| Gate Pulse Width Necessary to Trigger | | — | 8 | 10 | μsec | $T_C = +25^\circ\text{C}$. Gate Supply: 20 Volt Open Circuit, 40 Ohm, 0.5 μsec rise time. $I_T = 1.0$ Amps. for High di/dt Capability. See Chart 9. |
| DC Gate Trigger Current | I_{GT} | — | 50 | 150 | mAdc | $T_C = +25^\circ\text{C}$, $V_D = 6$ Vdc, $R_L = 3$ Ohms |
| | | — | 75 | 200 | | $T_C = -40^\circ\text{C}$, $V_D = 6$ Vdc, $R_L = 3$ Ohms |
| | | — | 15 | 125 | | $T_C = +125^\circ\text{C}$, $V_D = 6$ Vdc, $R_L = 3$ Ohms |
| DC Gate Trigger Voltage | V_{GT} | — | 1.25 | 3.0 | Vdc | $T_C = -40^\circ\text{C}$ to $+120^\circ\text{C}$, $V_D = 6$ Vdc, $R_L = 3$ Ohms |
| | | 0.15 | — | — | | $T_C = +125^\circ\text{C}$, $V_D =$ Rated, $R_L = 1000$ Ohms |
| Peak On-State Voltage | V_{TM} | — | 2.0 | 2.6 | Volts | $T_C = +25^\circ\text{C}$, $I_{TM} = 500$ Amps. Peak. Duty Cycle $\leq 0.01\%$ |
| Circuit Commutated Turn-Off Time** | t_q | — | 100 | † | μsec | (1) $T_J = +125^\circ\text{C}$ (2) $I_{TM} = 50$ Amps (3) $V_R = 50$ Volts Min. (4) V_{DRM} (Reapplied) = Rated (5) Rate-of-Rise of Reapplied Off-State Voltage = $20\text{V}/\mu\text{sec}$ Linear |

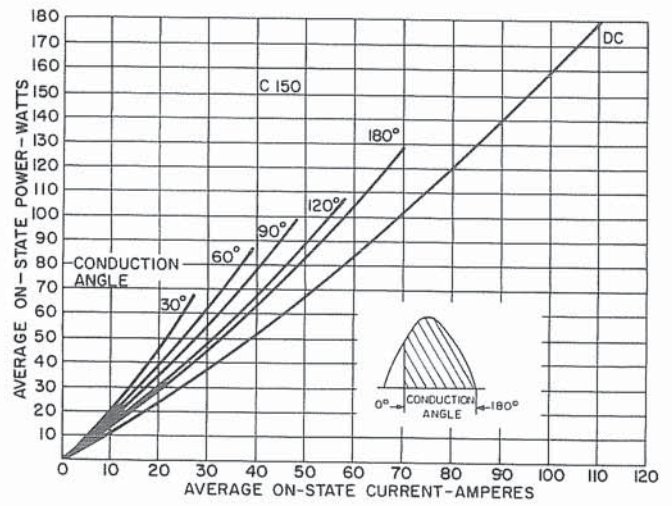
† Consult factory if guaranteed turn-off time is required.

