

Low switching losses
 Low reverse recovery charge
 High power cycling capability

Fast Recovery Diode Type DF173-2000-18

| | | | | | |
|---------------------------------|------------|-----------|---------------|------|------|
| Average forward current | | I_{FAV} | 2000 A | | |
| Repetitive peak reverse voltage | | V_{RRM} | 1000 ÷ 1800 V | | |
| Reverse recovery time | | t_{rr} | 6.3 μ s | | |
| V_{RRM} , V | 1000 | 1200 | 1400 | 1600 | 1800 |
| Voltage code | 10 | 12 | 14 | 16 | 18 |
| T_j , °C | - 60 ÷ 125 | | | | |

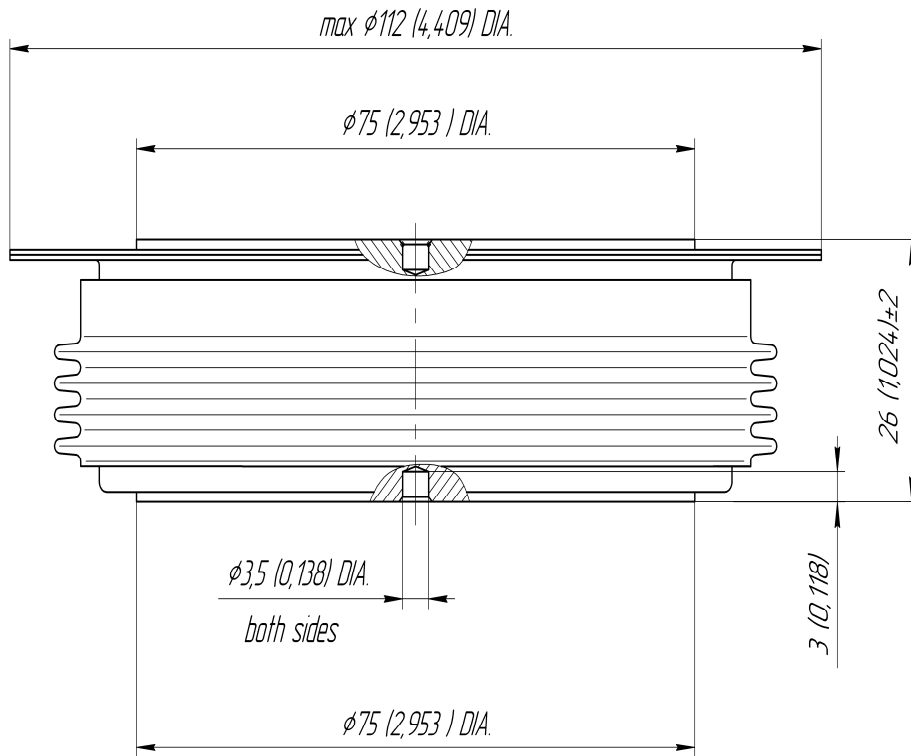
MAXIMUM ALLOWABLE RATINGS

| Symbols and parameters | | Units | Values | Test conditions | |
|------------------------|--------------------------------------|-------------------|----------------------|--|--|
| ON-STATE | | | | | |
| I_{FAV} | Average forward current | A | 2000 3535 | $T_c=93$ °C; Double side cooled; $T_c=55$ °C; Double side cooled; 180° half-sine wave; 50 Hz | |
| I_{FRMS} | RMS forward current | A | 3140 | $T_c=93$ °C; Double side cooled; 180° half-sine wave; 50 Hz | |
| I_{FSM} | Surge forward current | kA | 50.0 58.0 | $T_j=T_{j\ max}$ $T_j=25$ °C | 180° half-sine wave; 50 Hz ($t_p=10$ ms); single pulse; $V_R=0$ V; |
| | | | 53.0 61.0 | $T_j=T_{j\ max}$ $T_j=25$ °C | 180° half-sine wave; 60 Hz ($t_p=8.3$ ms); single pulse; $V_R=0$ V; |
| I^2t | Safety factor | $A^2s \cdot 10^3$ | 12500 16820 | $T_j=T_{j\ max}$ $T_j=25$ °C | 180° half-sine wave; 50 Hz ($t_p=10$ ms); single pulse; $V_R=0$ V; |
| | | | 11655 15440 | $T_j=T_{j\ max}$ $T_j=25$ °C | 180° half-sine wave; 60 Hz ($t_p=8.3$ ms); single pulse; $V_R=0$ V; |
| BLOCKING | | | | | |
| V_{RRM} | Repetitive peak reverse voltages | V | 1000÷1800 | $T_{j\ min} < T_j < T_{j\ max}$; 180° half-sine wave; 50 Hz; | |
| V_{RSM} | Non-repetitive peak reverse voltages | V | 1100÷1900 | $T_{j\ min} < T_j < T_{j\ max}$; 180° half-sine wave; 50 Hz; single pulse; | |
| V_R | Reverse continuous voltages | V | $0.75 \cdot V_{RRM}$ | $T_j=T_{j\ max}$; | |
| THERMAL | | | | | |
| T_{stg} | Storage temperature | °C | - 60 ÷ 125 | | |
| T_j | Operating junction temperature | °C | - 60 ÷ 125 | | |
