



Preliminary Information

DS6066 – 12 December 2011 (LN28906)

FEATURES

- Double Side Cooling
- High Surge Capability

KEY PARAMETERS

V_{RRM}	9000V
$I_{F(AV)}$	557A
I_{FSM}	10000A

VOLTAGE RATINGS

Part and Ordering Number	Repetitive Peak Voltages V_{RRM} V	Conditions
DRD590G90 DRD590G85 DRD590G80	9000 8500 8000	$V_{RSM} = V_{RRM} + 100V$

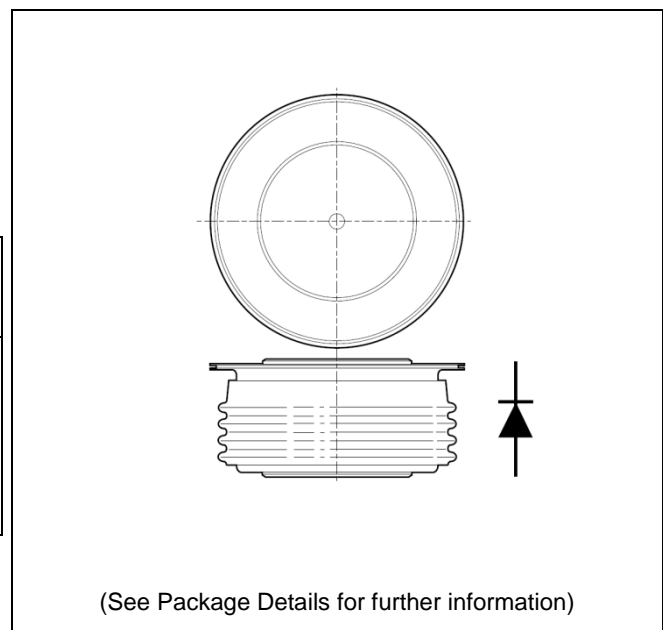


Fig. 1 Package outline

ORDERING INFORMATION

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

For example:

DRD590G85 for a 8500V device

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	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°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, $T_{case} = 150^{\circ}C$	8	kA
I^2t	I^2t for fusing	$V_R = 50\% V_{RRM} - 1/4$ sine	0.32	MA ² s
I_{FSM}	Surge (non-repetitive) on-state current	10ms half sine, $T_{case} = 150^{\circ}C$	10	kA
I^2t	I^2t for fusing	$V_R = 0$	0.5	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	-	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	Double side	-	.008	$^{\circ}C/W$
		(with mounting compound)	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, $T_{case} = 160^{\circ}C$	-	2.95	V
I_{RM}	Peak reverse current	At V_{DRM} , $T_{case} = 160^{\circ}C$	-	100	mA
Q_S	Total stored charge	$I_F = 2000A$, $dI_{RR}/dt = 5A/\mu s$	3300	5000	μC
I_{rr}	Peak reverse recovery current	$T_{case} = 160^{\circ}C$, $V_R = 100V$	140	170	A
V_{TO}	Threshold voltage	At $T_{vj} = 160^{\circ}C$	-	1.0	V
r_T	Slope resistance	At $T_{vj} = 160^{\circ}C$	-	1.575	$m\Omega$

