DSF20545SF

FAST RECOVERY DIODE

APPLICATIONS

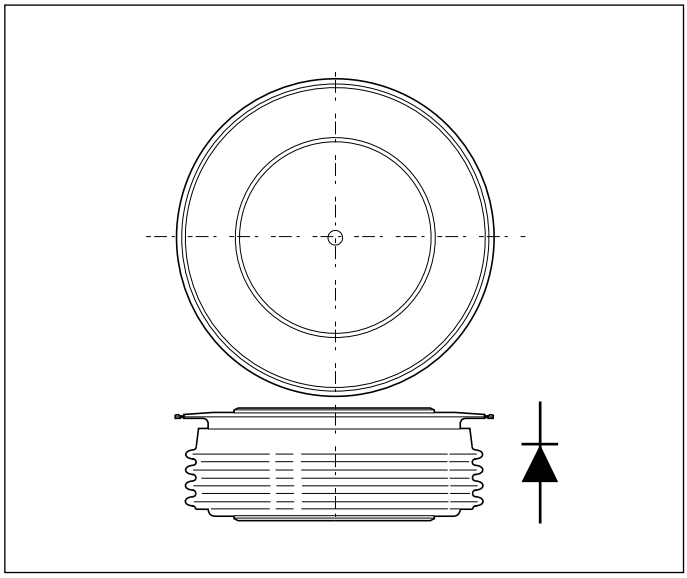
- Induction Heating.
- A.C. Motor Drives.
- Inverters And Choppers.
- Welding.
- High Frequency Rectification.
- UPS.

KEY PARAMETERS

V_{RRM}	4500V
$I_{F(AV)}$	1256A
I_{FSM}	16000A
Q_r	1250μC
t_{rr}	7.0μs

FEATURES

- Double Side Cooling.
- High Surge Capability.
- Low Recovery Charge.



Outline type code: CB450. Turn to page 8 for further information.

VOLTAGE RATINGS

Type Number	Repetitive Peak Reverse Voltage V_{RRM} V	Conditions
DSF20545SF45	4500	$V_{RSM} = V_{RRM} + 100V$
DSF20545SF44	4400	
DSF20545SF43	4300	
DSF20545SF42	4200	
DSF20545SF41	4100	
DSF20545SF40	4000	

Lower voltage grades available.

CURRENT RATINGS

Symbol	Parameter	Conditions	Max.	Units
Double Side Cooled				
$I_{F(AV)}$	Mean forward current	Half wave resistive load, T_{case} = 65°C	1256	A
$I_{F(RMS)}$	RMS value	T_{case} = 65°C	1971	A
I_F	Continuous (direct) forward current	T_{case} = 65°C	1765	A
Single Side Cooled (Anode side)				
$I_{F(AV)}$	Mean forward current	Half wave resistive load, T_{case} = 65°C	995	A
$I_{F(RMS)}$	RMS value	T_{case} = 65°C	1552	A
I_F	Continuous (direct) forward current	T_{case} = 65°C	1335	A

SURGE RATINGS

Symbol	Parameter	Conditions	Max.	Units
I_{FSM}	Surge (non-repetitive) forward current	10ms half sine; with 0% $V_{RRM,}$ T_j = 150°C	16	kA
I^2t	I^2t for fusing		1280 x 10^3	A^2s
I_{FSM}	Surge (non-repetitive) forward current	10ms half sine; with 50% $V_{RRM,}$ T_j = 150°C	12.8	kA
I^2t	I^2t for fusing		819.2 X 10^3	A^2s
I_{FSM}	Surge (non-repetitive) forward current	10ms half sine; with 100% $V_{RRM,}$ T_j = 150°C	-	kA
I^2t	I^2t for fusing		-	A^2s

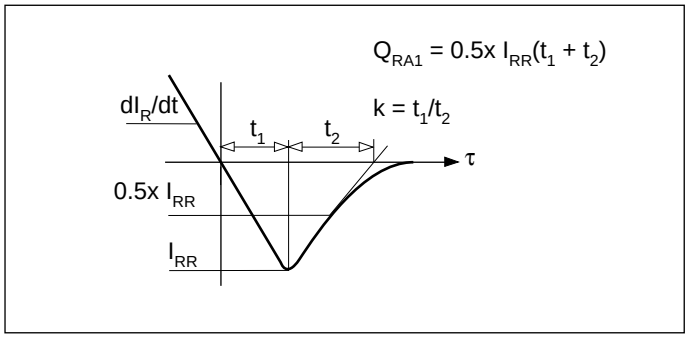
THERMAL AND MECHANICAL DATA

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	-	0.032	°C/W
			Cathode dc	-	0.032	°C/W
$R_{th(c-h)}$	Thermal resistance - case to heatsink	Clamping force 15kN with mounting compound	Double side	-	0.004	°C/W
			Single side	-	0.008	°C/W
T_{vj}	Virtual junction temperature	On-state (conducting)		-	150	°C
T_{stg}	Storage temperature range			-55	150	°C
-	Clamping force			17.5	21.5	kN

