



DS6014 – 1 March 2011 (LN28201)

FEATURES

- Double Side Cooling
- High Surge Capability

KEY PARAMETERS

| | |
|-------------|---------------|
| V_{RRM} | 3400V |
| $I_{F(AV)}$ | 6140A |
| I_{FSM} | 84400A |

VOLTAGE RATINGS

| Part and Ordering Number | Repetitive Peak Voltages V_{RRM} V | Conditions |
|--------------------------|---|----------------------------|
| DRD6140A34 | 3400 | $V_{RSM} = V_{RRM} + 100V$ |
| DRD6140A32 | 3200 | |
| DRD6140A30 | 3000 | |
| DRD6140A28 | 2800 | |
| DRD6140A26 | 2600 | |
| DRD6140A24 | 2400 | |

ORDERING INFORMATION

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

For example:

DRD6140A34 for a 3400V device

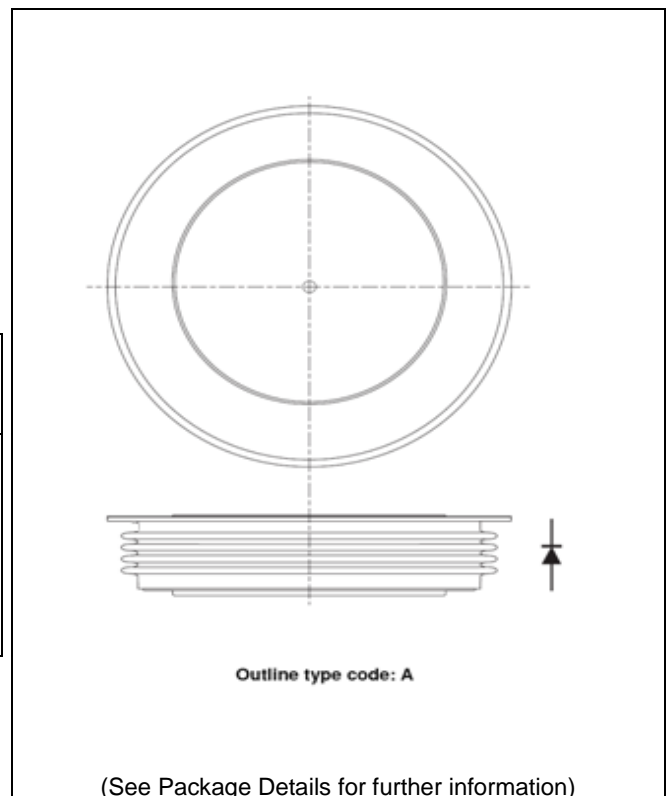


Fig. 1 Package outline

CURRENT RATINGS

$T_{case} = 75^{\circ}\text{C}$ unless stated otherwise

| Symbol | Parameter | Test Conditions | Max. | Units |
|---------------------------|--------------------------------------|--------------------------|-------|-------|
| Double Side Cooled | | | | |
| $I_{F(AV)}$ | Mean forward current | Half wave resistive load | 7730 | A |
| $I_{F(RMS)}$ | RMS value | - | 12140 | A |
| I_F | Continuous (direct) on-state current | - | 10930 | A |

$T_{case} = 100^{\circ}\text{C}$ unless stated otherwise

| Symbol | Parameter | Test Conditions | Max. | Units |
|---------------------------|--------------------------------------|--------------------------|------|-------|
| Double Side Cooled | | | | |
| $I_{F(AV)}$ | Mean forward current | Half wave resistive load | 6140 | A |
| $I_{F(RMS)}$ | RMS value | - | 9640 | A |
| I_F | Continuous (direct) on-state current | - | 8680 | A |

SURGE RATINGS

| Symbol | Parameter | Test Conditions | Max. | Units |
|-----------|---|--|-------|-----------------------|
| I_{FSM} | Surge (non-repetitive) on-state current | 10ms half sine, $T_{case} = 160^{\circ}\text{C}$ | 84.4 | kA |
| I^2t | I^2t for fusing | $V_R = 0$ | 35.62 | MA^2s |

THERMAL AND MECHANICAL RATINGS

| Symbol | Parameter | Test Conditions | | Min. | Max. | Units |
|---------------|---------------------------------------|------------------------------|----|------|--------|-------|
| $R_{th(j-c)}$ | Thermal resistance – junction to case | Double side cooled | DC | - | 0.0057 | °C/W |
| $R_{th(c-h)}$ | Thermal resistance – case to heatsink | Double side cooled | DC | - | 0.0015 | °C/W |
| T_{vj} | Virtual junction temperature | Blocking V_{DRM} / V_{RRM} | | -40 | 160 | °C |
| T_{stg} | Storage temperature range | | | -40 | 160 | °C |
| F_m | Clamping force | | | 80 | 100 | kN |

