

# DSF8025SE

## FAST RECOVERY DIODE

### APPLICATIONS

- Induction Heating.
- A.C. Motor Drives.
- Inverters And Choppers.
- Welding.
- High Frequency Rectification.
- UPS.

### KEY PARAMETERS

|             |             |
|-------------|-------------|
| $V_{RRM}$   | 2500V       |
| $I_{F(AV)}$ | 650A        |
| $I_{FSM}$   | 7500A       |
| $Q_r$       | 540 $\mu$ C |
| $t_{rr}$    | 5.0 $\mu$ s |

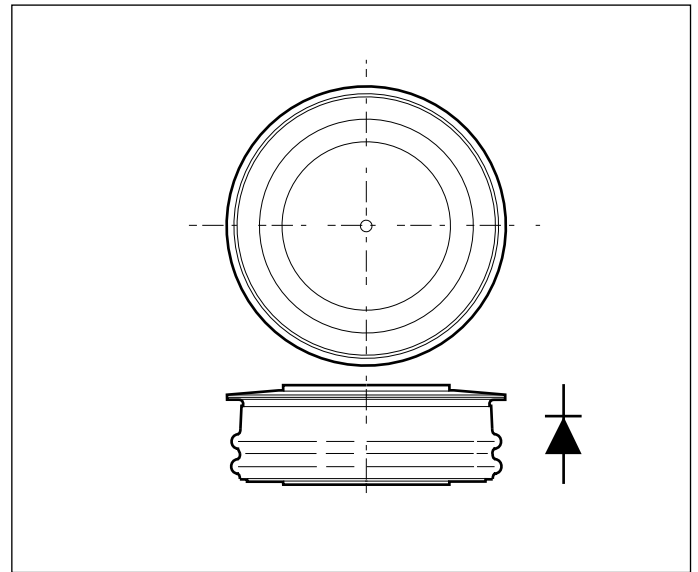
### FEATURES

- Double side cooling.
- High surge capability.
- Low recovery charge.

### VOLTAGE RATINGS

| Type Number  | Repetitive Peak Reverse Voltage<br>$V_{RRM}$<br>V | Conditions                 |
|--|---|----------------------------|
| DSF8025SE25<br>DSF8025SE24<br>DSF8025SE23<br>DSF8025SE22<br>DSF8025SE21<br>DSF8025SE20 | 2500<br>2400<br>2300<br>2200<br>2100<br>2000      | $V_{RSM} = V_{RRM} + 100V$ |

Lower voltage grades available.



Outline type code: E Turn to page 8 for further information.

### CURRENT RATINGS

| Symbol                                 | Parameter                           | Conditions   | Max. | Units |
|--|-------------------------------------|--|------|-------|
| <b>Double Side Cooled</b>              |                                     |  |      |       |
| $I_{F(AV)}$                            | Mean forward current                | Half wave resistive load, $T_{case} = 65^{\circ}C$ | 650  | A     |
| $I_{F(RMS)}$                           | RMS value                           | $T_{case} = 65^{\circ}C$                           | 1020 | A     |
| $I_F$                                  | Continuous (direct) forward current | $T_{case} = 65^{\circ}C$                           | 785  | A     |
| <b>Single Side Cooled (Anode side)</b> |                                     |  |      |       |
| $I_{F(AV)}$                            | Mean forward current                | Half wave resistive load, $T_{case} = 65^{\circ}C$ | 385  | A     |
| $I_{F(RMS)}$                           | RMS value                           | $T_{case} = 65^{\circ}C$                           | 604  | A     |
| $I_F$                                  | Continuous (direct) forward current | $T_{case} = 65^{\circ}C$                           | 465  | A     |

