

FEATURES

- Double Side Cooling
- High Surge Capability

KEY PARAMETERS

V_{RRM}	2800V
$I_{F(AV)}$	2372A
I_{FSM}	31250A

VOLTAGE RATINGS

Part and Ordering Number	Repetitive Peak Voltages V_{RRM} V	Conditions
DRD1960F28 DRD1960F26 DRD1960F24	2800 2600 2400	$V_{RSM} = V_{RRM} + 100V$

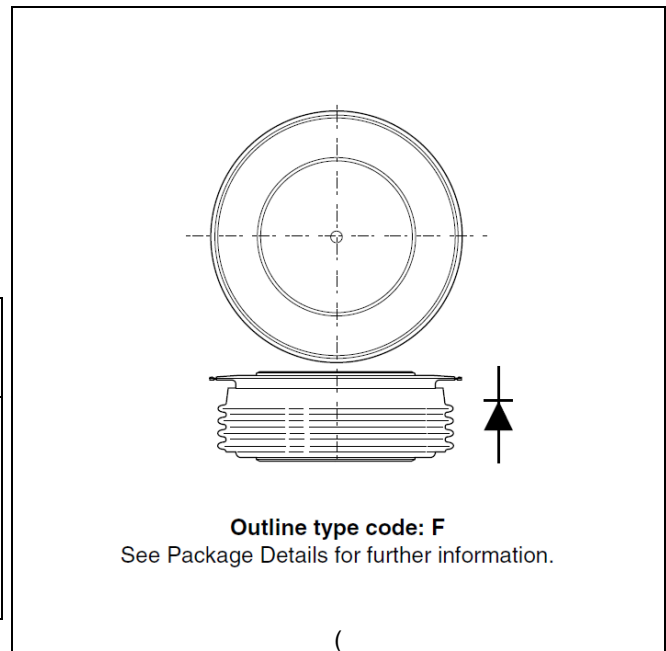


Fig. 1 Package outline

ORDERING INFORMATION

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

For example:

DRD1960F24 for a 2400V 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	2372	A
I _{F(RMS)}	RMS value	-	3726	A
I _F	Continuous (direct) on-state current	-	3352	A
Single Side Cooled (Anode side)				
I _{F(AV)}	Mean forward current	Half wave resistive load	1684	A
I _{F(RMS)}	RMS value	-	2645	A
I _F	Continuous (direct) on-state current	-	2235	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	1960	A
I _{F(RMS)}	RMS value	-	3077	A
I _F	Continuous (direct) on-state current	-	2750	A
Single Side Cooled (Anode side)				
I _{F(AV)}	Mean forward current	Half wave resistive load	1300	A
I _{F(RMS)}	RMS value	-	2040	A
I _F	Continuous (direct) on-state current	-	1600	A

SURGE RATINGS

Symbol	Parameter	Test Conditions	Max.	Units
I_{FSM}	Surge (non-repetitive) on-state current	10ms half sine, $T_{case} = 175^{\circ}C$ $V_R = 50\% V_{RRM} - 1/4$ sine	25.0	kA
I^2t	I^2t for fusing		3.12	MA ² s
I_{FSM}	Surge (non-repetitive) on-state current	10ms half sine, $T_{case} = 175^{\circ}C$ $V_R = 0$	31.25	kA
I^2t	I^2t for fusing		4.88	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	-	0.022	$^{\circ}C/W$
		Single side cooled	Anode DC	-	0.038	$^{\circ}C/W$
			Cathode DC	-	0.052	$^{\circ}C/W$
$R_{th(c-h)}$	Thermal resistance – case to heatsink	Clamping force 43kN (with mounting compound)	Double side	-	0.004	$^{\circ}C/W$
		Single side	-	0.008	$^{\circ}C/W$	
T_{vj}	Virtual junction temperature	On-state (conducting)	-	185	$^{\circ}C$	
		Reverse (blocking)	-	175	$^{\circ}C$	
T_{stg}	Storage temperature range		-55	200	$^{\circ}C$	
F_m	Clamping force		18.0	22.0	kN	

CHARACTERISTICS

Symbol	Parameter	Test Conditions	Min.	Max.	Units
V _{FM}	Forward voltage	At 3400A peak, T _{case} = 25°C	-	1.3	V
I _{RM}	Peak reverse current	At V _{RRM} , T _{case} = 175°C	-	50	mA
Q _S	Total stored charge	I _F = 2000A, dI _{RR} /dt = 3A/μs	-	2500	μC
I _{rr}	Peak reverse recovery current	T _{case} = 175°C, V _R = 100V	-	105	A
V _{TO}	Threshold voltage	At T _{vj} = 175°C	-	0.82	V
r _T	Slope resistance	At T _{vj} = 175°C	-	0.16	mΩ

