

High power cycling capability
 Low on-state and switching losses
 Optimized for line frequency rectifiers
 Designed for traction and industrial applications

Rectifier Diode Type D333-630-28

| | | | | | |
|---------------------------------|-----------|-----------|------|---------------|------|
| Average forward current | | I_{FAV} | | 630 A | |
| Repetitive peak reverse voltage | | V_{RRM} | | 2000 ÷ 2800 V | |
| V_{RRM}, V | 2000 | 2200 | 2400 | 2600 | 2800 |
| Voltage code | 20 | 22 | 24 | 26 | 28 |
| $T_{jv}, ^\circ C$ | -60 ÷ 175 | | | | |

MAXIMUM ALLOWABLE RATINGS

| Symbols and parameters | | Units | Values | Test conditions |
|------------------------|--------------------------------------|-------------------|----------------------|--|
| ON-STATE | | | | |
| I_{FAV} | Average forward current | A | 630 890 | $T_c=128\ ^\circ C$; Double side cooled; $T_c=100\ ^\circ C$; Double side cooled; 180° half-sine wave; 50 Hz |
| I_{FRMS} | RMS forward current | A | 989 | $T_c=128\ ^\circ C$; Double side cooled; 180° half-sine wave; 50 Hz |
| I_{FSM} | Surge forward current | kA | 10.0 12.0 | $T_j=T_{j\ max}$ $T_j=25\ ^\circ C$ 180° half-sine wave; 50 Hz ($t_p=10\ ms$); single pulse; $V_R=0\ V$; |
| | | | 11.0 13.0 | $T_j=T_{j\ max}$ $T_j=25\ ^\circ C$ 180° half-sine wave; 60 Hz ($t_p=8.3\ ms$); single pulse; $V_R=0\ V$; |
| I^2t | Safety factor | $A^2s \cdot 10^3$ | 500 720 | $T_j=T_{j\ max}$ $T_j=25\ ^\circ C$ 180° half-sine wave; 50 Hz ($t_p=10\ ms$); single pulse; $V_R=0\ V$; |
| | | | 500 700 | $T_j=T_{j\ max}$ $T_j=25\ ^\circ C$ 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 | 2000 ÷ 2800 | $T_{j\ min} < T_j < T_{j\ max}$; 180° half-sine wave; 50 Hz; |
| V_{RSM} | Non-repetitive peak reverse voltages | V | 2100 ÷ 2900 | $T_{j\ min} < T_j < T_{j\ max}$; 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 | $^\circ C$ | -60 ÷ 175 | |
| T_j | Operating junction temperature | $^\circ C$ | -60 ÷ 175 | |
| MECHANICAL | | | | |
| F | Mounting force | kN | 9.0 ÷ 11.0 | |
| a | Acceleration | m/s^2 | 50 | Device unclamped |
| | | | 100 | Device clamped |