## SURGE RATINGS

| Symbol    | Parameter                              | Conditions   | Max.              | Units                |
|-----------|--|--|-------------------|----------------------|
| $I_{FSM}$ | Surge (non-repetitive) forward current | 10ms half sine; with 0% $V_{RRM}$ , $T_j = 150^\circ\text{C}$  | 7.5               | kA                   |
| $I^2t$    | $I^2t$ for fusing                      |  | $281 \times 10^3$ | $\text{A}^2\text{s}$ |
| $I_{FSM}$ | Surge (non-repetitive) forward current | 10ms half sine; with 50% $V_{RRM}$ , $T_j = 150^\circ\text{C}$ | 6.0               | kA                   |
| $I^2t$    | $I^2t$ for fusing                      |  | $180 \times 10^3$ | $\text{A}^2\text{s}$ |

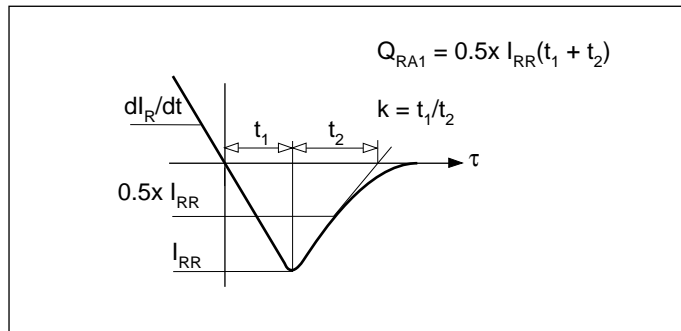
## THERMAL AND MECHANICAL DATA

| Symbol        | Parameter                             | Conditions                                     |             | Min. | Max.  | Units              |
|---------------|---------------------------------------|--|-------------|------|-------|--------------------|
| $R_{th(j-c)}$ | Thermal resistance - junction to case | Double side cooled                             | dc          | -    | 0.047 | $^\circ\text{C/W}$ |
|               |                                       | Single side cooled                             | Anode dc    | -    | 0.094 | $^\circ\text{C/W}$ |
|               |                                       |  | Cathode dc  | -    | 0.094 | $^\circ\text{C/W}$ |
| $R_{th(c-h)}$ | Thermal resistance - case to heatsink | Clamping force 8.0kN<br>with mounting compound | Double side | -    | 0.018 | $^\circ\text{C/W}$ |
|               |                                       |  | Single side | -    | 0.036 | $^\circ\text{C/W}$ |
| $T_{vj}$      | Virtual junction temperature          | On-state (conducting)                          |             | -    | 150   | $^\circ\text{C}$   |
| $T_{stg}$     | Storage temperature range             |  |             | -55  | 175   | $^\circ\text{C}$   |
| -             | Clamping force                        |  |             | 7.0  | 9.0   | kN                 |

