

**FEATURES**

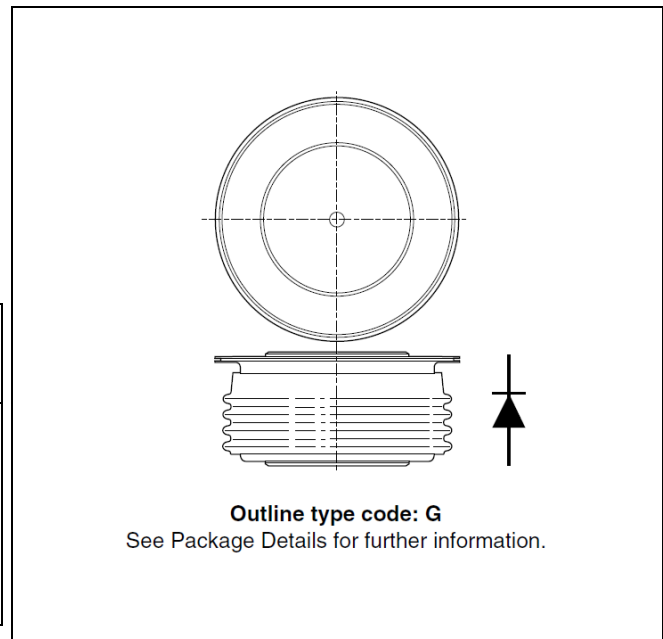
- Double Side Cooling
- High Surge Capability

**KEY PARAMETERS**

$V_{RRM}$	<b>3000V</b>
$I_{F(AV)}$	<b>1849A</b>
$I_{FSM}$	<b>20kA</b>

**VOLTAGE RATINGS**

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



**Fig. 1 Package outline**

**ORDERING INFORMATION**

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

For example:

**DRD1320G28** for a 2800V device

**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	1849	A
I <sub>F(RMS)</sub>	RMS value	-	2904	A
I <sub>F</sub>	Continuous (direct) on-state current	-	2545	A
<b>Single Side Cooled (Anode side)</b>				
I <sub>F(AV)</sub>	Mean forward current	Half wave resistive load	1173	A
I <sub>F(RMS)</sub>	RMS value	-	1843	A
I <sub>F</sub>	Continuous (direct) on-state current	-	1502	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	1315	A
I <sub>F(RMS)</sub>	RMS value	-	2065	A
I <sub>F</sub>	Continuous (direct) on-state current	-	1880	A
<b>Single Side Cooled (Anode side)</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) on-state current	-	1130	A

**SURGE RATINGS**

Symbol	Parameter	Test Conditions	Max.	Units
$I_{FSM}$	Surge (non-repetitive) on-state current	10ms half sine, $T_{case} = 175^{\circ}C$ $V_R = 50\% V_{RRM} - 1/4$ sine	116	kA
$I^2t$	$I^2t$ for fusing		1.28	MA <sup>2</sup> s
$I_{FSM}$	Surge (non-repetitive) on-state 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	-	0.032	$^{\circ}C/W$
		Single side cooled	Anode DC	-	0.064	$^{\circ}C/W$
			Cathode DC	-	0.064	$^{\circ}C/W$
$R_{th(c-h)}$	Thermal resistance – case to heatsink	Clamping force 43kN (with mounting compound)	Double side	-	0.008	$^{\circ}C/W$
			Single side	-	0.016	$^{\circ}C/W$
$T_{vj}$	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 <sub>FM</sub>	Forward voltage	At 1800A peak, T <sub>case</sub> = 25°C	-	1.3	V
I <sub>RM</sub>	Peak reverse current	At V <sub>RRM</sub> , T <sub>case</sub> = 175°C	-	50	mA
Q <sub>S</sub>	Total stored charge	I <sub>F</sub> = 1000A, dI <sub>RR</sub> /dt = 3A/μs	-	1600	μC
I <sub>rr</sub>	Peak reverse recovery current	T <sub>case</sub> = 175°C, V <sub>R</sub> = 100V	-	85	A
V <sub>TO</sub>	Threshold voltage	At T <sub>vj</sub> = 175°C	-	0.67	V
r <sub>T</sub>	Slope resistance	At T <sub>vj</sub> = 175°C	-	0.31	mΩ

