TR2004SF

Rectifier Diode

APPLICATIONS

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

KEY PARAMETERS

V_{RRM}	2800V
$I_{F(AV)}$	1960A
I_{FSM}	31250A

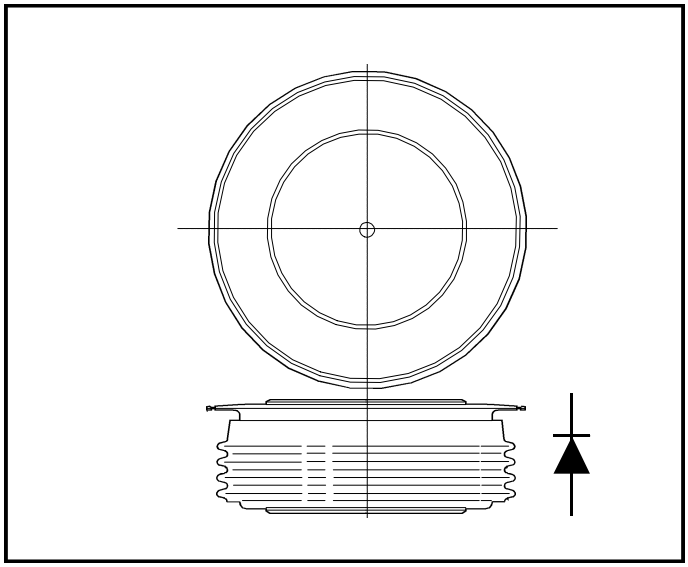
FEATURES

- Double Side Cooling
- High Surge Capability

VOLTAGE RATINGS

Type Number	Repetitive Peak Reverse Voltage V_{RRM} V	Conditions
TR2004SF28	2800	$V_{RSM} = V_{RRM} + 100V$
TR2004SF27	2700	
TR2004SF26	2600	
TR2004SF25	2500	
TR2004SF24	2400	

Lower voltage grades available.



Outline type code: F.
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°C	1960	A
$I_{F(RMS)}$	RMS value	T_{case} = 100°C	3077	A
I_F	Continuous (direct) forward current	T_{case} = 100°C	2750	A
Single Side Cooled (Anode side)				
$I_{F(AV)}$	Mean forward current	Half wave resistive load, T_{case} = 100°C	1300	A
$I_{F(RMS)}$	RMS value	T_{case} = 100°C	2040	A
I_F	Continuous (direct) forward current	T_{case} = 100°C	1600	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°C	25.0	kA
I^2t	I^2t for fusing	V_R = 50% V_{RRM} - 1/4 sine	3.12 x 10^6	A^2s
I_{FSM}	Surge (non-repetitive) forward current	10ms half sine; T_{case} = 175°C	31.25	kA
I^2t	I^2t for fusing	V_R = 0	4.88 x 10^6	A^2s

THERMAL AND MECHANICAL DATA

Symbol	Parameter	Conditions		Min.	Max.	Units
$R_{th(j-c)}$	Thermal resistance - junction to case	Double side cooled	dc	-	0.022	°C/W
		Single side cooled	Anode dc	-	0.038	°C/W
			Cathode dc	-	0.052	°C/W
$R_{th(c-h)}$	Thermal resistance - case to heatsink	Clamping force 19.5kN with mounting compound	Double side	-	0.004	°C/W
			Single side	-	0.008	°C/W
T_{vj}	Virtual junction temperature	Forward (conducting)		-	185	°C
		Reverse (blocking)		-	175	°C
T_{stg}	Storage temperature range			-55	180	°C
-	Clamping force			18.0	22.0	kN

CHARACTERISTICS

Symbol	Parameter	Conditions	Min.	Max.	Units
V_{FM}	Forward voltage	At 3400A peak, T_{case} = 25°C	-	1.3	V
I_{RRM}	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 recovery current	T_{case} = 175C, V_R = 100V	-	105	A
V_{TO}	Threshold voltage	At T_{vj} = 175C	-	0.82	V
r_T	Slope resistance	At T_{vj} = 175C	-	0.16	mΩ