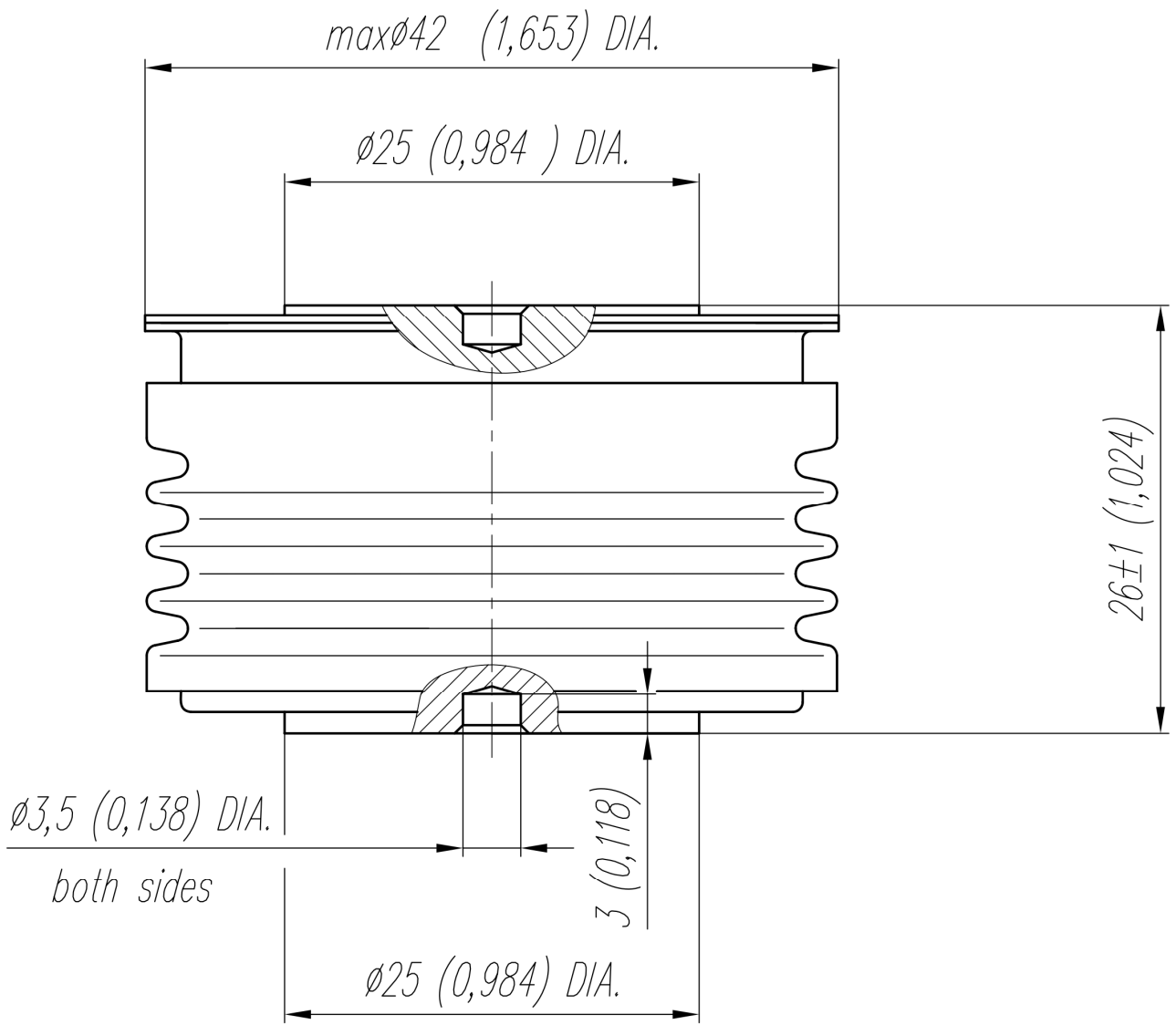
CHARACTERISTICS

| Symbols and parameters | | Units | Values | Conditions | |
|------------------------|---|--------------------|------------------|--|---------------------|
| ON-STATE | | | | | |
| V_{FM} | Peak forward voltage, max | V | 1.60 | $T_j=25\text{ }^\circ\text{C}; I_{FM}=1978\text{ A}$ | |
| $V_{F(TO)}$ | Forward threshold voltage, max | V | 1.10 | $T_j=T_{j\text{ max}};$ $0.5\pi I_{FAV} < I_T < 1.5\pi I_{FAV}$ | |
| r_T | Forward slope resistance, max | m Ω | 0.350 | | |
| BLOCKING | | | | | |
| I_{RRM} | Repetitive peak reverse current, max | mA | 50 | $T_j=T_{j\text{ max}};$ $V_R=V_{RRM}$ | |
| THERMAL | | | | | |
| R_{thjc} | Thermal resistance, junction to case, max | $^\circ\text{C/W}$ | 0.045 | Direct current | Double side cooled |
| R_{thjc-A} | | | 0.099 | | Anode side cooled |
| R_{thjc-K} | | | 0.081 | | Cathode side cooled |
| R_{thck} | Thermal resistance, case to heatsink, max | $^\circ\text{C/W}$ | 0.009 | Direct current | |
| MECHANICAL | | | | | |
| w | Weight, typ | g | 210 | | |
| D_s | Surface creepage distance | mm (inch) | 30.77 (1.211) | | |
| D_a | Air strike distance | mm (inch) | 24.40 (0.960) | | |

PART NUMBERING GUIDE

| | | | | |
|---|-----|-----|----|---|
| D | 333 | 630 | 28 | N |
| 1 | 2 | 3 | 4 | 5 |

1. D — Rectifier Diode
2. Design version
3. Average forward current, A
4. Voltage code
5. Ambient conditions: N – normal; T – tropical



All dimensions in millimeters (inches)