CURVES

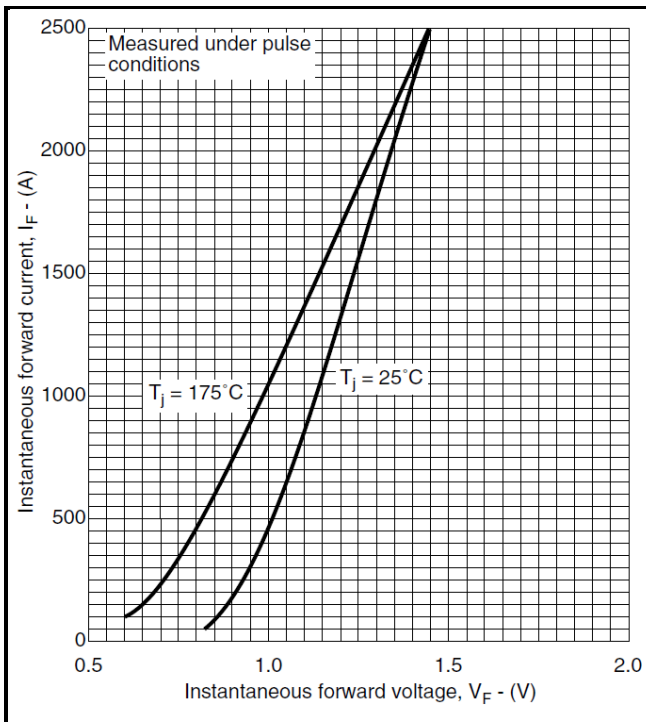


Fig.2 Maximum & minimum on-state characteristics

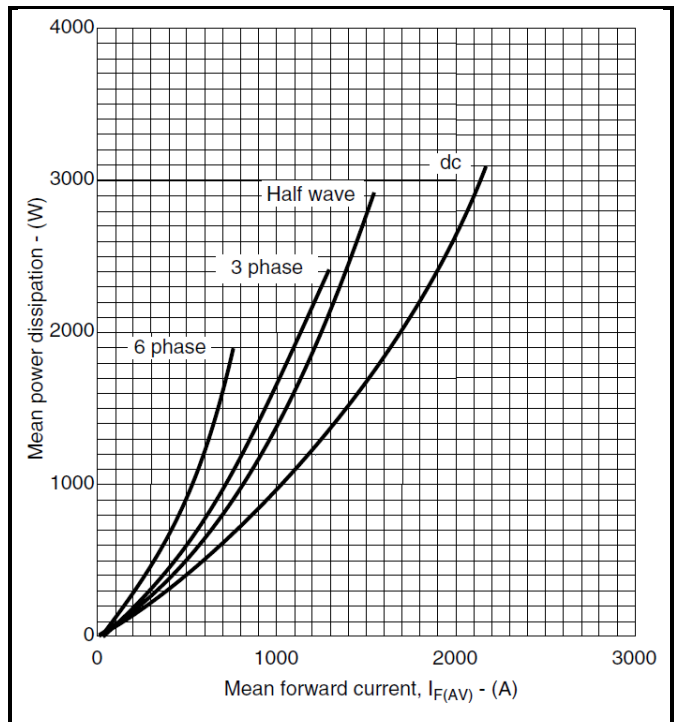


Fig.3 Dissipation curves

V<sub>TM</sub> EQUATION

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

Where A = 0.82527  
 B = -0.07771  
 C = 0.00012  
 D = 0.019599

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

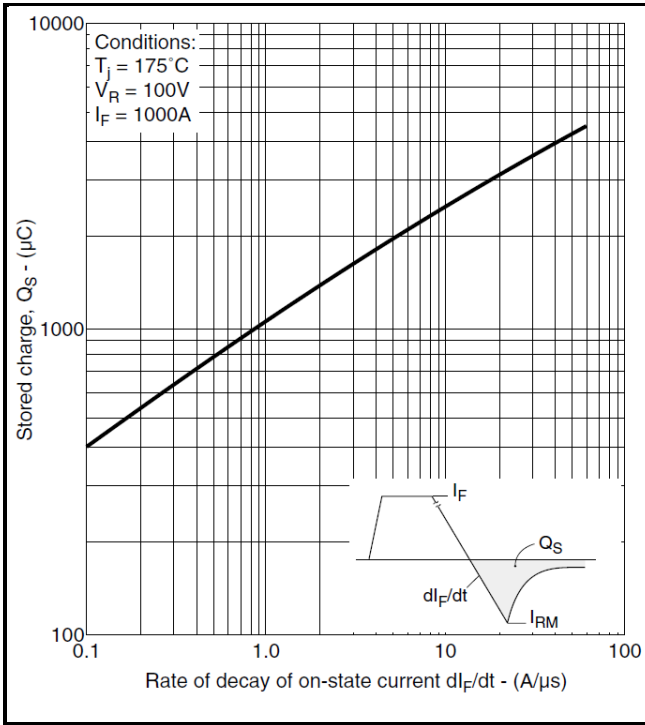


Fig.4 Total stored charge