CURVES

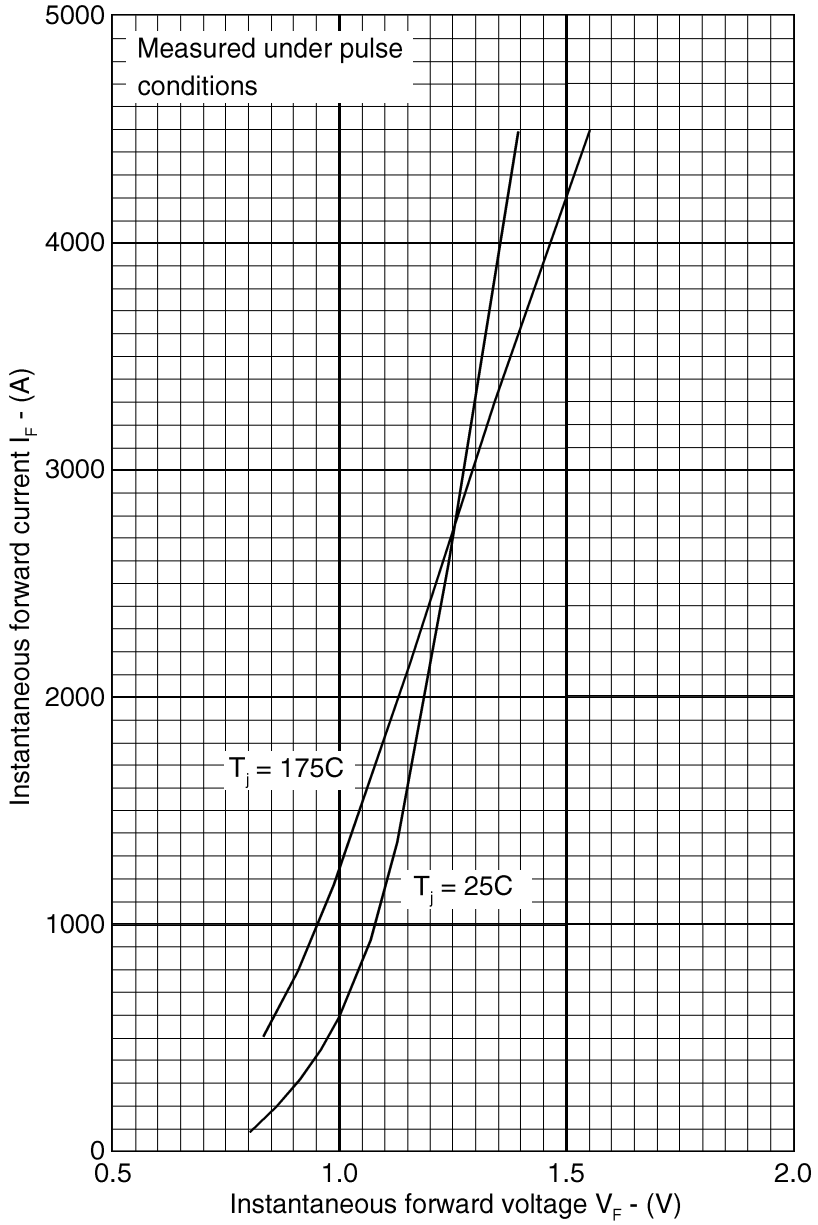


Fig.1 Maximum (limit) forward characteristics

