

DRD5940H55

Rectifier Diode



DS6058 – 1 April 2011 (LN28298)

FEATURES

- Double Side Cooling
- High Surge Capability

KEY PARAMETERS

V_{RRM}	5500V
$I_{F(AV)}$	5940A
I_{FSM}	93600A

VOLTAGE RATINGS

Part and Ordering Number	Repetitive Peak Voltages V_{RRM} V	Conditions
DRD5940H55	5500	$V_{RSM} = V_{RRM} + 100V$
DRD5940H52	5200	
DRD5940H50	5000	
DRD5940H48	4800	
DRD5940H46	4600	

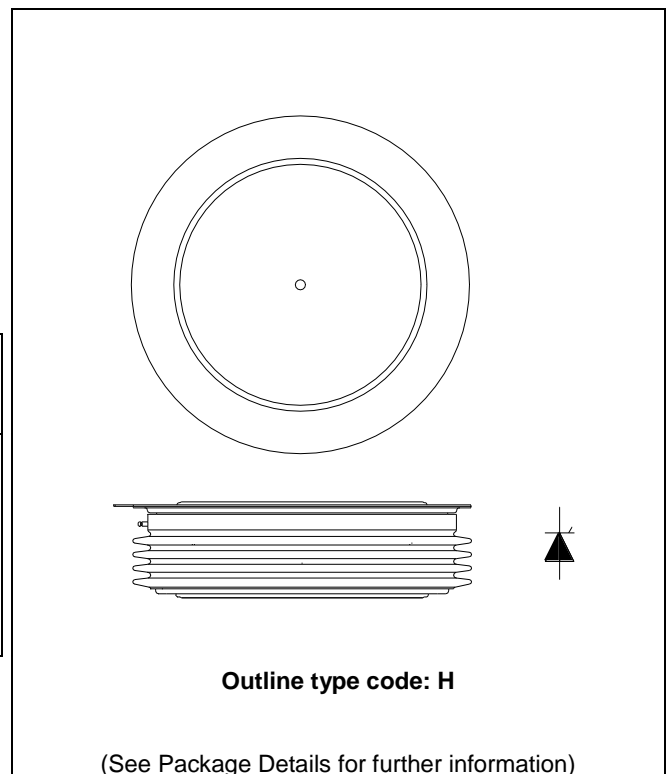


Fig. 1 Package outline

ORDERING INFORMATION

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

For example:

DRD5940H55 for a 5500V 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	7640	A
$I_{F(RMS)}$	RMS value	-	11990	A
I_F	Continuous (direct) on-state current	-	10800	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	5940	A
$I_{F(RMS)}$	RMS value	-	9330	A
I_F	Continuous (direct) on-state current	-	8400	A

SURGE RATINGS

Symbol	Parameter	Test Conditions	Max.	Units
I_{FSM}	Surge (non-repetitive) on-state current	10ms half sine, $T_{case} = 150^{\circ}C$	93.6	kA
I^2t	I^2t for fusing	$V_R = 0$	43.81	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	-	0.004	°C/W
$R_{th(c-h)}$	Thermal resistance – case to heatsink	Double side cooled	DC	-	0.0008	°C/W
T_{vj}	Virtual junction temperature	Blocking V_{DRM} / V_{RRM}		-40	150	°C
T_{stg}	Storage temperature range			-40	160	°C
F_m	Clamping force			110	130	kN

CHARACTERISTICS

Symbol	Parameter	Test Conditions	Min.	Max.	Units
V_{FM}	Forward voltage	At 6000A peak, $T_{case} = 150^{\circ}C$	-	1.26	V
I_{RM}	Peak reverse current	At V_{DRM} , $T_{case} = 150^{\circ}C$	-	600	mA
Q_S	Total stored charge	$I_F = 4000A$, $di_{RR}/dt = 10A/\mu s$ $T_{case} = 150^{\circ}C$, $V_R = 100V$	-	9000	μC
V_{TO}	Threshold voltage	At $T_{vj} = 150^{\circ}C$	-	0.80	V
r_T	Slope resistance	At $T_{vj} = 150^{\circ}C$	-	0.076	$m\Omega$