CURVES

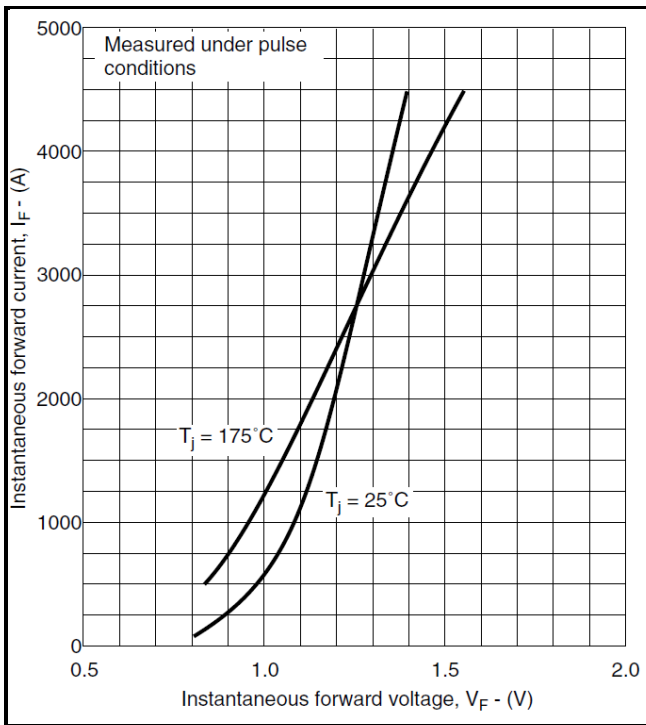


Fig.2 Maximum & minimum on-state characteristics

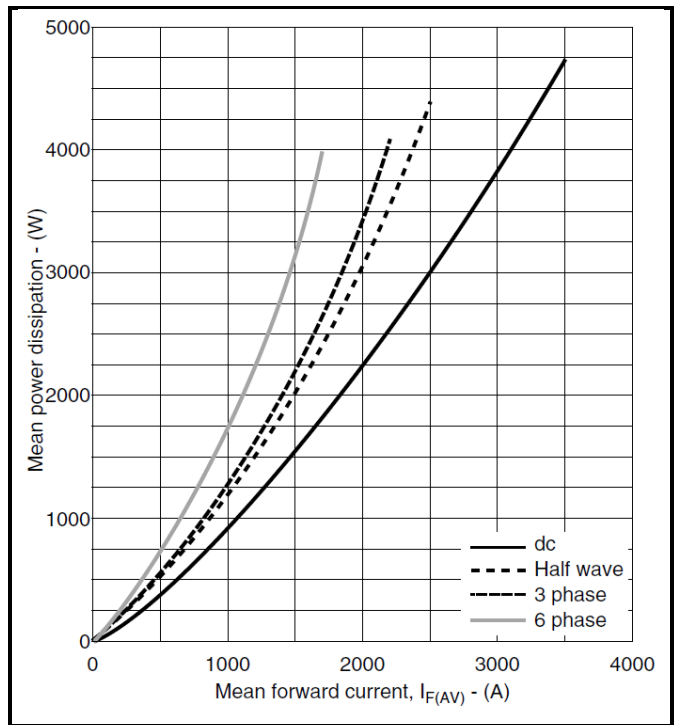


Fig.3 Dissipation curves

V_{TM} EQUATION

$$V_{TM} = A + B \ln(I_T) + C \cdot I_T + D \cdot \sqrt{I_T}$$

Where A = -0.23148
 B = 0.203801
 C = 0.00023
 D = -0.0443

