

# DRD3430C22

## Rectifier Diode



DS6002 – 1 March 2011 (LN28189)

### FEATURES

- Double Side Cooling
- High Surge Capability

### KEY PARAMETERS

|             |               |
|-------------|---------------|
| $V_{RRM}$   | <b>2200V</b>  |
| $I_{F(AV)}$ | <b>3430A</b>  |
| $I_{FSM}$   | <b>42200A</b> |

### VOLTAGE RATINGS

| Part and Ordering Number                             | Repetitive Peak Voltages<br>$V_{RRM}$<br>V | Conditions                 |
|--|--|----------------------------|
| DRD3430C22<br>DRD3430C20<br>DRD3430C18<br>DRD3430C16 | 2200<br>2000<br>1800<br>1600               | $V_{RSM} = V_{RRM} + 100V$ |

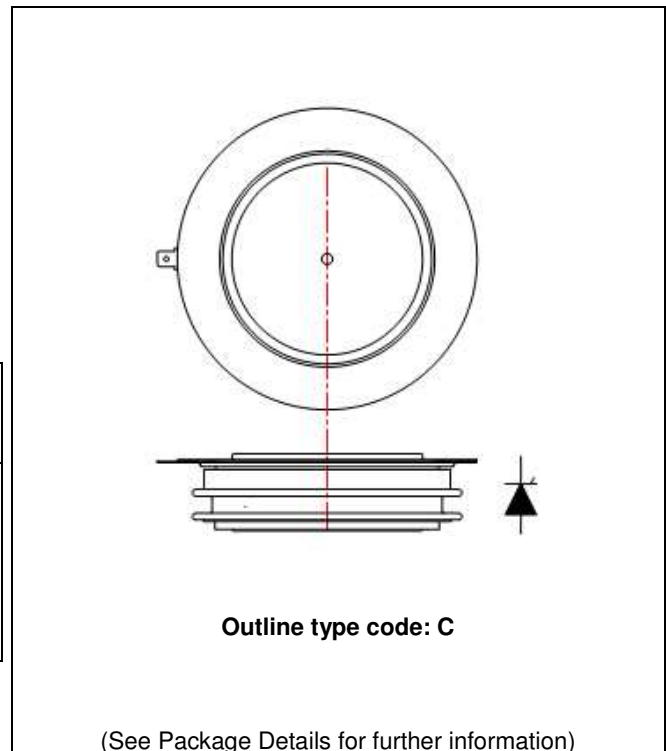


Fig. 1 Package outline

### ORDERING INFORMATION

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

For example:

**DRD3430C22** for a 2200V device

## CURRENT RATINGS

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

| Symbol                    | Parameter                            | Test Conditions          | Max. | Units |
|---------------------------|--------------------------------------|--------------------------|------|-------|
| <b>Double Side Cooled</b> |                                      |                          |      |       |
| $I_{F(AV)}$               | Mean forward current                 | Half wave resistive load | 4160 | A     |
| $I_{F(RMS)}$              | RMS value                            | -                        | 6530 | A     |
| $I_F$                     | Continuous (direct) on-state current | -                        | 5880 | A     |

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

| Symbol                    | Parameter                            | Test Conditions          | Max. | Units |
|---------------------------|--------------------------------------|--------------------------|------|-------|
| <b>Double Side Cooled</b> |                                      |                          |      |       |
| $I_{F(AV)}$               | Mean forward current                 | Half wave resistive load | 3430 | A     |
| $I_{F(RMS)}$              | RMS value                            | -                        | 5390 | A     |
| $I_F$                     | Continuous (direct) on-state current | -                        | 4850 | A     |

## SURGE RATINGS

| Symbol    | Parameter                               | Test Conditions                           | Max. | Units             |
|-----------|---|---|------|-------------------|
| $I_{FSM}$ | Surge (non-repetitive) on-state current | 10ms half sine, $T_{case} = 175^{\circ}C$ | 42.2 | kA                |
| $I^2t$    | $I^2t$ for fusing                       | $V_R = 0$                                 | 8.90 | MA <sup>2</sup> s |