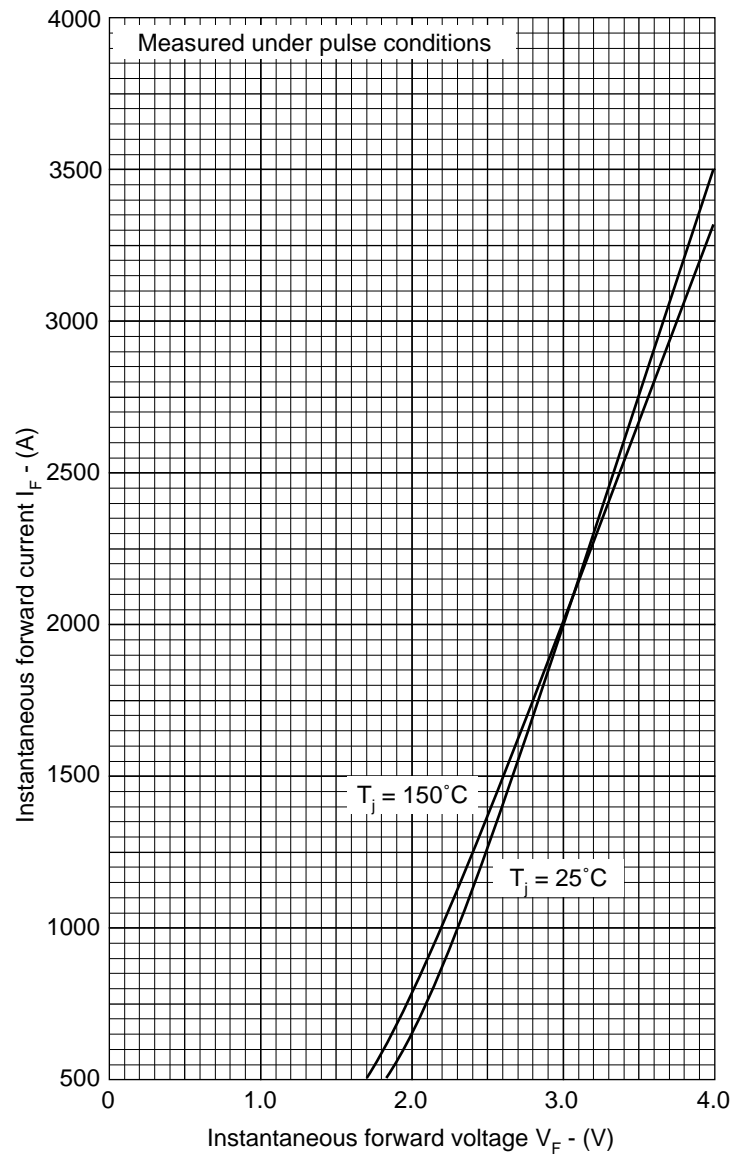
## CHARACTERISTICS

| Symbol    | Parameter                    | Conditions  | Typ. | Max. | Units     |
|-----------|------------------------------|---|------|------|-----------|
| $V_{FM}$  | Forward voltage              | At 1000A peak, $T_{case} = 25^{\circ}C$   | -    | 2.3  | V         |
| $I_{RRM}$ | Peak reverse current         | At $V_{RRM}$ , $T_{case} = 150^{\circ}C$  | -    | 50   | mA        |
| $t_{rr}$  | Reverse recovery time        | $I_F = 1000A$ , $di_{RR}/dt = 100A/\mu s$<br>$T_{case} = 150^{\circ}C$ , $V_R = 100V$ | -    | 5.0  | $\mu s$   |
| $Q_{RA1}$ | Recovered charge (50% chord) |   | -    | 540  | $\mu C$   |
| $I_{RM}$  | Reverse recovery current     |   | -    | 235  | A         |
| K         | Soft factor                  |   | 1.8  | -    | -         |
| $V_{TO}$  | Threshold voltage            | At $T_{vj} = 150^{\circ}C$  | -    | 1.48 | V         |
| $r_T$     | Slope resistance             | At $T_{vj} = 150^{\circ}C$  | -    | 0.8  | $m\Omega$ |
| $V_{FRM}$ | Forward recovery voltage     | $di/dt = 1000A/\mu s$ , $T_j = 125^{\circ}C$  | 70   | -    | V         |

