

**FEATURES**

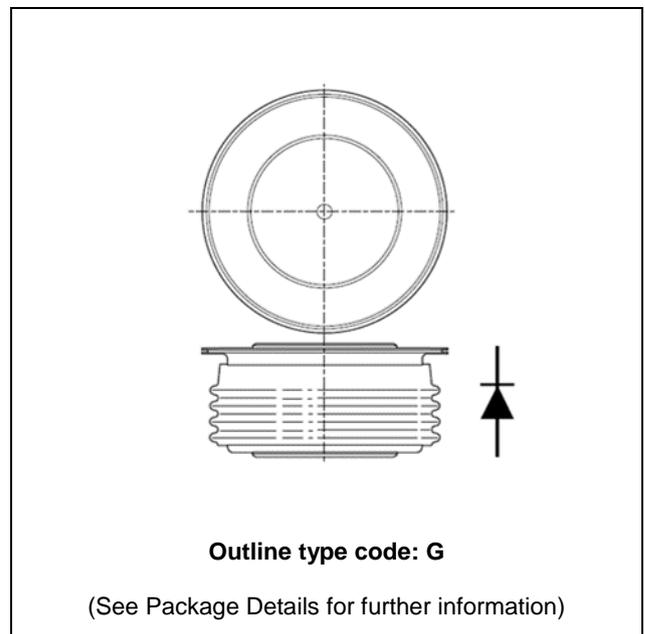
- Double Side Cooling
- High Surge Capability

**KEY PARAMETERS**

<b><math>V_{RRM}</math></b>	<b>3000V</b>
<b><math>I_{F(AV)}</math></b>	<b>1850A</b>
<b><math>I_{FSM}</math></b>	<b>20kA</b>

**VOLTAGE RATINGS**

Part and Ordering Number	Repetitive Peak Voltages $V_{RRM}$ (V)	Conditions
DRD1320G30	3000	$V_{RSM} = V_{RRM} + 100V$
DRD1320G28	2800	
DRD1320G26	2600	


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

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

For example:

**DRD1320G28** for an 2800V device

Note: Please use the complete part number when ordering and quote this number in any future correspondence relating to your order.

**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	1850	A
I <sub>F(RMS)</sub>	RMS value	-	2900	A
I <sub>F</sub>	Continuous (direct) forward current	-	2550	A
<b>Single Side Cooled</b>				
I <sub>F(AV)</sub>	Mean forward current	Half wave resistive load	1170	A
I <sub>F(RMS)</sub>	RMS value	-	1840	A
I <sub>F</sub>	Continuous (direct) forward current	-	1500	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	1320	A
I <sub>F(RMS)</sub>	RMS value	-	2070	A
I <sub>F</sub>	Continuous (direct) forward current	-	1880	A
<b>Single Side Cooled</b>				
I <sub>F(AV)</sub>	Mean forward current	Half wave resistive load	840	A
I <sub>F(RMS)</sub>	RMS value	-	1320	A
I <sub>F</sub>	Continuous (direct) forward current	-	1130	A

## SURGE RATINGS

Symbol	Parameter	Test Conditions	Max.	Units
$I_{FSM}$	Surge (non-repetitive) forward current	10ms half sine, $T_{case} = 175^{\circ}C$ $V_R = 50\% V_{RRM} - \frac{1}{4}$ sine	16	kA
$I^2t$	$I^2t$ for fusing		1.28	MA <sup>2</sup> s
$I_{FSM}$	Surge (non-repetitive) forward current	10ms half sine, $T_{case} = 175^{\circ}C$ $V_R = 0$	20	kA
$I^2t$	$I^2t$ for fusing		2	MA <sup>2</sup> s

