

APPLICATIONS

- Rectification
- Freewheel Diode
- DC Motor Control
- Power Supplies
- Welding
- Battery Chargers

KEY PARAMETERS

| | |
|-------------|---------------|
| V_{RRM} | 4000V |
| $I_{F(AV)}$ | 4350A |
| I_{FSM} | 83000A |

FEATURES

- Double Side Cooling
- High Surge Capability

VOLTAGE RATINGS

| Type Number | Repetitive Peak Reverse Voltage V_{RRM} V | Conditions |
|-------------|---|----------------------------|
| TR2906SZ40 | 4000 | $V_{RSM} = V_{RRM} + 100V$ |
| TR2906SZ39 | 3900 | |
| TR2906SZ38 | 3800 | |
| TR2906SZ37 | 3700 | |
| TR2906SZ36 | 3600 | |
| TR2906SZ35 | 3500 | |

Lower voltage grades available

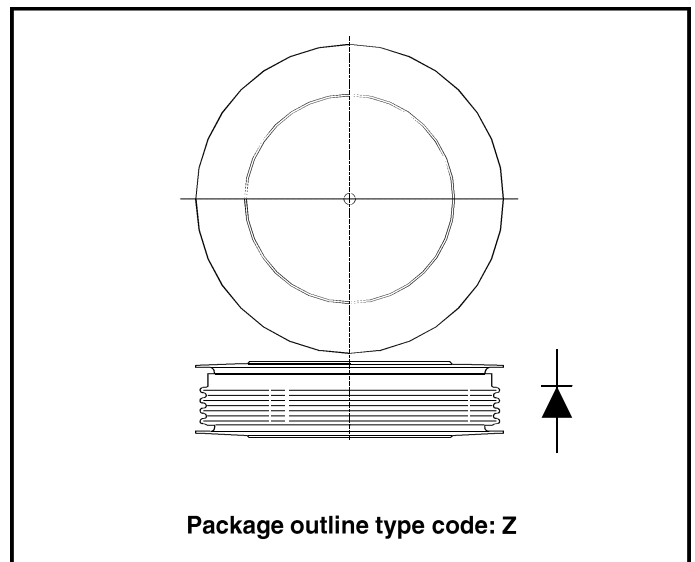


Fig. 1 See Package Details for further information

CURRENT RATINGS

| Symbol | Parameter | Conditions | Max. | Units |
|--|-------------------------------------|---|------|-------|
| Double Side Cooled | | | | |
| $I_{F(AV)}$ | Mean forward current | Half wave resistive load, $T_{case} = 100^{\circ}C$ | 4350 | A |
| $I_{F(RMS)}$ | RMS value | $T_{case} = 100^{\circ}C$ | 6830 | A |
| I_F | Continuous (direct) forward current | $T_{case} = 100^{\circ}C$ | 6160 | A |
| Single Side Cooled (Anode side) | | | | |
| $I_{F(AV)}$ | Mean forward current | Half wave resistive load, $T_{case} = 100^{\circ}C$ | 2795 | A |
| $I_{F(RMS)}$ | RMS value | $T_{case} = 100^{\circ}C$ | 4390 | A |
| I_F | Continuous (direct) forward current | $T_{case} = 100^{\circ}C$ | 3640 | A |

TR2906SZ

SURGE RATINGS

| Symbol | Parameter | Conditions | Max. | Units |
|-----------|--|---|--------------------|--------|
| I_{FSM} | Surge (non-repetitive) forward current | 10ms half sine; $T_{case} = 150^{\circ}C$ | 66.5 | kA |
| I^2t | I^2t for fusing | $V_R = 50\% V_{RRM}$ - 1/4 sine | 22.0×10^6 | A^2s |
| I_{FSM} | Surge (non-repetitive) forward current | 10ms half sine; $T_{case} = 150^{\circ}C$ | 83 | kA |
| I^2t | I^2t for fusing | $V_R = 0$ | 34.5×10^6 | A^2s |