** Typical turn-off time increases 30%, if I_{TM} is increased to 500 amps. 819

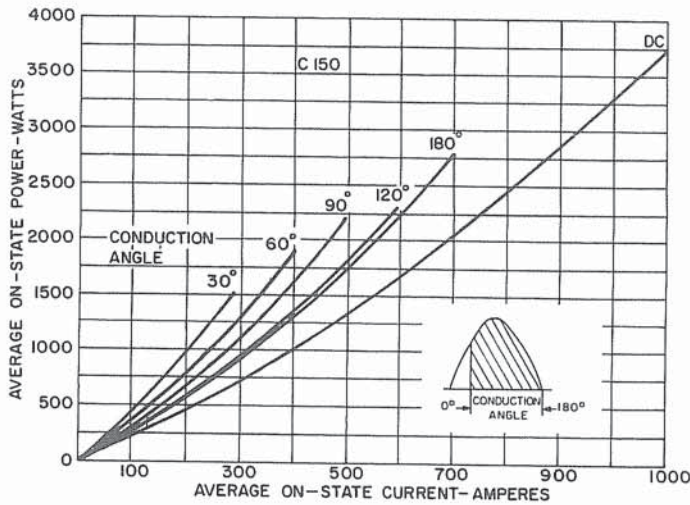
C150, C152



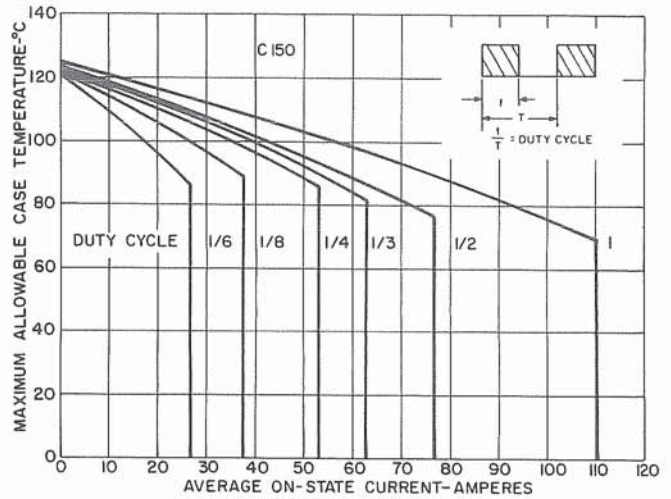
1. MAXIMUM ALLOWABLE CASE TEMPERATURE FOR SINUSOIDAL CURRENT WAVEFORM 50 TO 400 CPS



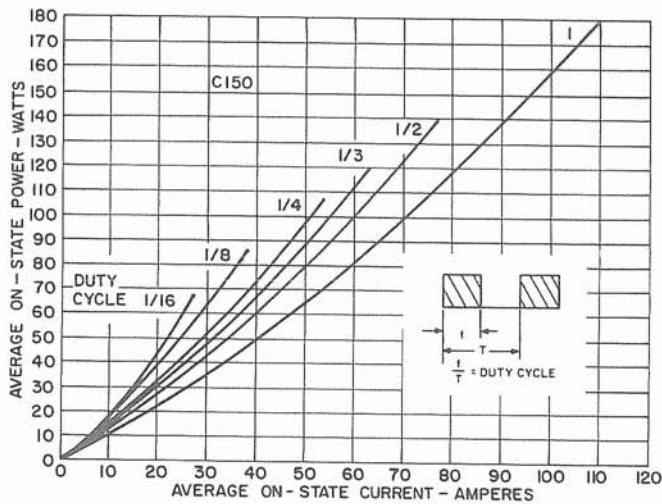
2. MAXIMUM ON-STATE POWER DISSIPATION FOR SINUSOIDAL CURRENT WAVEFORM



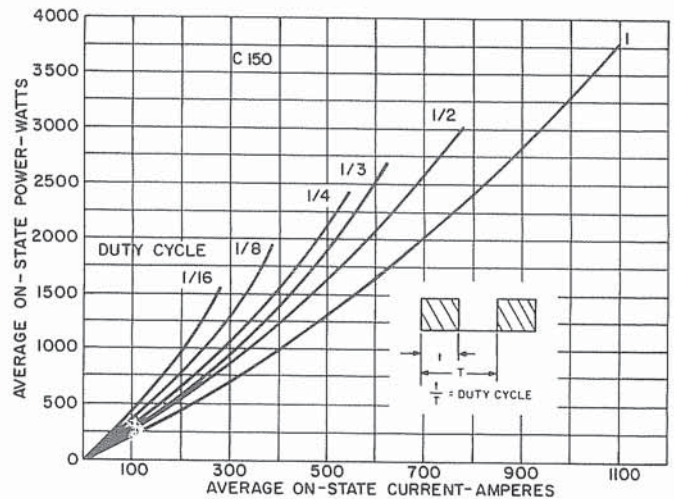
3. MAXIMUM ON-STATE POWER DISSIPATION FOR SINUSOIDAL CURRENT WAVEFORM (EXTENDED RANGE)



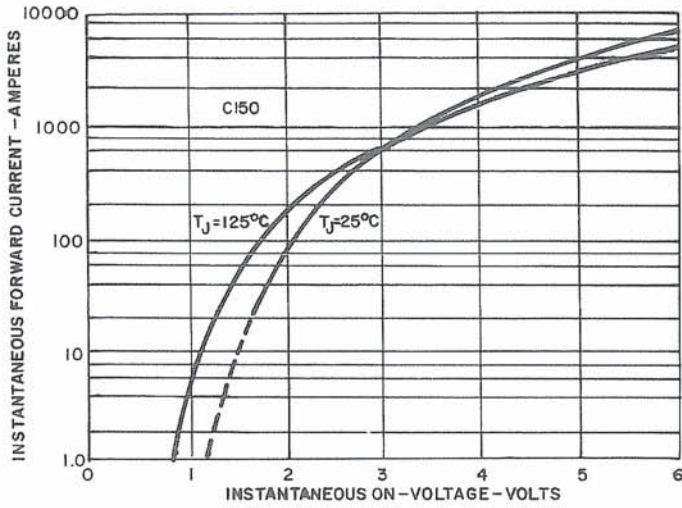
4. MAXIMUM ALLOWABLE CASE TEMPERATURE FOR RECTANGULAR CURRENT WAVEFORM - 50 TO 400 CPS



