TR2009SF

Rectifier Diode

APPLICATIONS

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

KEY PARAMETERS

V_{RRM}	4800V
$I_{F(AV)}$	1105A
I_{FSM}	20500A

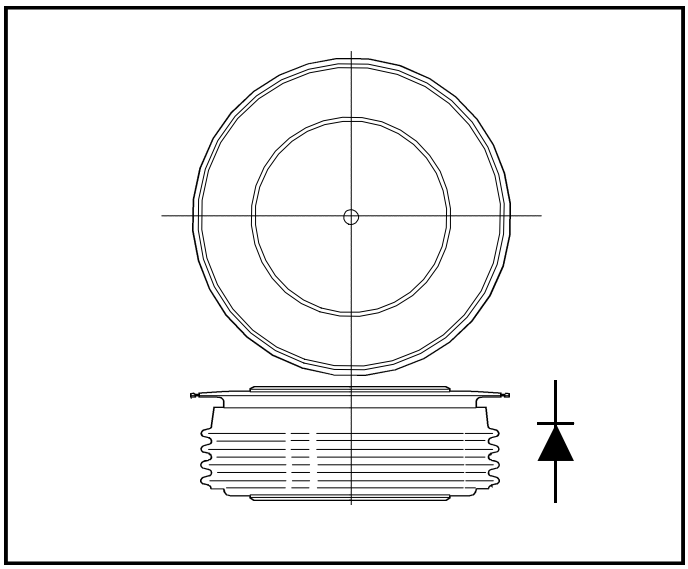
FEATURES

- Double Side Cooling
- High Surge Capability

VOLTAGE RATINGS

Type Number	Repetitive Peak Reverse Voltage V_{RRM} V	Conditions
TR2009SF48	4800	$V_{RSM} = V_{RRM} + 100V$
TR2009SF47	4700	
TR2009SF46	4600	
TR2009SF45	4500	
TR2009SF44	4400	
TR2009SF43	4300	

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	1105	A
$I_{F(RMS)}$	RMS value	T_{case} = 100°C	1735	A
I_F	Continuous (direct) forward current	T_{case} = 100°C	1580	A
Single Side Cooled (Anode side)				
$I_{F(AV)}$	Mean forward current	Half wave resistive load, T_{case} = 100°C	730	A
$I_{F(RMS)}$	RMS value	T_{case} = 100°C	1145	A
I_F	Continuous (direct) forward current	T_{case} = 100°C	960	A

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SURGE RATINGS

Symbol	Parameter	Conditions	Max.	Units
I_{FSM}	Surge (non-repetitive) forward current	10ms half sine; T_{case} = 150°C	16.5	kA
I^2t	I^2t for fusing	V_R = 50% V_{RRM} - 1/4 sine	1.35 x 10^6	A^2s
I_{FSM}	Surge (non-repetitive) forward current	10ms half sine; T_{case} = 150°C	20.5	kA
I^2t	I^2t for fusing	V_R = 0	2.125 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	On-state (conducting)		-	160	°C
		Reverse (blocking)		-	150	°C
T_{stg}	Storage temperature range			-55	175	°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	-	1.8	V
I_{RRM}	Peak reverse current	At V_{RRM}, T_{case} = 150°C -		75	mA
Q_S	Total stored charge	I_F = 2000A, dI_{RR}/dt = 3A/µs,	-	4000	µC
I_{RM}	Peak recovery current	T_{case} = 150C, V_R = 100V	-	115	A
V_{TO}	Threshold voltage	At T_{vj} = 150C	-	0.84	V
r_T	Slope resistance	At T_{vj} = 150C	-	0.383	mΩ

