

**Capsule Rectifier Diode**

T-01-23

Consists of a diffused silicon element mounted in an hermetic ceramic cold welded capsule. Available in industry standard and thin housings.

| Ratings   | Unless otherwise stated $T_j = 160^\circ\text{C}$ | Maximum Limits |      |      |      |      |      | Units |
|-----------|---------------------------------------------------|----------------|------|------|------|------|------|-------|
|           | Voltage Codes                                     | 20             | 22   | 24   | 26   | 28   | 30   |       |
| $V_{RRM}$ | Repetitive peak reverse voltage.                  | 2000           | 2200 | 2400 | 2600 | 2800 | 3000 | V     |
| $V_{RSM}$ | Non-repetitive peak reverse voltage.              | 2100           | 2300 | 2500 | 2700 | 2900 | 3100 | V     |

|               |                                  |                                               |                                                                                                                                        |                    |         |
|---------------|----------------------------------|-----------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------|--------------------|---------|
| $I_{F(AV)}$   | Average forward current          | Half sine wave                                | <div><div>55°C heatsink temperature<br/>(double side cooled)</div><div>100°C heatsink temperature<br/>(single side cooled)</div></div> | 4310               | A       |
| $I_{F(RMS)}$  | R.M.S forward current            | 25°C heatsink temperature, double side cooled |                                                                                                                                        | 7875               | A       |
| $I_F$         | Continuous forward current       | 25°C heatsink temperature, double side cooled |                                                                                                                                        | 7060               | A       |
| $I_{FSM(1)}$  | Peak one-cycle surge             | 10ms duration, 60% $V_{RRM}$ re-applied       |                                                                                                                                        | 55.0               | KA      |
| $I_{FSM(2)}$  | Peak one-cycle surge             | 10ms duration, $V_R \leq 10$ volts            |                                                                                                                                        | 60.5               | KA      |
| $I^2 t_{(2)}$ | Maximum permissible surge energy | 10ms duration, $V_R \leq 10$ volts            |                                                                                                                                        | $18.3 \times 10^6$ | $A^2 s$ |
|               |                                  | 3ms duration, $V_R \leq 10$ volts             |                                                                                                                                        | $13.6 \times 10^6$ | $A^2 s$ |
| $T_j$         | Operating temperature range      |                                               |                                                                                                                                        | −55 to + 160       | °C      |
| $T_{std}$     | Storage temperature range        |                                               |                                                                                                                                        | −55 to + 160       | °C      |

| Characteristics Unless otherwise indicated $T_j = 160^\circ\text{C}$ |                                            |                    |       |                    |
|----------------------------------------------------------------------|--------------------------------------------|--------------------|-------|--------------------|
| $V_{FM}$                                                             | Peak forward voltage                       | $I_F = 6000$ A     | 1.60  | V                  |
| $V_O$                                                                | Forward conduction threshold voltage       |                    | 0.80  | V                  |
| $r$                                                                  | Forward conduction slope resistance        |                    | 0.133 | $m\Omega$          |
| $I_{RRM}$                                                            | Repetitive peak reverse current            | At $V_{RRM}$       | 100.0 | mA                 |
| $R_{th(j-hs)}$                                                       | Thermal resistance, junction to heat sink. | Double side cooled | 0.011 | $^\circ\text{C/W}$ |
|                                                                      |                                            | Single side cooled | 0.022 | $^\circ\text{C/W}$ |

**Ordering Information** (Please quote device code as explained below - 10 digits)

|                 |                            |                                           |                 |       |
|-----------------|----------------------------|-------------------------------------------|-----------------|-------|
| S               | W                          | ● ●                                       | ● X C           | 2 0 C |
| Fixed type code | Voltage Code (see ratings) | CXC - Thick Housing<br>DXC - Thin Housing | Fixed Type Code |       |

Typical code : SW24CXC20C, 2400  $V_{RRM}$

Details of a full range of capsule mounting clamps are available - ask for brochure.

