

FEATURES

- Double Side Cooling
- High Surge Capability

KEY PARAMETERS

V_{RRM}	3000V
I_{F(AV)}	1850A
I_{FSM}	20kA

VOLTAGE RATINGS

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

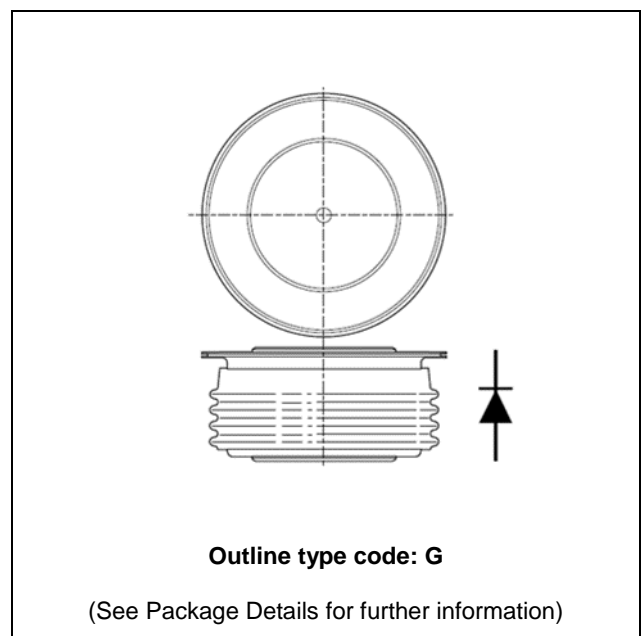


Fig. 1 Package outline

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_{case} = 75°C unless stated otherwise

Symbol	Parameter	Test Conditions	Max.	Units
Double Side Cooled				
I _{F(AV)}	Mean forward current	Half wave resistive load	1850	A
I _{F(RMS)}	RMS value	-	2900	A
I _F	Continuous (direct) forward current	-	2550	A
Single Side Cooled				
I _{F(AV)}	Mean forward current	Half wave resistive load	1170	A
I _{F(RMS)}	RMS value	-	1840	A
I _F	Continuous (direct) forward current	-	1500	A

T_{case} = 100°C unless stated otherwise

Symbol	Parameter	Test Conditions	Max.	Units
Double Side Cooled				
I _{F(AV)}	Mean forward current	Half wave resistive load	1320	A
I _{F(RMS)}	RMS value	-	2070	A
I _F	Continuous (direct) forward current	-	1880	A
Single Side Cooled				
I _{F(AV)}	Mean forward current	Half wave resistive load	840	A
I _{F(RMS)}	RMS value	-	1320	A
I _F	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 ² 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 ² 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	μC
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 Ω

