

FEATURES

- Double Side Cooling
- High Surge Capability

KEY PARAMETERS

V_{RRM}	2600V
$I_{F(AV)}$	5788A
I_{FSM}	81kA

VOLTAGE RATINGS

Part and Ordering Number	Repetitive Peak Voltages V_{RRM} V	Conditions
DRD4780Y26	2600	$V_{RSM} = V_{RRM} + 100V$
DRD4780Y24	2400	
DRD4780Y22	1600	

ORDERING INFORMATION

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

For example:

DRD4780Y24 for a 2400V device

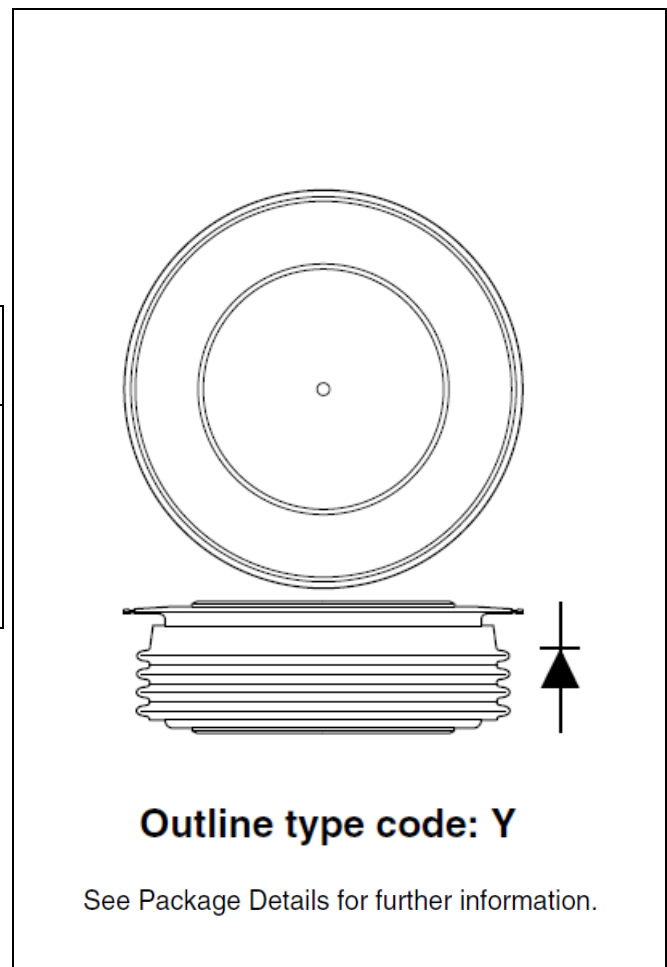


Fig. 1 Package outline

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	5788	A
$I_{F(RMS)}$	RMS value	-	9076	A
I_F	Continuous (direct) on-state current	-	8278	A
Single Side Cooled (Anode side)				
$I_{F(AV)}$	Mean forward current	Half wave resistive load	3751	A
$I_{F(RMS)}$	RMS value	-	5892	A
I_F	Continuous (direct) on-state current	-	4955	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	4784	A
$I_{F(RMS)}$	RMS value	-	7516	A
I_F	Continuous (direct) on-state current	-	6725	A
Single Side Cooled (Anode side)				
$I_{F(AV)}$	Mean forward current	Half wave resistive load	3060	A
$I_{F(RMS)}$	RMS value	-	4807	A
I_F	Continuous (direct) on-state current	-	3950	A

SURGE RATINGS

Symbol	Parameter	Test Conditions	Max.	Units
I_{FSM}	Surge (non-repetitive) on-state current	10ms half sine, $T_{case} = 175^{\circ}C$ $V_R = 50\% V_{RRM} - \frac{1}{4}$ sine	65.0	kA
I^2t	I^2t for fusing		21.1	MA ² s
I_{FSM}	Surge (non-repetitive) on-state current	10ms half sine, $T_{case} = 175^{\circ}C$ $V_R = 0$	81	kA
I^2t	I^2t for fusing		33	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	-	0.0095	°C/W
		Single side cooled	Anode DC	-	0.019	°C/W
			Cathode DC	-	0.019	°C/W
$R_{th(c-h)}$	Thermal resistance – case to heatsink	Clamping force 43kN (with mounting compound)	Double side	-	0.002	°C/W
			Single side	-	0.004	°C/W
T_{vj}	Virtual junction temperature	On-state (conducting)	-	185	°C	
		Reverse (blocking)	-	175	°C	
T_{stg}	Storage temperature range		-55	175	°C	
F_m	Clamping force		38.0	47.0	kN	