CURVES

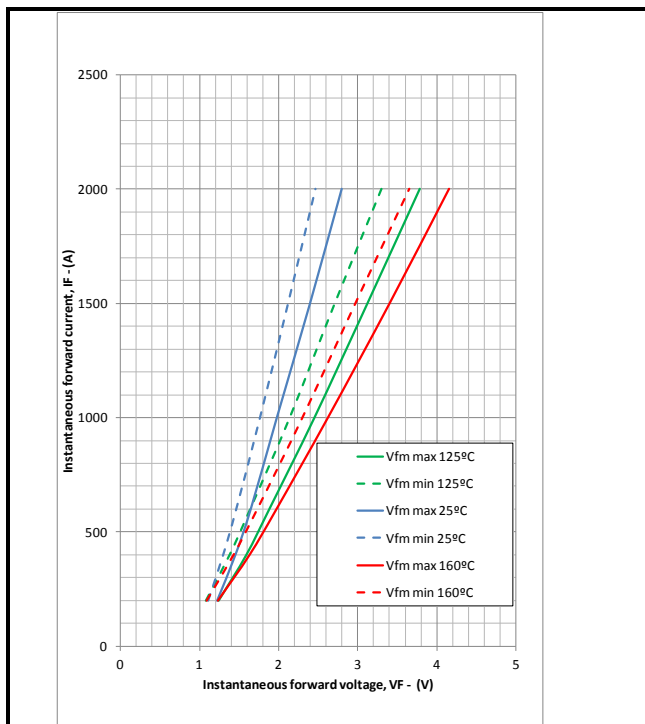


Fig.2 Maximum & minimum on-state characteristics

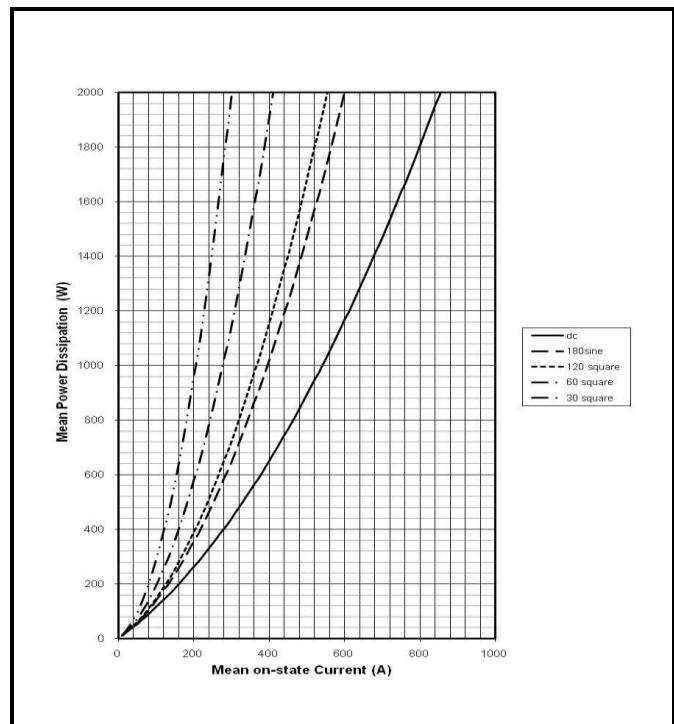


Fig.3 Dissipation curves

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 $T_j = 160^{\circ}C$ for I_F 200A to 2000A

