



TR2103SY

Rectifier Diode

APPLICATIONS

- Rectification
- Freewheel Diode
- DC Motor Control
- Power Supplies
- Welding
- Battery Chargers

KEY PARAMETERS

V_{RRM}	2600V
$I_{F(AV)}$	4785A
I_{FSM}	81000A

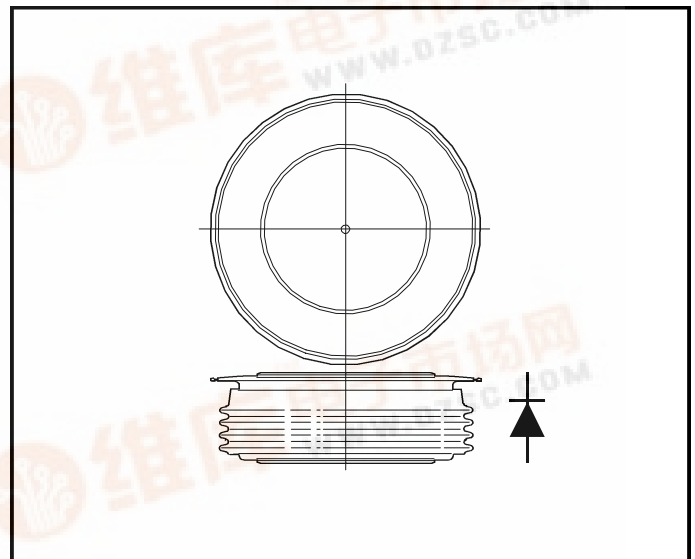
FEATURES

- Double Side Cooling
- High Surge Capability

VOLTAGE RATINGS

Type Number	Repetitive Peak Reverse Voltage V_{RRM} V	Conditions
TR2103SY26	2600	$V_{RSM} = V_{RRM} + 100V$
TR2103SY25	2500	
TR2103SY24	2400	
TR2103SY23	2300	
TR2103SY22	2200	
TR2103SY21	2100	

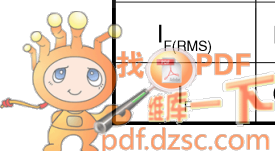
Lower voltage grades available.



Outline type code: Y
See Package Details for further information.

CURRENT RATINGS

Symbol	Parameter	Conditions	Max.	Units
Double Side Cooled				
$I_{F(AV)}$	Mean forward current	Half wave resistive load, $T_{case} = 100^{\circ}C$	4785	A
$I_{F(RMS)}$	RMS value	$T_{case} = 100^{\circ}C$	7516	A
I_F	Continuous (direct) forward current	$T_{case} = 100^{\circ}C$	6725	A
Single Side Cooled (Anode side)				
$I_{F(AV)}$	Mean forward current	Half wave resistive load, $T_{case} = 100^{\circ}C$	3060	A
$I_{F(RMS)}$	RMS value	$T_{case} = 100^{\circ}C$	4807	A
	Continuous (direct) forward current	$T_{case} = 100^{\circ}C$	3950	A



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SURGE RATINGS

Symbol	Parameter	Conditions	Max.	Units
I_{FSM}	Surge (non-repetitive) forward current	10ms half sine; $T_{case} = 175^{\circ}C$ $V_R = 50\% V_{RRM} - 1/4$ sine	65.0	kA
I^2t	I^2t for fusing		21.1×10^6	A ² s
I_{FSM}	Surge (non-repetitive) forward current	10ms half sine; $T_{case} = 175^{\circ}C$ $V_R = 0$	81.0	kA
I^2t	I^2t for fusing		33×10^6	A ² s

THERMAL AND MECHANICAL DATA

Symbol	Parameter	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 43.0kN with mounting compound	Double side	-	0.002	°C/W
			Single side	-	0.004	°C/W
T_{vj}	Virtual junction temperature	Forward (conducting)		-	200	°C
		Reverse (blocking)		-	175	°C
T_{stg}	Storage temperature range			-55	175	°C
-	Clamping force			38.0	47.0	kN

CHARACTERISTICS

Symbol	Parameter	Conditions	Min.	Max.	Units
V_{FM}	Forward voltage	At 3000A peak, $T_{case} = 25^{\circ}C$	-	1.05	V
I_{RRM}	Peak reverse current	At V_{RRM} , $T_{case} = 175^{\circ}C$	-	150	mA
Q_S	Total stored charge	$I_F = 2000A$, $dI_{RF}/dt = 3A/\mu s$ $T_{case} = 175C$, $V_R = 100V$	-	3000	μC
I_{RM}	Peak recovery current		-	125	A
V_{TO}	Threshold voltage	At $T_{vj} = 175C$	-	0.75	V
r_T	Slope resistance	At $T_{vj} = 175C$	-	0.063	m Ω