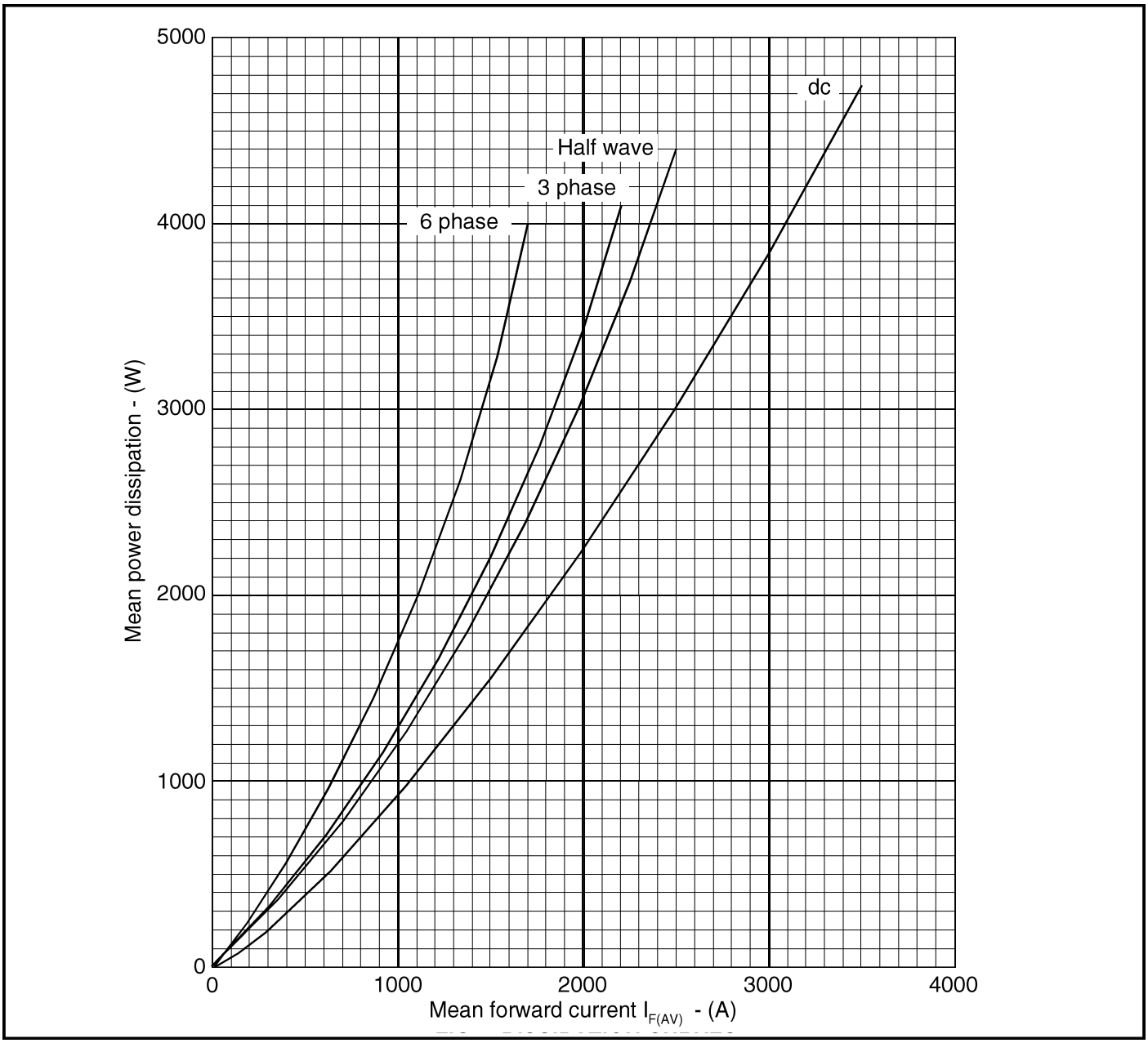


Fig.2 Dissipation curves

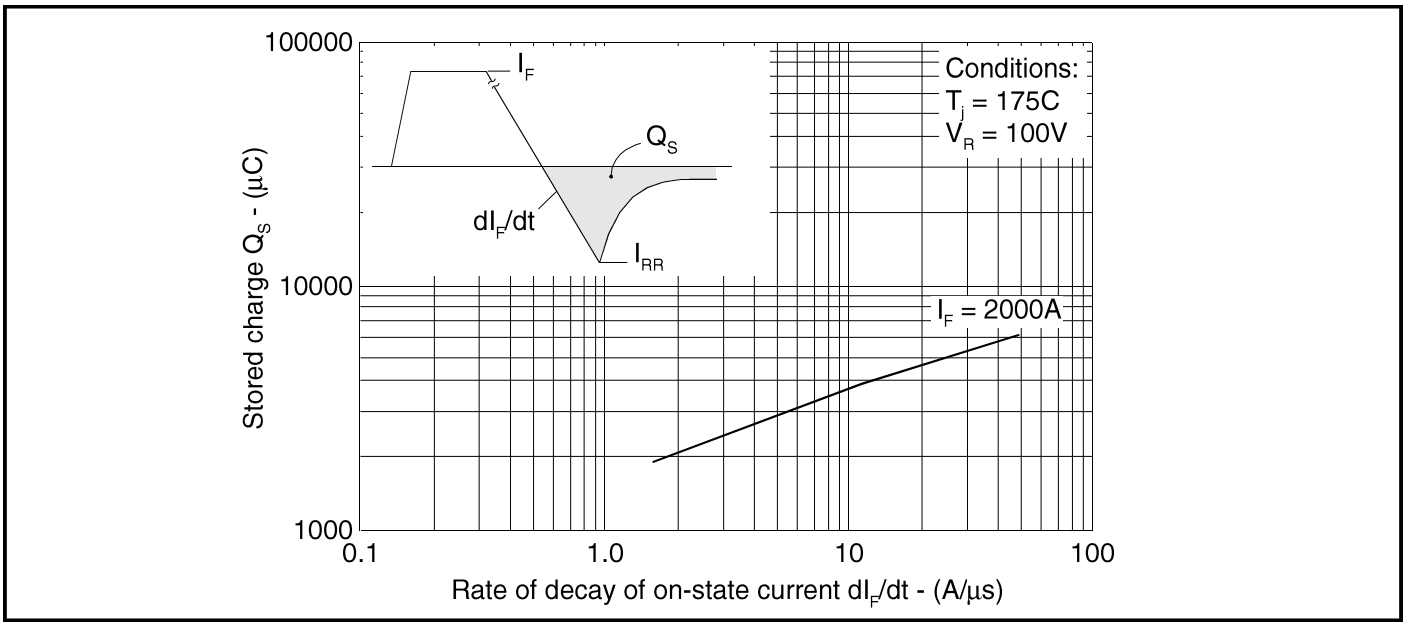


