

FEATURES

- Double Side Cooling
- High Surge Capability

KEY PARAMETERS

V_{RRM}	9000V
$I_{F(AV)}$	557A
I_{FSM}	7650A

VOLTAGE RATINGS

Part and Ordering Number	Repetitive Peak Voltages V_{RRM} V	Conditions
DRD560G90 DRD560G85 DRD560G80	9000 8500 8000	$V_{RSM} = V_{RRM} + 100V$

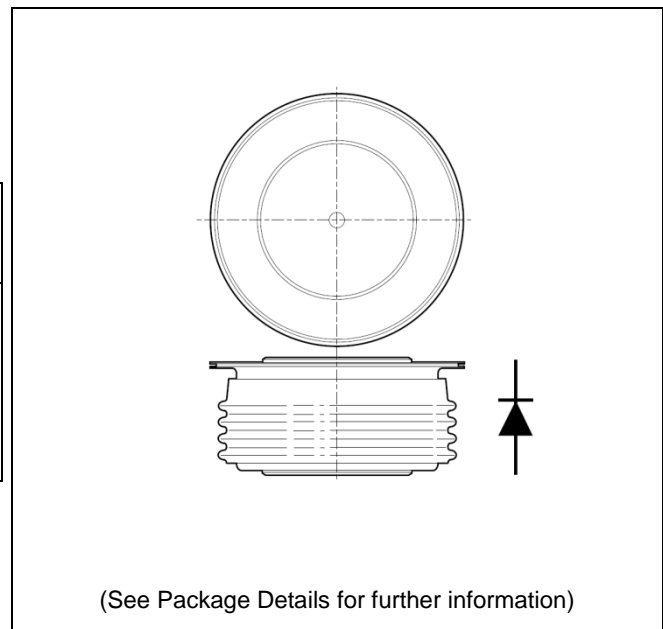


Fig. 1 Package outline

ORDERING INFORMATION

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

For example:

DRD560G85 for a 8500V device

CURRENT RATINGS

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

Symbol	Parameter	Test Conditions	Max.	Units
Double Side Cooled				
$I_{F(AV)}$	Mean forward current	Half wave resistive load	684	A
$I_{F(RMS)}$	RMS value	-	1074	A
I_F	Continuous (direct) on-state current	-	1019	A
Single Side Cooled (Anode side)				
$I_{F(AV)}$	Mean forward current	Half wave resistive load	461	A
$I_{F(RMS)}$	RMS value	-	724	A
I_F	Continuous (direct) on-state current	-	654	A

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

Symbol	Parameter	Test Conditions	Max.	Units
Double Side Cooled				
$I_{F(AV)}$	Mean forward current	Half wave resistive load	557	A
$I_{F(RMS)}$	RMS value	-	876	A
I_F	Continuous (direct) on-state current	-	819	A
Single Side Cooled (Anode side)				
$I_{F(AV)}$	Mean forward current	Half wave resistive load	372	A
$I_{F(RMS)}$	RMS value	-	584	A
I_F	Continuous (direct) on-state current	-	517	A

SURGE RATINGS

Symbol	Parameter	Test Conditions	Max.	Units
I_{FSM}	Surge (non-repetitive) on-state current	10ms half sine, $T_{case} = 150^{\circ}C$ $V_R = 0$	7.65	kA
I^2t	I^2t for fusing		0.29	MA^2s

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	-	.008	$^{\circ}C/W$
			Single side	-	.016	$^{\circ}C/W$
T_{vj}	Virtual junction temperature		-	160	$^{\circ}C$	
T_{stg}	Storage temperature range		-55	175	$^{\circ}C$	
F_m	Clamping force		11	13	kN	

CHARACTERISTICS

Symbol	Parameter	Test Conditions	Min.	Max.	Units
V _{FM}	Forward voltage	At 1200A peak, T _{case} = 160°C	-	2.95	V
I _{RM}	Peak reverse current	At V _{RRM} , T _{case} = 160°C	-	100	mA
Q _S	Total stored charge	I _F = 2000A, dI _{RR} /dt = 5A/μs	2840	4300	μC
I _{rr}	Peak reverse recovery current	T _{case} = 160°C, V _R = 100V	140	170	A
V _{TO}	Threshold voltage	At T _{vj} = 160°C	-	1.0	V
r _T	Slope resistance	At T _{vj} = 160°C	-	1.575	mΩ

