DRD560G90

Rectifier Diode

Replaces DS6066-5 DS6066-6 August 2022 (LN41981)

FEATURES

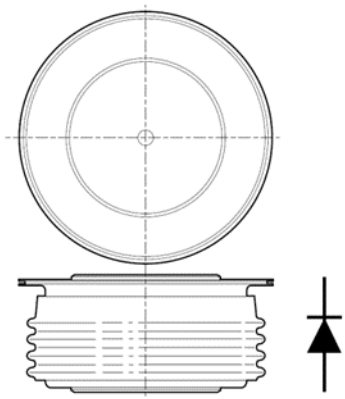
- Double Side Cooling
- High Surge Capability

KEY PARAMETERS

V_{RRM}	**9000V**
$I_{F(AV)}$	**530A**
I_{FSM}	**7650A**

VOLTAGE RATINGS

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



Outline type code: G

(See Package Details for further information)

Fig. 1 Package outline

ORDERING INFORMATION

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

For example:

DRD560G85 for an 8500V 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	660	A
$I_{F(RMS)}$	RMS value	-	1040	A
I_F	Continuous (direct) forward current	-	1010	A
Single Side Cooled				
$I_{F(AV)}$	Mean forward current	Half wave resistive load	450	A
$I_{F(RMS)}$	RMS value	-	710	A
I_F	Continuous (direct) forward current	-	650	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	530	A
$I_{F(RMS)}$	RMS value	-	830	A
I_F	Continuous (direct) forward current	-	810	A
Single Side Cooled				
$I_{F(AV)}$	Mean forward current	Half wave resistive load	360	A
$I_{F(RMS)}$	RMS value	-	570	A
I_F	Continuous (direct) forward current	-	510	A

SURGE RATINGS

Symbol	Parameter	Test Conditions	Max.	Units
I_{FSM}	Surge (non-repetitive) forward current	10ms half sine, T_{case} = 150°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	-	32.0	°C/kW
		Single side cooled	Anode DC	-	64.0	°C/kW
			Cathode DC	-	64.0	°C/kW
$R_{th(c-h)}$	Thermal resistance - case to heatsink	Clamping force 12kN (with mounting compound)	Double side	-	8.0	°C/kW
			Single side	-	16.0	°C/kW
T_{vj}	Virtual junction temperature			-	160	°C
T_{stg}	Storage temperature range			-55	175	°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 = 1000A, dI_{RR}/dt = 5A/µs, T_{case} = 160°C, V_R = 100V	2840	4300	µC
I_{RR}	Peak reverse recovery current		90	115	A
V_{TO}	Threshold voltage	T_{vj} = 160°C	-	1.02	V
r_T	Slope resistance	T_{vj} = 160°C	-	1.57	mΩ

