DRD6380W22

Rectifier Diode

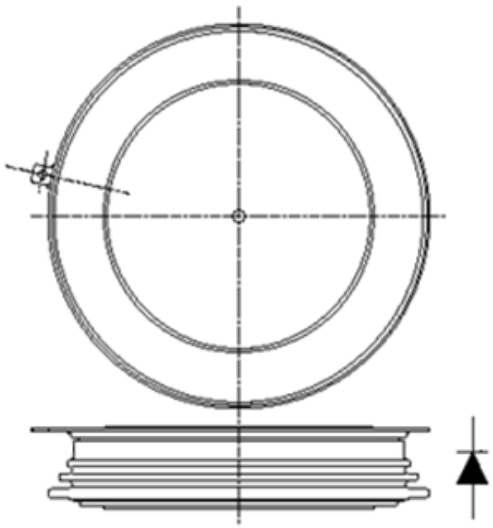
DS6004-1 March 2011 (LN28191)

FEATURES

- Double Side Cooling
- High Surge Capability

KEY PARAMETERS

V_{RRM}	**2200V**
$I_{F(AV)}$	**6380A**
I_{FSM}	**78000A**



(See Package Details for further information)

Fig. 1 Package outline

VOLTAGE RATINGS

Part and Ordering Number	Repetitive Peak Voltages V_{RRM} V	Conditions
DRD6380W22 DRD6380W20 DRD6380W18 DRD6380W16	2200 2000 1800 1600	$V_{RSM} = V_{RRM}+100V$

ORDERING INFORMATION

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

For example:

DRD6380W22 for a 2200V 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	7740	A
$I_{F(RMS)}$	RMS value	-	12150	A
I_F	Continuous (direct) on-state current	-	10940	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	6380	A
$I_{F(RMS)}$	RMS value	-	10020	A
I_F	Continuous (direct) on-state current	-	9020	A

SURGE RATINGS

Symbol	Parameter	Test Conditions	Max.	Units
I_{FSM}	Surge (non-repetitive) on-state current	10ms half sine, T_{case} = 175°C	78.0	kA
I^2t	I^2t for fusing	V_R = 0	30.42	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	-	0.007	°C/W
$R_{th(c-h)}$	Thermal resistance – case to heatsink	Double side cooled	DC	-	0.002	°C/W
T_{vj}	Virtual junction temperature	Blocking V_{DRM} / $_{VRRM}$		-40	175	°C
T_{stg}	Storage temperature range			-40	175	°C
F_m	Clamping force			62	78	kN

CHARACTERISTICS

Symbol	Parameter	Test Conditions	Min.	Max.	Units
V_{FM}	Forward voltage	At 6000A peak, T_{case} = 175°C	-	1.09	V
I_{RM}	Peak reverse current	At $V_{DRM,}$ T_{case} = 175°C	-	400	mA
Q_S	Total stored charge	I_F = 4000A, dI_{RR}/dt =10A/µs T_{case} = 175°C, V_R =100V	-	5500	µC
V_{TO}	Threshold voltage	At T_{vj} = 175°C	-	0.82	V
r_T	Slope resistance	At T_{vj} = 175°C	-	0.045	mΩ