CURVES

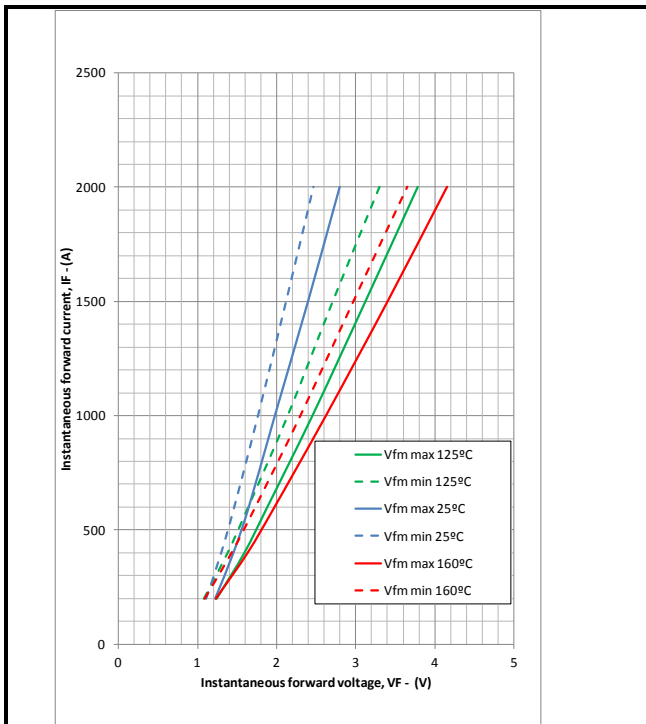


Fig.2 Maximum & minimum on-state characteristics

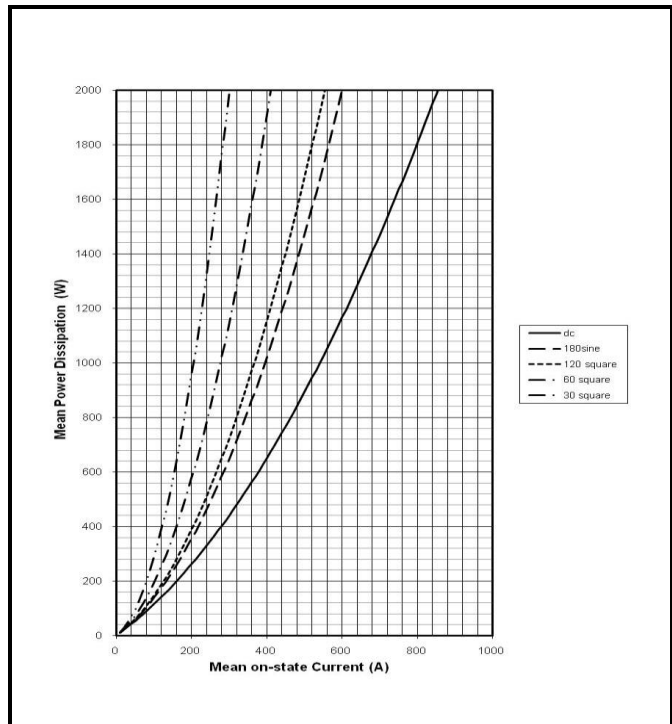


Fig.3 Dissipation curves

V_{TM} EQUATION

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

Where A = -0.675901
 B = 0.3995
 C = 0.001796
 D = -0.040301

these values are valid for T_j = 160°C for I_F 200A to 2000A