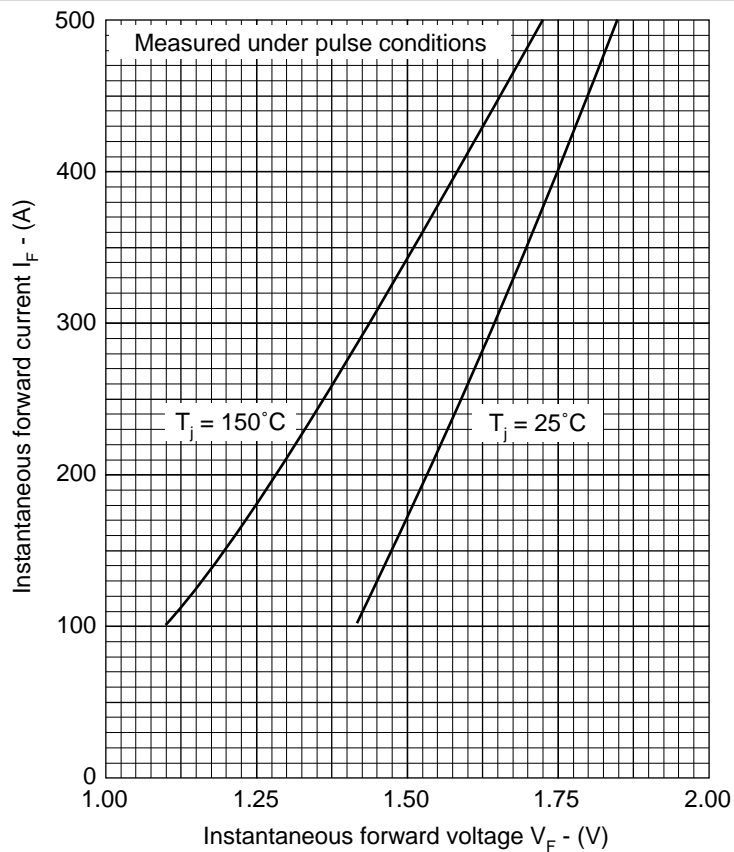
## DEFINITION OF K FACTOR AND $Q_{RA1}$