CHARACTERISTICS

| Symbol | Parameter | Test Conditions | Min. | Max. | Units |
|----------|----------------------|--|------|------|-----------|
| V_{FM} | Forward voltage | At 6000A peak, $T_{case} = 160^{\circ}C$ | - | 1.10 | V |
| I_{RM} | Peak reverse current | At V_{DRM} , $T_{case} = 160^{\circ}C$ | - | 400 | mA |
| Q_S | Total stored charge | $I_F = 4000A$, $di_{RR}/dt = 10A/\mu s$ $T_{case} = 160^{\circ}C$, $V_R = 100V$ | - | 7000 | μC |
| V_{TO} | Threshold voltage | At $T_{vj} = 160^{\circ}C$ | - | 0.80 | V |
| r_T | Slope resistance | At $T_{vj} = 160^{\circ}C$ | - | 0.05 | $m\Omega$ |

CURVES

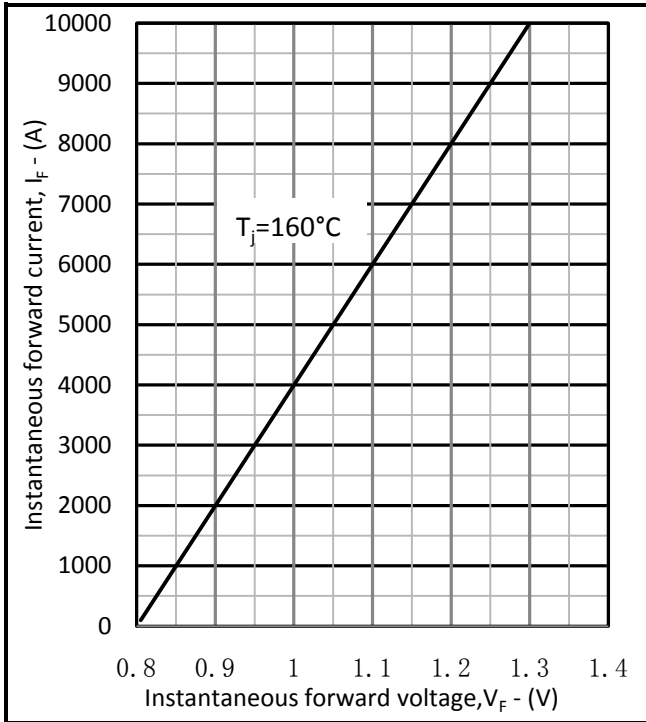


Fig.2 Maximum forward characteristics

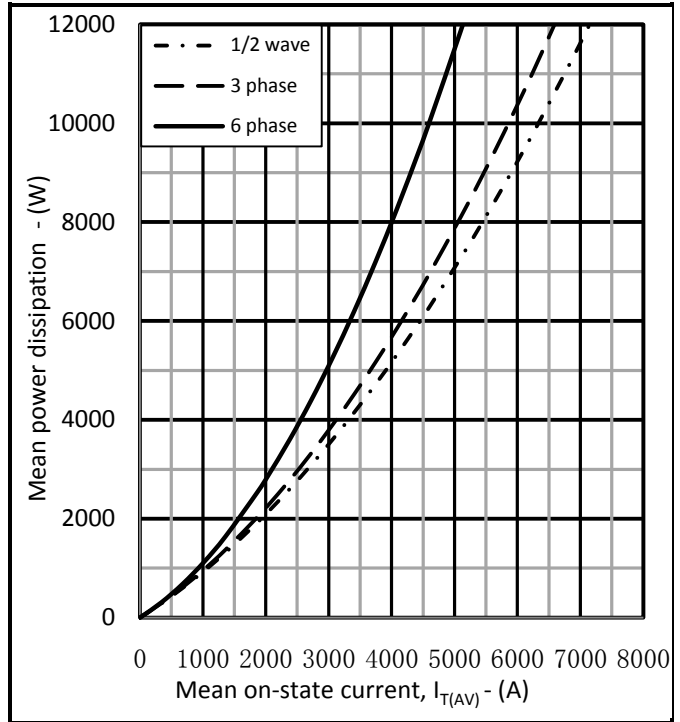


Fig.3 Dissipation curves

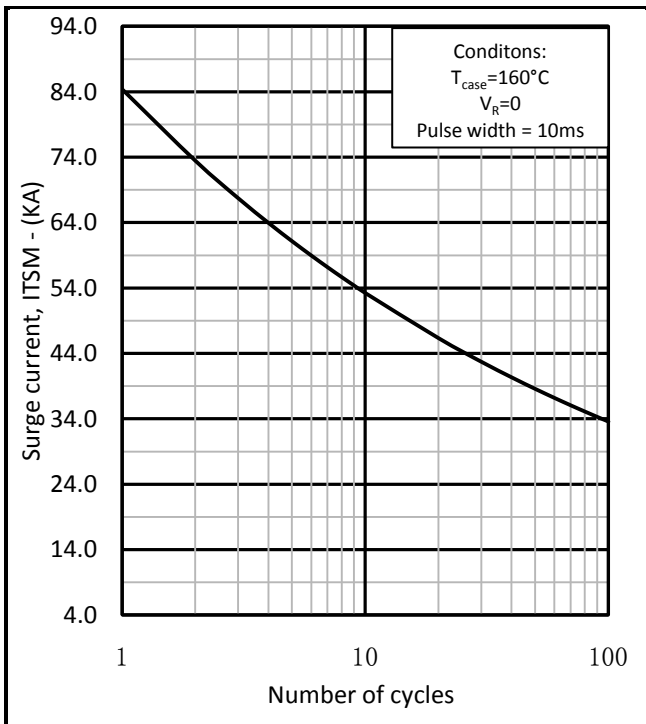


Fig.4 Surge (Non-Repetitive) Forward current vs time

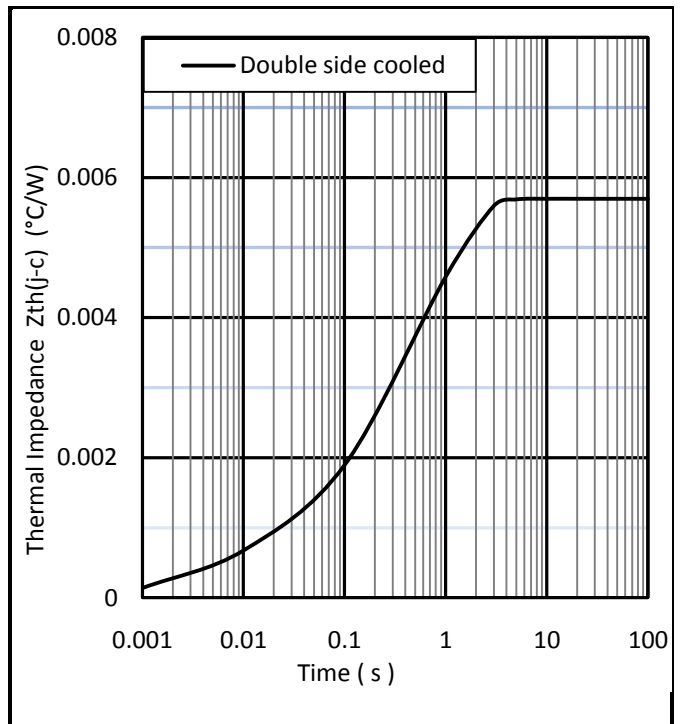
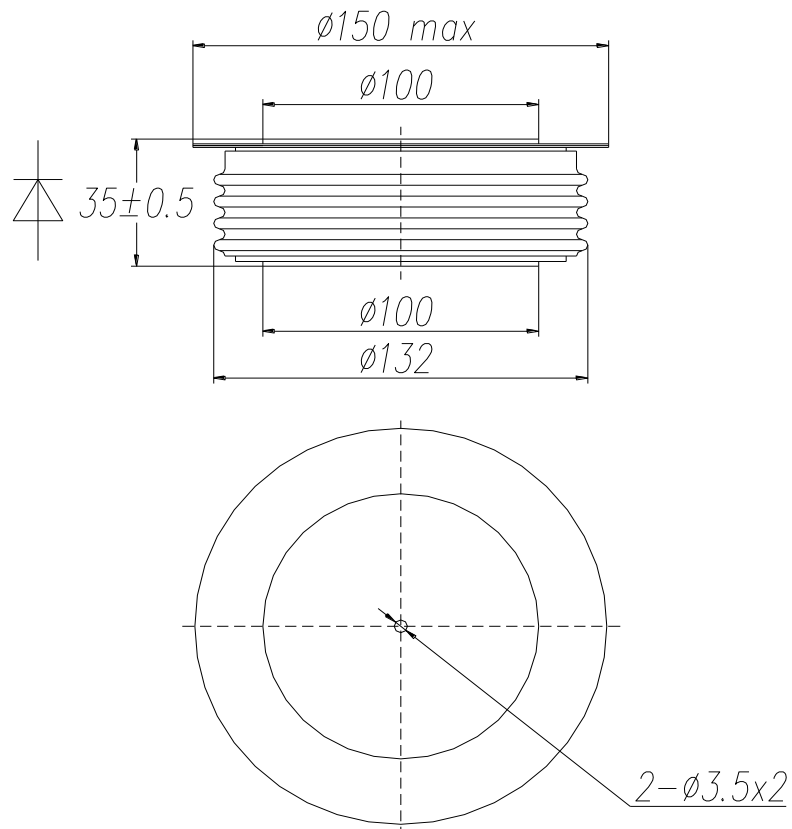


Fig.5 Maximum (limit) transient thermal impedance- junction to case

PACKAGE DETAILS

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



Package outline type code: A

Note:

Some packages may be supplied with gate and or tags.

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