CURVES

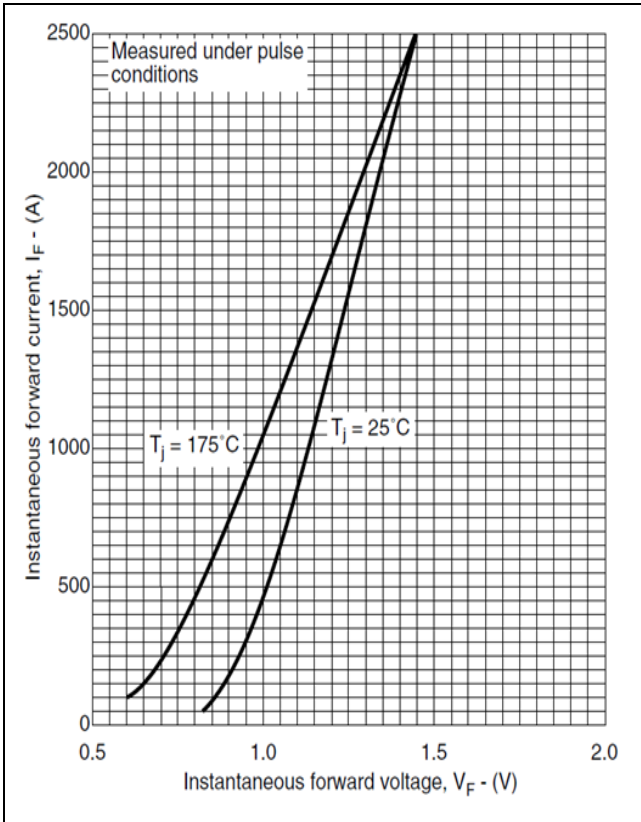


Fig. 2 Maximum & minimum on-state characteristics

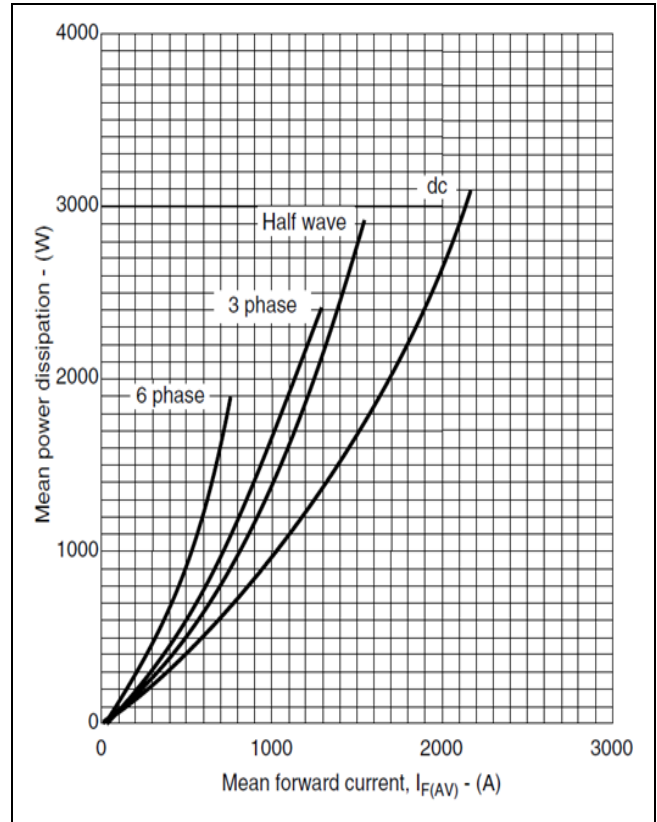


Fig. 3 Dissipation curves

V_{FM} 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_j = 175°C for I_F 500A to 2500A