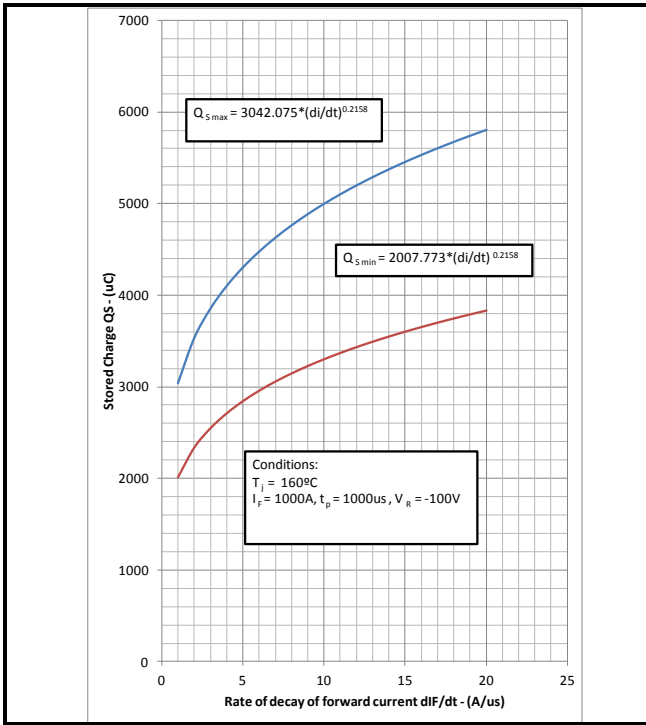


Fig.4 Total stored charge

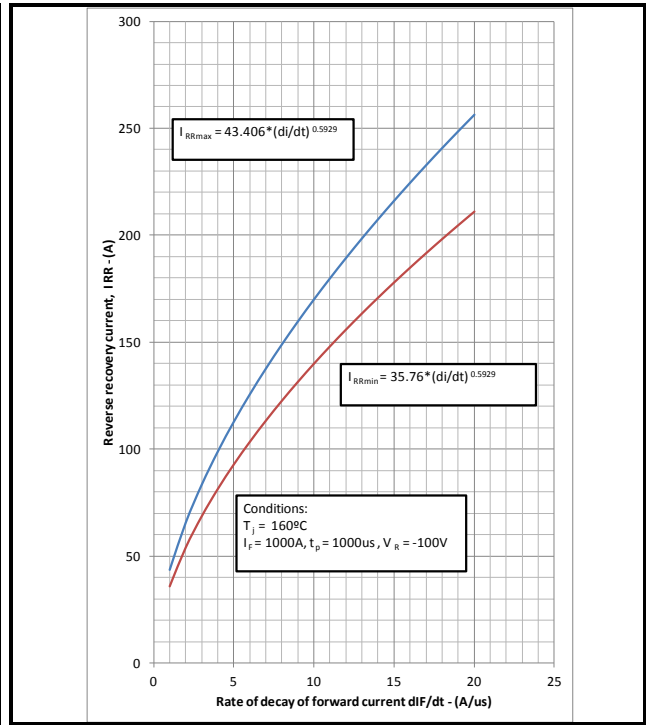


Fig.5 Maximum reverse recovery current

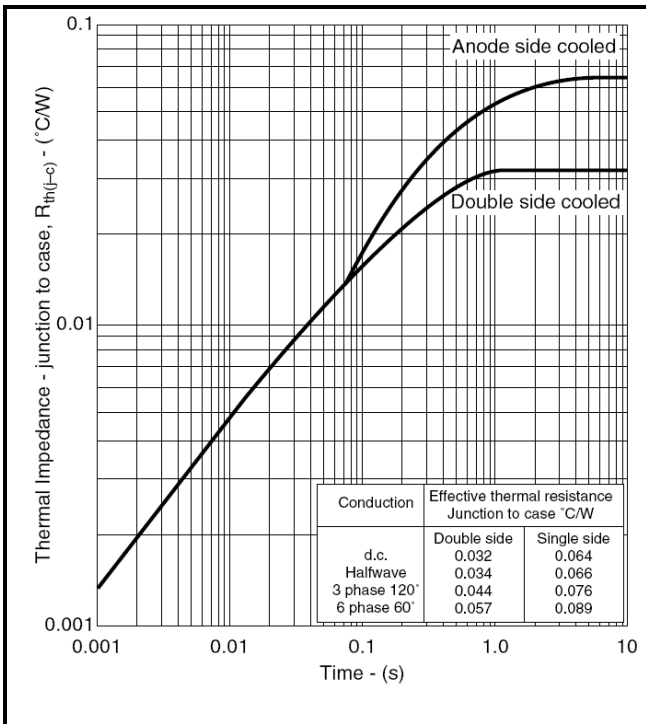


Fig.6 Maximum (limit) transient thermal impedance-junction to case

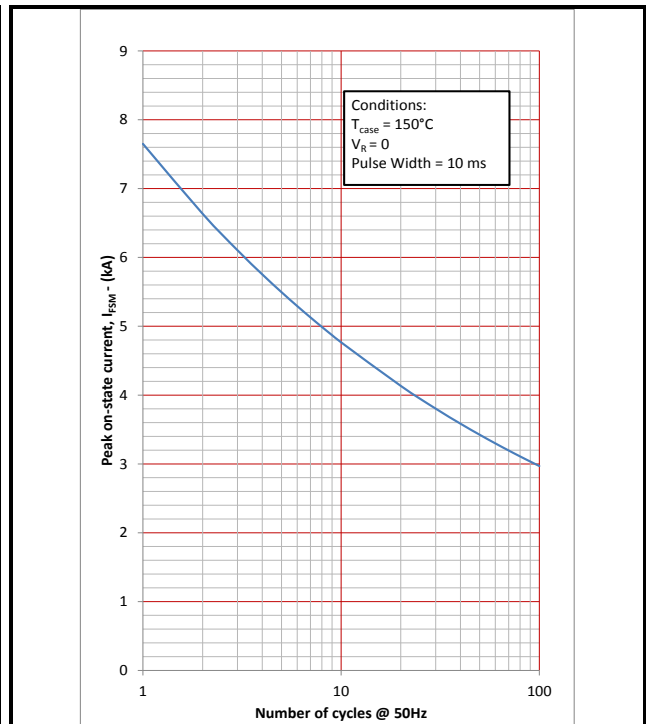


Fig. 7 Surge forward current vs number of half cycles at 50Hz