CHARACTERISTICS

Symbol	Parameter	Test Conditions	Min.	Max.	Units
V _{FM}	Forward voltage	At 3000A peak, T _{case} = 25°C	-	1.05	V
I _{RM}	Peak reverse current	At V _{RRM} , T _{case} = 175°C	-	150	mA
Q _S	Total stored charge	I _F = 2000A, dI _{RR} /dt = 3A/μs	-	3000	μC
I _{rr}	Peak reverse recovery current	T _{case} = 175°C, V _R = 100V	-	125	A
V _{TO}	Threshold voltage	At T _{vj} = 175°C	-	0.75	V
r _T	Slope resistance	At T _{vj} = 175°C	-	0.063	mΩ

CURVES

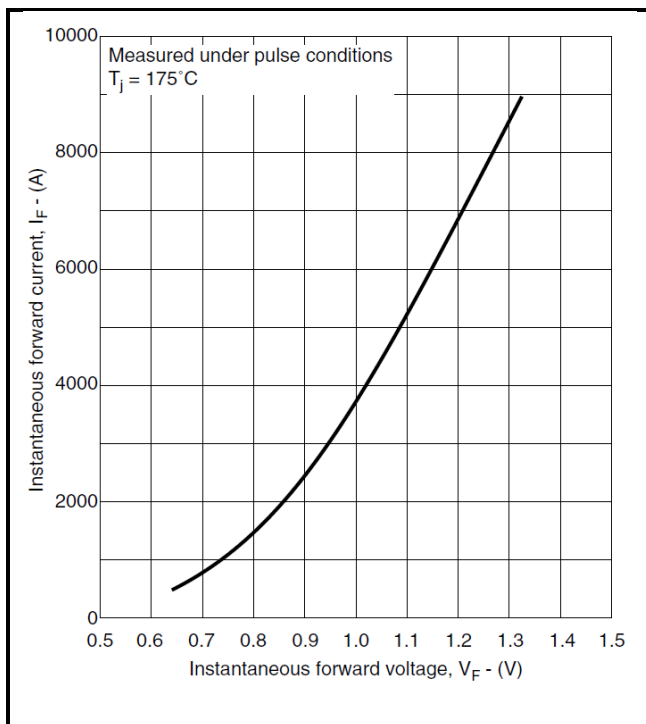