Fig.3 Maximum total stored charge

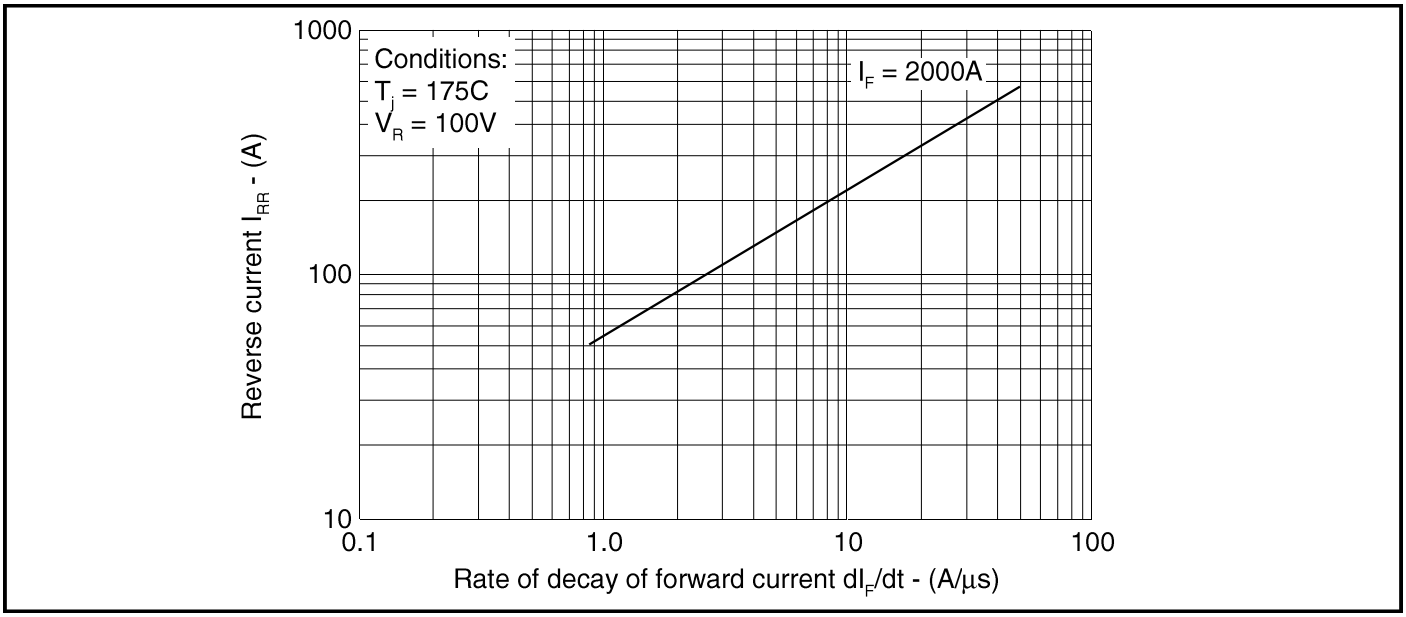


Fig.4 Maximum reverse recovery current