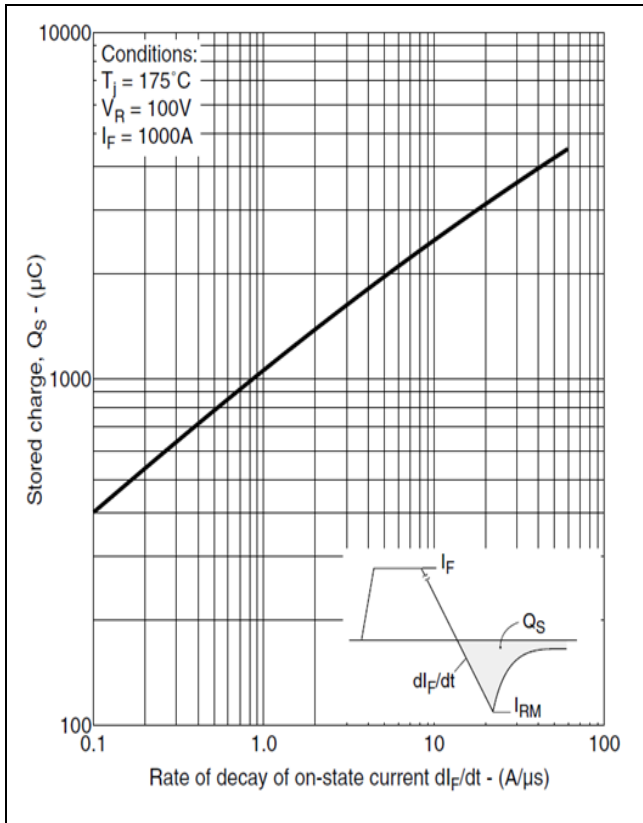


Fig. 4 Total stored charge

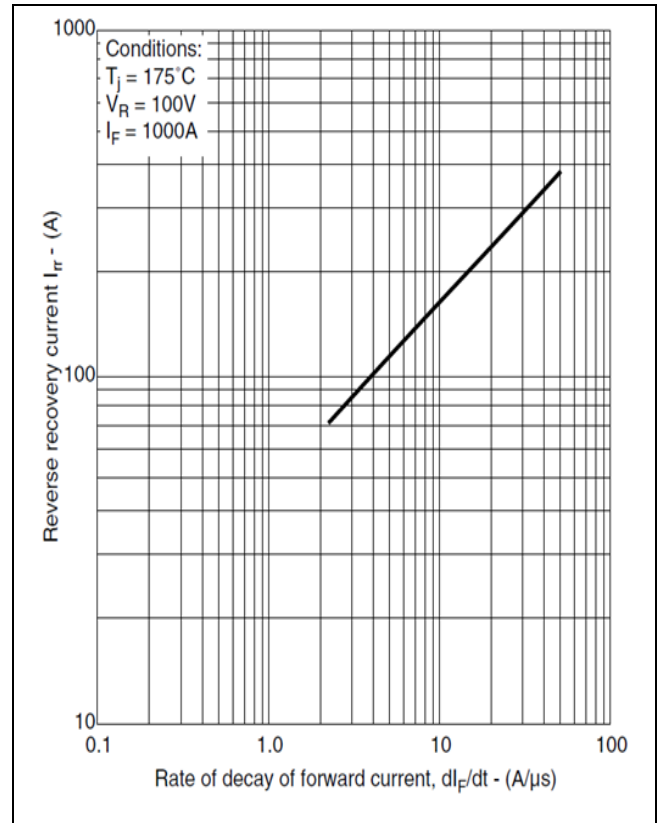


Fig. 5 Maximum reverse recovery current

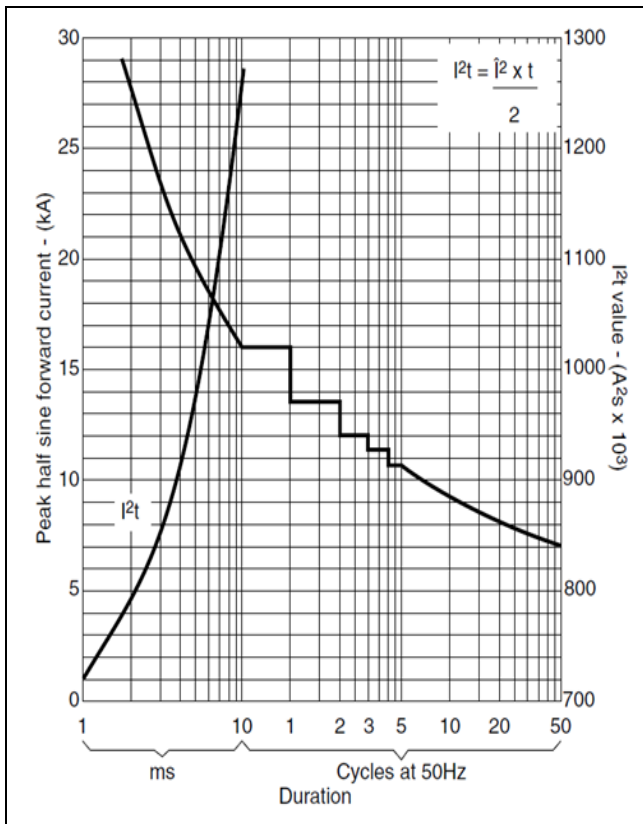


Fig. 6 Surge (non-repetitive) forward current vs time

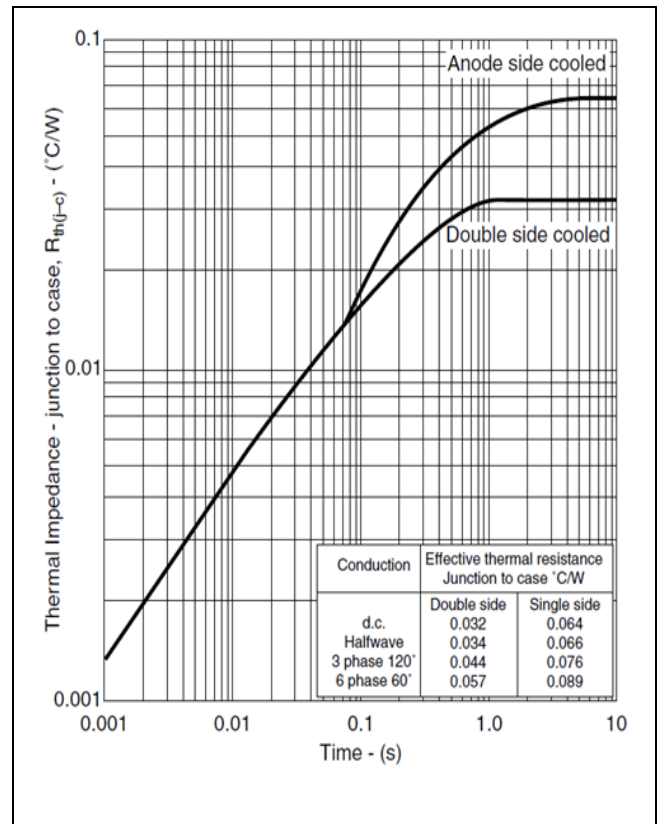


Fig. 7 Maximum (limit) transient thermal impedance - junction to case

PACKAGE DETAILS

For further package information, please contact Customer services.