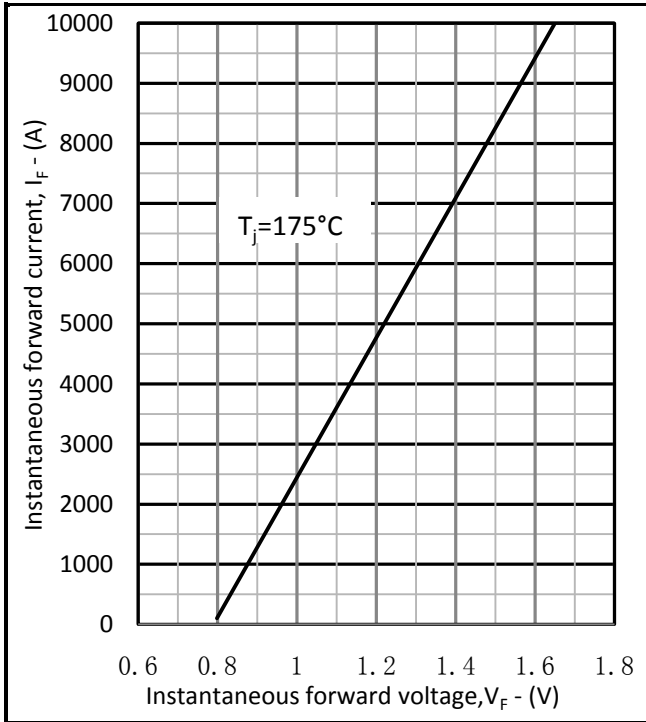
**THERMAL AND MECHANICAL RATINGS**

| Symbol        | Parameter                             | Test Conditions              |    | Min. | Max.   | Units |
|---------------|---------------------------------------|------------------------------|----|------|--------|-------|
| $R_{th(j-c)}$ | Thermal resistance – junction to case | Double side cooled           | DC | -    | 0.0125 | °C/W  |
| $R_{th(c-h)}$ | Thermal resistance – case to heatsink | Double side cooled           | DC | -    | 0.004  | °C/W  |
| $T_{vj}$      | Virtual junction temperature          | Blocking $V_{DRM} / V_{RRM}$ |    | -40  | 175    | °C    |
| $T_{stg}$     | Storage temperature range             |                              |    | -40  | 175    | °C    |
| $F_m$         | Clamping force                        |                              |    | 40   | 50     | kN    |

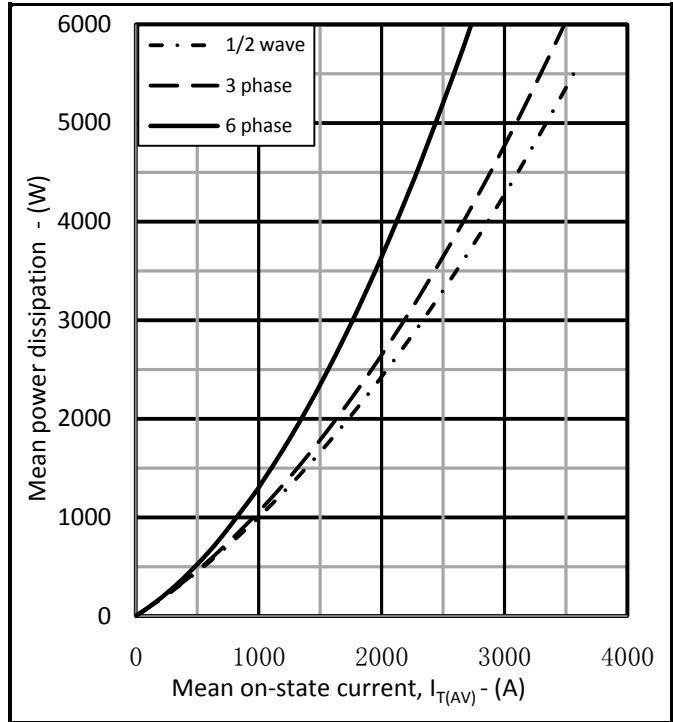
**CHARACTERISTICS**

| Symbol   | Parameter            | Test Conditions  | Min. | Max.  | Units            |
|----------|----------------------|--|------|-------|------------------|
| $V_{FM}$ | Forward voltage      | At 3000A peak, $T_{case} = 25^\circ\text{C}$   | -    | 1.20  | V                |
| $I_{RM}$ | Peak reverse current | At $V_{DRM}$ , $T_{case} = 175^\circ\text{C}$  | -    | 250   | mA               |
| $Q_S$    | Total stored charge  | $I_F = 4000\text{A}$ , $di_{RR}/dt = 10\text{A}/\mu\text{s}$<br>$T_{case} = 175^\circ\text{C}$ , $V_R = 100\text{V}$ | -    | 5000  | $\mu\text{C}$    |
| $V_{TO}$ | Threshold voltage    | At $T_{vj} = 175^\circ\text{C}$  | -    | 0.79  | V                |
| $r_T$    | Slope resistance     | At $T_{vj} = 175^\circ\text{C}$  | -    | 0.086 | $\text{m}\Omega$ |