CURVES

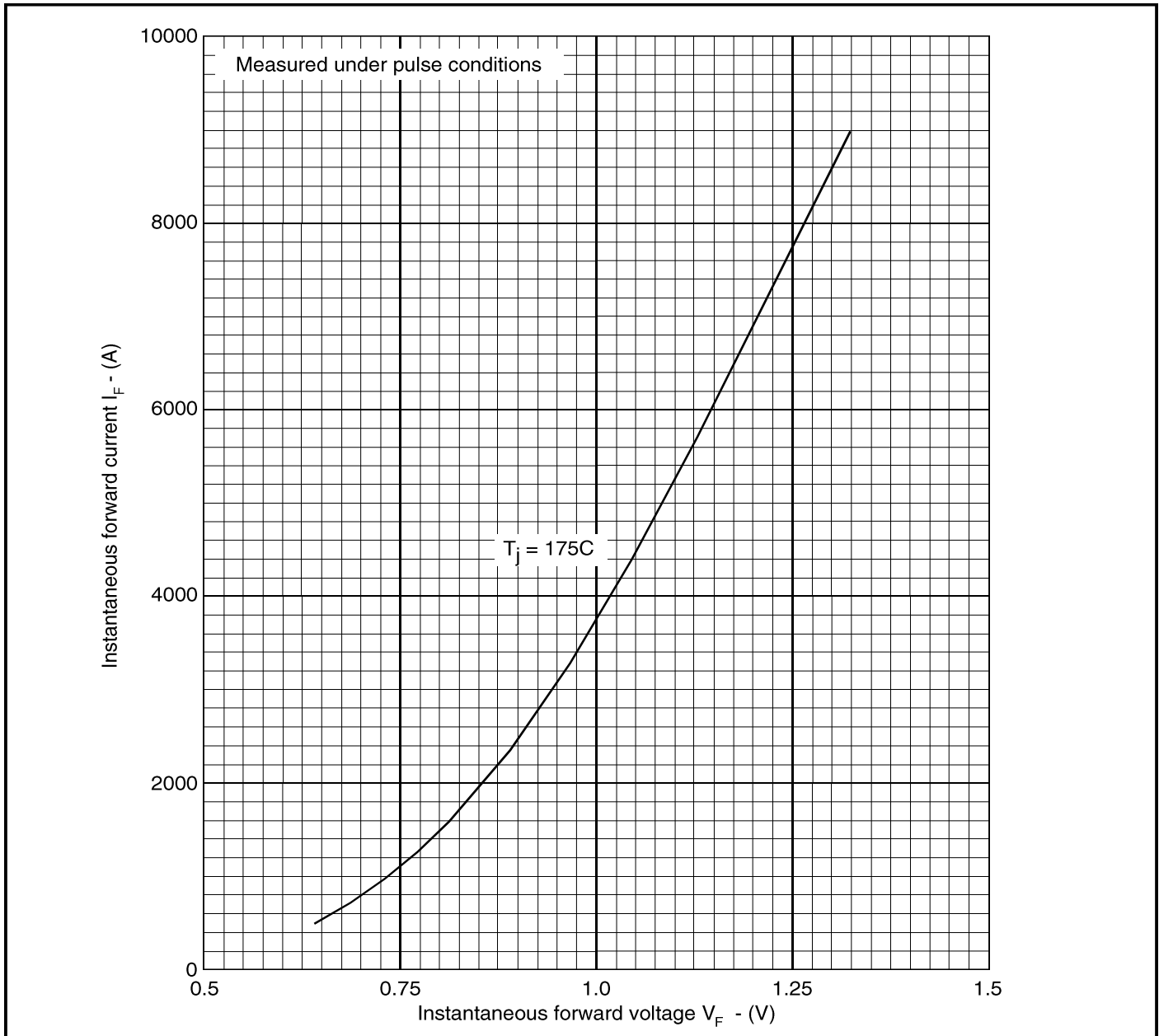


Fig.1 Maximum (limit) forward characteristics

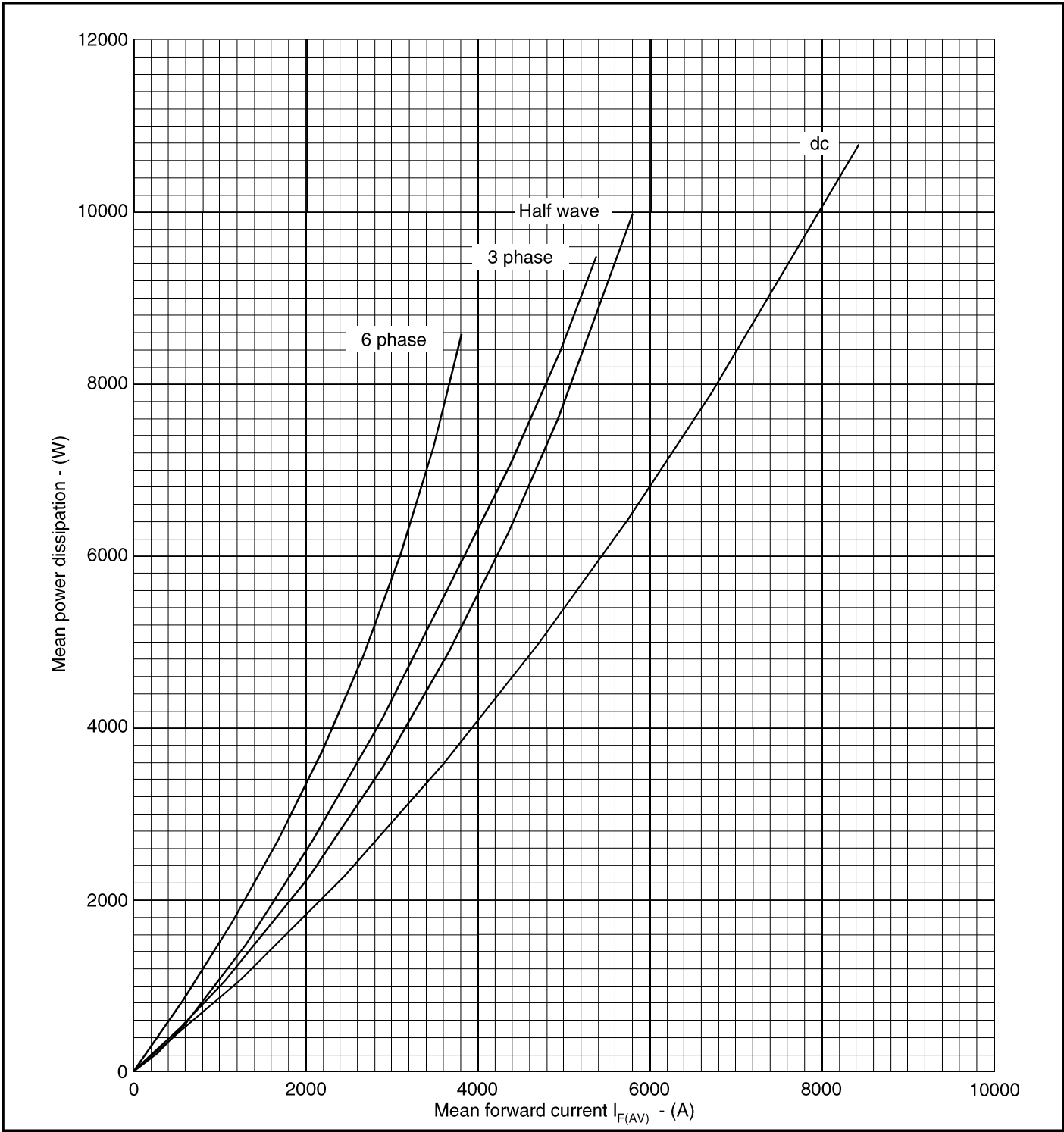