CURVES

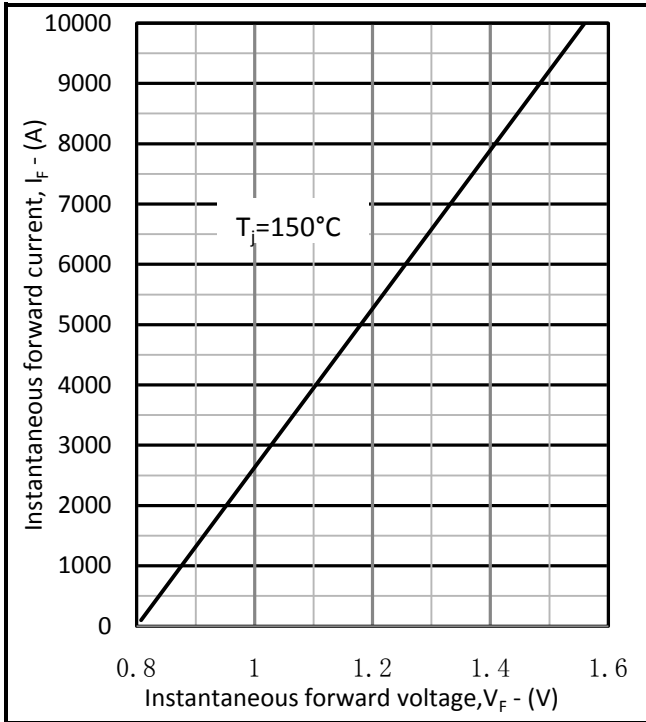


Fig.2 Maximum forward characteristics

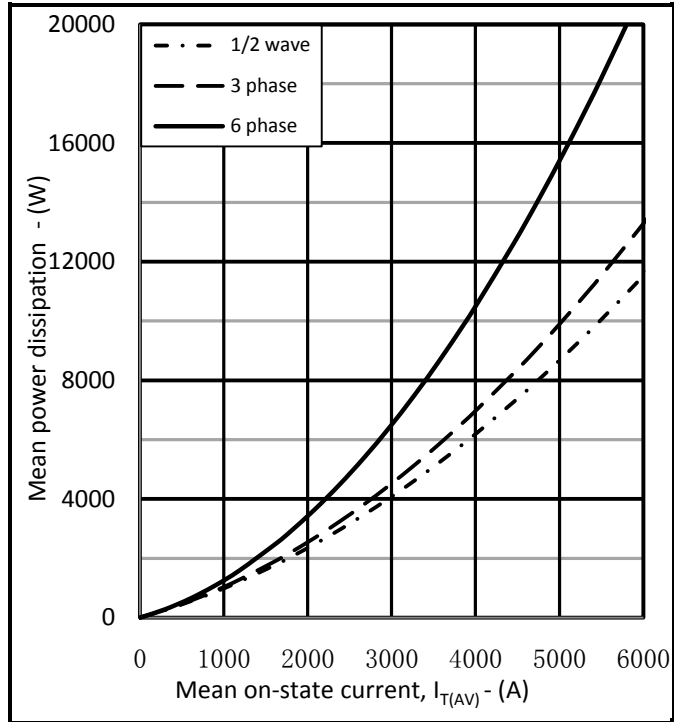


Fig.3 Dissipation curves

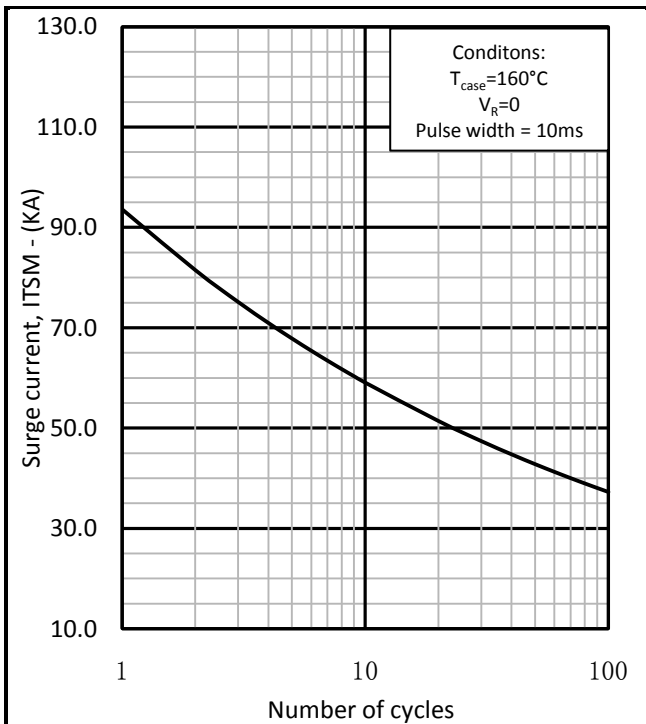


Fig.4 Surge (Non-Repetitive) Forward current vs time

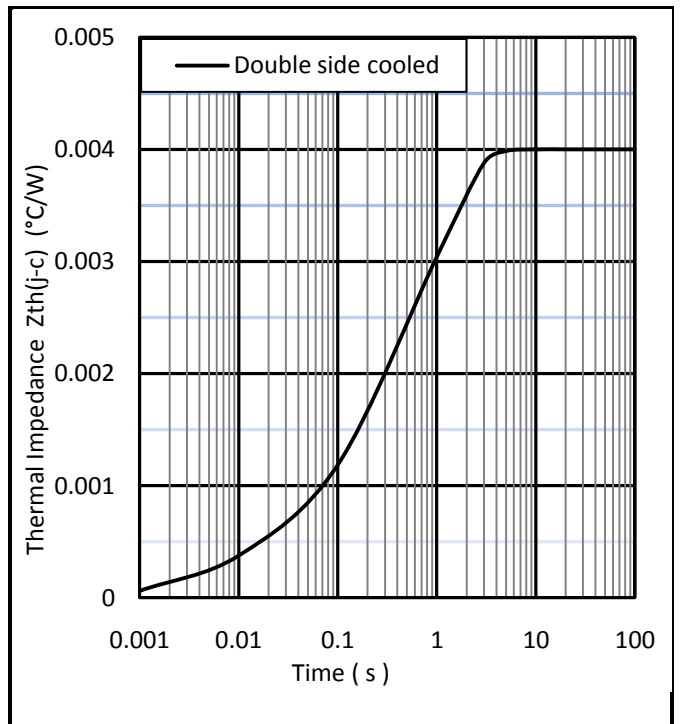