CURVES

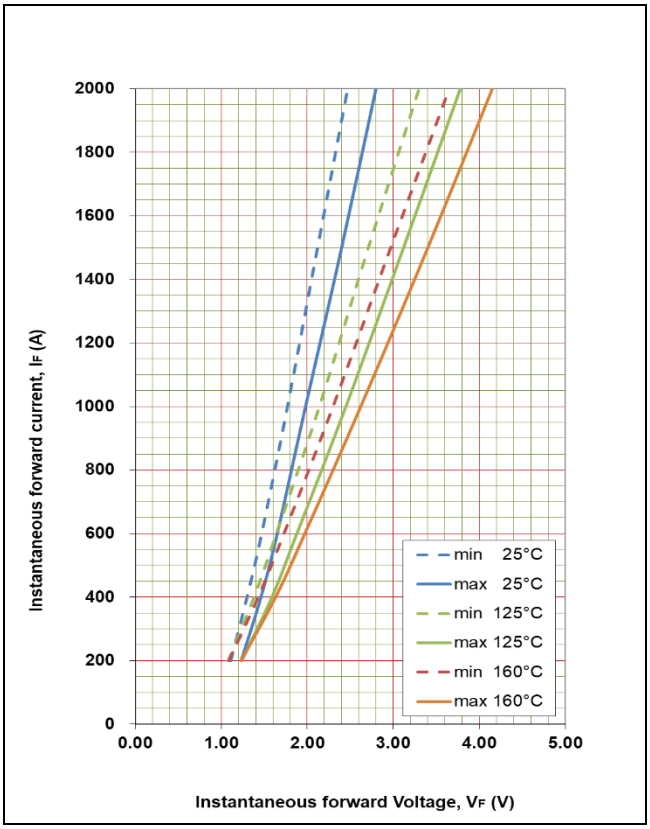


Fig. 2 Maximum & minimum on-state characteristics

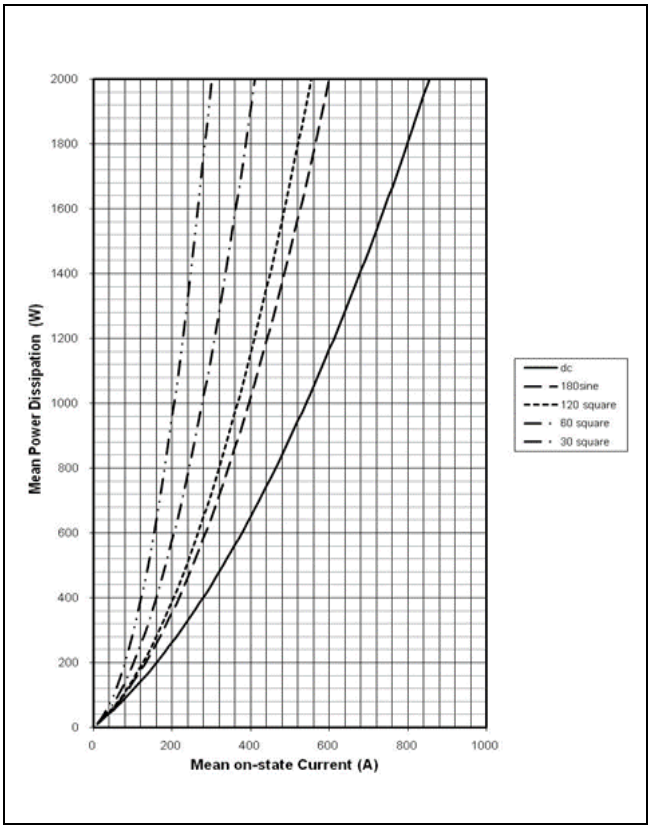


Fig. 3 Dissipation curves

V_{FM} EQUATION

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

Where A = 0.429684
B = 0.061348
C = 0.001280
D = 0.015499

