



SiC SCHOTTKY DIODE TYPE 2×50A

Features

Preliminary

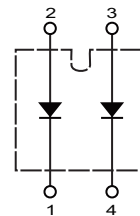
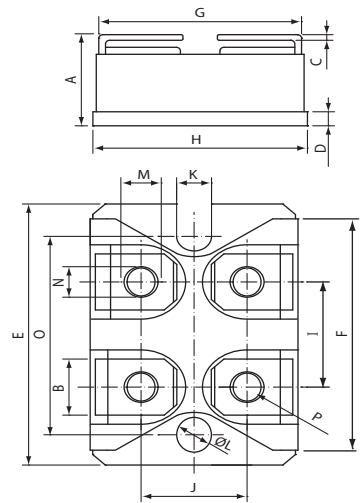
- High surge current capable
- Zero reverse recovery current
- High bandwidth
- Isolation type package
- Temperature Independent Switching Behavior
- VDC 1200 V
- I<sub>F</sub> (T<sub>C</sub><135°C) 2×50 A

Benefits

- Unipolar rectifier
- Zero switching loss
- Higher efficiency
- Smaller heat sink
- Parallel devices without thermal runaway

Applications

- Motor drives
- Switch mode power supplies
- Ev chargers
- Solar inverters
- Welding equipment
- Power factor correction
- Diode snubber
- Automotive
- induction heating



CSRI 2X50 - XXX

Maximum Ratings

Operating Junction Temperature : - 55 °C to +175 °C

Storage Temperature : -55 °C to +175 °C

| Part Number  | Maximum Recurrent Peak Reverse Voltage | Maximum DC Blocking Voltage |
|--------------|--|-----------------------------|
| CSRI2×50-120 | 1200V                                  | 1200V                       |

| Maximum Rating   | Symbol             | Conditions                                     | Value | Unit |
|--|--------------------|--|-------|------|
| Continuous forward current (per leg)                         | I <sub>F</sub>     | T <sub>C</sub> =135 °C                         | 50    | A    |
| Surge non-repetitive forward current sine halfwave (per leg) | I <sub>FSM</sub>   | T <sub>C</sub> =25 °C, t <sub>p</sub> =8.3 ms  | 400   |      |
|  |                    | T <sub>C</sub> =150 °C, t <sub>p</sub> =8.3 ms | 250   |      |
| Non-repetitive peak forward current (per leg)                | I <sub>F,max</sub> | T <sub>C</sub> =25 °C, t <sub>p</sub> =10 μs   | 1600  |      |
|  |                    | T <sub>C</sub> =150 °C, t <sub>p</sub> =10 μs  | 1000  |      |
| Repetitive peak reverse voltage                              | V <sub>RRM</sub>   | T <sub>J</sub> =25 °C                          | 1200  | V    |
| Isolation voltage  | V <sub>iso</sub>   | 50/60 Hz, RMS<br>I <sub>ISOL</sub> 1 ≤ mA      | 2500  | V    |
| Mounting torque  |                    | M4 Screw                                       | 1.1   | N-m  |

| DIM | DIMENSIONS |       |       |       |
|-----|------------|-------|-------|-------|
|     | INCHES     |       | MM    |       |
|     | MIN        | MXA   | MIN   | MXA   |
| A   | .500       | .519  | 12.70 | 13.20 |
| B   | .307       | .322  | 7.80  | 8.20  |
| C   | .029       | .033  | .75   | .84   |
| D   | .077       | .082  | 1.95  | 2.10  |
| E   | 1.487      | 1.502 | 37.80 | 38.20 |
| F   | 1.250      | 1.258 | 31.75 | 32.00 |
| G   | .931       | .956  | 23.65 | 24.30 |
| H   | .996       | 1.012 | 25.30 | 25.70 |
| I   | .586       | .594  | 14.90 | 15.10 |
| J   | .492       | .516  | 12.50 | 13.10 |
| K   | .161       | .169  | 4.10  | 4.30  |
| L   | .161       | .169  | 4.10  | 4.30  |
| M   | .181       | .191  | 4.60  | 4.95  |
| N   | .165       | .177  | 4.20  | 4.50  |
| O   | 1.184      | 1.192 | 30.10 | 30.30 |
| P   | M4*8       |       |       |       |



**Electrical Characteristics**, at  $T_j=25\text{ }^\circ\text{C}$ , unless otherwise specified. (per leg)

| Static Characteristics | Symbol   | Conditions   | Values |      |       | Unit          |
|------------------------|----------|--|--------|------|-------|---------------|
|                        |          |  | min.   | typ. | max.  |               |
| DC blocking voltage    | $V_{DC}$ |  | 1,200  | -    | -     | V             |
| Diode forward voltage  | $V_F$    | $I_F=50\text{A}, T_j=25\text{ }^\circ\text{C}$     | -      | 1.6  | 1.8   |               |
|                        |          | $I_F=50\text{A}, T_j=175\text{ }^\circ\text{C}$    | -      | 2.4  | 2.9   |               |
| Reverse current        | $I_R$    | $V_R=1,200\text{V}, T_j=25\text{ }^\circ\text{C}$  | -      | 3.6  | 181   | $\mu\text{A}$ |
|                        |          | $V_R=1,200\text{V}, T_j=175\text{ }^\circ\text{C}$ | -      | 230  | 2,300 |               |