Fig.2 Dissipation curves

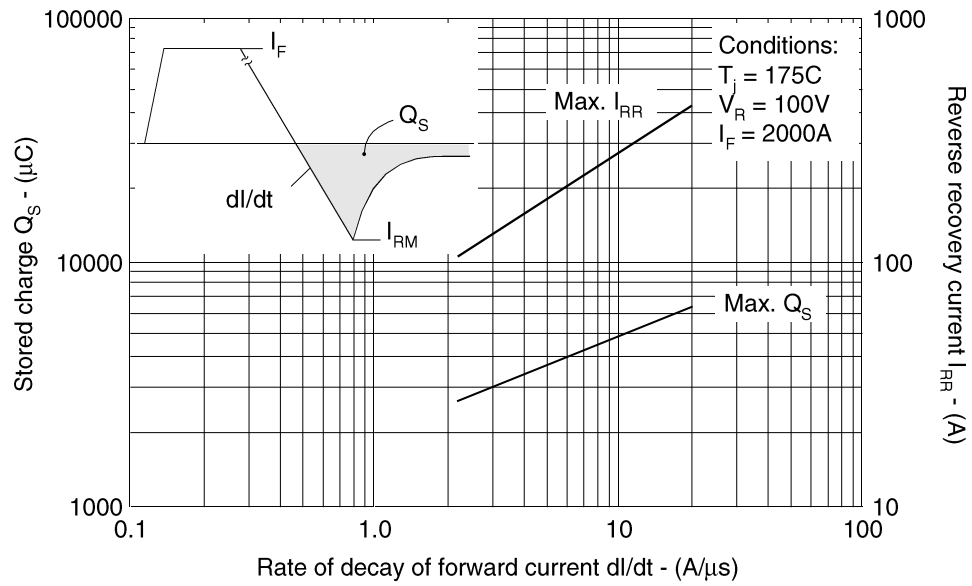


Fig.3 Maximum stored charge and reverse recovery current vs di/dt