these values are valid for T_j = 175°C for I_F 500A to 8000A

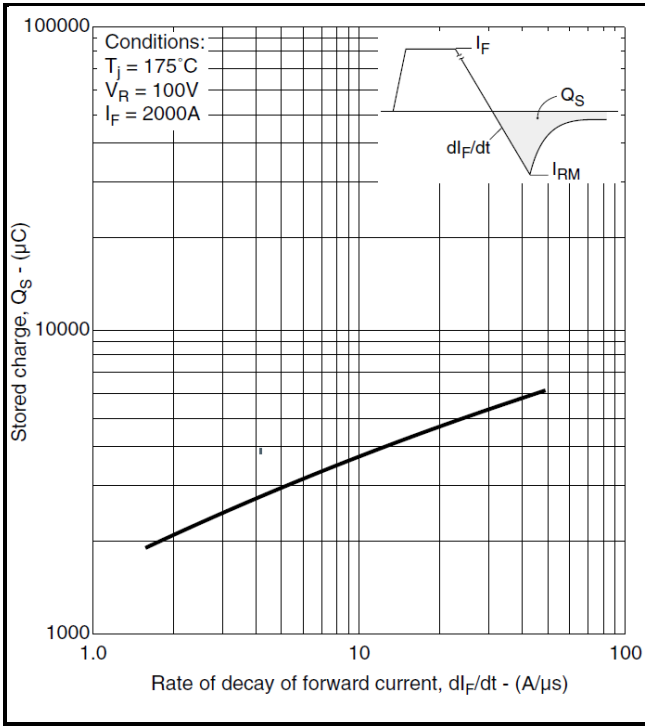


Fig.4 Total stored charge

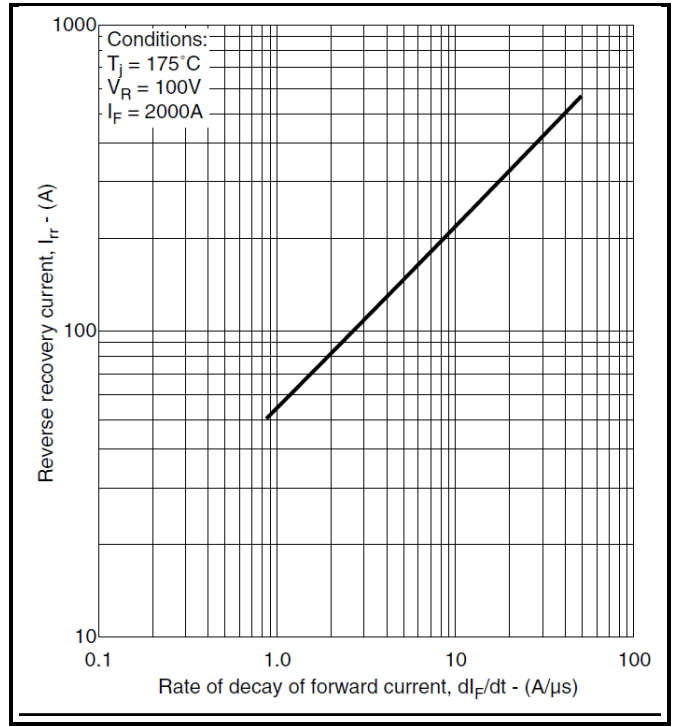


Fig.5 Maximum reverse recovery current

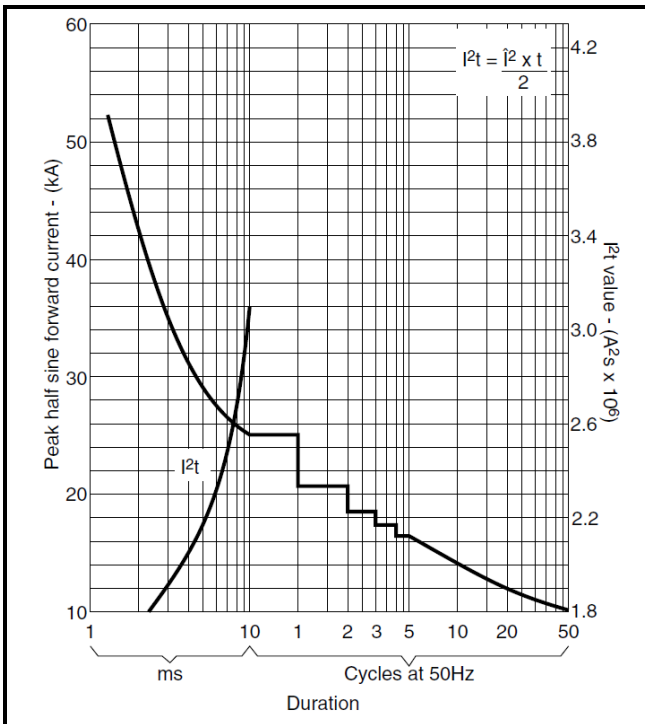


Fig.5 Surge (Non-Repetitive) Forward current vs time