| MECHANICAL | | | | | |
| F | Mounting force | kN | 40.0 ÷ 50.0 | | |
| a | Acceleration | m/s^2 | 50 | Device unclamped | |
| | | | 100 | Device clamped | |

CHARACTERISTICS

| Symbols and parameters | | Units | Values | Conditions | |
|------------------------|---|---------------------------|------------------|--|---------------------|
| ON-STATE | | | | | |
| V_{FM} | Peak forward voltage, max | V | 1.80 | $T_j=25\text{ }^\circ\text{C}; I_{FM}=6280\text{ A}$ | |
| $V_{F(TO)}$ | Forward threshold voltage, max | V | 1.20 | $T_j=T_{j\text{ max}};$ | |
| r_T | Forward slope resistance, max | m Ω | 0.130 | $0.5\pi I_{FAV} < I_T < 1.5\pi I_{FAV}$ | |
| BLOCKING | | | | | |
| I_{RRM} | Repetitive peak reverse current, max | mA | 200 | $T_j=T_{j\text{ max}};$ $V_R=V_{RRM}$ | |
| SWITCHING | | | | | |
| Q_{rr} | Total recovered charge, max | μC | 1200 | $T_j=T_{j\text{ max}}; I_{FM}=I_{FAV};$ | |
| t_{rr} | Reverse recovery time, max | μs | 6.3 | $di_R/dt=-100\text{ A}/\mu\text{s};$ | |
| I_{rrM} | Peak reverse recovery current, max | A | 381 | $V_R=100\text{ V};$ | |
| THERMAL | | | | | |
| R_{thjc} | Thermal resistance, junction to case, max | $^\circ\text{C}/\text{W}$ | 0.0085 | Direct current | Double side cooled |
| R_{thjc-A} | | | 0.0187 | | Anode side cooled |
| R_{thjc-K} | | | 0.0153 | | Cathode side cooled |
| R_{thck} | Thermal resistance, case to heatsink, max | $^\circ\text{C}/\text{W}$ | 0.0020 | Direct current | |
| MECHANICAL | | | | | |
| w | Weight, typ | g | 1500 | | |
| D_s | Surface creepage distance | mm (inch) | 41.40 (1.630) | | |
| D_a | Air strike distance | mm (inch) | 23.10 (0.909) | | |

| PART NUMBERING GUIDE | | | | | | GROUP OF RECOVERY TIME | |
|---|-----|------|----|----|---|------------------------|----|
| DF | 173 | 2000 | 18 | C4 | N | Group Symbol | |
| 1 | 2 | 3 | 4 | 5 | 6 | $t_{rr}, \mu\text{s}$ | C4 |
| 1. Fast recovery diode 2. Design version 3. Average forward current, A 4. Voltage code 5. Group of reverse recovery time 6. Ambient conditions: N – normal; T – tropical | | | | | | 6.3 | |



All dimensions in millimeters (inches)