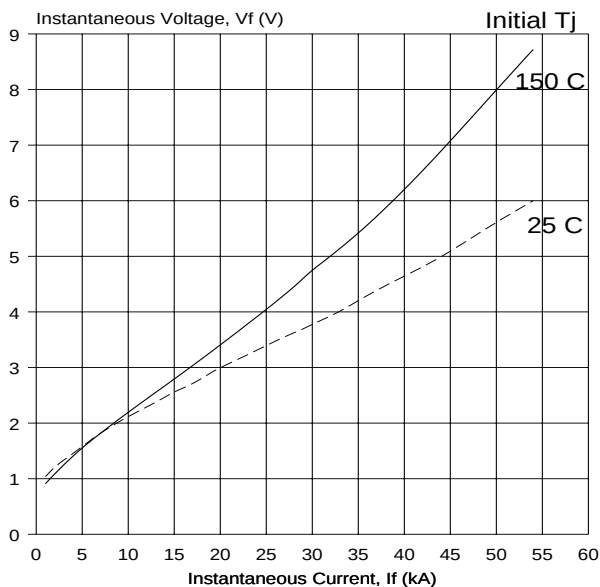


The SDD303 rectifier diode features a nominal 100mm diameter silicon junction design, manufactured by the proven multi-diffusion process.

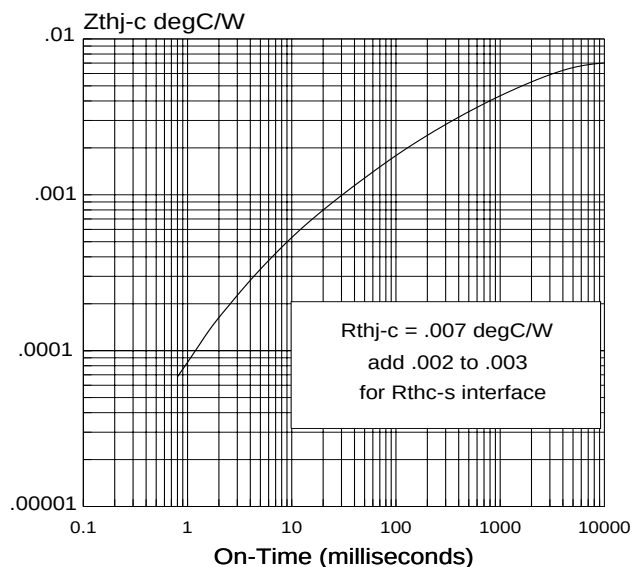
SDD303 is designed specifically for high current surges as appropriate for pulse power applications.

**EI-CHARACTERISTICS**  
Process Maximum



89A:

**THERMAL IMPEDANCE vs. TIME**  
Junction to Case (DC)



89a:

## PRINCIPAL LIMITS AND RATINGS

Operating Temperature Range

-40°C to +150°C

Rep. Peak Reverse Voltage & Current

$V_{RRM} = 6000 \text{ V}$ ;  $I_{RRM} = 100 \text{ mA}$

Non Repetitive Peak Surge Current

$I_{FSM} (8.3 \text{ ms}, V_R = 0) = 60000 \text{ A}$

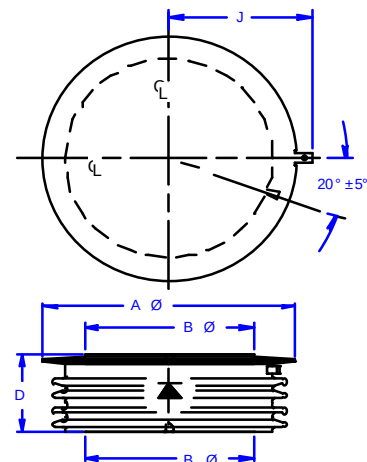
Maximum Peak Recovery Current

$I_{RM} (150^\circ\text{C}, 140\text{A/us}) = 1900 \text{ A}$   
(RC snubber required)

