

**FEATURES**

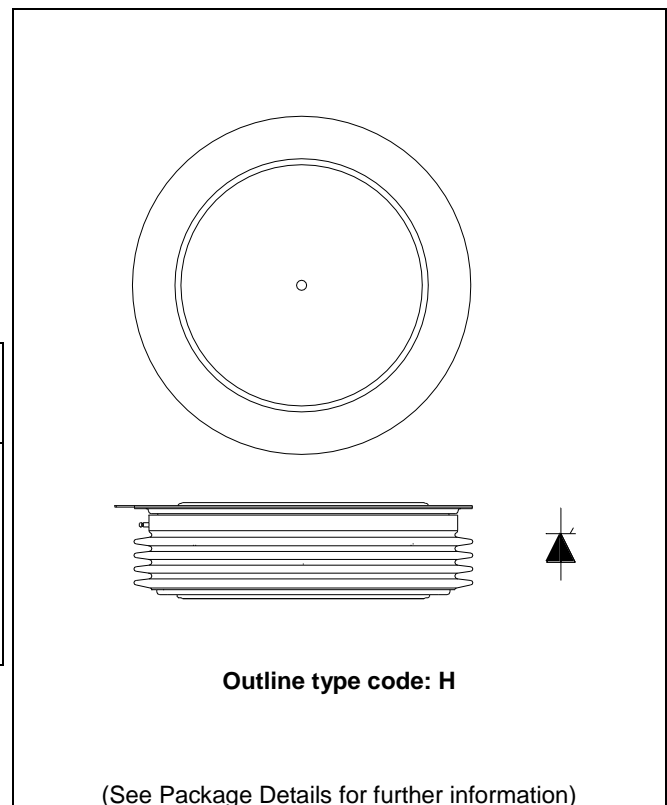
- Double Side Cooling
- High Surge Capability

**KEY PARAMETERS**

|             |               |
|-------------|---------------|
| $V_{RRM}$   | <b>4500V</b>  |
| $I_{F(AV)}$ | <b>6290A</b>  |
| $I_{FSM}$   | <b>99400A</b> |

**VOLTAGE RATINGS**

| Part and Ordering Number | Repetitive Peak Voltages<br>$V_{RRM}$<br>V | Conditions                 |
|--------------------------|--|----------------------------|
| DRD6290H45               | 4500                                       | $V_{RSM} = V_{RRM} + 100V$ |
| DRD6290H42               | 4200                                       |                            |
| DRD6290H40               | 4000                                       |                            |
| DRD6290H38               | 3800                                       |                            |
| DRD6290H36               | 3600                                       |                            |


**Fig. 1 Package outline**
**ORDERING INFORMATION**

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

For example:

**DRD6290H45** for a 4500V device

**CURRENT RATINGS**

T<sub>case</sub> = 75°C unless stated otherwise

| Symbol                    | Parameter                            | Test Conditions          | Max.  | Units |
|---------------------------|--------------------------------------|--------------------------|-------|-------|
| <b>Double Side Cooled</b> |                                      |                          |       |       |
| I <sub>F(AV)</sub>        | Mean forward current                 | Half wave resistive load | 8110  | A     |
| I <sub>F(RMS)</sub>       | RMS value                            | -                        | 12730 | A     |
| I <sub>F</sub>            | Continuous (direct) on-state current | -                        | 11470 | A     |

T<sub>case</sub> = 100°C unless stated otherwise

| Symbol                    | Parameter                            | Test Conditions          | Max. | Units |
|---------------------------|--------------------------------------|--------------------------|------|-------|
| <b>Double Side Cooled</b> |                                      |                          |      |       |
| I <sub>F(AV)</sub>        | Mean forward current                 | Half wave resistive load | 6290 | A     |
| I <sub>F(RMS)</sub>       | RMS value                            | -                        | 9880 | A     |
| I <sub>F</sub>            | Continuous (direct) on-state current | -                        | 8890 | A     |

**SURGE RATINGS**

| Symbol           | Parameter                               | Test Conditions                           | Max.  | Units             |
|------------------|---|---|-------|-------------------|
| I <sub>FSM</sub> | Surge (non-repetitive) on-state current | 10ms half sine, T <sub>case</sub> = 150°C | 99.4  | kA                |
| I <sup>2</sup> t | I <sup>2</sup> t for fusing             | V <sub>R</sub> = 0                        | 49.40 | MA <sup>2</sup> 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, $T_{case} = 150^{\circ}C$   | -    | 1.19  | V         |
| $I_{RM}$ | Peak reverse current | At $V_{DRM}$ , $T_{case} = 150^{\circ}C$   | -    | 600   | mA        |
| $Q_S$    | Total stored charge  | $I_F = 4000A$ , $di_{RR}/dt = 10A/\mu s$<br>$T_{case} = 150^{\circ}C$ , $V_R = 100V$ | -    | 9000  | $\mu C$   |
| $V_{TO}$ | Threshold voltage    | At $T_{vj} = 150^{\circ}C$   | -    | 0.80  | V         |
| $r_T$    | Slope resistance     | At $T_{vj} = 150^{\circ}C$   | -    | 0.065 | $m\Omega$ |