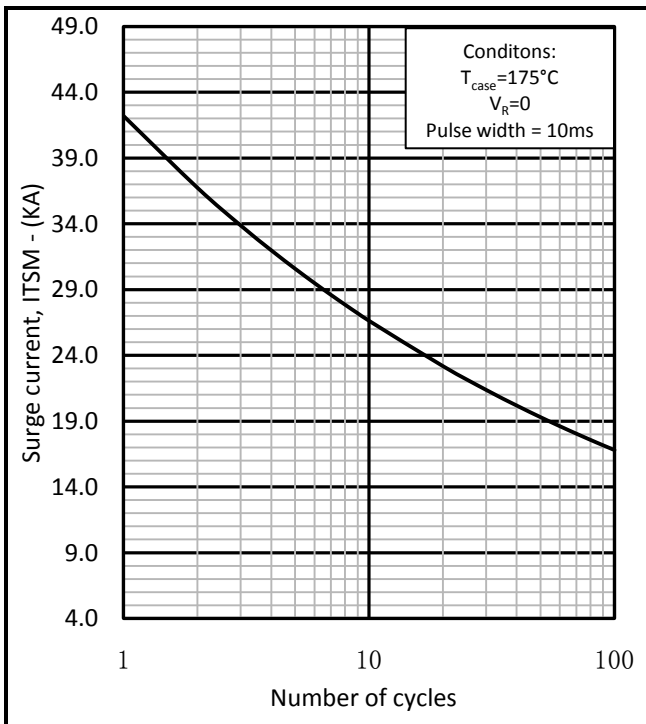
**CURVES**



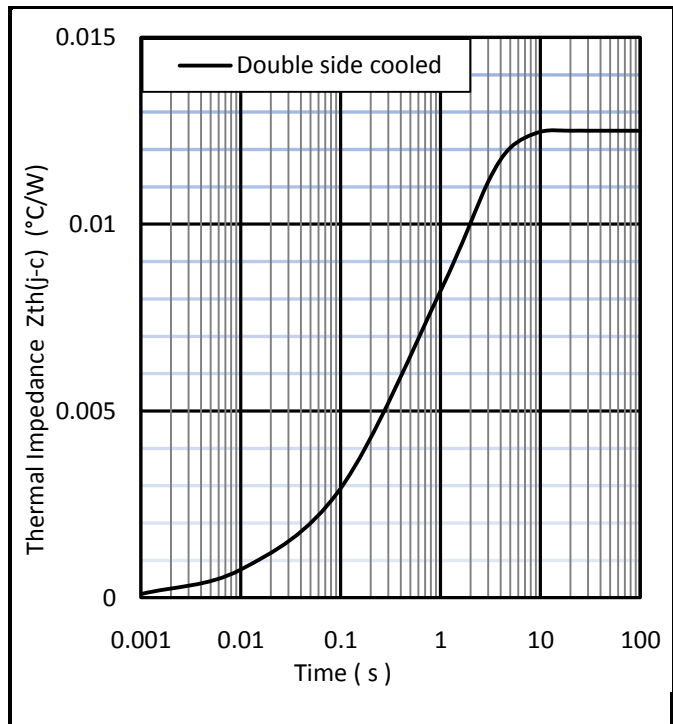
**Fig.2 Maximum forward characteristics**



**Fig.3 Dissipation curves**



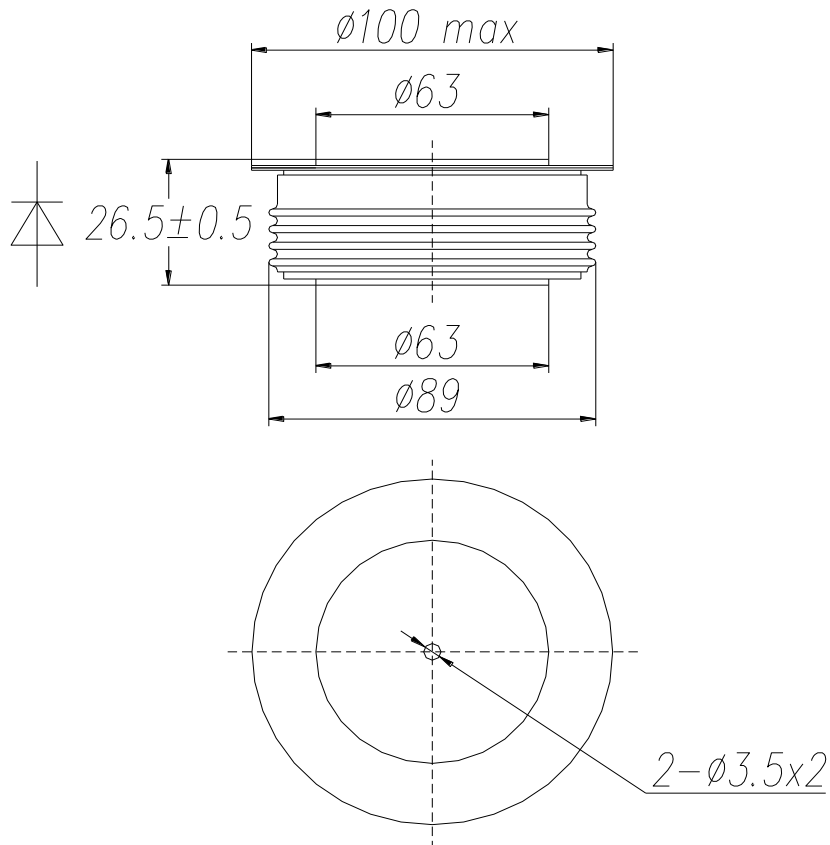
**Fig.4 Surge (Non-Repetitive) Forward current vs time**



**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: C**

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

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