Maximum Average Current

$I_{F(AV)} = 3500 \text{ A @ } T_{case} = 100^\circ\text{C}$

## MECHANICAL OUTLINE



AF = 5.65 in (143.5 mm)

BF = 3.92 in (99.4 mm)

D = 1.45 in (36.8 mm)

## ELECTRICAL CREEPAGE

1.6 / 1.0 in

40.6 / 25.4 mm

## CLAMPING FORCE REQUIRED

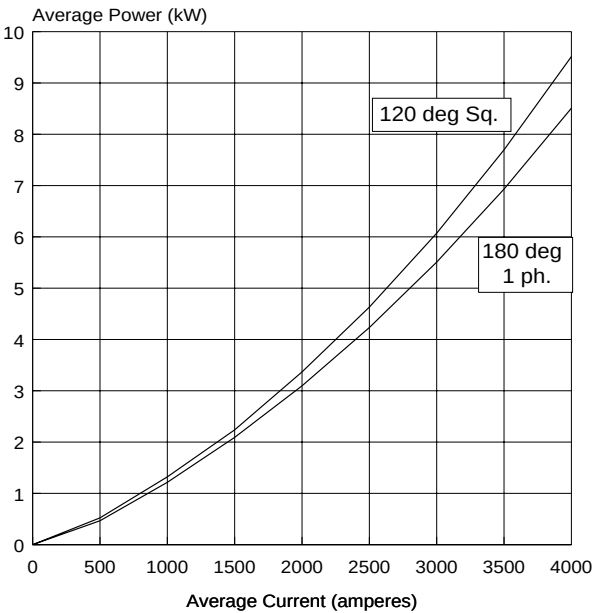
17000 - 19000 lb.

75 - 85 kN

LIMITING CHARACTERISTICS AND RATINGS

| PARAMETER                       | SYMBOL    | TEST CONDITIONS                                                                                      | MAX. VALUES  | UNITS |
|---------------------------------|-----------|------------------------------------------------------------------------------------------------------|--------------|-------|
| Average current                 | $I_{AV}$  | half sine<br>$T_c=100^{\circ}\text{C}$                                                               | 3500         | A     |
| Repetitive peak reverse voltage | $V_{RRM}$ | $T_j=0$<br>to $+150^{\circ}\text{C}$<br>50/60 Hz                                                     | 6000         | V     |
| Repetitive peak reverse current | $I_{RRM}$ | $T_j=150^{\circ}$<br>$25^{\circ}$                                                                    | 100<br>15    | ma    |
| Forward voltage                 | $V_{FM}$  | 2kA , $25^{\circ}\text{C}$<br>22kA , $150^{\circ}\text{C}$<br>8ms pulse                              | 1.20<br>3.75 | V     |
| Non-rep peak surge current      | $I_{FSM}$ | $T_j=150^{\circ}$<br>$t_p=8.3\text{ms}$<br>$t_p=10\text{ms}$                                         | 60<br>55     | kA    |
| Peak recovery current           | $I_{RM}$  | 5500A pulse (snubber, 2.3uF/2 ohms)<br>80A/us<br>$T_j=150^{\circ}\text{C}$ snappiness "S" approx.= 1 | 1385A        |       |

Full Cycle Average Power Dissipation  
@  $T_j = 150\text{ degC}$



AVERAGE POWER DISSIPATION  
@  $T_j = 150\text{ }^{\circ}\text{C}$

| $I_{AVG}$<br>(A) | 120°<br>sq. wave | half<br>sine |
|------------------|------------------|--------------|
| 500              | 523              | 466          |
| 1000             | 1322             | 1215         |
| 1500             | 2268             | 2092         |
| 2000             | 3367             | 3096         |
| 2500             | 4632             | 4232         |
| 3000             | 6071             | 5508         |
| 3500             | 7696             | 6931         |
| 4000             | 9514             | 8508         |