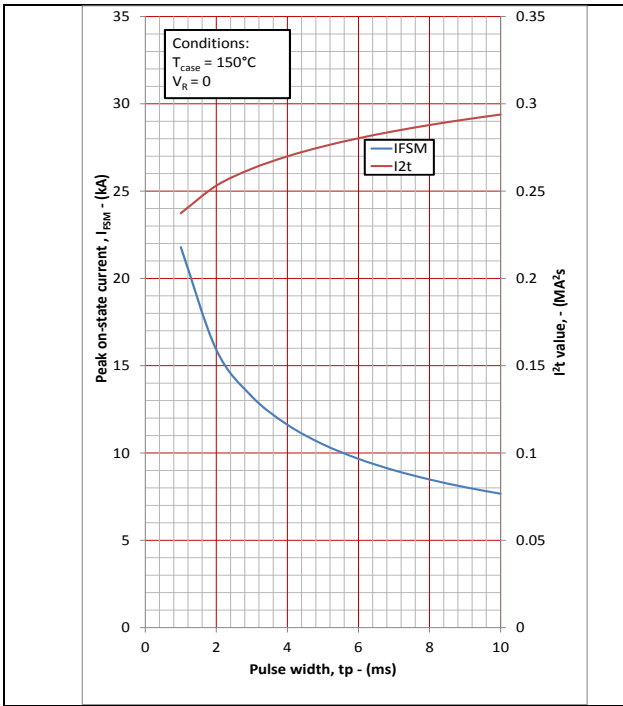
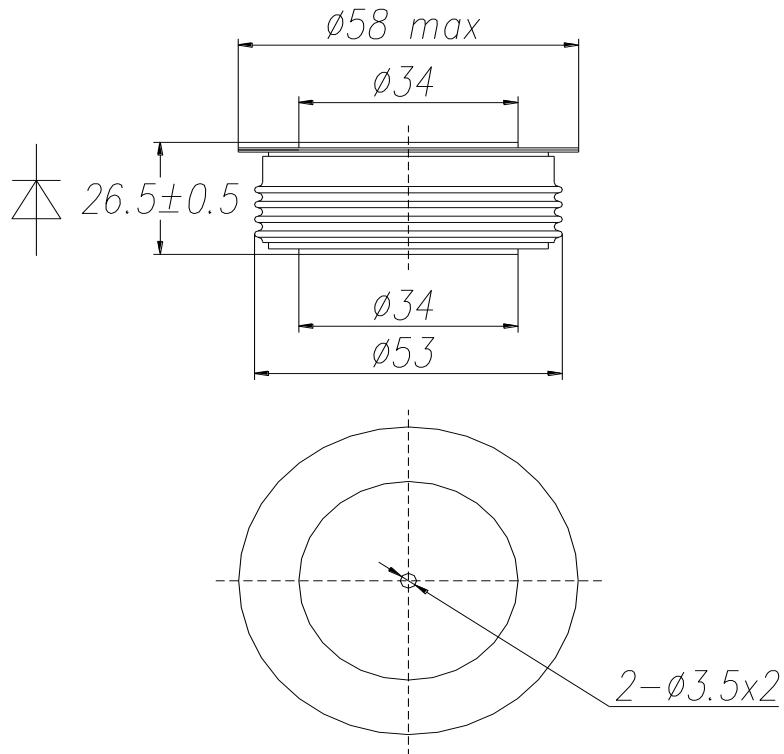


Fig. 8 Surge (non-repetitive) forward current vs pulse width

PACKAGE DETAILS

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



Package outline type code:G

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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