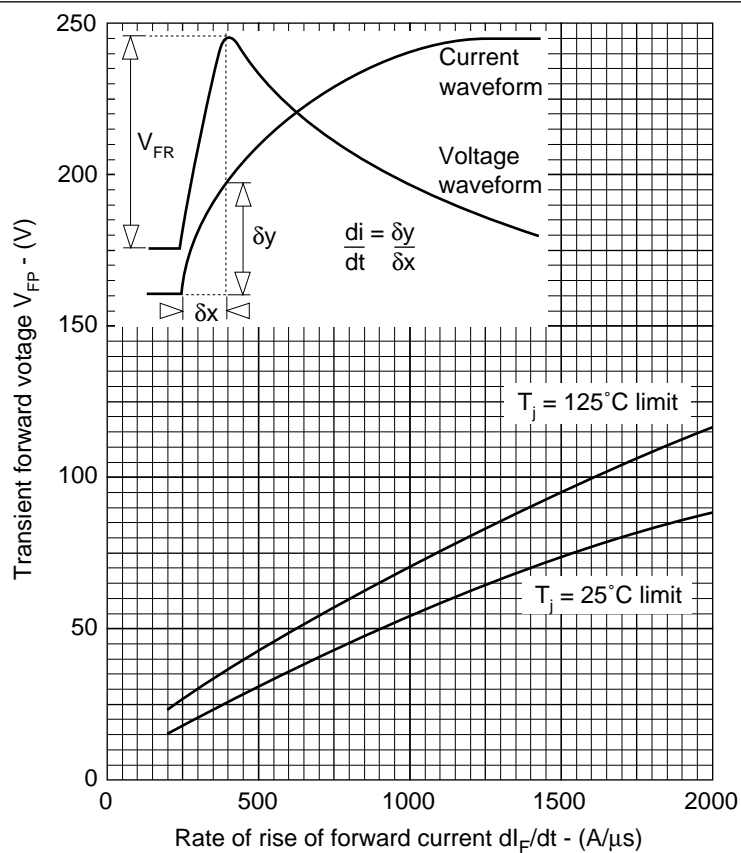
CURVES



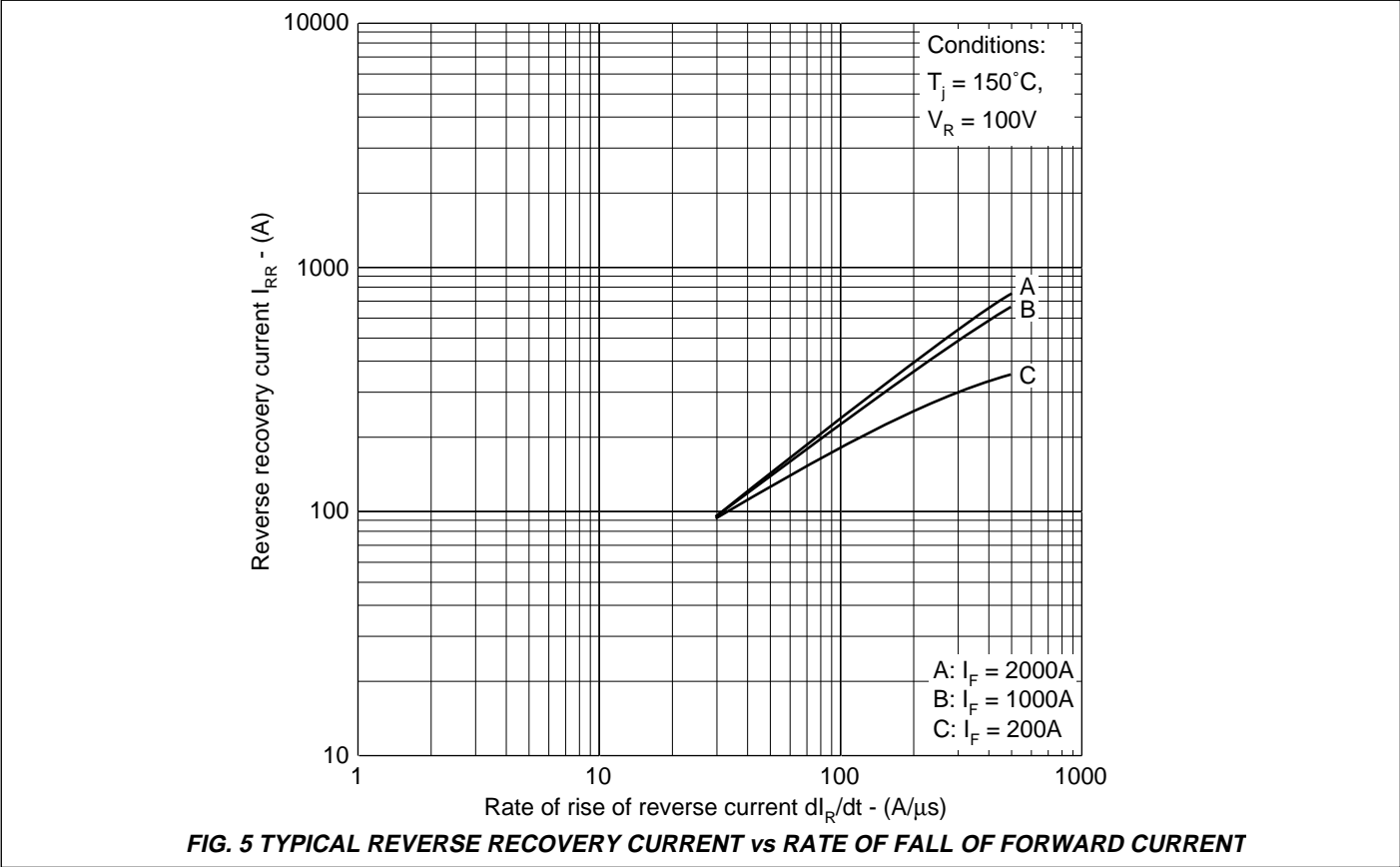