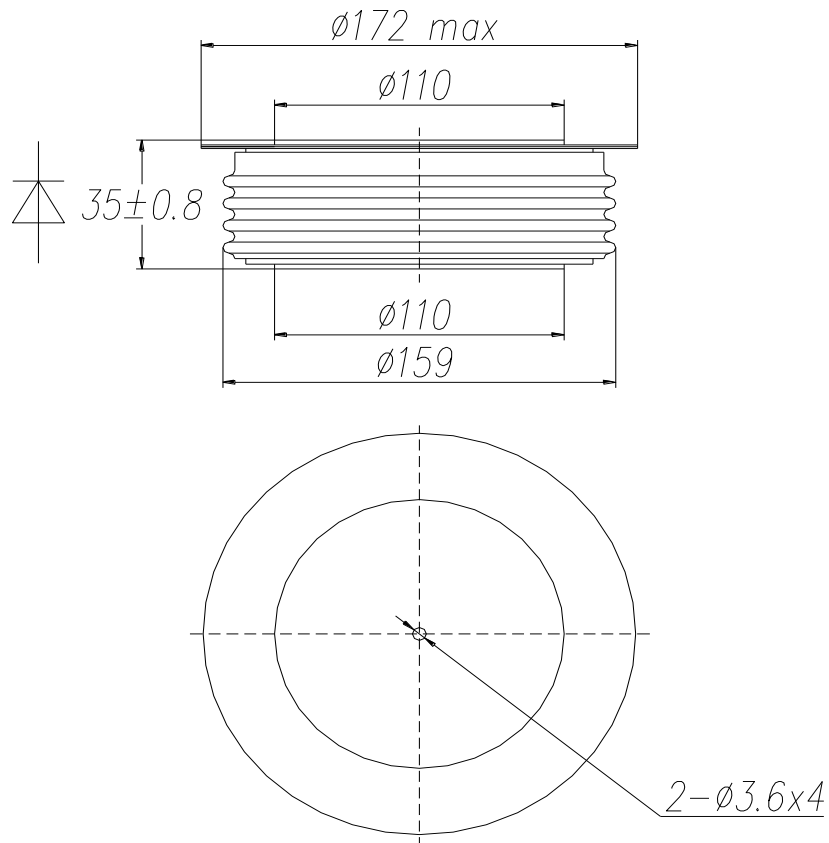


Fig.5 Maximum (limit) transient thermal impedance-junction to case

PACKAGE DETAILS

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



Package outline type code: H

Note:

Some packages may be supplied with gate and or tags.

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