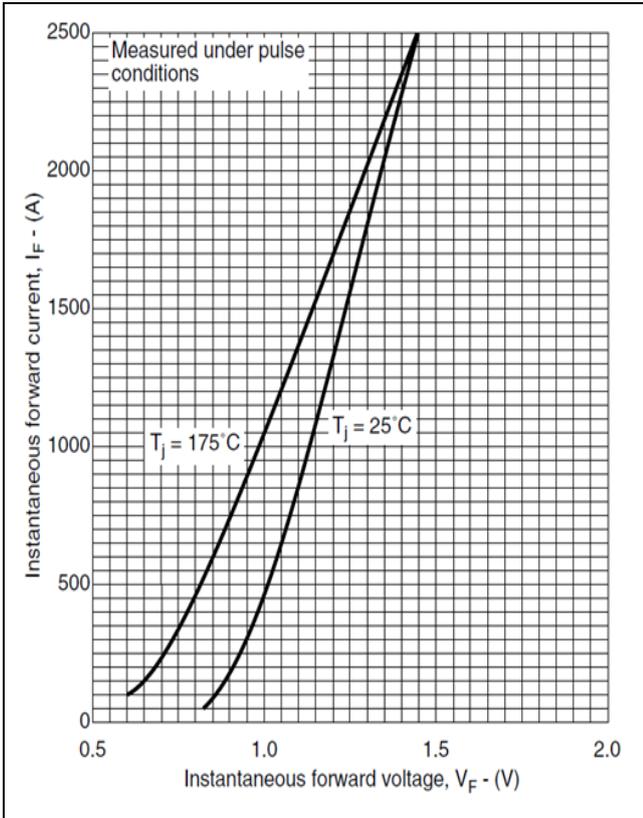
## THERMAL AND MECHANICAL RATINGS

Symbol	Parameter	Test Conditions	Min.	Max.	Units	
$R_{th(j-c)}$	Thermal resistance - junction to case	Double side cooled	DC	-	32.0	$^{\circ}C/kW$
		Single side cooled	Anode DC	-	64.0	$^{\circ}C/kW$
			Cathode DC	-	64.0	$^{\circ}C/kW$
$R_{th(c-h)}$	Thermal resistance - case to heatsink	Clamping force 12.5kN (with mounting compound)	Double side	-	8.0	$^{\circ}C/kW$
			Single side	-	16.0	$^{\circ}C/kW$
$T_{vj}$	Virtual junction temperature	On-state (conducting)		-	185	$^{\circ}C$
		Reverse (blocking)		-	175	$^{\circ}C$
$T_{stg}$	Storage temperature range		-55	200	$^{\circ}C$	
$F_m$	Clamping force		11.5	13.5	kN	

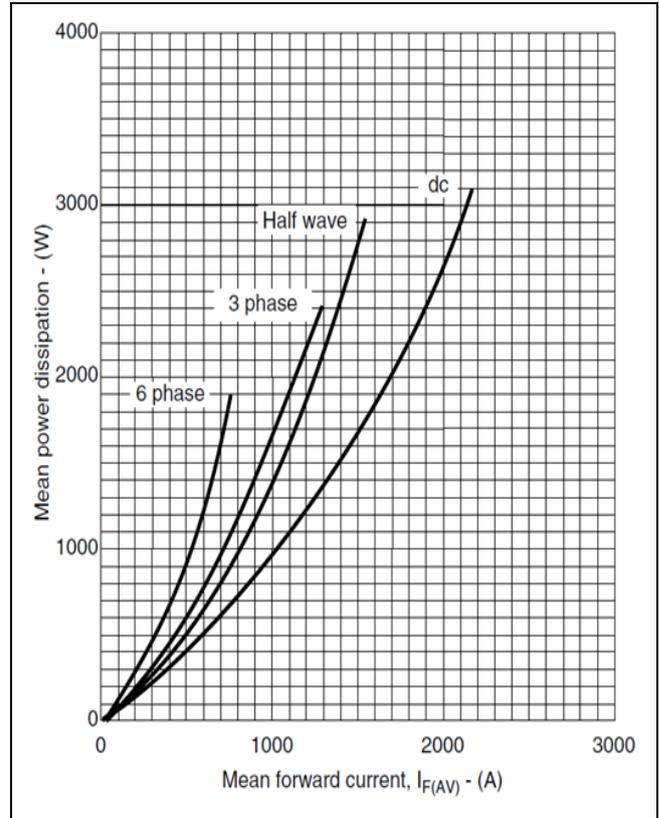
## CHARACTERISTICS

Symbol	Parameter	Test Conditions	Min.	Max.	Units
$V_{FM}$	Forward voltage	At 1800A peak, $T_{case} = 25^{\circ}C$	-	1.3	V
$I_{RM}$	Peak reverse current	At $V_{RRM}$ , $T_{case} = 175^{\circ}C$	-	50	mA
$Q_S$	Total stored charge	$I_F = 1000A$ , $dI_{RR}/dt = 3A/\mu s$ , $T_{case} = 175^{\circ}C$ , $V_R = 100V$	-	1600	$\mu C$
$I_{RR}$	Peak reverse recovery current		-	85	A
$V_{TO}$	Threshold voltage	$T_{vj} = 175^{\circ}C$	-	0.67	V
$r_T$	Slope resistance	$T_{vj} = 175^{\circ}C$	-	0.31	m $\Omega$