## CURVES

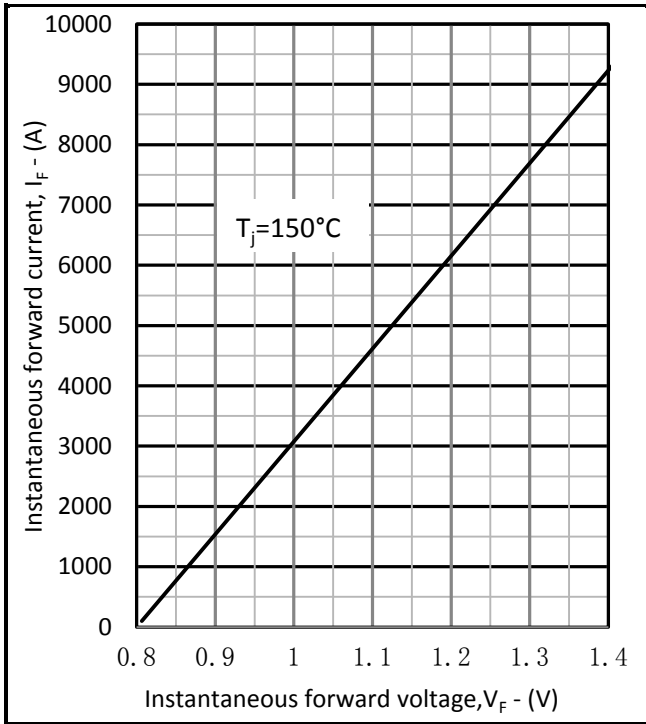


Fig.2 Maximum forward characteristics

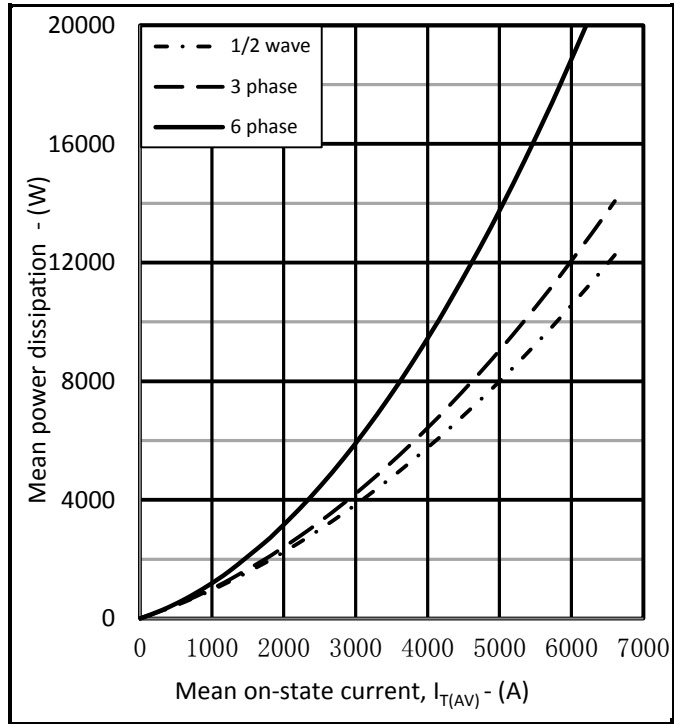


Fig.3 Dissipation curves

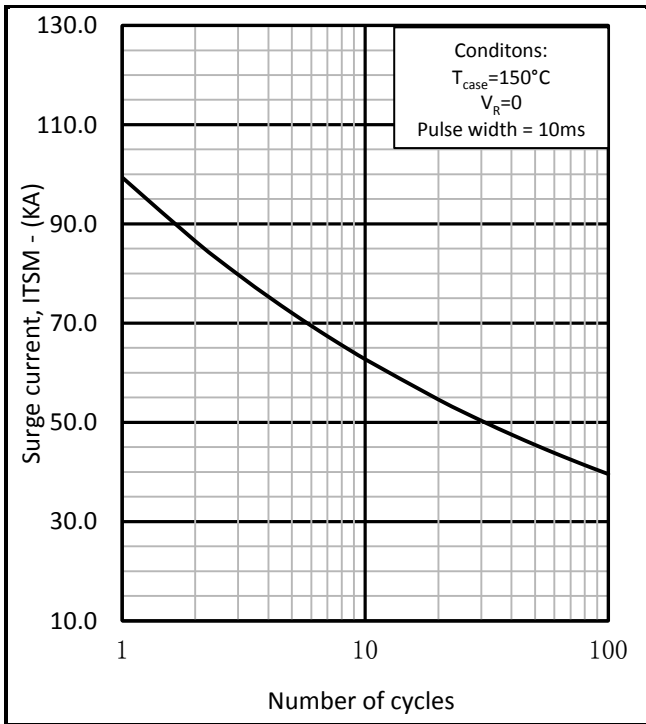


Fig.4 Surge (Non-Repetitive) Forward current vs time

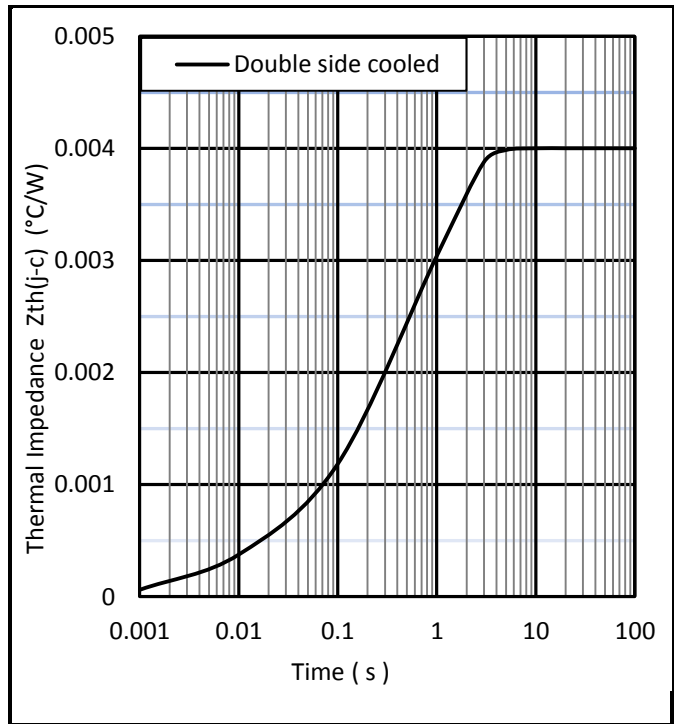
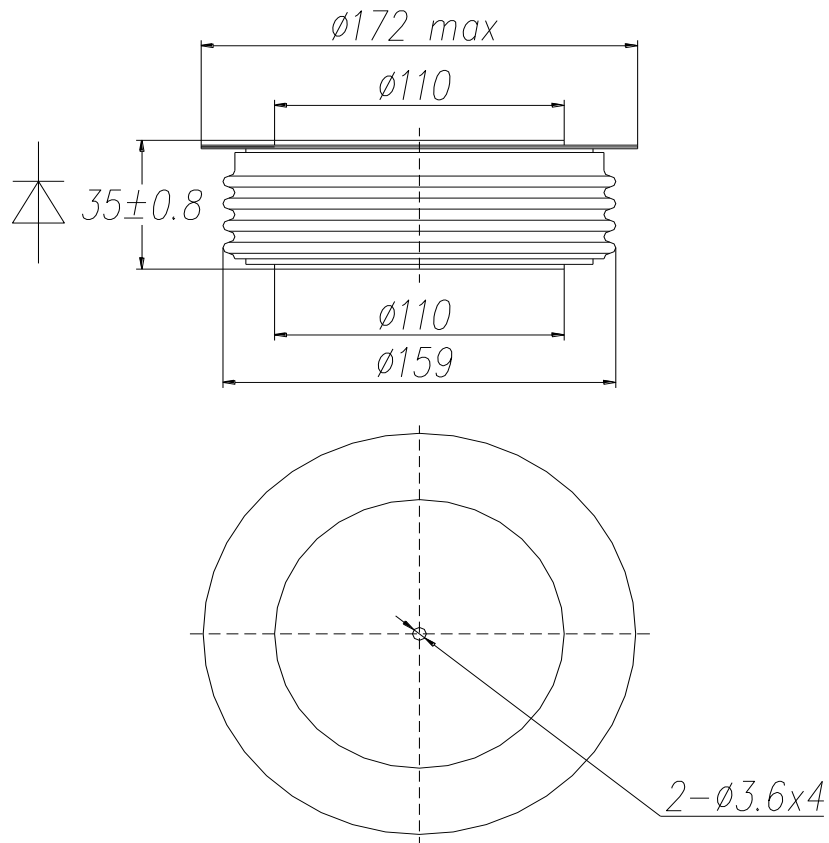


Fig.5 Maximum (limit) transient thermal impedance- junction to case

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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|                                 |   |
|---------------------------------|---|
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