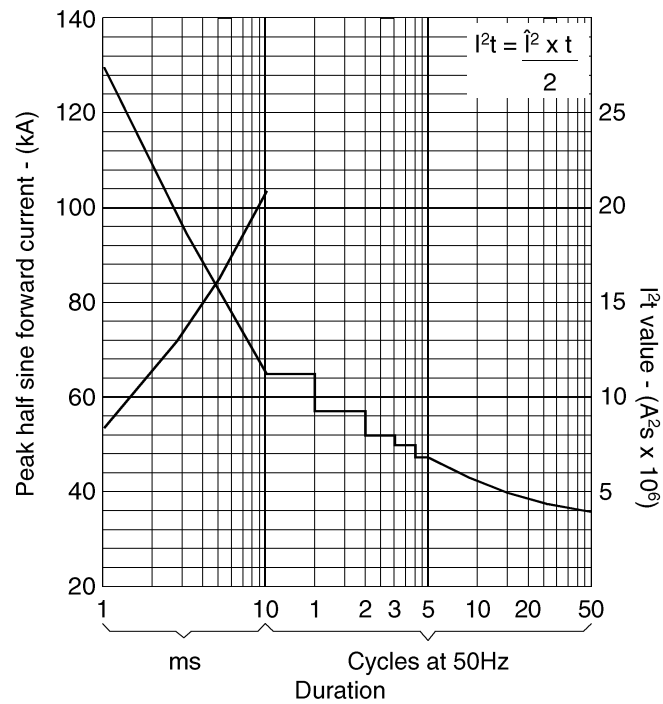


Fig.4 Surge (non-repetitive) forward current vs time (with 50% V_{RRM} @ $T_{case} = 175^\circ\text{C}$)