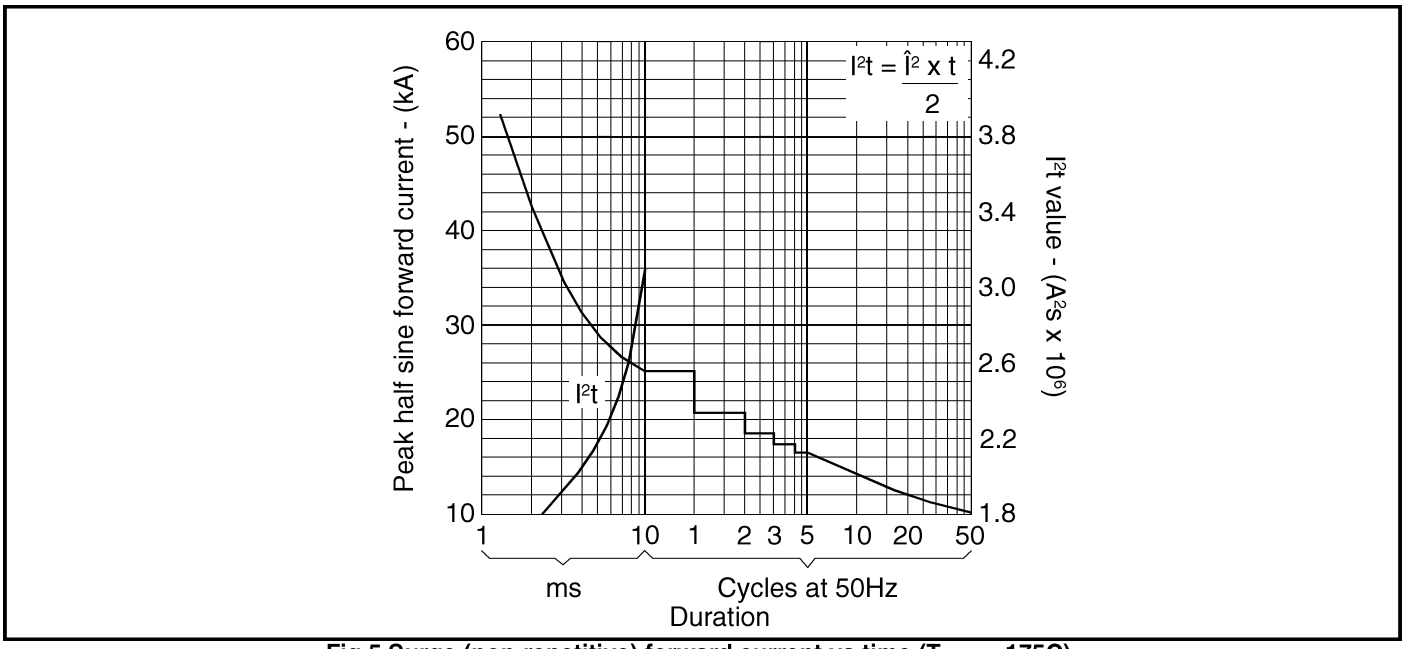


Fig.5 Surge (non-repetitive) forward current vs time (T_{case} = 175C)