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

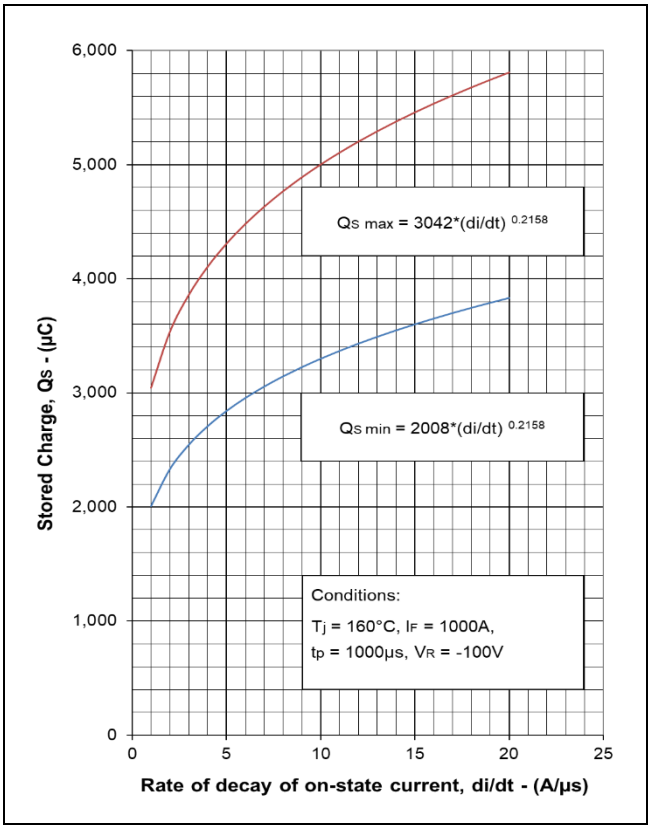


Fig. 4 Stored charge

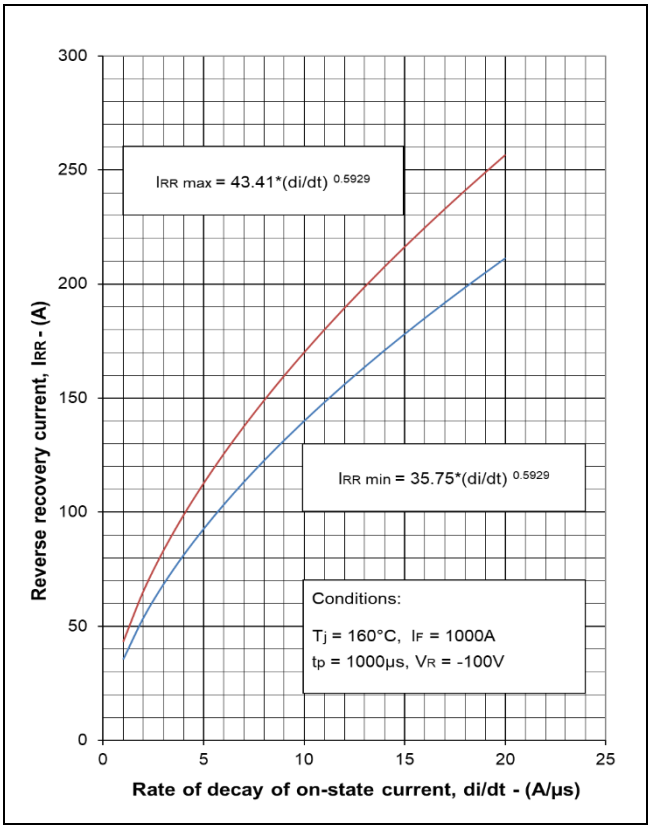


Fig. 5 Reverse recovery current

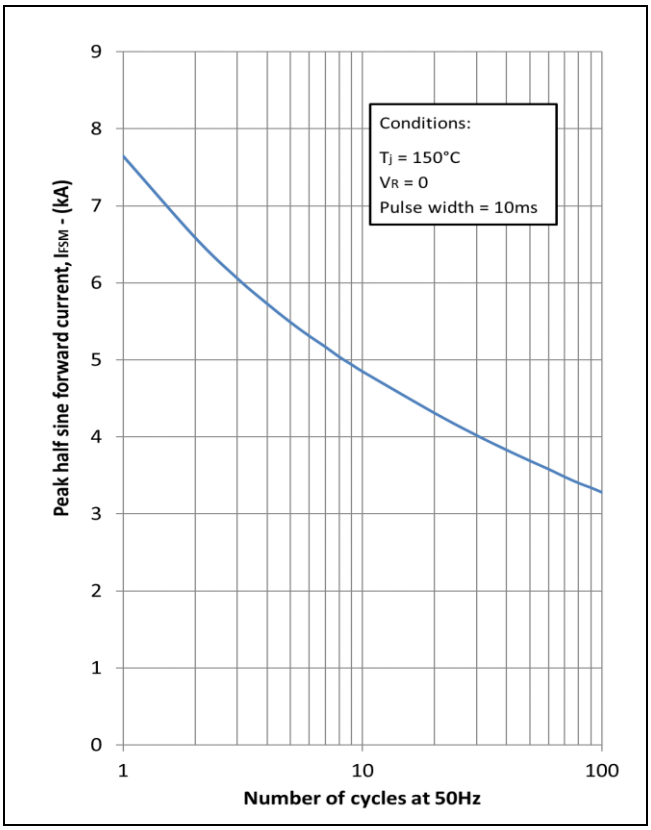


Fig. 6 Surge current vs number of half cycles @ 50Hz

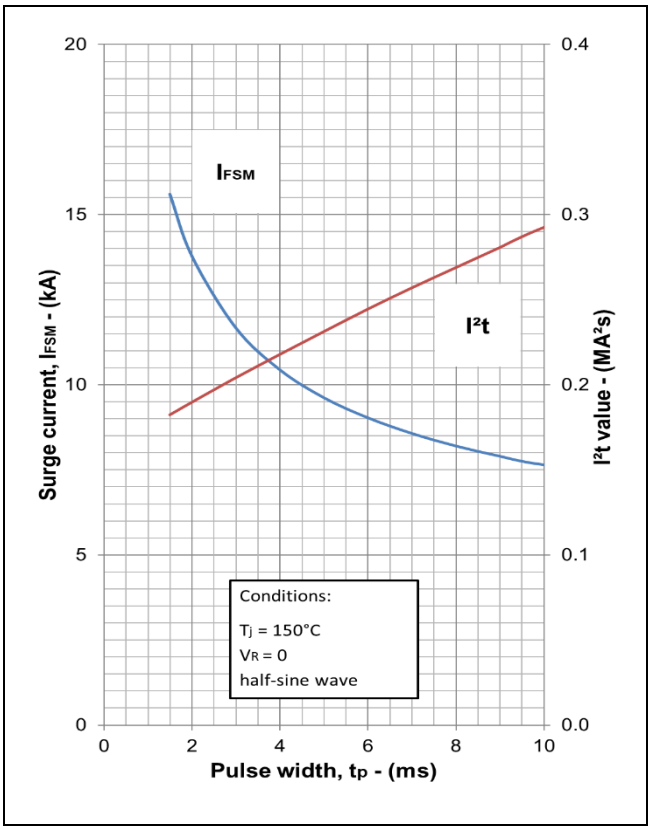


