

FEATURES

- Double Side Cooling
- High Surge Capability

KEY PARAMETERS

| | |
|-------------|---------------|
| V_{RRM} | 5500V |
| $I_{F(AV)}$ | 5940A |
| I_{FSM} | 93600A |

VOLTAGE RATINGS

| Part and Ordering Number | Repetitive Peak Voltages V_{RRM} V | Conditions |
|--------------------------|--|----------------------------|
| DRD5940H55 | 5500 | $V_{RSM} = V_{RRM} + 100V$ |
| DRD5940H52 | 5200 | |
| DRD5940H50 | 5000 | |
| DRD5940H48 | 4800 | |
| DRD5940H46 | 4600 | |

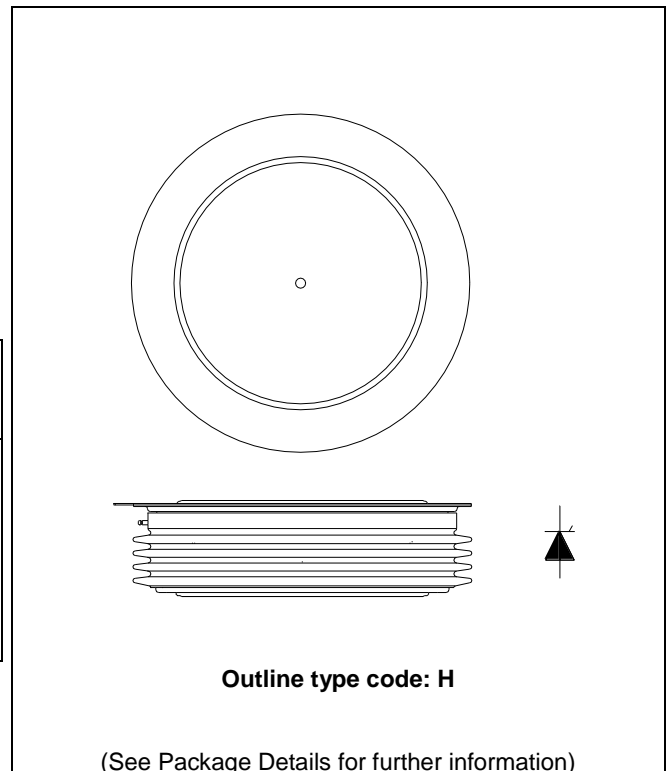


Fig. 1 Package outline

ORDERING INFORMATION

When ordering, select the required part number shown in the Voltage Ratings selection table.

For example:

DRD5940H55 for a 5500V device

CURRENT RATINGS

T_{case} = 75°C unless stated otherwise

| Symbol | Parameter | Test Conditions | Max. | Units |
|---------------------------|--------------------------------------|--------------------------|-------|-------|
| Double Side Cooled | | | | |
| I _{F(AV)} | Mean forward current | Half wave resistive load | 7640 | A |
| I _{F(RMS)} | RMS value | - | 11990 | A |
| I _F | Continuous (direct) on-state current | - | 10800 | A |

T_{case} = 100°C unless stated otherwise

| Symbol | Parameter | Test Conditions | Max. | Units |
|---------------------------|--------------------------------------|--------------------------|------|-------|
| Double Side Cooled | | | | |
| I _{F(AV)} | Mean forward current | Half wave resistive load | 5940 | A |
| I _{F(RMS)} | RMS value | - | 9330 | A |
| I _F | Continuous (direct) on-state current | - | 8400 | A |

SURGE RATINGS

| Symbol | Parameter | Test Conditions | Max. | Units |
|------------------|---|---|-------|-------------------|
| I _{FSM} | Surge (non-repetitive) on-state current | 10ms half sine, T _{case} = 150°C | 93.6 | kA |
| I ² t | I ² t for fusing | V _R = 0 | 43.81 | MA ² s |

THERMAL AND MECHANICAL RATINGS

| Symbol | Parameter | Test Conditions | | Min. | Max. | Units |
|---------------|---------------------------------------|------------------------------|----|------|--------|-------|
| $R_{th(j-c)}$ | Thermal resistance – junction to case | Double side cooled | DC | - | 0.004 | °C/W |
| $R_{th(c-h)}$ | Thermal resistance – case to heatsink | Double side cooled | DC | - | 0.0008 | °C/W |
| T_{vj} | Virtual junction temperature | Blocking V_{DRM} / V_{RRM} | | -40 | 150 | °C |
| T_{stg} | Storage temperature range | | | -40 | 160 | °C |
| F_m | Clamping force | | | 110 | 130 | kN |