CURVES

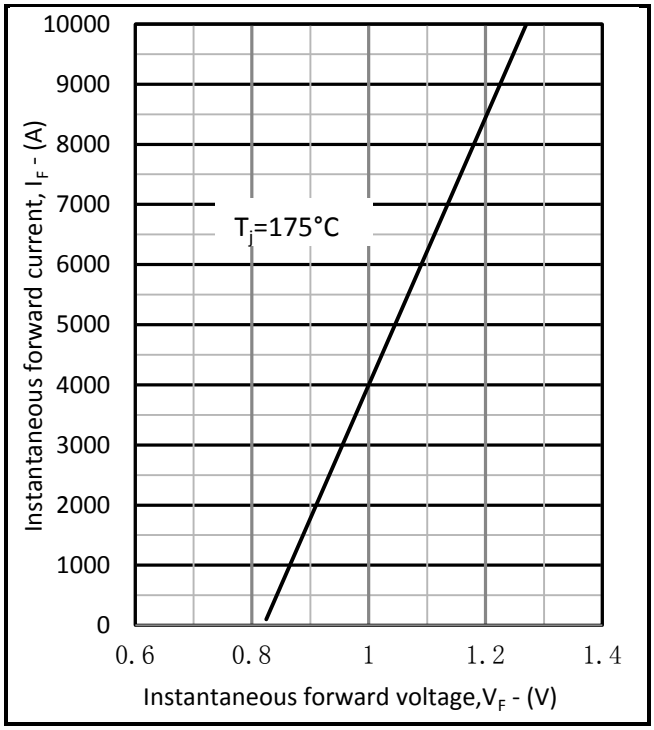


Fig.2 Maximum forward characteristics

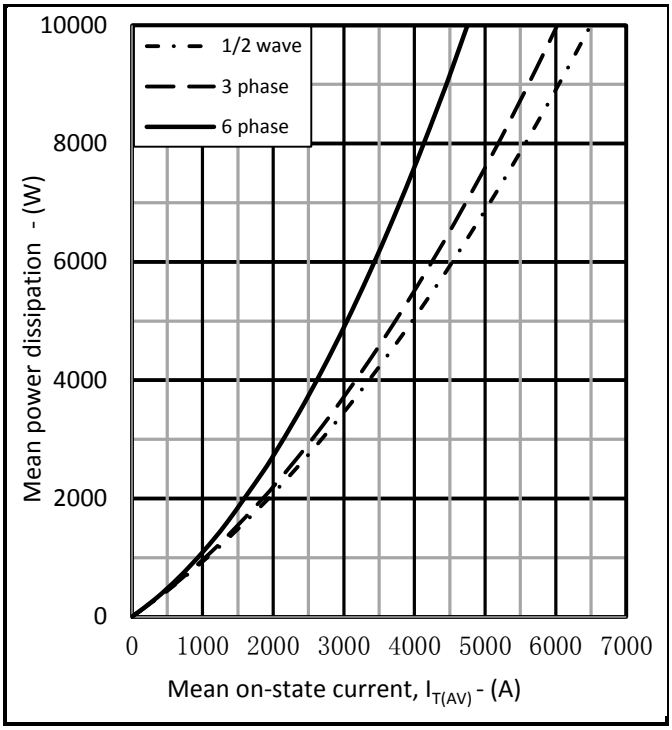


Fig.3 Dissipation curves

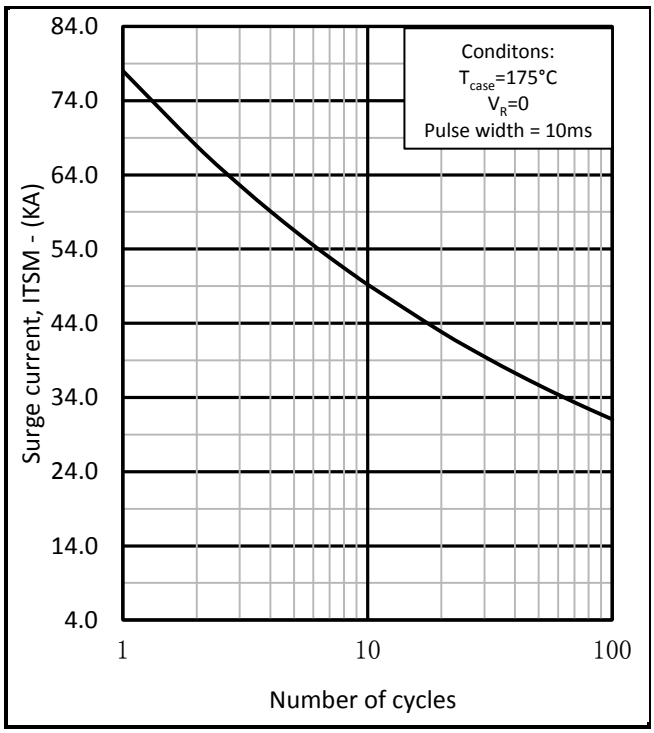


Fig.4 Surge (Non-Repetitive) Forward current vs time

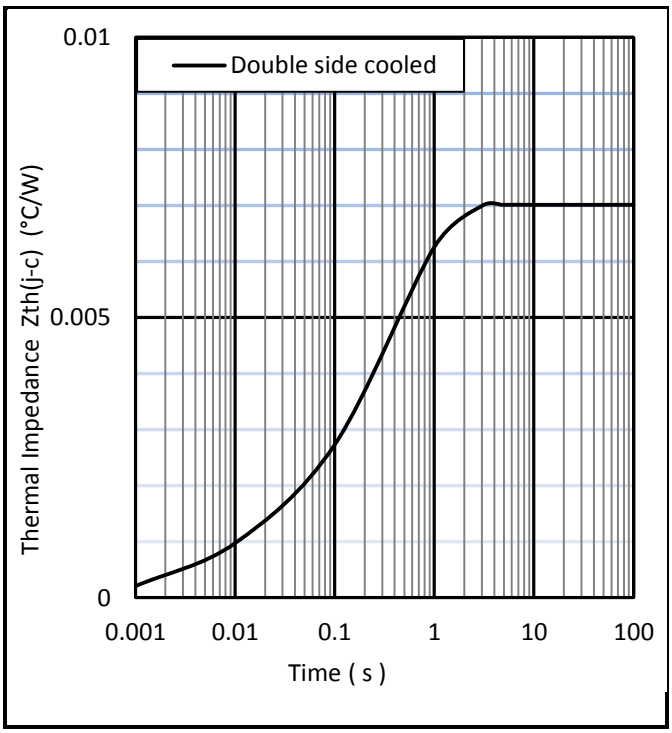