THERMAL AND MECHANICAL DATA

| Symbol | Parameter | Conditions | Min. | Max. | Units | |
|---------------|---------------------------------------|--|-------------|------|-------------|---------------|
| $R_{th(j-c)}$ | Thermal resistance - junction to case | Double side cooled | dc | - | 0.0065 | $^{\circ}C/W$ |
| | | Single side cooled | Anode dc | - | 0.013 | $^{\circ}C/W$ |
| | | | Cathode dc | - | 0.013 | $^{\circ}C/W$ |
| $R_{th(c-h)}$ | Thermal resistance - case to heatsink | Clamping force 83.0kN with mounting compound | Double side | - | 0.001 | $^{\circ}C/W$ |
| | | | Single side | - | 0.002 | $^{\circ}C/W$ |
| T_{vj} | Virtual junction temperature | On-state (conducting) | | - | 160 | $^{\circ}C$ |
| | | Reverse (blocking) | | - | 150 | $^{\circ}C$ |
| T_{stg} | Storage temperature range | | -55 | 150 | $^{\circ}C$ | |
| - | Clamping force | | 75.0 | 91.0 | kN | |

CHARACTERISTICS

| Symbol | Parameter | Conditions | Min. | Max. | Units |
|-----------|----------------------|--|------|--------|-----------|
| V_{FM} | Forward voltage | At 3000A peak, $T_{case} = 25^{\circ}C$ | - | 1.06 | V |
| I_{RRM} | Peak reverse current | At V_{RRM} , $T_{case} = 150^{\circ}C$ | - | 400 | mA |
| V_{TO} | Threshold voltage | At $T_{vj} = 150C$ | - | 0.78 | V |
| r_T | Slope resistance | At $T_{vj} = 150C$ | - | 0.0763 | $m\Omega$ |