All dimensions in mm, unless stated otherwise.

DO NOT SCALE

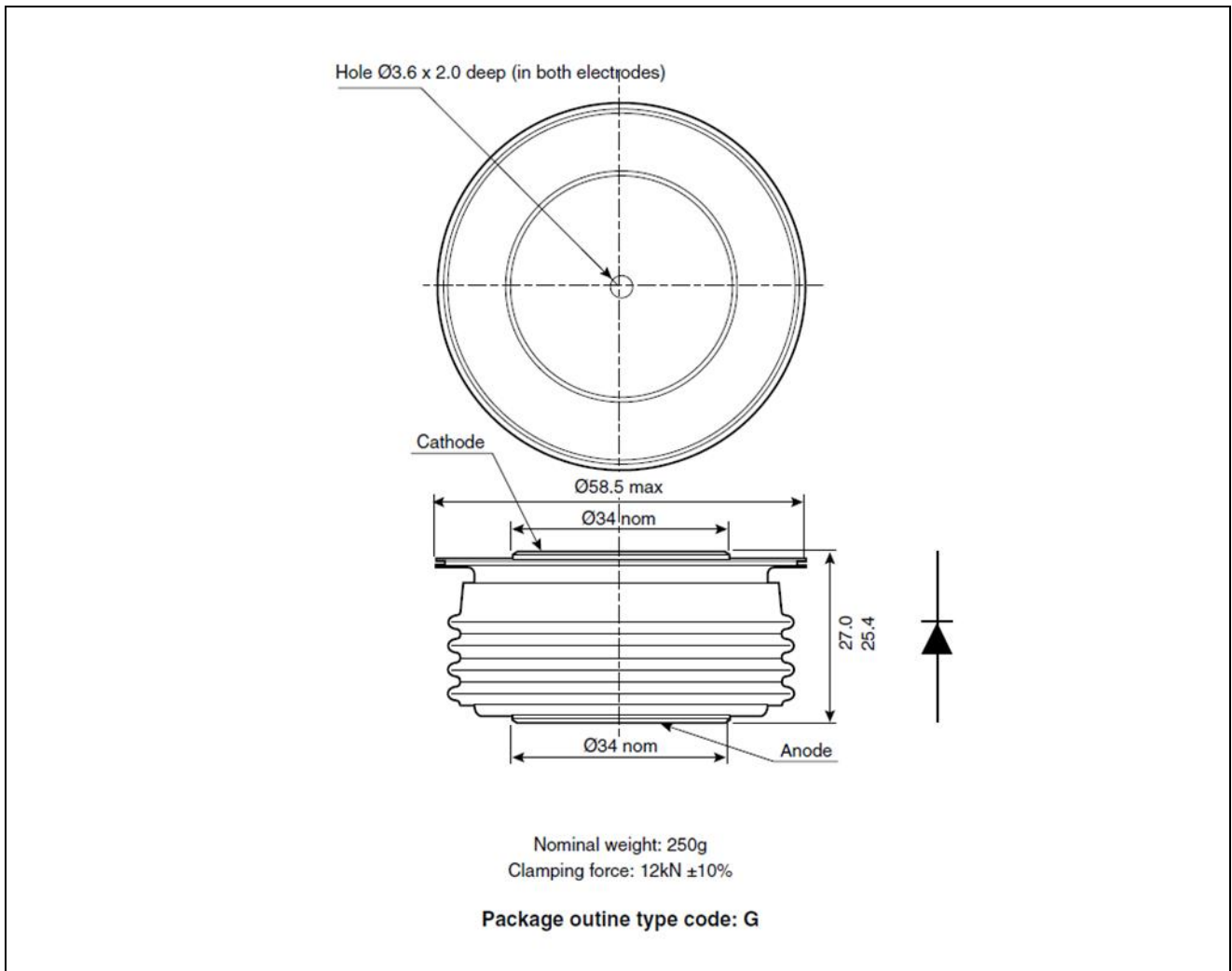


Fig. 8 Package outline

Note:

Some packages may be supplied with gate and or tags.

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