CHARACTERISTICS

| Symbol | Parameter | Test Conditions | Min. | Max. | Units |
|----------|----------------------|--|------|-------|-----------|
| V_{FM} | Forward voltage | At 6000A peak, $T_{case} = 150^{\circ}C$ | - | 1.26 | V |
| I_{RM} | Peak reverse current | At V_{DRM} , $T_{case} = 150^{\circ}C$ | - | 600 | mA |
| Q_S | Total stored charge | $I_F = 4000A$, $di_{RR}/dt = 10A/\mu s$ $T_{case} = 150^{\circ}C$, $V_R = 100V$ | - | 9000 | μC |
| V_{TO} | Threshold voltage | At $T_{vj} = 150^{\circ}C$ | - | 0.80 | V |
| r_T | Slope resistance | At $T_{vj} = 150^{\circ}C$ | - | 0.076 | $m\Omega$ |

CURVES

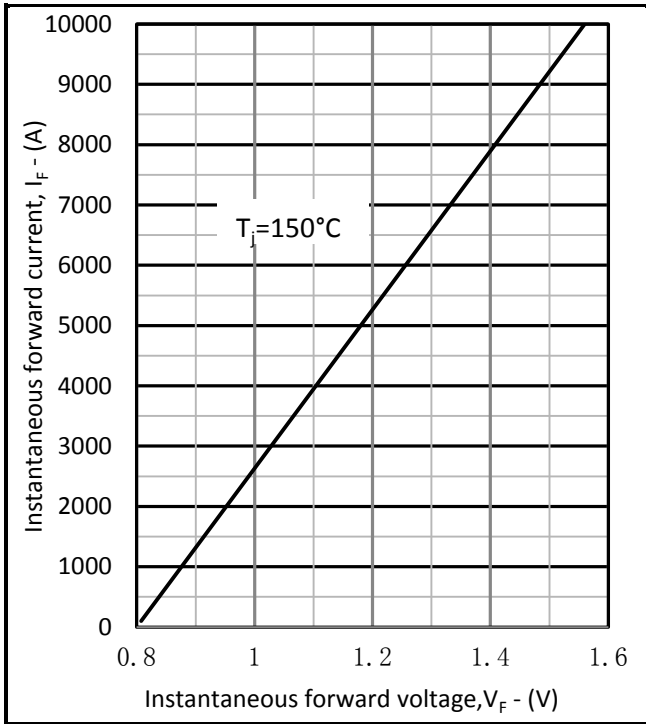