**CURVES**



**Fig. 2 Maximum & minimum on-state characteristics**



**Fig. 3 Dissipation curves**

**V<sub>FM</sub> EQUATION**

$$V_{FM} = A + B \cdot \ln(I_F) + C \cdot I_F + D \cdot \sqrt{I_F}$$

- Where
- A = 0.82527
  - B = -0.07771
  - C = 0.00012
  - D = 0.01960

These values are valid for T<sub>j</sub> = 175°C for I<sub>F</sub> 500A to 2500A

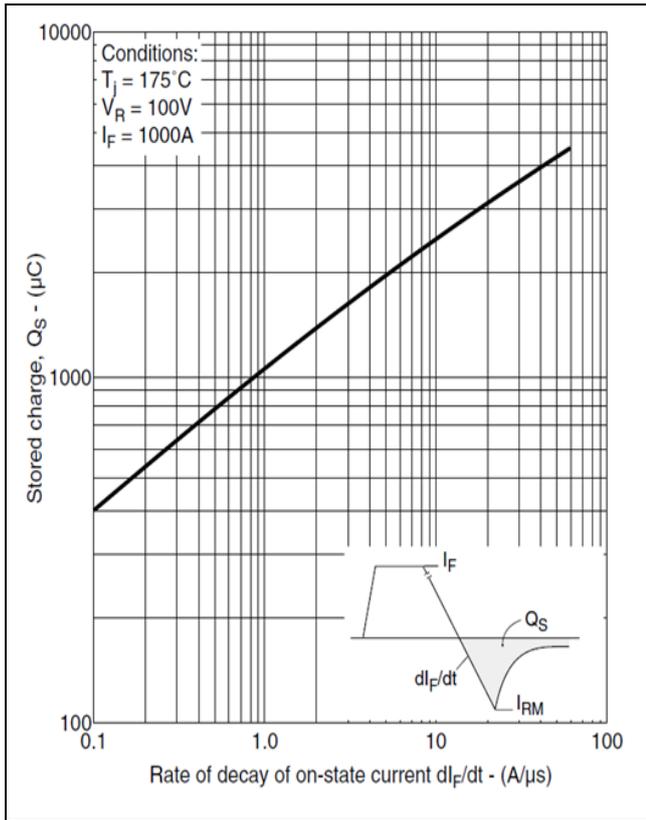


Fig. 4 Total stored charge

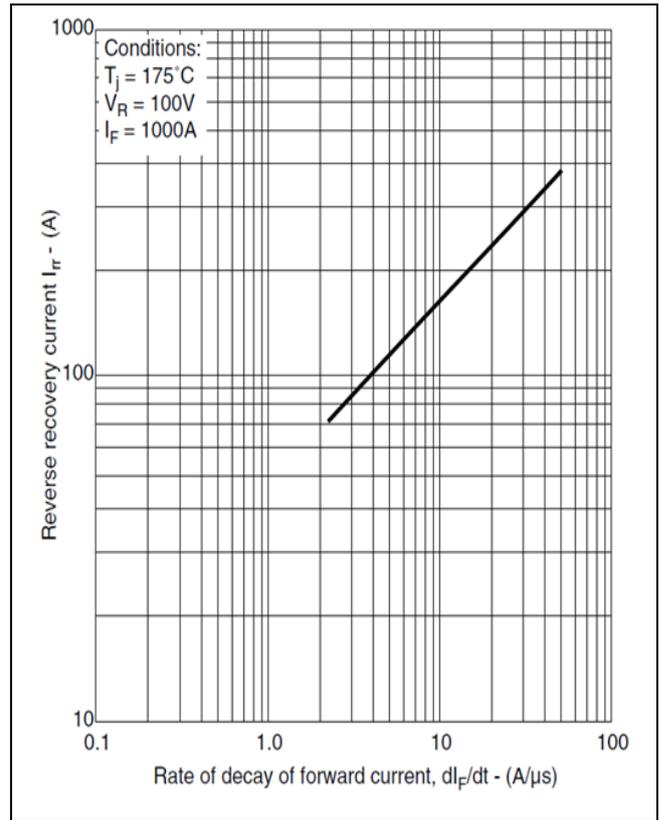


Fig. 5 Maximum reverse recovery current

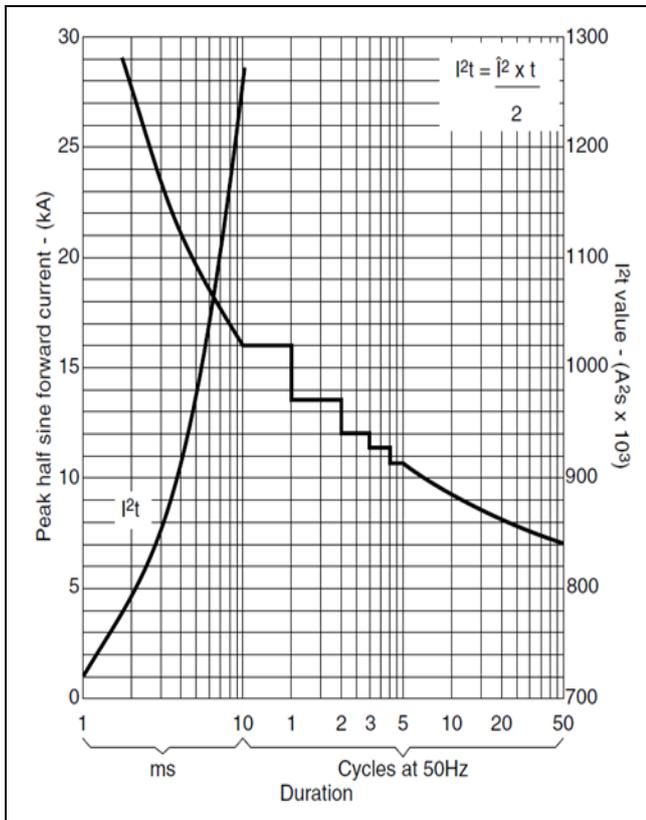


Fig. 6 Surge (non-repetitive) forward current vs time

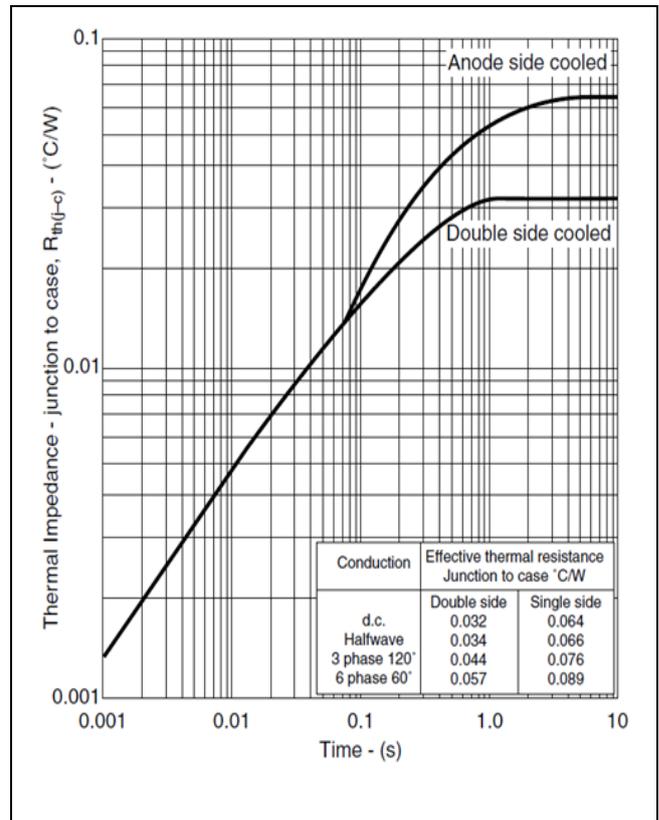


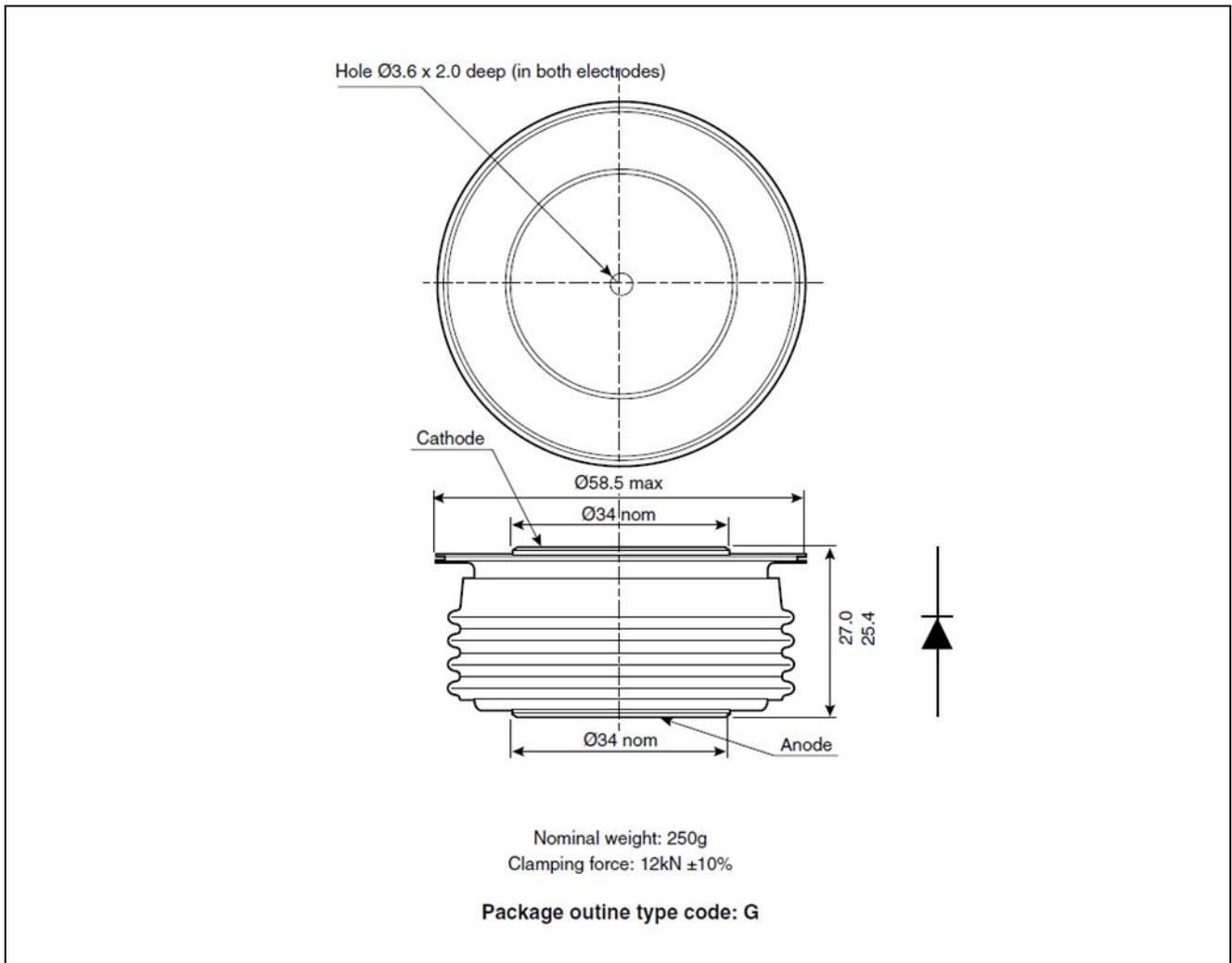
Fig. 7 Maximum (limit) transient thermal impedance - junction to case

**PACKAGE DETAILS**

For further package information, please contact Customer services.

All dimensions in mm, unless stated otherwise.

DO NOT SCALE



**Fig. 8 Package outline**

**Note:**

Some packages may be supplied with gate and or tags.

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