CURVES

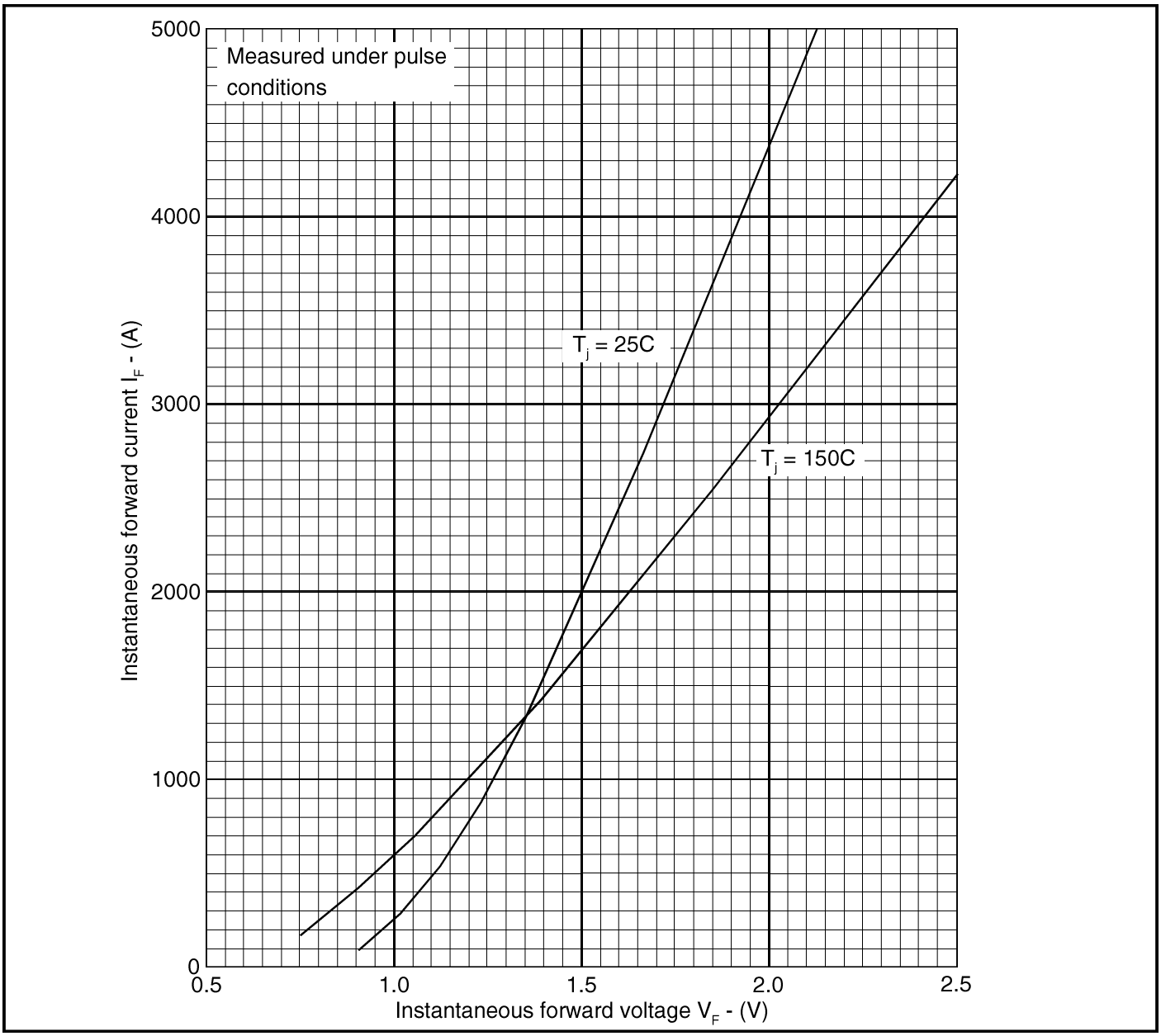


Fig. 1 Maximum (limit) forward characteristics