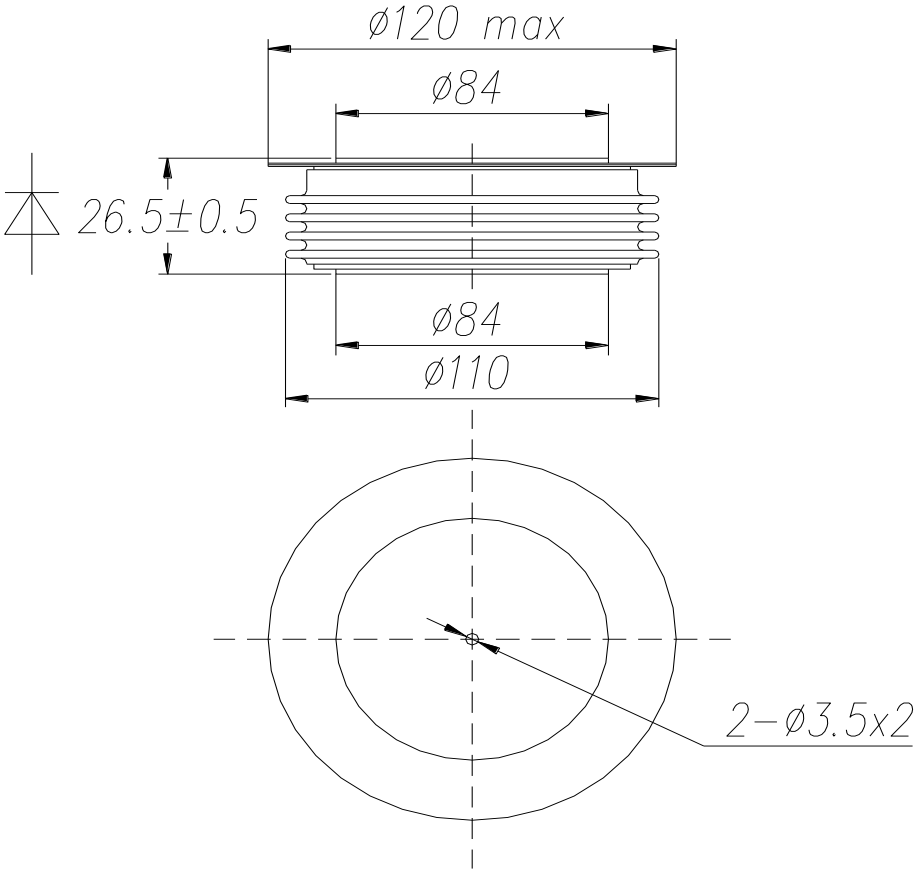


Fig.5 Maximum (limit) transient thermal impedance-junction to case

PACKAGE DETAILS

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



Package outline type code: W

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
Fax: +44 (0) 1522 500020
e-mail: power_solutions@dynexsemi.com