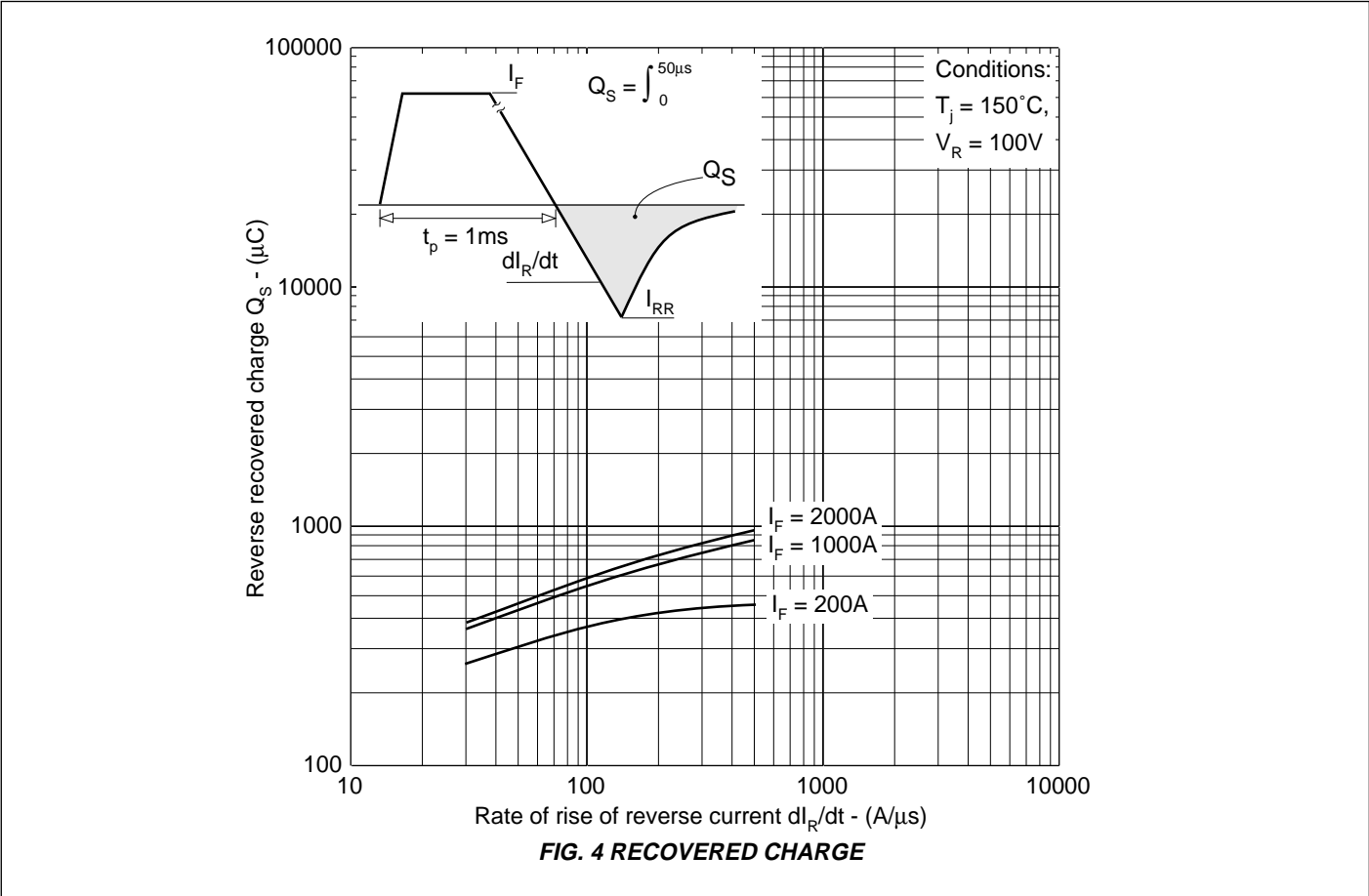
**FIG. 1 MAXIMUM (LIMIT) FORWARD CHARACTERISTICS**