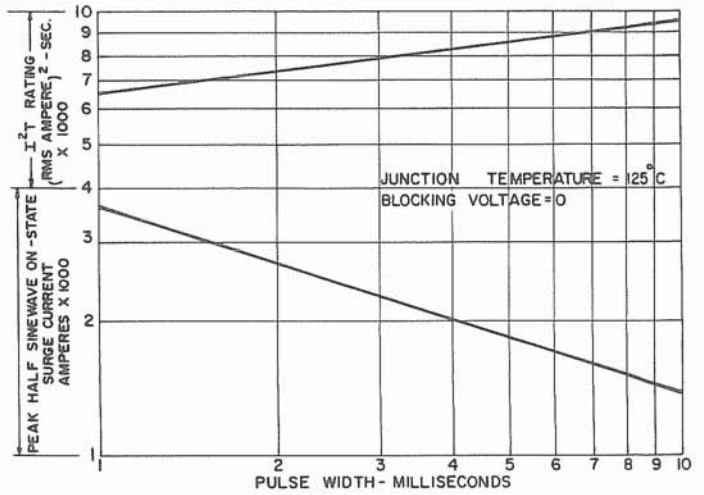
5. MAXIMUM ON-STATE POWER DISSIPATION FOR RECTANGULAR CURRENT WAVEFORM



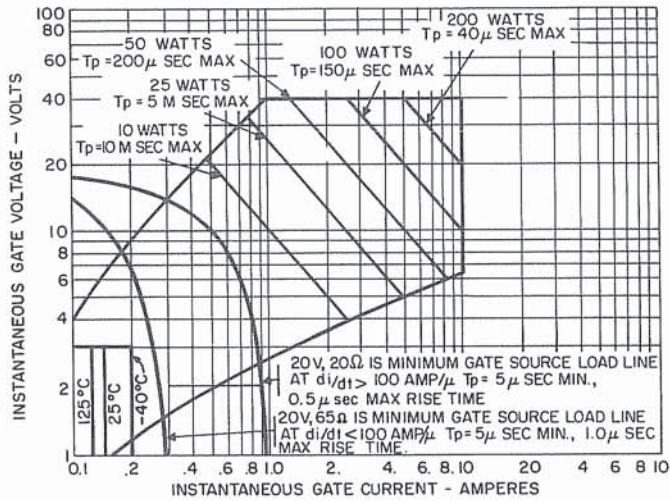
6. ON-STATE POWER DISSIPATION FOR RECTANGULAR CURRENT WAVEFORM



7. C150 FORWARD CONDUCTION CHARACTERISTIC, ON-STATE



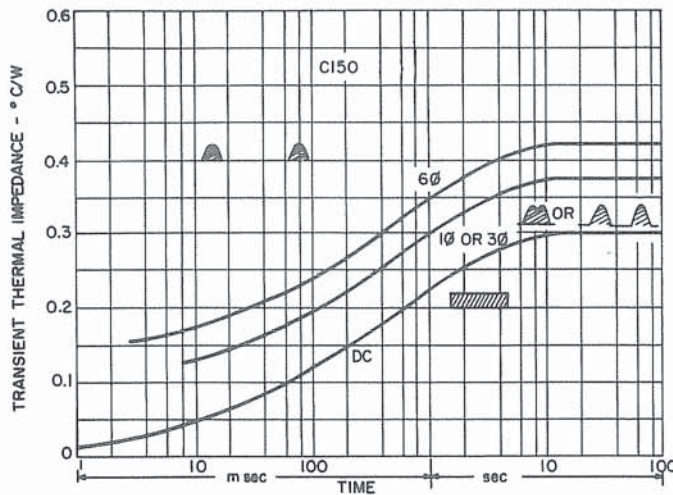
8. SUB-CYCLE SURGE RATING FOLLOWING RATED LOAD CONDITIONS



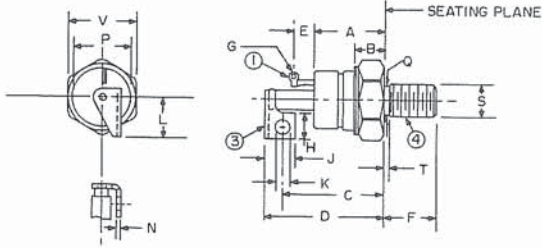
9. GATE TRIGGERING CHARACTERISTICS

NOTES:

1. Maximum allowable gate power dissipation = 2 Watts.
2. The locus of possible DC trigger points lie outside the boundaries shown at various case temperatures.
3. T_p = Rectangular Gate Current Pulse Width.