Fig.2 Maximum & minimum on-state characteristics

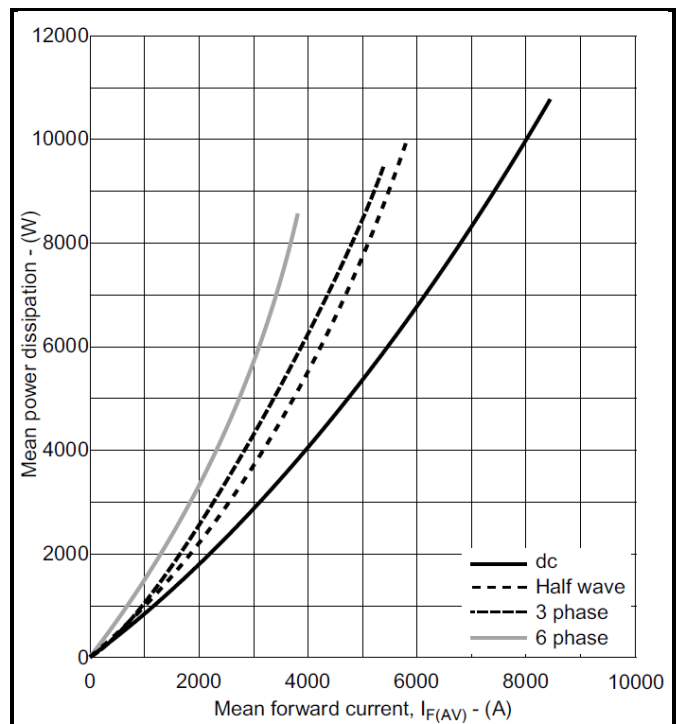


Fig.3 Dissipation curves

V_{TM} EQUATION

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

Where A = -0.51826
 B = 0.195881
 C = 6.39 x 10⁻⁵
 D = -0.00544

these values are valid for T_j = 175°C for I_F 500A to 9000A

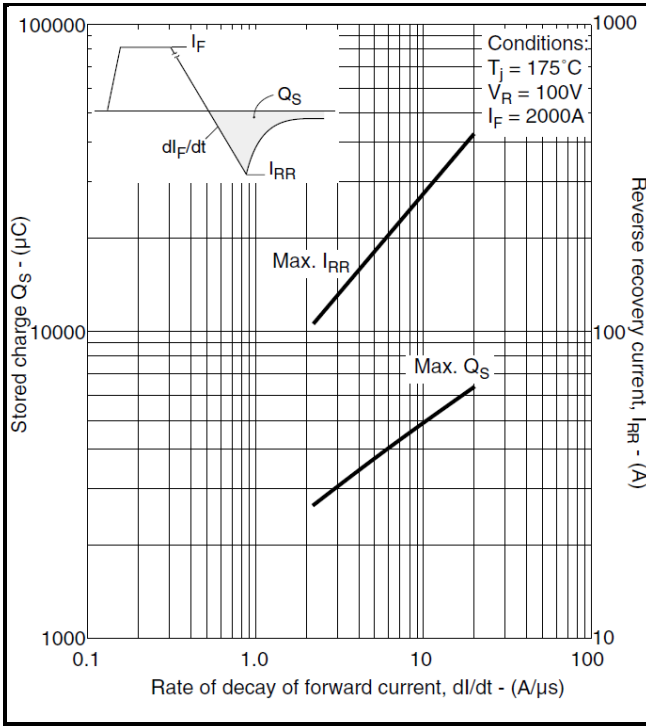


Fig.4 Total stored charge & Maximum reverse recovery current

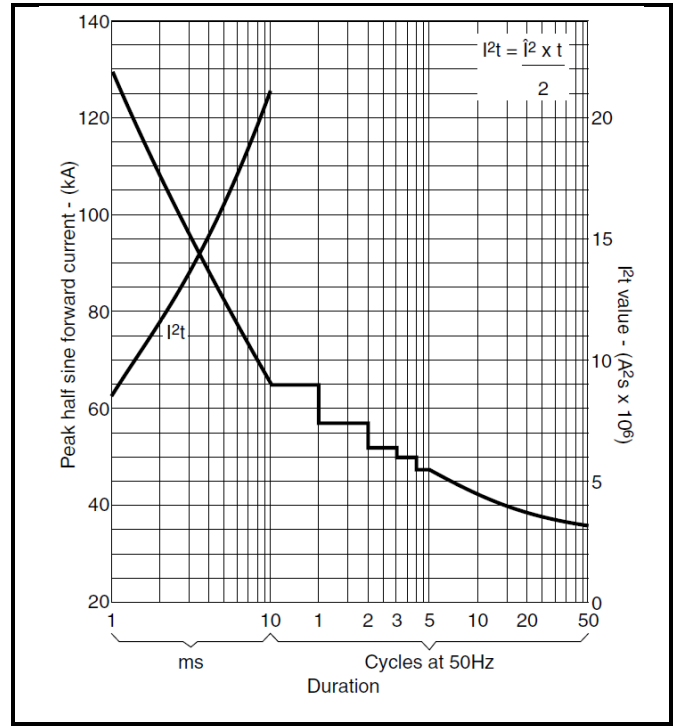


Fig.5 Surge (Non-Repetitive) Forward current vs time