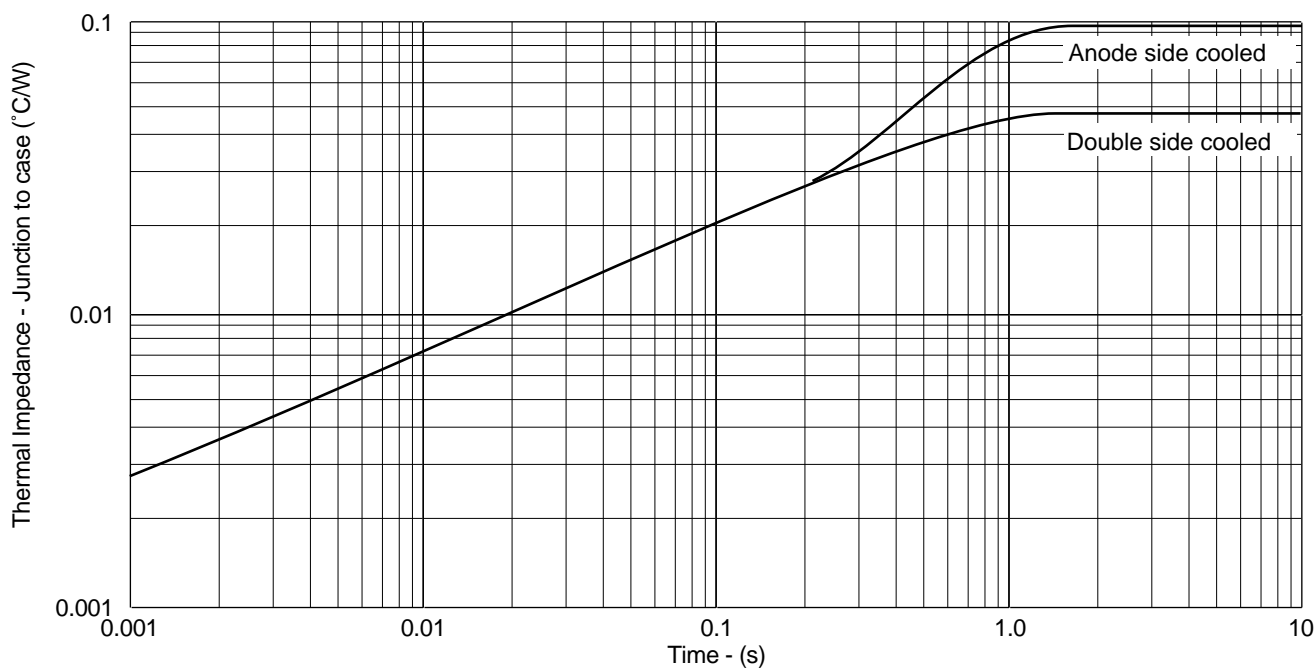


**FIG. 2 MAXIMUM (LIMIT) FORWARD CHARACTERISTICS**



**FIG. 3 TRANSIENT FORWARD VOLTAGE vs RATE OF RISE OF FORWARD CURRENT**



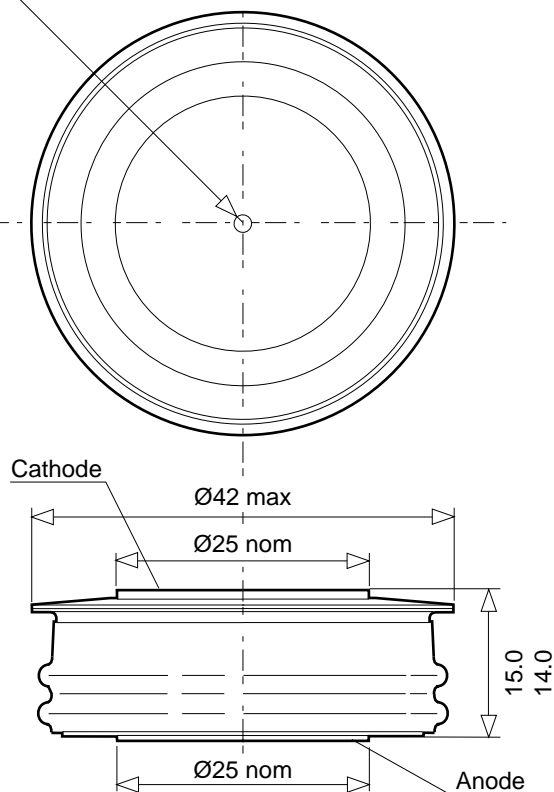


**FIG. 6 MAXIMUM (LIMIT) TRANSIENT THERMAL IMPEDANCE - JUNCTION TO CASE - (°C/W)**

**PACKAGE DETAILS - CB450**

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

2 holes Ø3.6 x 2.0 deep (One in each electrode)



Weight: 500g

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