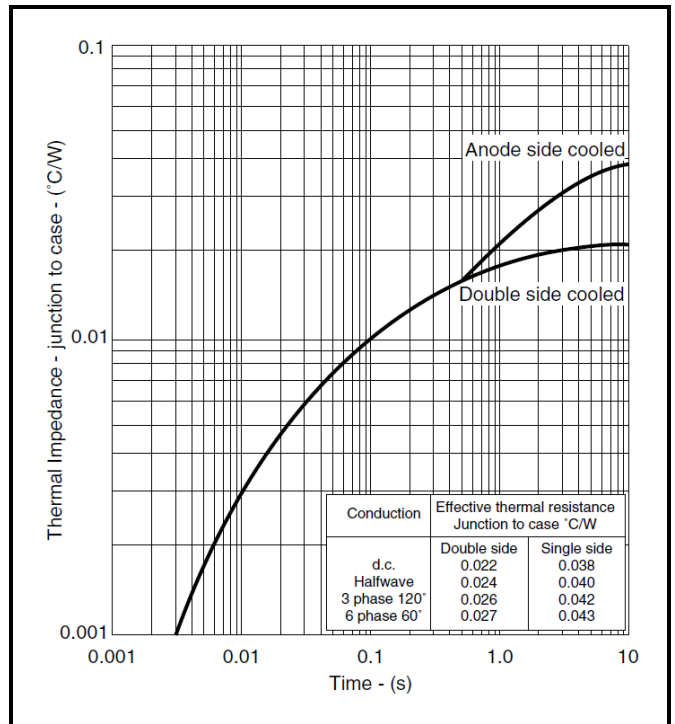
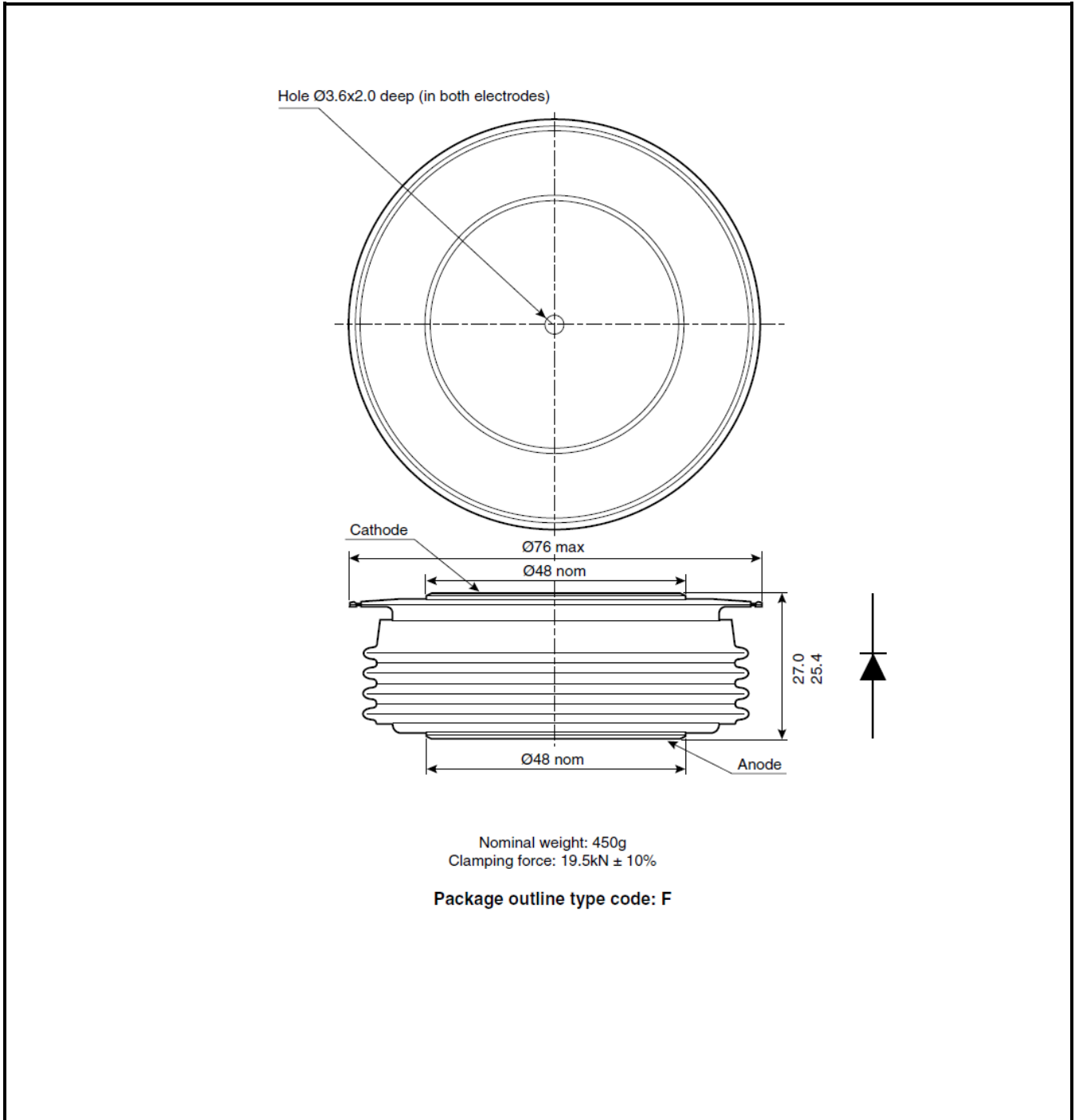


Fig.7 Maximum (limit) transient thermal impedance-junction to case

PACKAGE DETAILS

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



Note:
Some packages may be supplied with gate and or tags.

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