CURVES

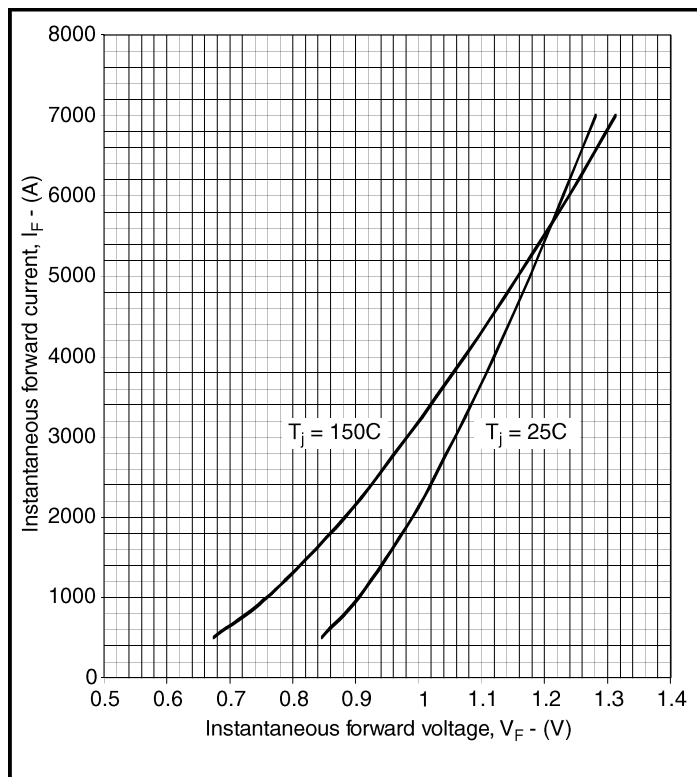


Fig. 1 Maximum (limit) forward characteristics

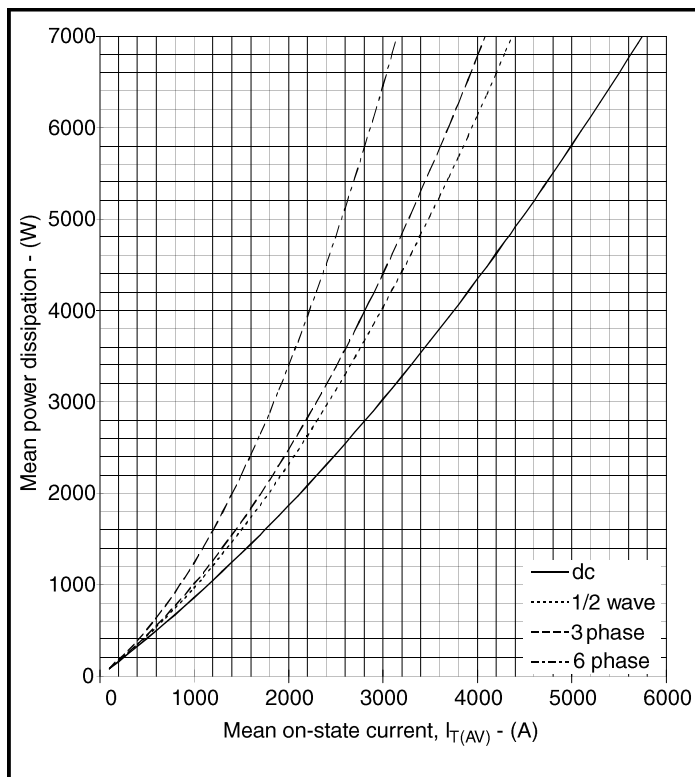


Fig. 2 Power loss curves

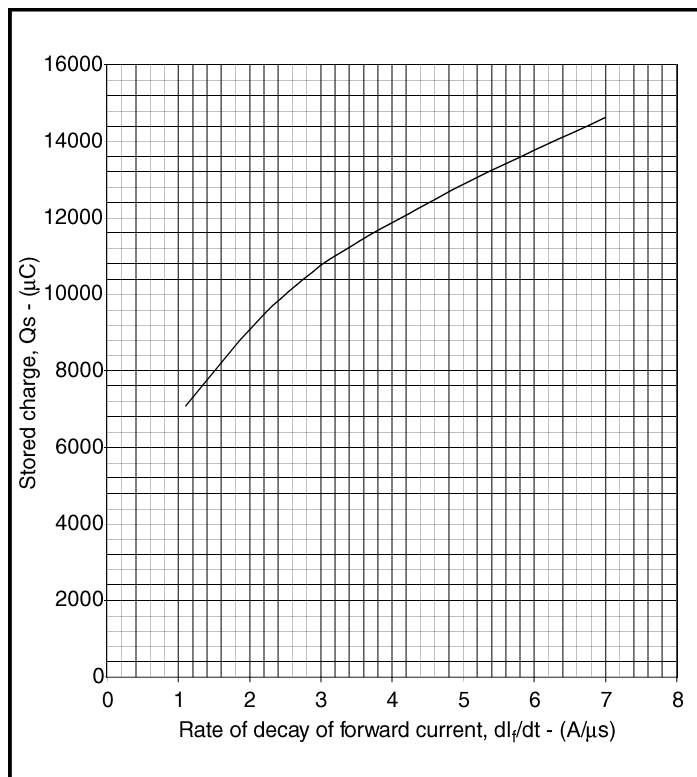


Fig. 3 Stored charge

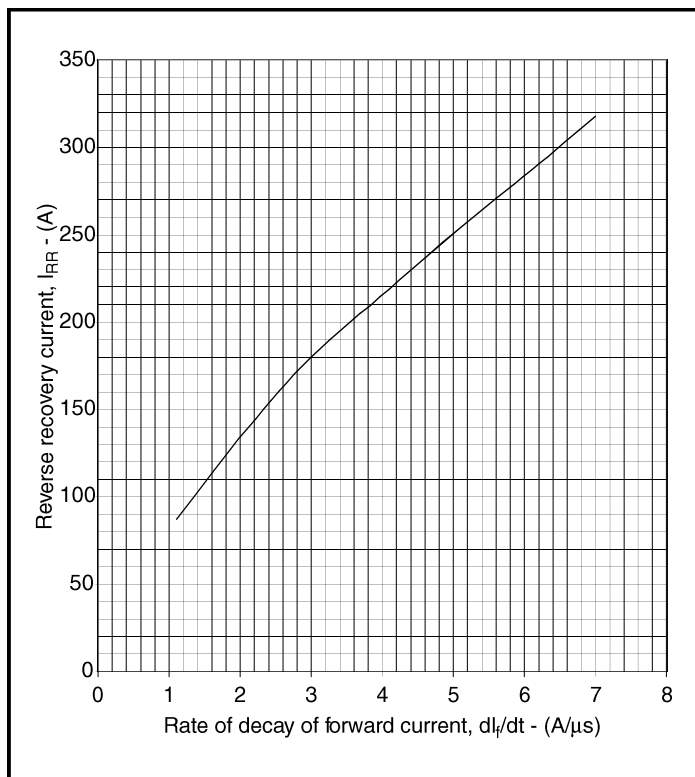


Fig. 4 Reverse recovery current