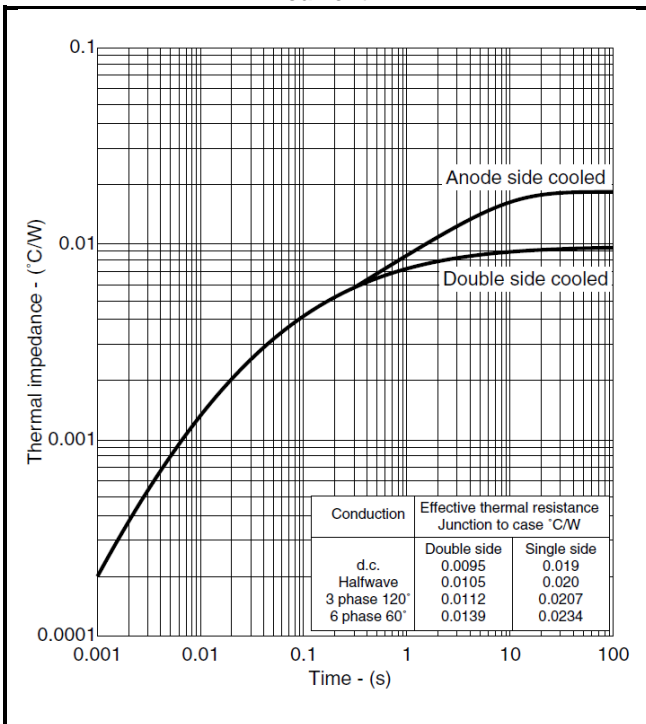
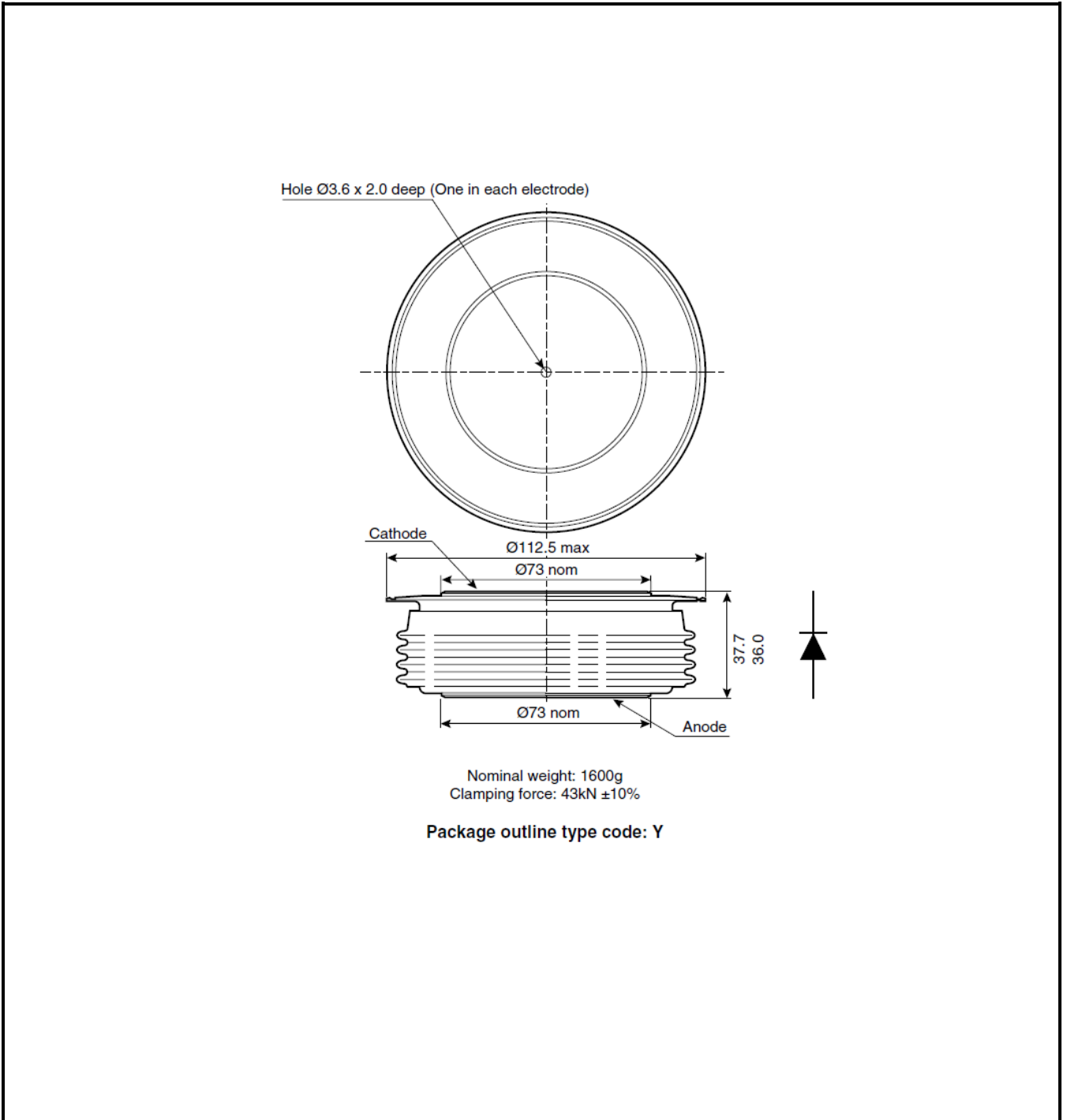


Fig.6 Maximum (limit) transient thermal impedance-junction to case

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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HEADQUARTERS OPERATIONS

DYNEX SEMICONDUCTOR LIMITED
Doddington Road, Lincoln, Lincolnshire, LN6 3LF
United Kingdom.
Phone: +44 (0) 1522 500500
Web: <http://www.dynexsemi.com>

CUSTOMER SERVICE

Phone: +44 (0) 1522 502753 / 502901
e-mail: powersolutions@dynexsemi.com