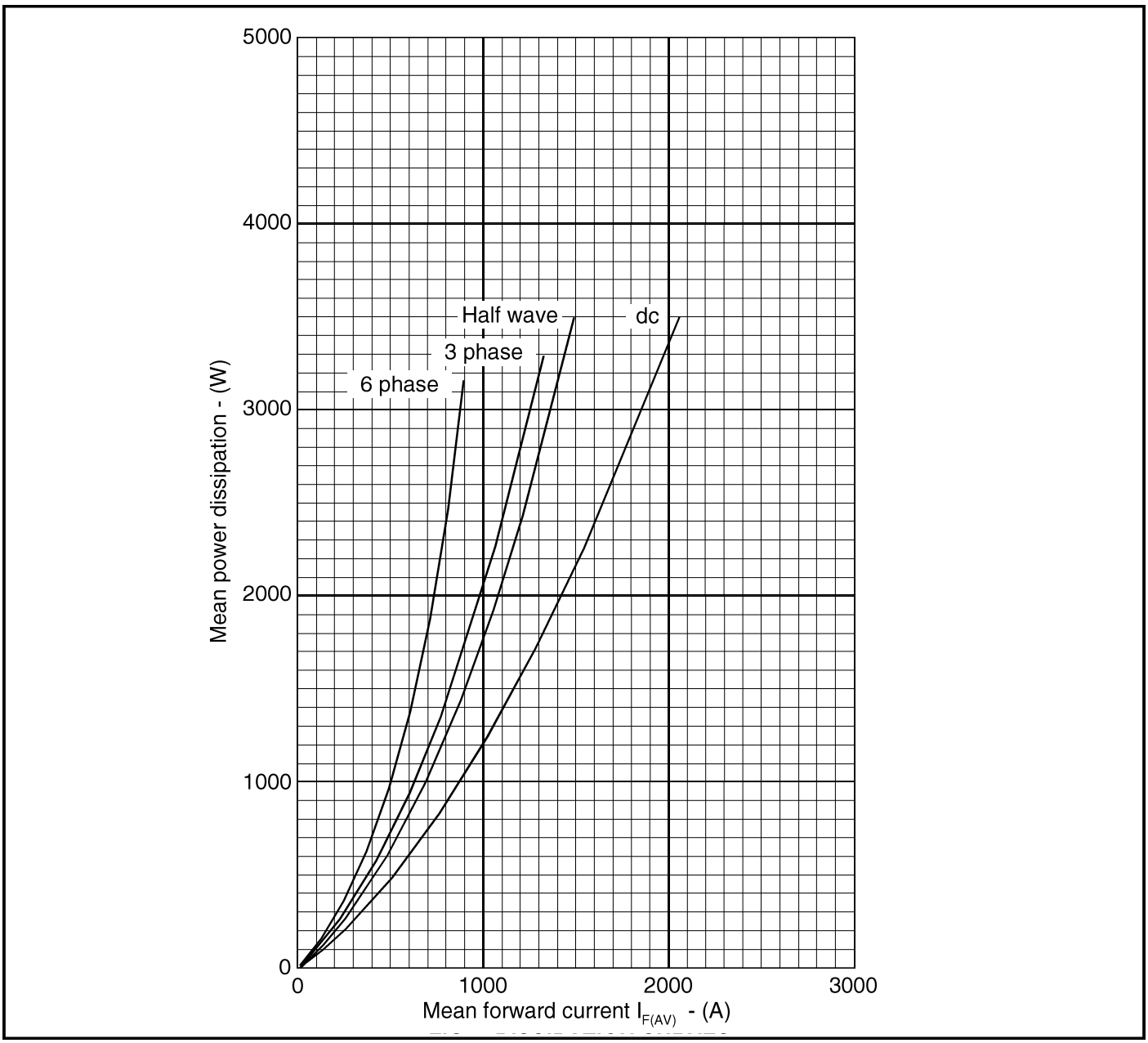


Fig. 2 Dissipation curves

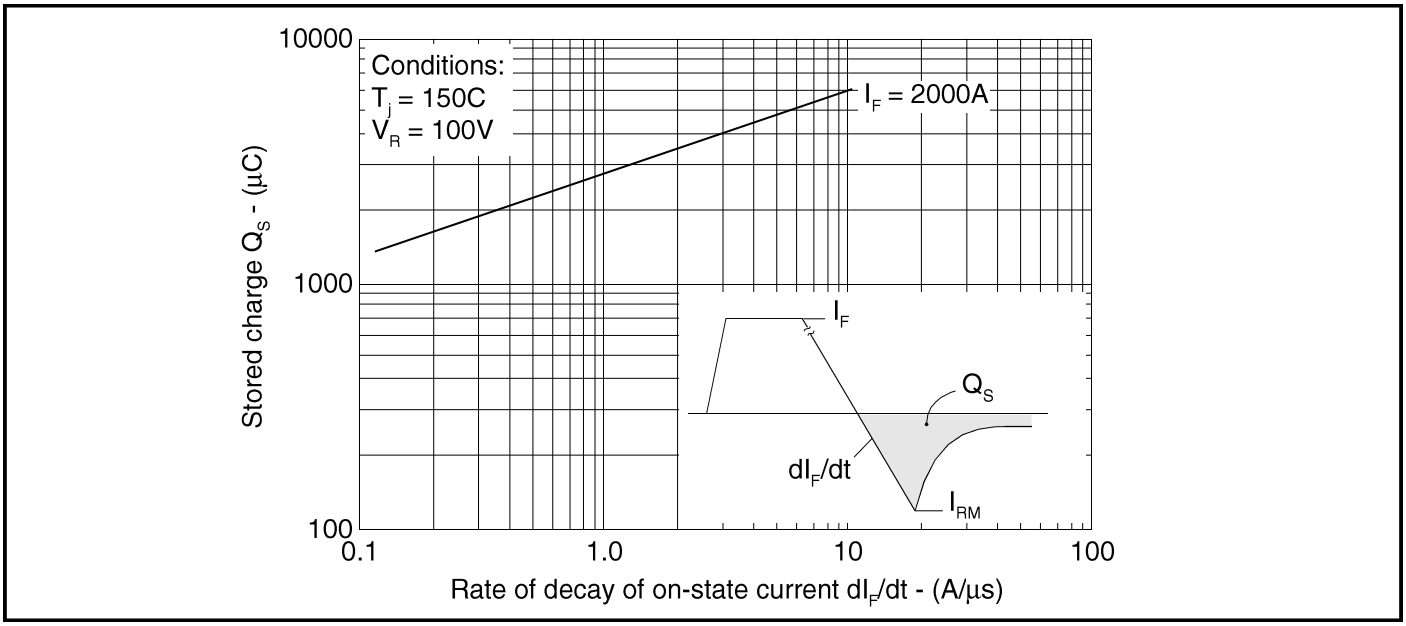


