

DRD1830F34

Rectifier Diode



DS6009 – 2 May 2011 (LN28437)

FEATURES

- Double Side Cooling
- High Surge Capability

KEY PARAMETERS

V_{RRM}	3400V
$I_{F(AV)}$	1830A
I_{FSM}	23000A

VOLTAGE RATINGS

Part and Ordering Number	Repetitive Peak Voltages V_{RRM} V	Conditions
DRD1830F34	3400	$V_{RSM} = V_{RRM} + 100V$
DRD1830F32	3200	
DRD1830F30	3000	
DRD1830F28	2800	
DRD1830F26	2600	
DRD1830F24	2400	

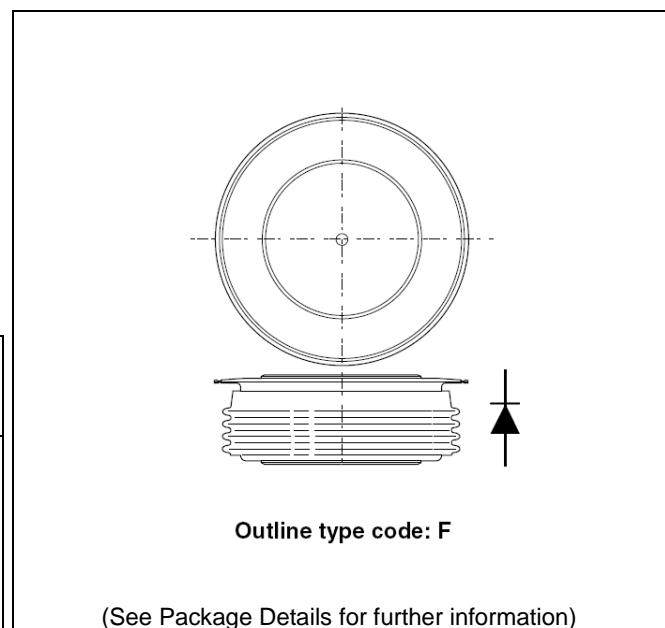


Fig. 1 Package outline

ORDERING INFORMATION

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

For example:

DRD1830F34 for a 3400V device

CURRENT RATINGS

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

Symbol	Parameter	Test Conditions	Max.	Units
Double Side Cooled				
$I_{F(AV)}$	Mean forward current	Half wave resistive load	2210	A
$I_{F(RMS)}$	RMS value	-	3470	A
I_F	Continuous (direct) on-state current	-	3120	A

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

Symbol	Parameter	Test Conditions	Max.	Units
Double Side Cooled				
$I_{F(AV)}$	Mean forward current	Half wave resistive load	1830	A
$I_{F(RMS)}$	RMS value	-	2870	A
I_F	Continuous (direct) on-state current	-	2590	A

SURGE RATINGS

Symbol	Parameter	Test Conditions	Max.	Units
I_{FSM}	Surge (non-repetitive) on-state current	10ms half sine, $T_{case} = 175^{\circ}\text{C}$	23.0	kA
I^2t	I^2t for fusing	$V_R = 0$	2.65	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	-	0.02	°C/W
$R_{th(c-h)}$	Thermal resistance – case to heatsink	Double side cooled	DC	-	0.005	°C/W
T_{vj}	Virtual junction temperature	Blocking V_{DRM} / V_{RRM}		-40	175	°C
T_{stg}	Storage temperature range			-40	175	°C
F_m	Clamping force			18	26	kN

CHARACTERISTICS

Symbol	Parameter	Test Conditions	Min.	Max.	Units
V_{FM}	Forward voltage	At 1500A peak, $T_{case} = 25^{\circ}C$	-	1.35	V
I_{RM}	Peak reverse current	At V_{DRM} , $T_{case} = 175^{\circ}C$	-	150	mA
Q_S	Total stored charge	$I_F = 2000A$, $di_{RR}/dt = 10A/\mu s$ $T_{case} = 175^{\circ}C$, $V_R = 100V$	-	4500	μC
V_{TO}	Threshold voltage	At $T_{vj} = 175^{\circ}C$	-	0.88	V
r_T	Slope resistance	At $T_{vj} = 175^{\circ}C$	-	0.20	$m\Omega$