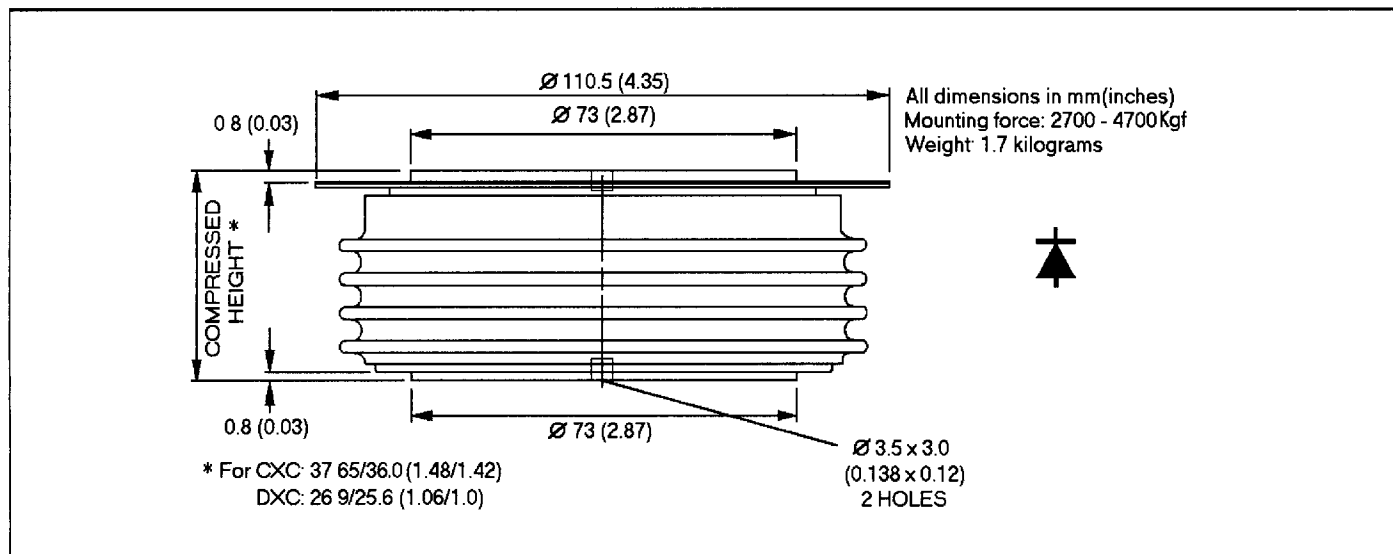


Figure 1. Dissipation/Sink Temperature v. Mean Forward Current.

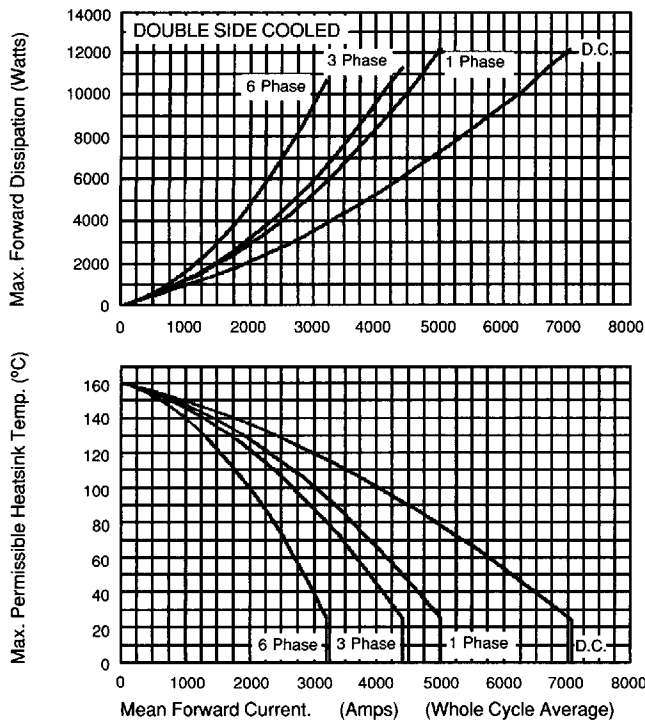


Figure 2. Dissipation/Sink Temperature v. Mean Forward Current.