10. TRANSIENT THERMAL IMPEDANCE - JUNCTION-TO-CASE

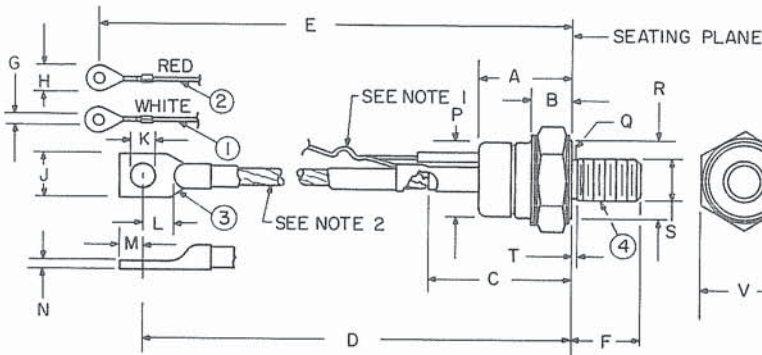


| MODEL | TERMINAL ① | TERMINAL ③ | TERMINAL ④ | S THREAD SIZE |
|-------|---------------|---------------|---------------|------------------|
| C152 | GATE | CATHODE + | ANODE - | 1/2-20 UNF-2A |

| SYM | INCHES | | METRIC MM | | SYM | INCHES | | METRIC MM | | NOTES |
|-----|------------|-------|--------------|-------|-----|--------|-------|--------------|-------|-------|
| | MIN. | MAX. | MIN. | MAX. | | MIN. | MAX. | MIN. | MAX. | |
| A | 1.020 | 1.140 | 25.90 | 28.96 | L | .590 | .640 | 14.98 | 16.26 | |
| B | .390 | .500 | 9.90 | 12.70 | | | | | | |
| C | 1.460 REF. | | 7.92 REF. | | N | .058 | .070 | 1.47 | 1.78 | |
| D | 1.660 | 1.800 | 42.16 | 45.72 | | | | | | |
| E | .312 REF. | | 7.92 REF. | | P | .840 | .910 | 21.33 | 23.11 | |
| F | .797 | .827 | 20.24 | 21.01 | | | | | | |
| G | .060 | .075 | 1.52 | 1.91 | Q | .425 | .499 | 10.79 | 12.67 | |
| H | .385 | .415 | 9.77 | 10.54 | T | — | .060 | — | 1.52 | 2 |
| J | .445 | .485 | 11.30 | 12.32 | V | 1.052 | 1.063 | 26.72 | 27.00 | |
| K | .198 | .212 | 5.02 | 5.38 | | | | | | |

NOTES:

1. One nut and one lockwasher supplied with each unit. Material of hardware is steel, cad plated.
2. "T" dimension is area of unthreaded portion. Complete threads are within 2.5 threads of seating plane.
3. Angular orientation of terminals is undefined.



| MODEL | TERMINAL ① | TERMINAL ② | TERMINAL ③ | TERMINAL ④ | S THREAD SIZE |
|-------|---------------|----------------|---------------|---------------|------------------|
| C150 | GATE | AUX CATHODE | CATHODE + | ANODE - | 1/2 20UNF-2A |

| SYM | INCHES | | METRIC MM | | SYM | INCHES | | METRIC MM | | NOTES |
|-----|--------|-------|--------------|--------|-----|--------|-------|--------------|-------|-------|
| | MIN. | MAX. | MIN. | MAX. | | MIN. | MAX. | MIN. | MAX. | |
| A | 1.020 | 1.140 | 25.90 | 28.96 | L | .330 | — | 8.38 | — | |
| B | .390 | .500 | 9.90 | 12.70 | M | .275 | .325 | 6.98 | 8.26 | |
| C | 1.570 | 1.750 | 39.87 | 44.45 | N | .065 | .095 | 1.65 | 2.41 | |
| D | 6.000 | 6.390 | 152.40 | 162.31 | P | .840 | .910 | 21.33 | 23.11 | |
| E | 6.850 | 7.500 | 173.99 | 190.50 | Q | .425 | .499 | 10.79 | 12.67 | |
| F | .797 | .827 | 20.24 | 21.01 | R | .920 | — | 23.36 | — | 4 |
| G | .140 | .150 | 3.55 | 3.81 | T | — | .060 | — | 1.57 | 5 |
| H | — | .300 | — | 7.62 | | | | | | |
| J | .500 | .610 | 12.70 | 15.49 | V | 1.052 | 1.063 | 26.72 | 27.00 | |
| K | .260 | .281 | 6.60 | 7.14 | | | | | | |

NOTES:

1. Gate and auxiliary cathode leads supplied lightly twisted together.
2. Flexible copper lead.
3. One nut and one lockwasher supplied with each unit. Material of hardware is steel, cad plated.
4. "R" dimension is diameter of effective seating area.
5. "T" dimension is area of unthreaded portion. Complete threads are within 2.5 threads of seating plane.
6. Angular orientation of terminals is undefined.