CURVES

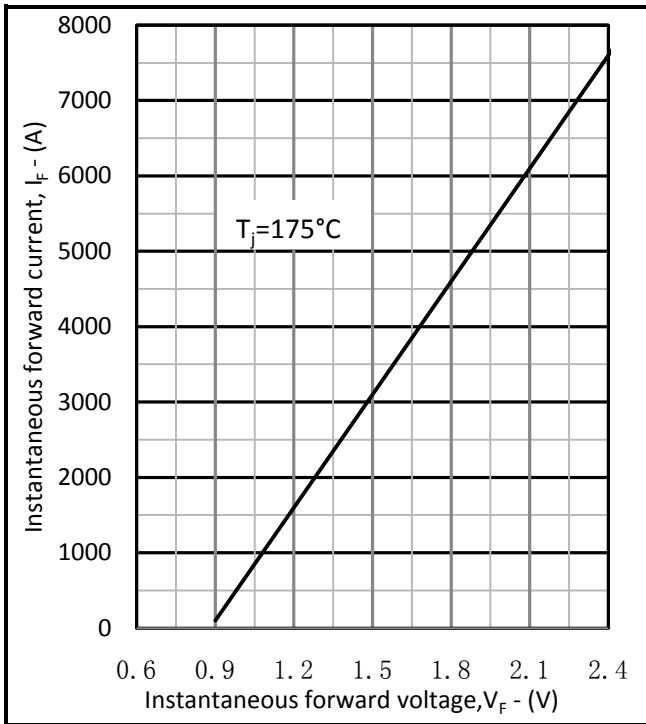


Fig.2 Maximum forward characteristics

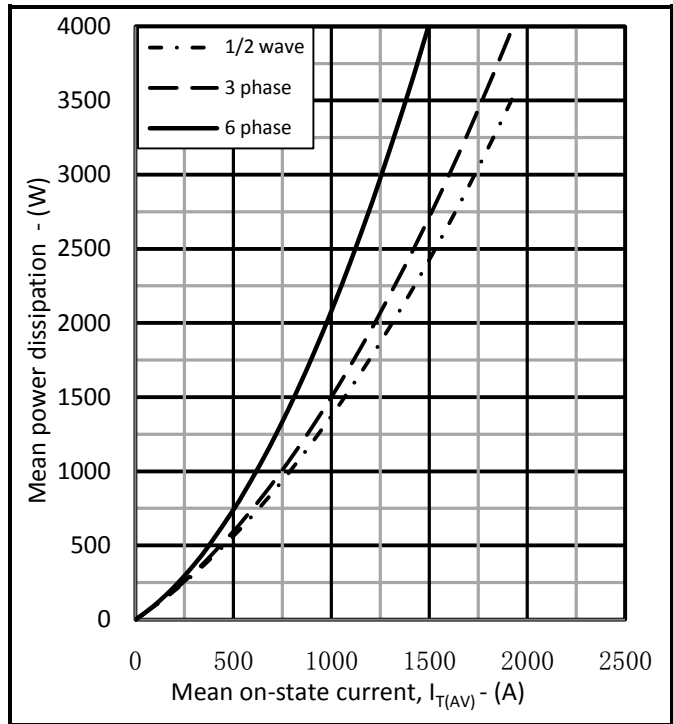


Fig.3 Dissipation curves

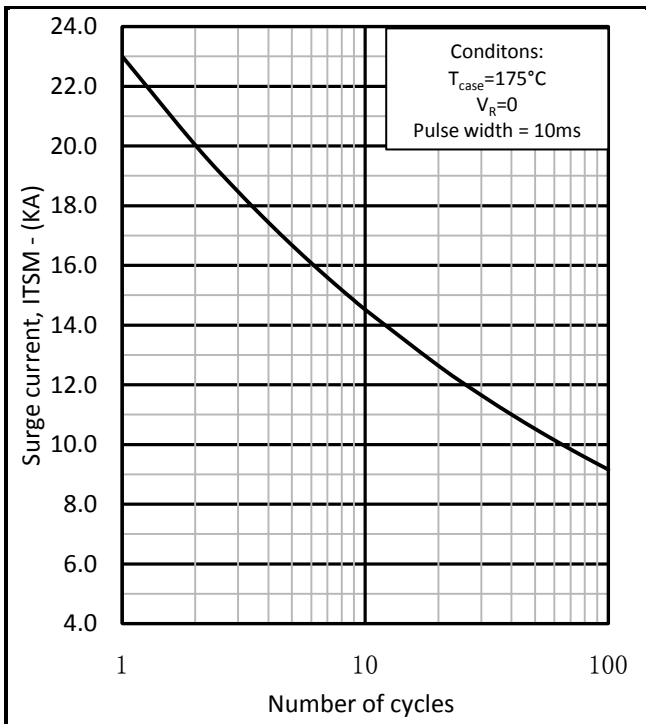


Fig.4 Surge (Non-Repetitive) Forward current vs time

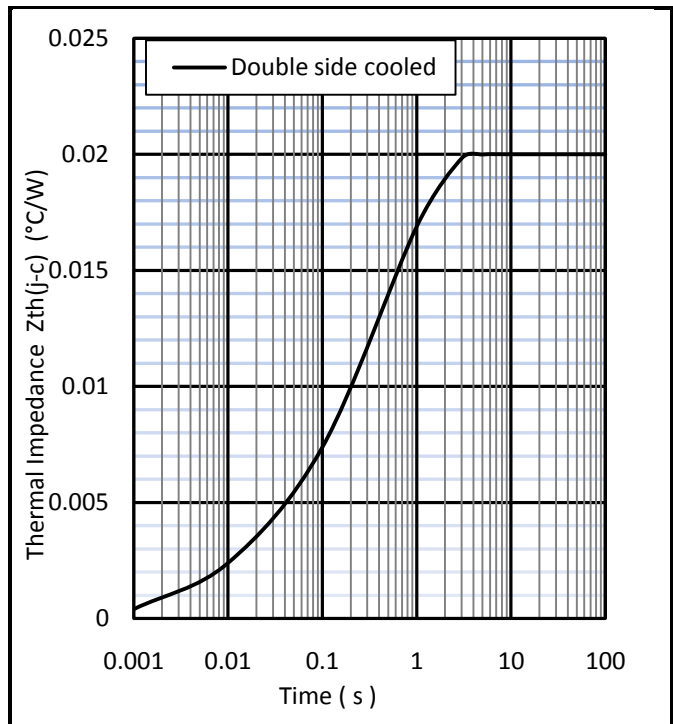