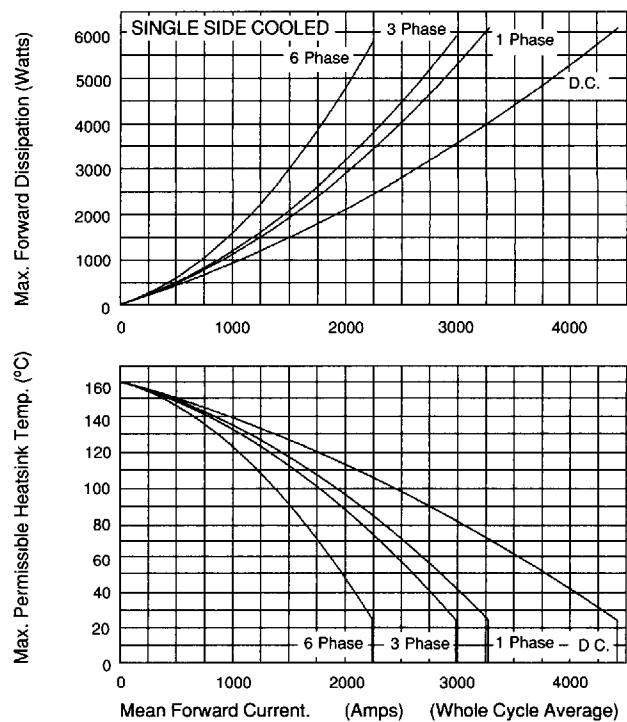
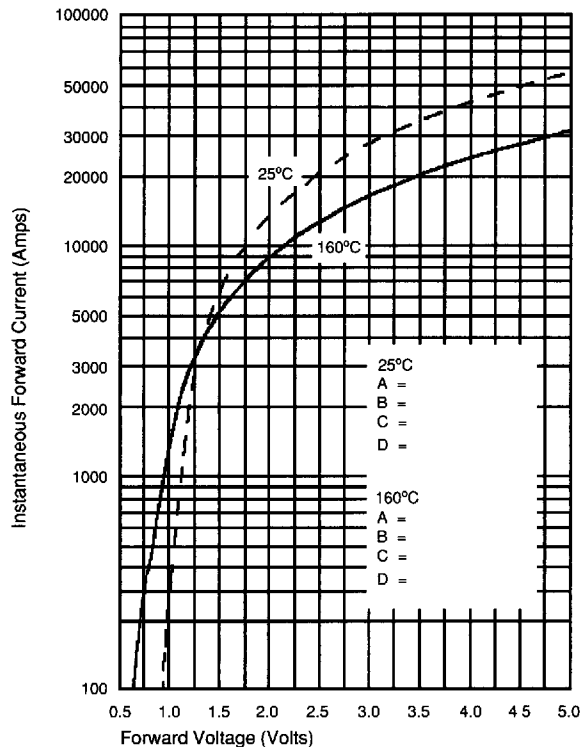


Figure 3. Limit Forward Characteristic at 160°C.



Forward volt-drop calculation :

$$V_F = A + B \ln I_F + C I_F + D / I_F$$

Figure 4. Junction to Sink Transient Thermal Impedance.

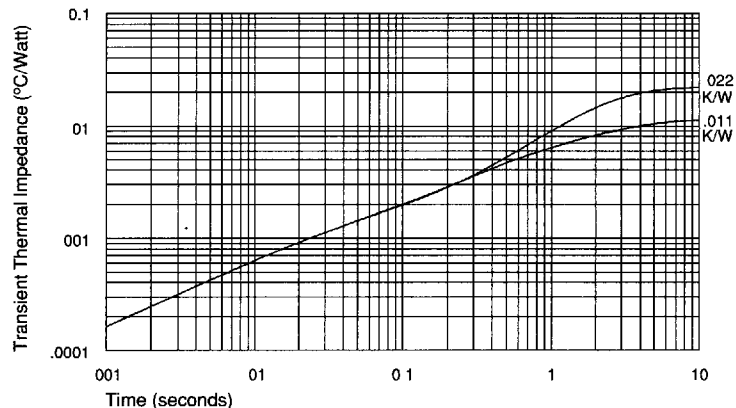
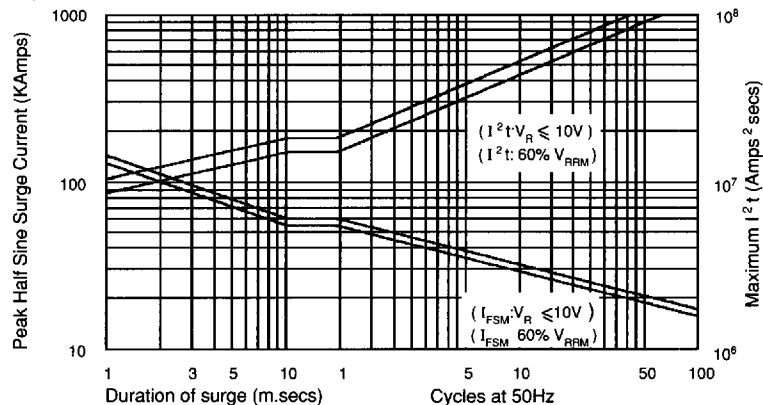


Figure 5. Non-Repetitive Surge Current at Initial Junction Temperature 160°C.



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