Fig. 3 Maximum total stored charge

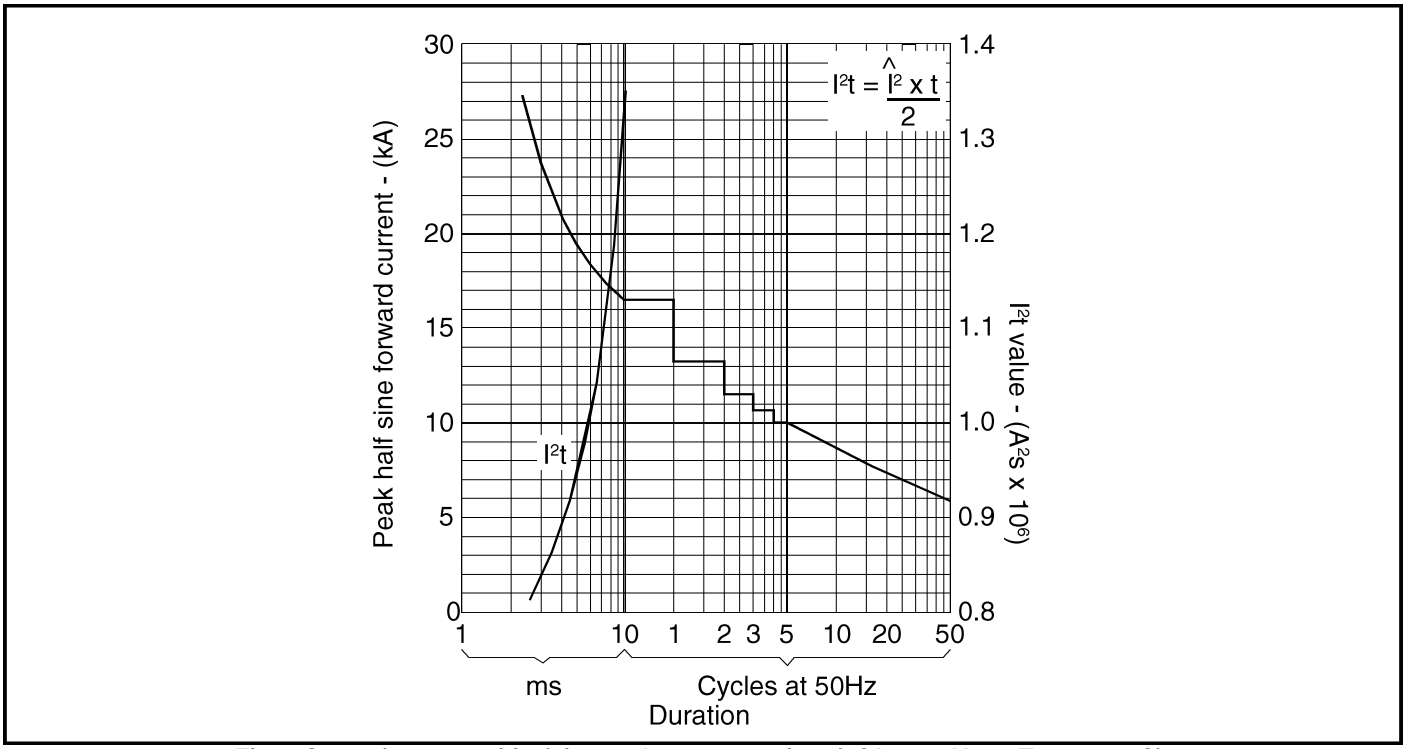


Fig. 4 Surge (non-repetitive) forward current vs time (with 50% V_{RRM}, T_{case} = 150C)