Fig.2 Maximum forward characteristics

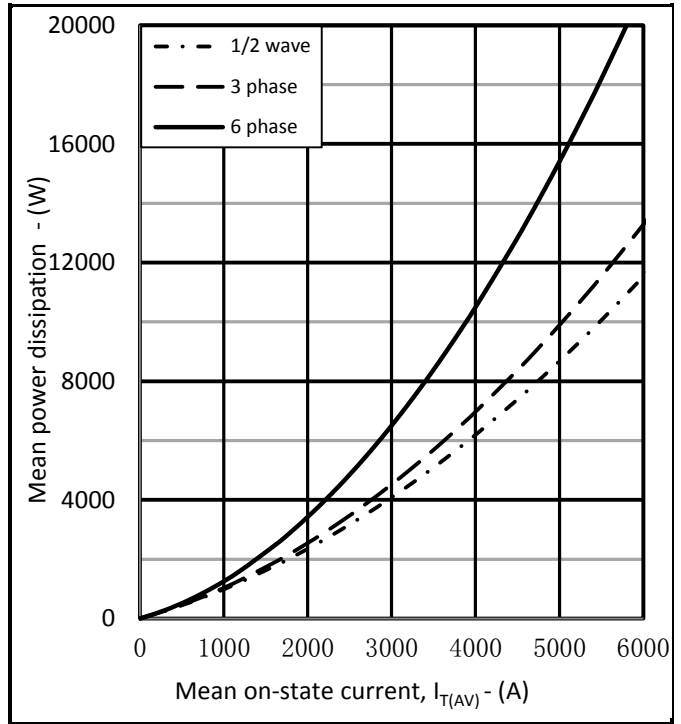


Fig.3 Dissipation curves

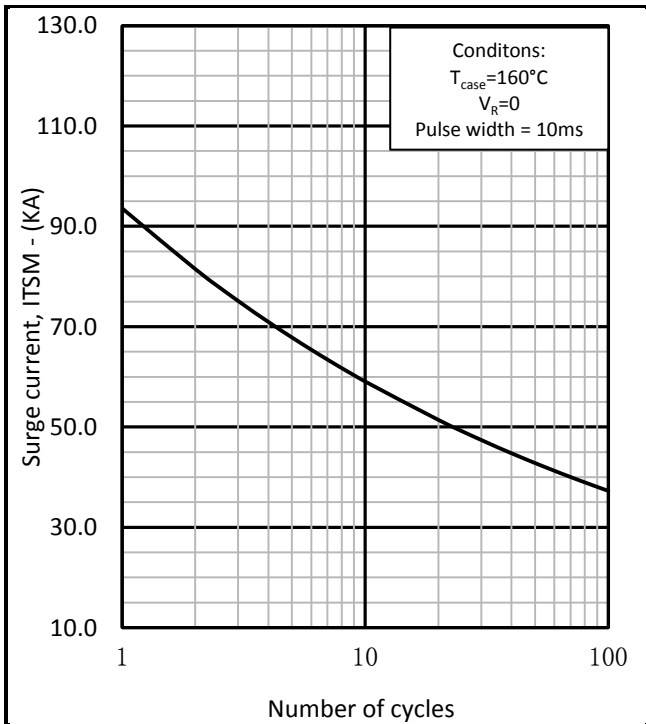


Fig.4 Surge (Non-Repetitive) Forward current vs time

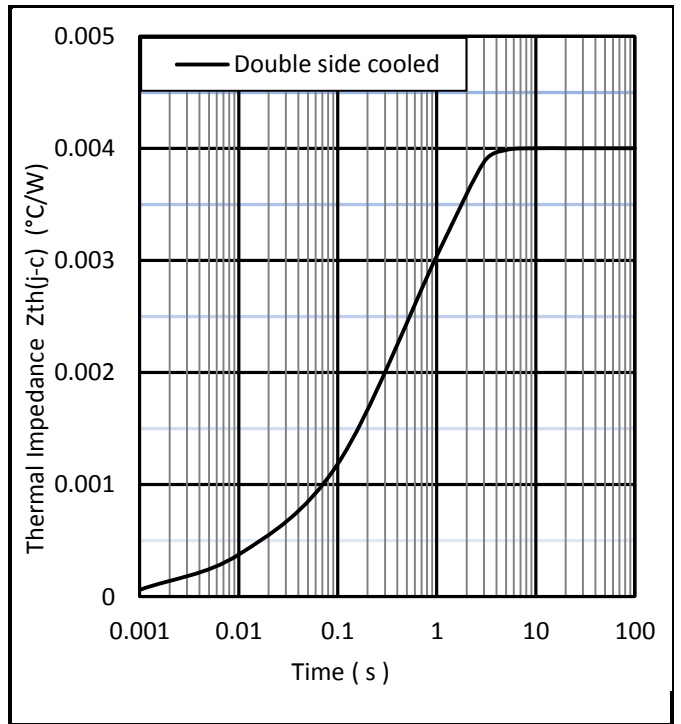
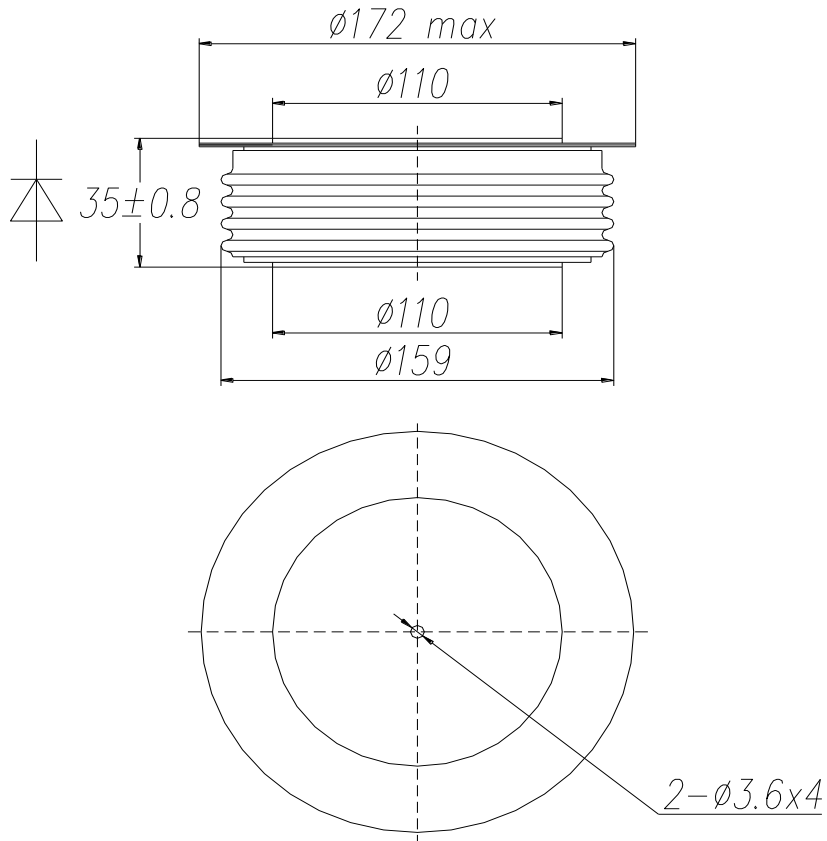


Fig.5 Maximum (limit) transient thermal impedance- junction to case

PACKAGE DETAILS

For further package information, please contact Customer Services. All dimensions in mm, unless stated otherwise. DO NOT SCALE.



Package outline type code: H

Note:
Some packages may be supplied with gate and or tags.

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