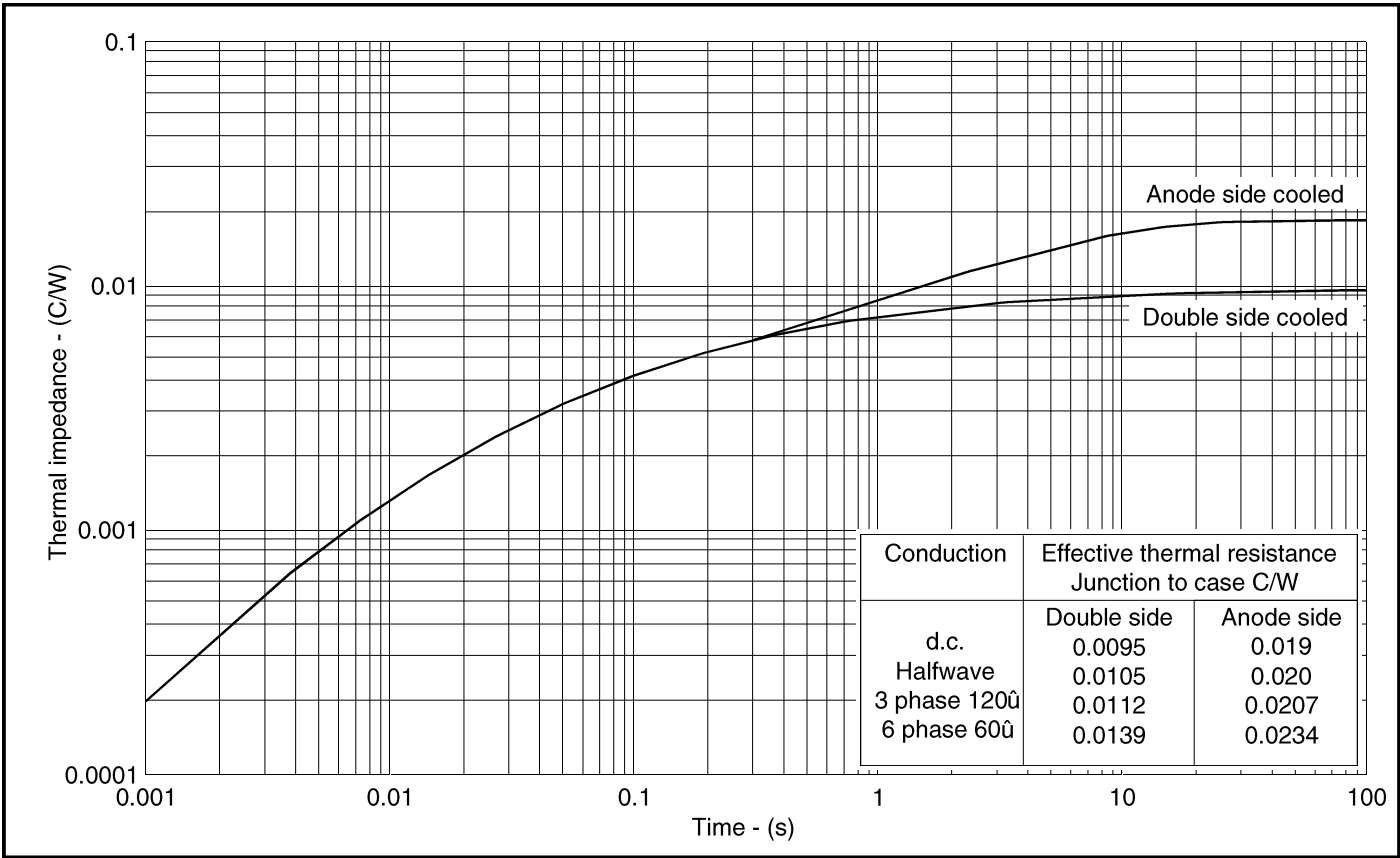
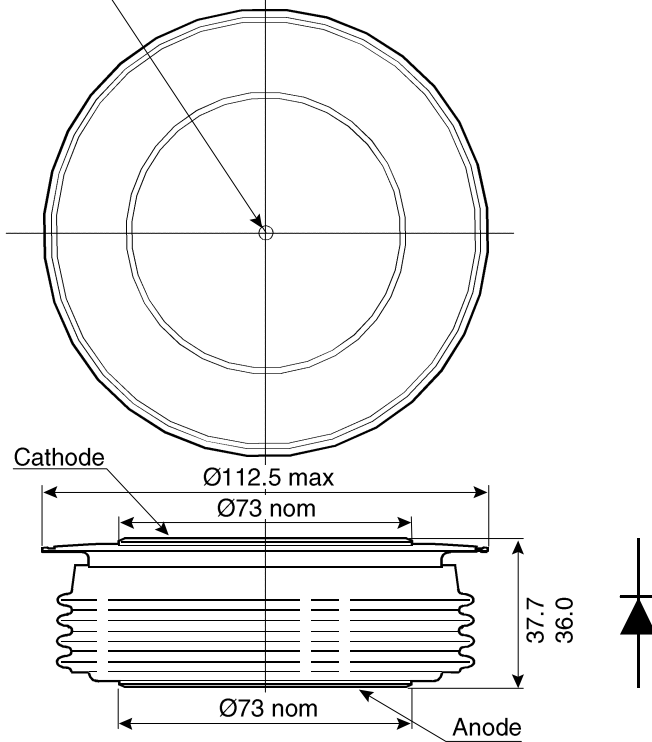


Fig.5 Maximum (limit) transient thermal impedance - junction to case (C/W)

PACKAGE DETAILS

For further package information, please contact your local Customer Service Centre. All dimensions in mm, unless stated otherwise. DO NOT SCALE.

2 holes Ø3.6 x 2.0 deep (One in each electrode)



Nominal weight: 1600g
Clamping force: 50kN ±10%

Package outline type code: Y