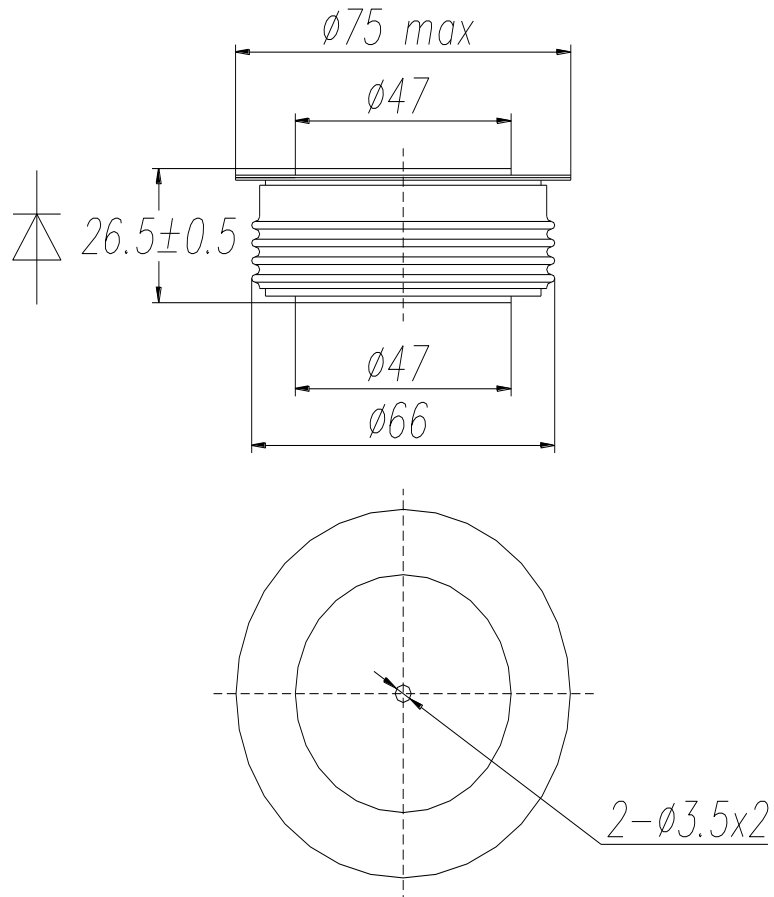


Fig.5 Maximum (limit) transient thermal impedance- junction to case

PACKAGE DETAILS

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



Package outline type code: F

Note:

Some packages may be supplied with gate and or tags.

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