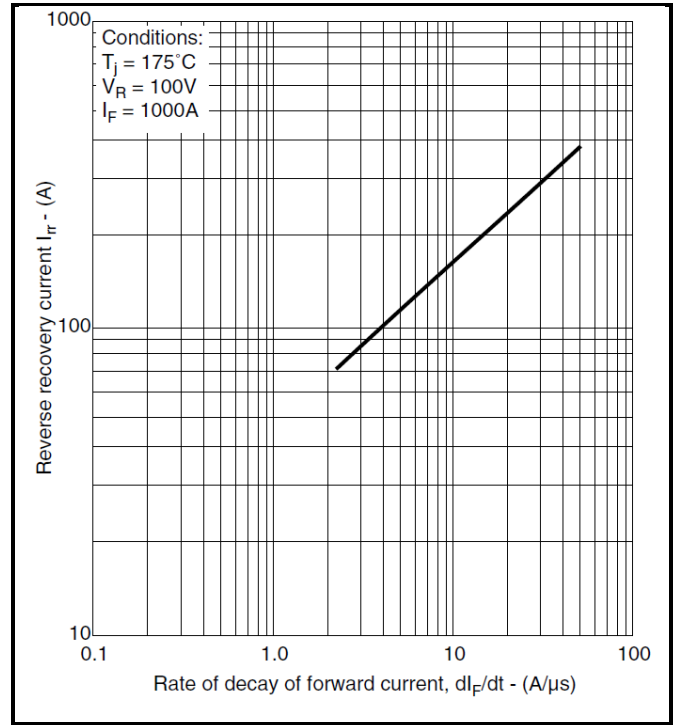


Fig.5 Maximum reverse recovery current

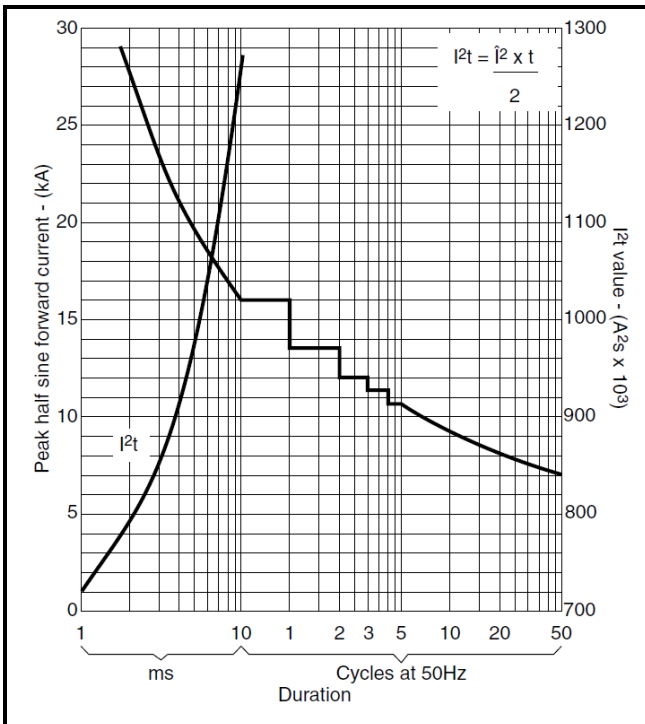


Fig.5 Surge (Non-Repetitive) Forward current vs time

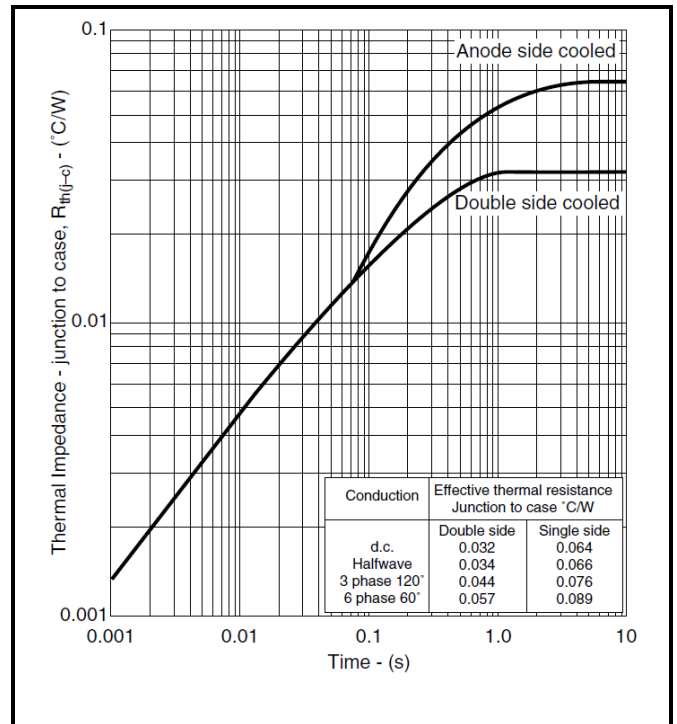
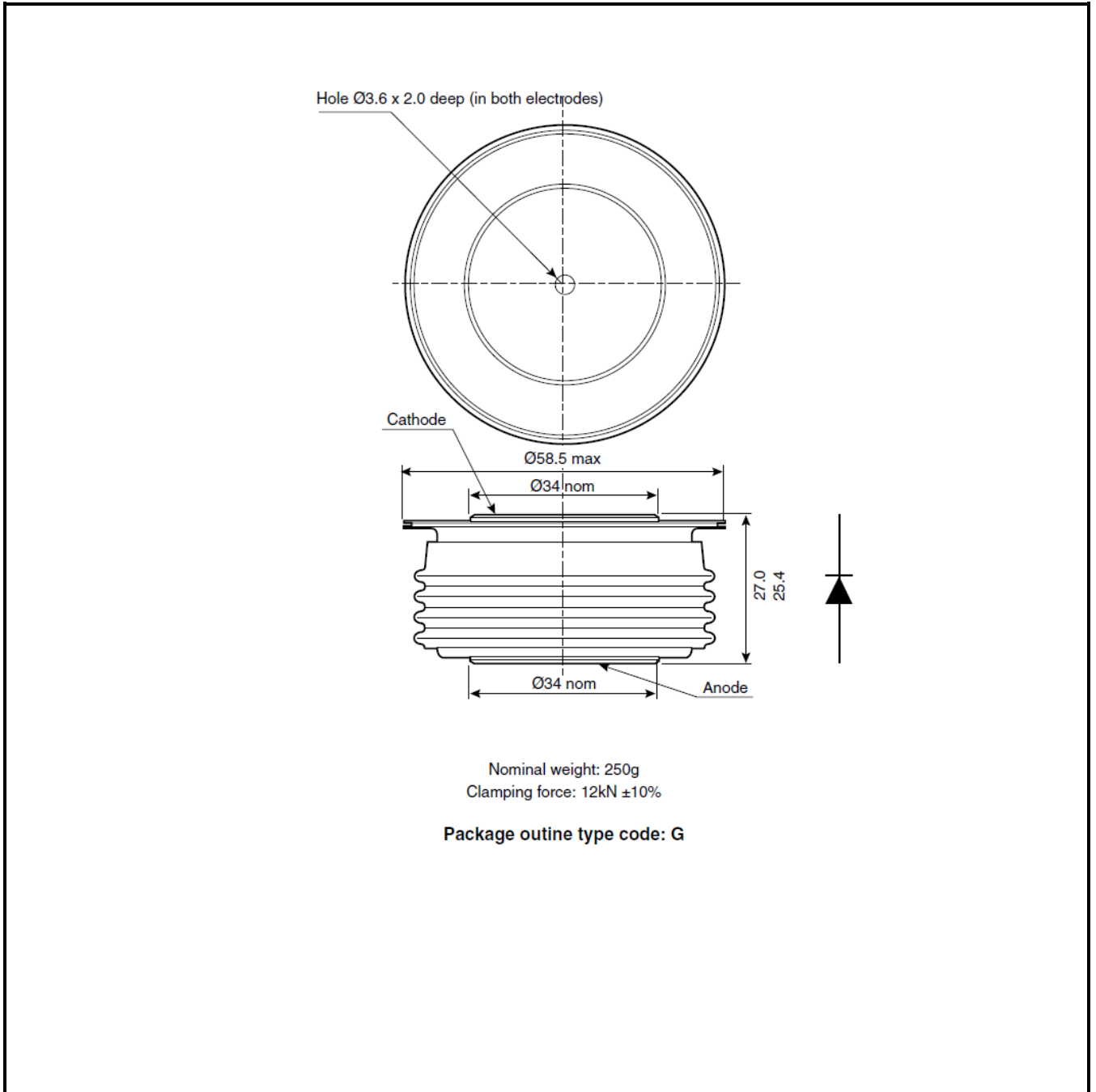


Fig.7 Maximum (limit) transient thermal impedance-junction to case

PACKAGE DETAILS

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



**Note:**

Some packages may be supplied with gate and or tags.

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### HEADQUARTERS OPERATIONS

DYNEX SEMICONDUCTOR LIMITED  
Doddington Road, Lincoln, Lincolnshire, LN6 3LF  
United Kingdom.  
Phone: +44 (0) 1522 500500  
Fax: +44 (0) 1522 500550  
Web: <http://www.dynexsemi.com>

### CUSTOMER SERVICE

Phone: +44 (0) 1522 502753 / 502901  
e-mail: [powersolutions@dynexsemi.com](mailto:powersolutions@dynexsemi.com)