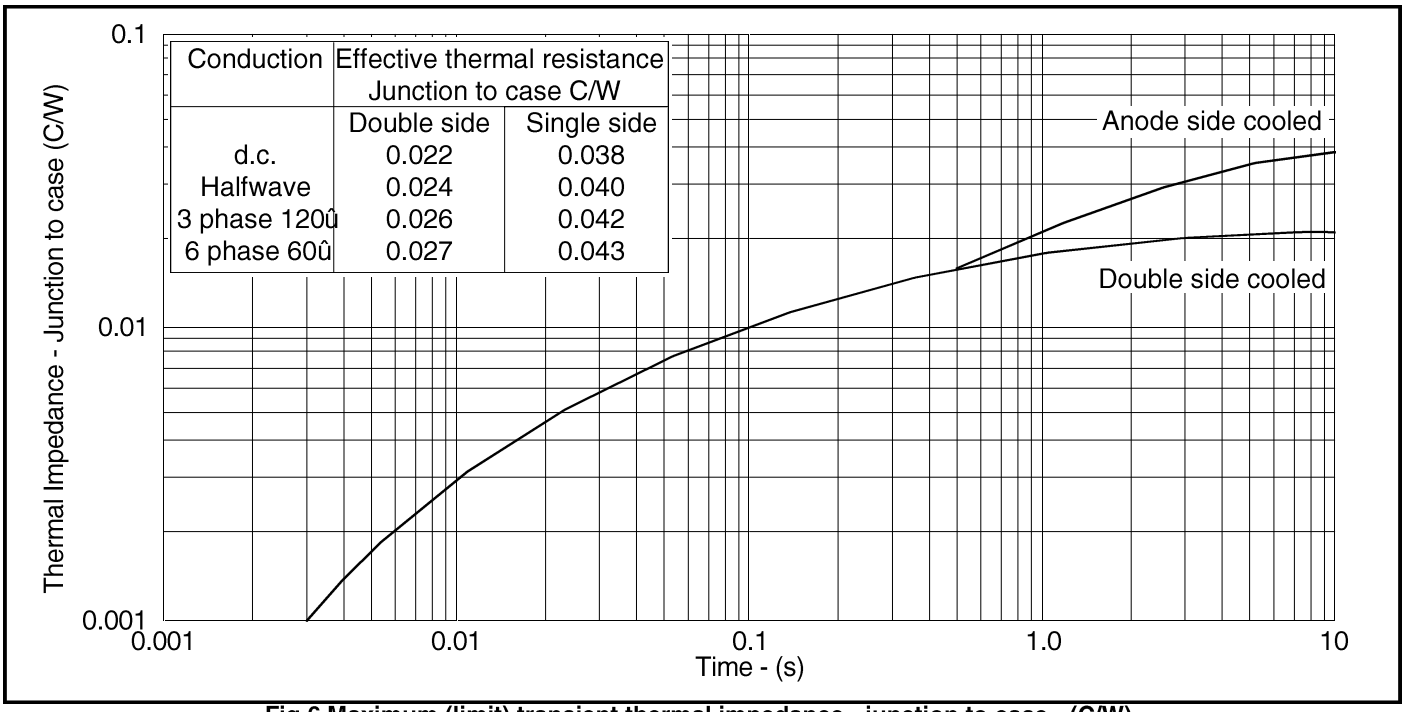
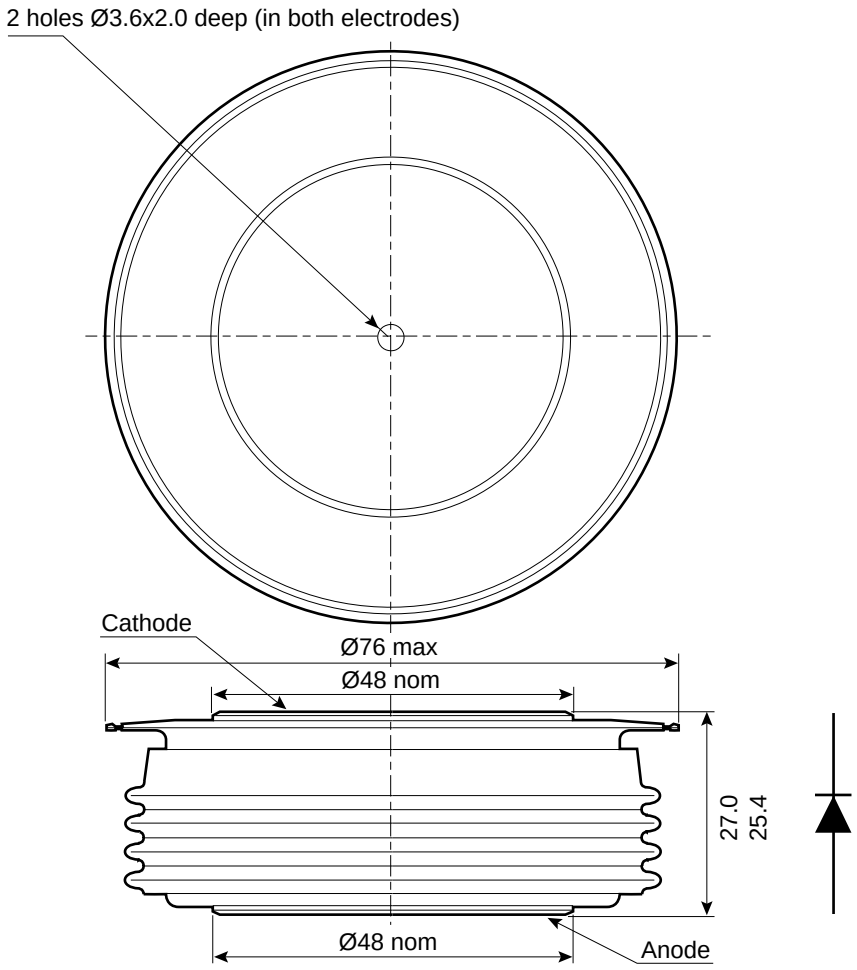


Fig.6 Maximum (limit) transient thermal impedance - junction to case - (C/W)

PACKAGE DETAILS

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



Nominal weight: 500g
Clamping force: 19.6kN ± 10%

Package outline type code: F