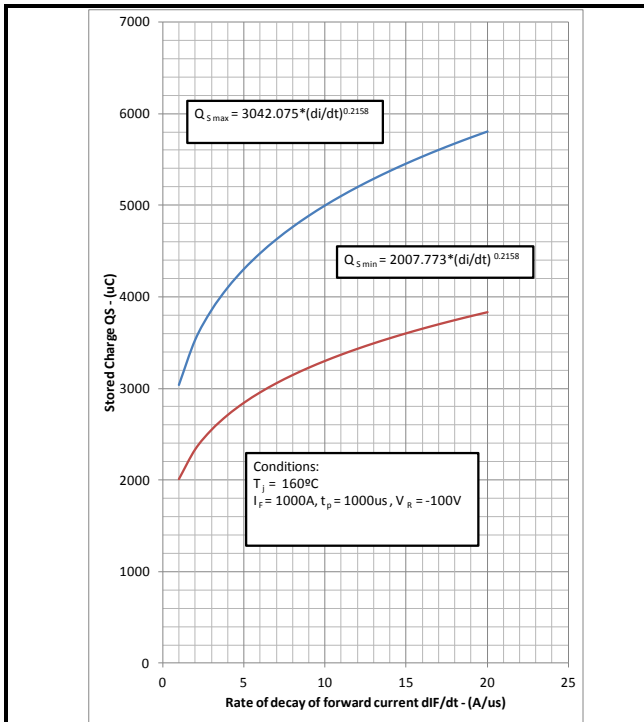


Fig.4 Total stored charge

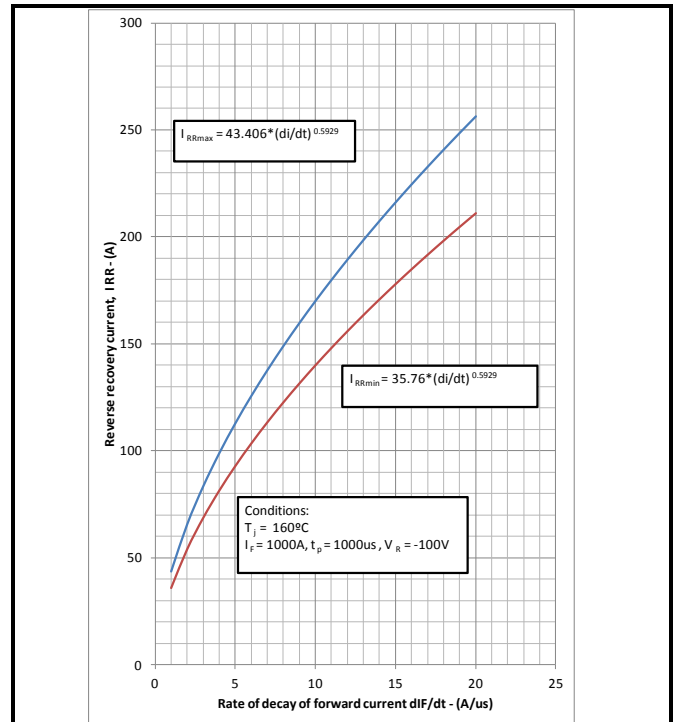


Fig.5 Maximum reverse recovery current

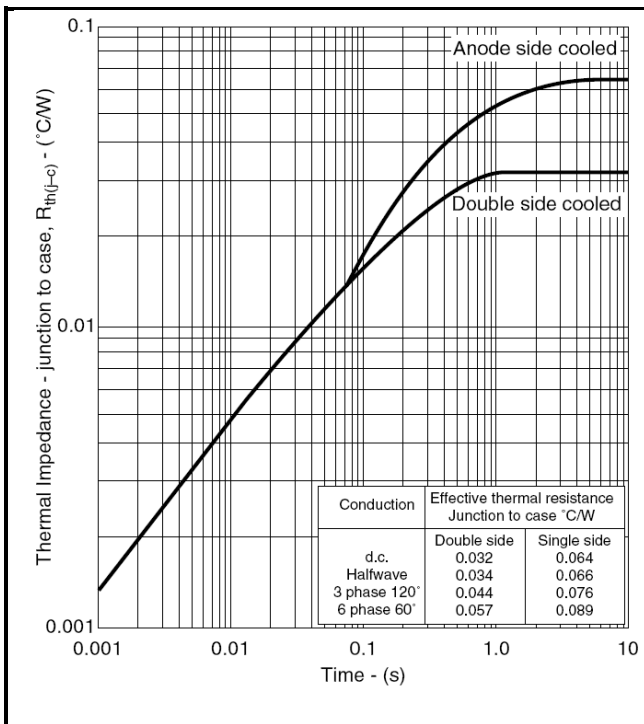
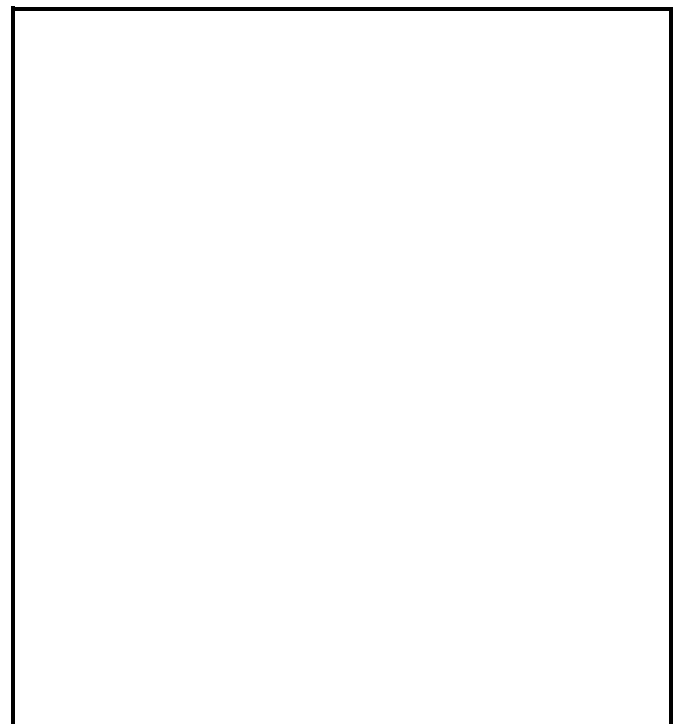
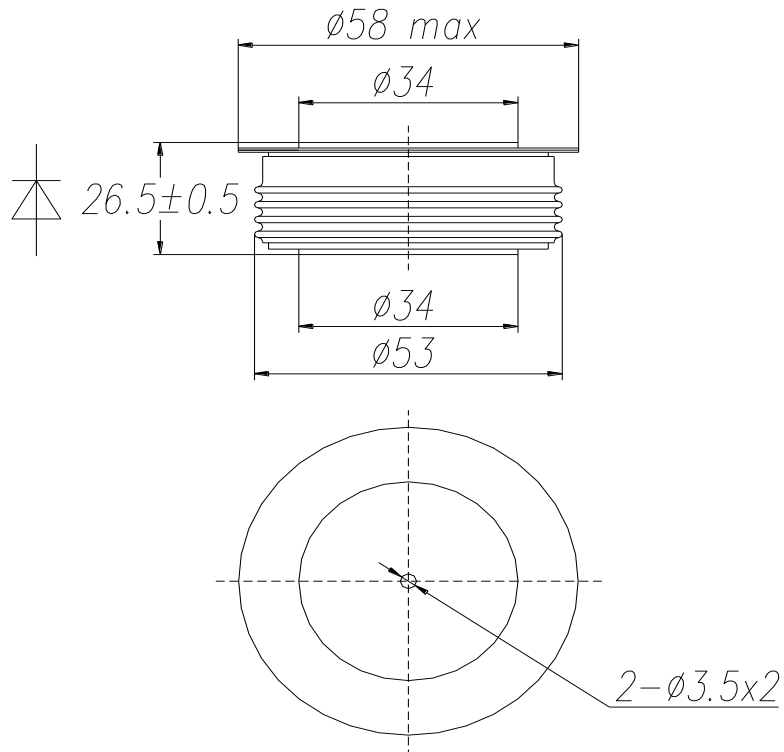


Fig.6 Maximum (limit) transient thermal impedance-junction to case



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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