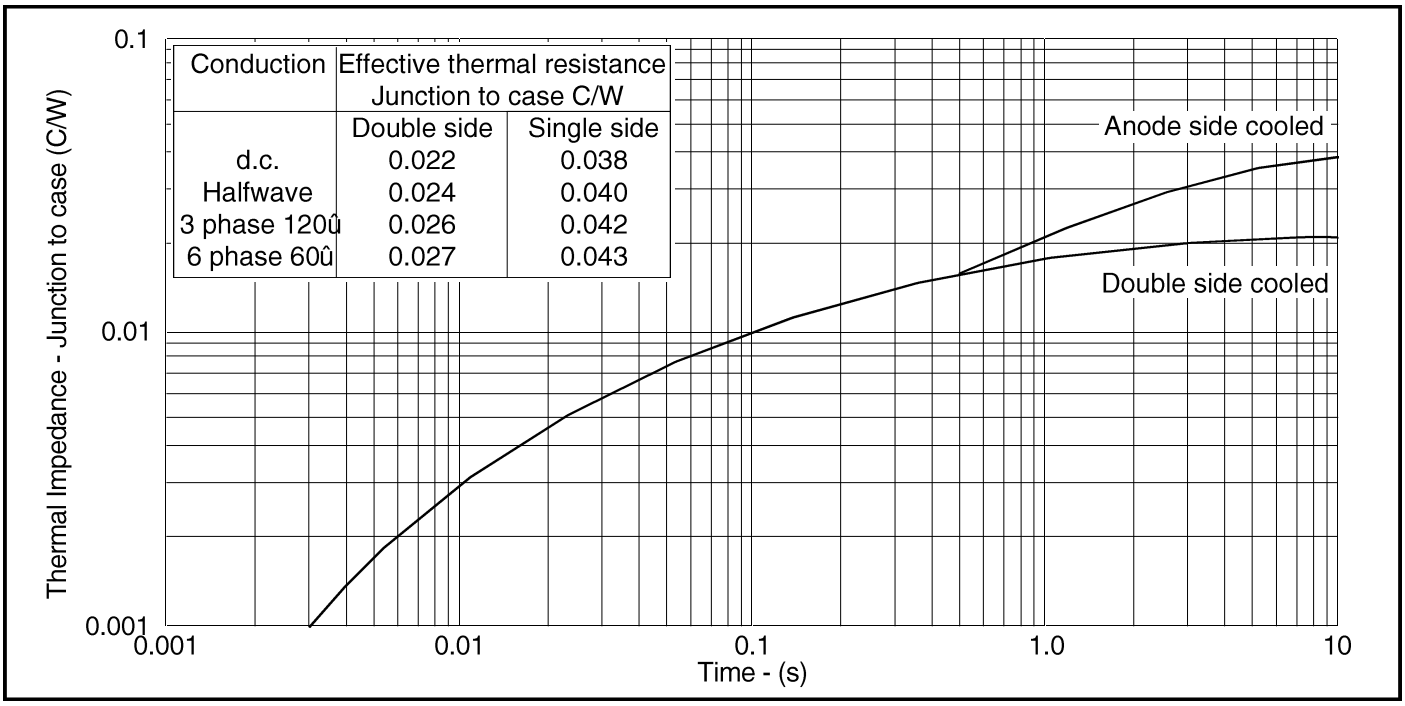
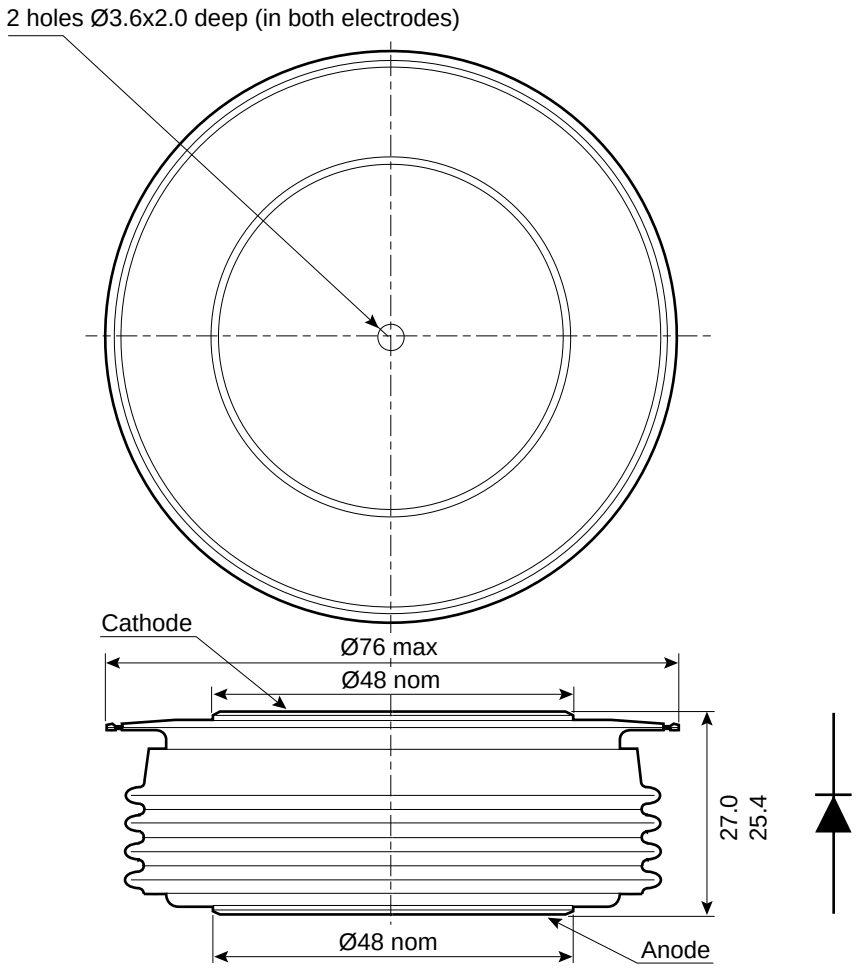


Fig. 5 Transient thermal impedance - junction to case - (C/W)

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