Fig. 7 Surge (non-repetitive) current vs pulse width

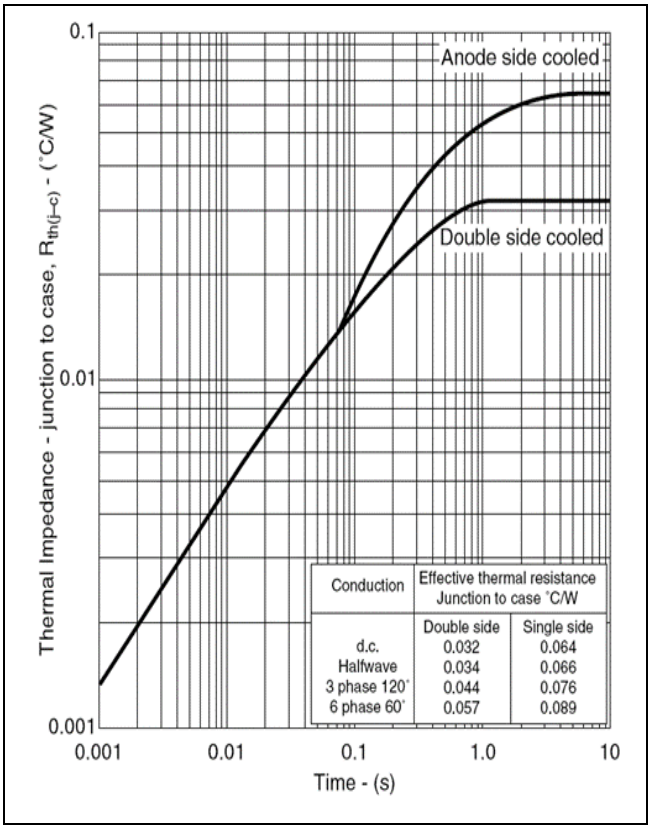


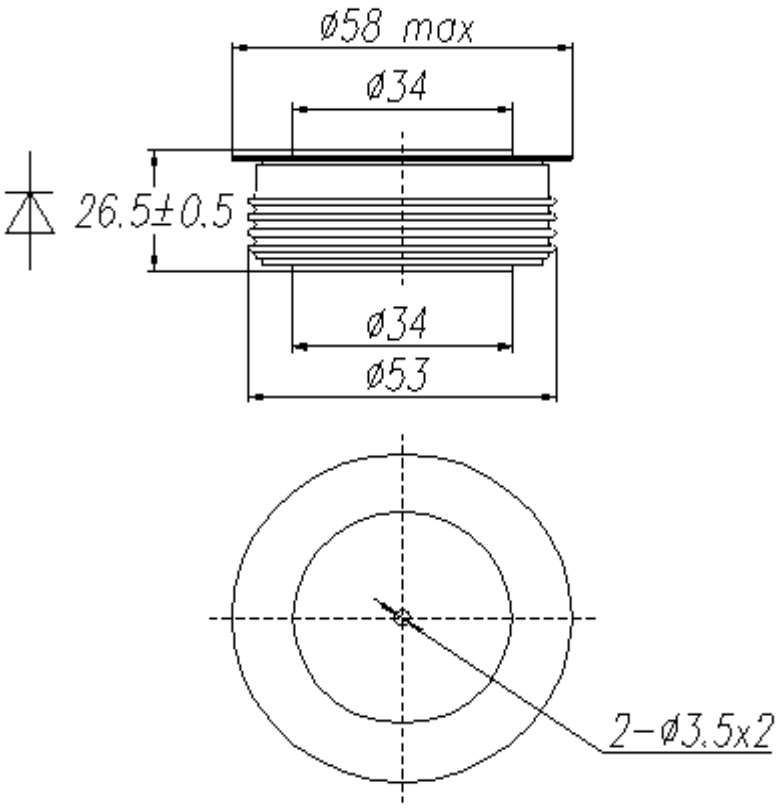
Fig. 8 Maximum (limit) transient thermal impedance - junction to case

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

Fig. 8 Package outline

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