**AC Characteristics** (per leg)

| Static Characteristics  | Symbol   | Conditions  | Values |       |      | Unit |
|-------------------------|----------|---|--------|-------|------|------|
|                         |          |   | min.   | typ.  | max. |      |
| Total capacitive charge | $Q_{rr}$ | $V_R=1,200\text{V}, T_j=25\text{ }^\circ\text{C}$                     | -      | 155   | -    | nC   |
| Total capacitance       | C        | $V_R=0\text{V}, f=1\text{ MHz}$<br>$T_j=25\text{ }^\circ\text{C}$     | -      | 2,800 | -    | pF   |
|                         |          | $V_R=600\text{V}, f=1\text{ MHz}$<br>$T_j=25\text{ }^\circ\text{C}$   | -      | 280   | -    |      |
|                         |          | $V_R=1,000\text{V}, f=1\text{ MHz}$<br>$T_j=25\text{ }^\circ\text{C}$ | -      | 252   | -    |      |

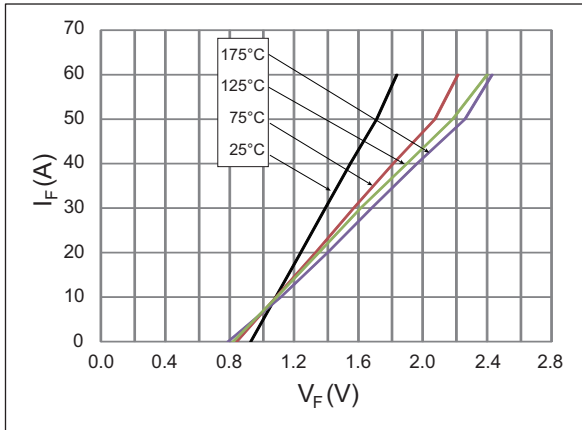
**Thermal Characteristics** (per leg)

| Static Characteristics                   | Symbol          | Values | Unit               |
|--|-----------------|--------|--------------------|
|  |                 | typ.   |                    |
| Thermal resistance from junction to case | $R_{\theta JC}$ | 0.28   | $^\circ\text{C/W}$ |

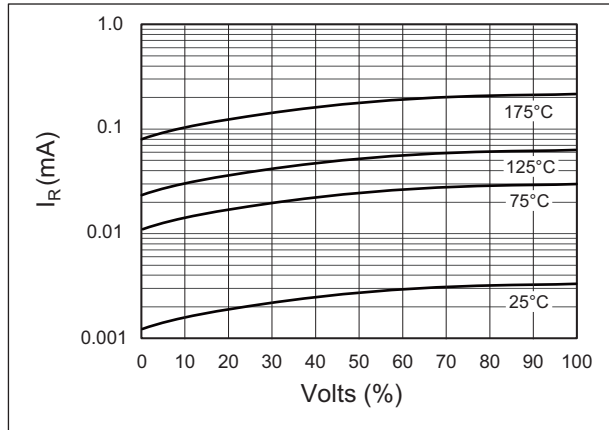


Typical Performance

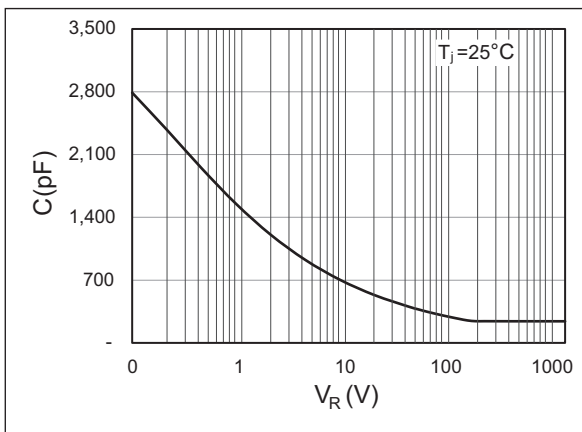
Forward Characteristics (parameterized on  $T_j$ )



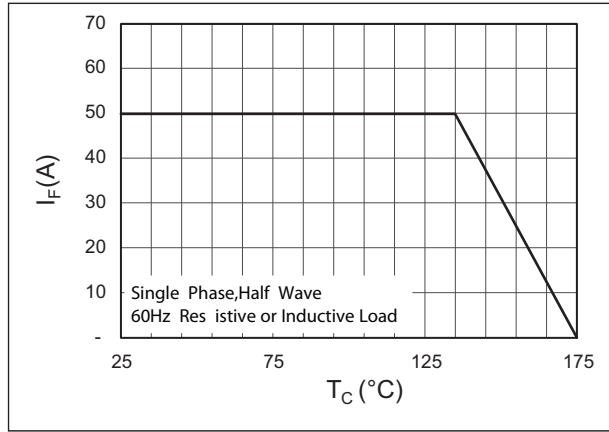
Reverse Characteristics (parameterized on  $T_j$ )



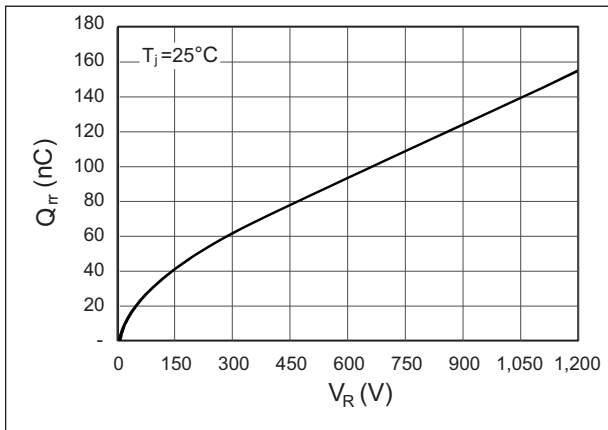
Capacitance



Current Derating



Recovery Charge



Forward Surge Current