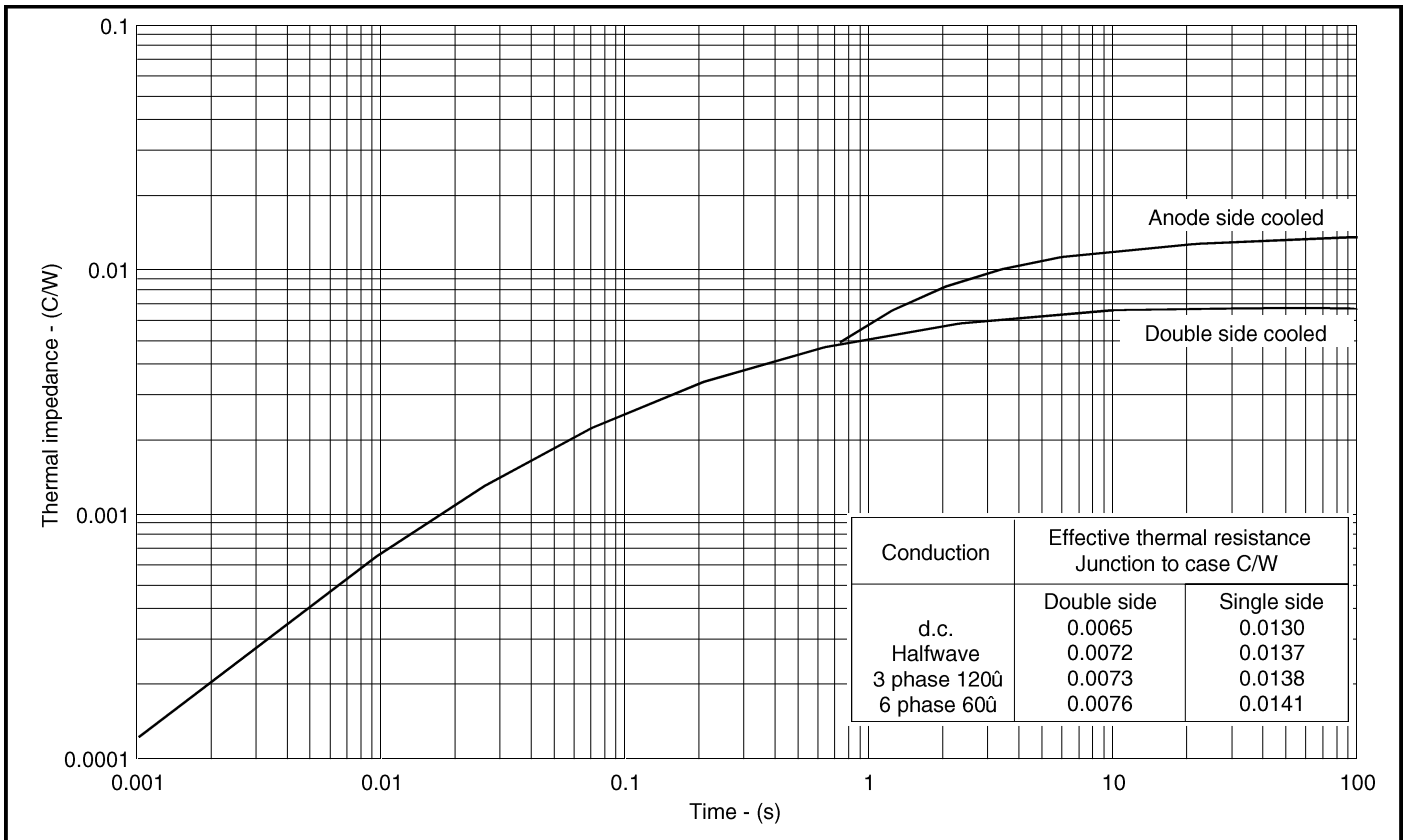


Fig. 5 Maximum (limit) transient thermal impedance - junction to case - (C/W)

PACKAGE DETAILS

For further package information, please contact your local Customer Service Centre. All dimensions in mm, unless stated otherwise.
DO NOT SCALE.