CHARACTERISTICS

Symbol	Parameter	Conditions	Typ.	Max.	Units
V_{FM}	Forward voltage	At 1800A peak, T_{case} = 25°C	-	2.1	V
I_{RRM}	Peak reverse current	At V_{RRM}, T_{case} = 150°C	-	50	mA
t_{rr}	Reverse recovery time	I_F = 1000A, di_{RR}/dt = 100A/µs T_{case} = 150°C, V_R = 100V	-	7.0	µs
Q_{RA1}	Recovered charge (50% chord)		-	1250	µC
I_{RM}	Reverse recovery current		-	400	A
K	Soft factor		1.8	-	-
V_{TO}	Threshold voltage	At T_{vj} = 150°C	-	1.36	V
r_T	Slope resistance	At T_{vj} = 150°C	-	0.47	mΩ
V_{FRM}	Forward recovery voltage	di/dt = 1000A/µs, T_j = 125°C	-	160	V

DEFINITION OF K FACTOR AND Q_{RA1}



CURVES

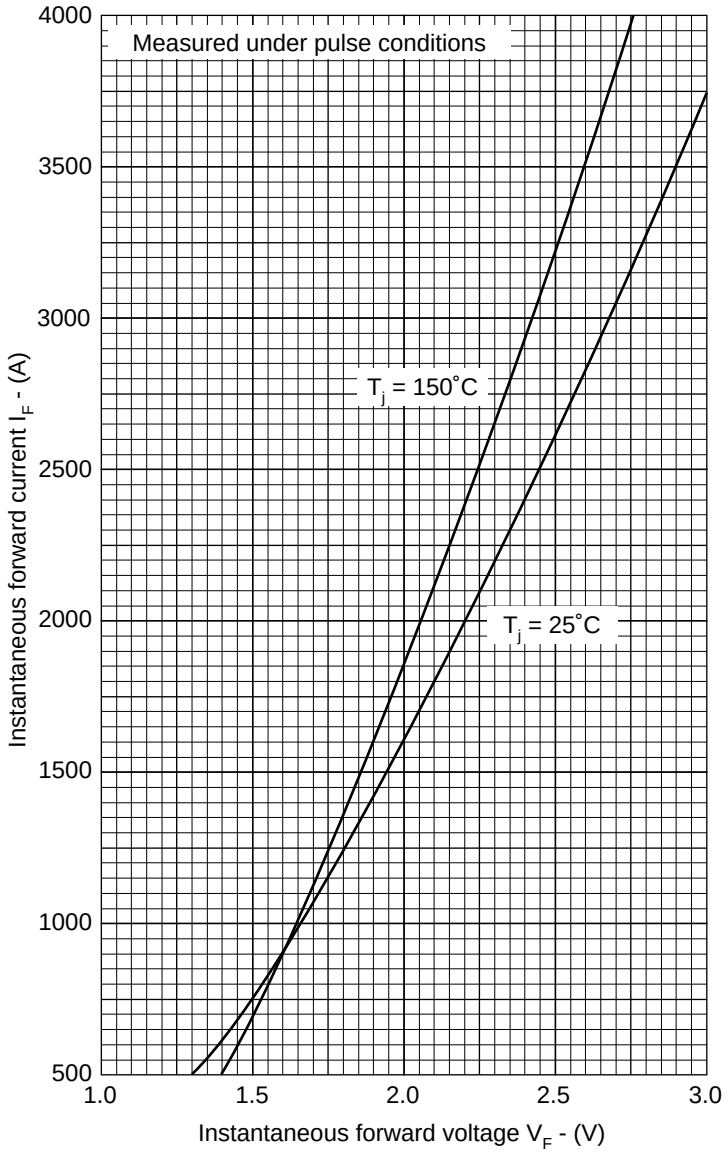


Fig.1 Maximum (limit) forward characteristics

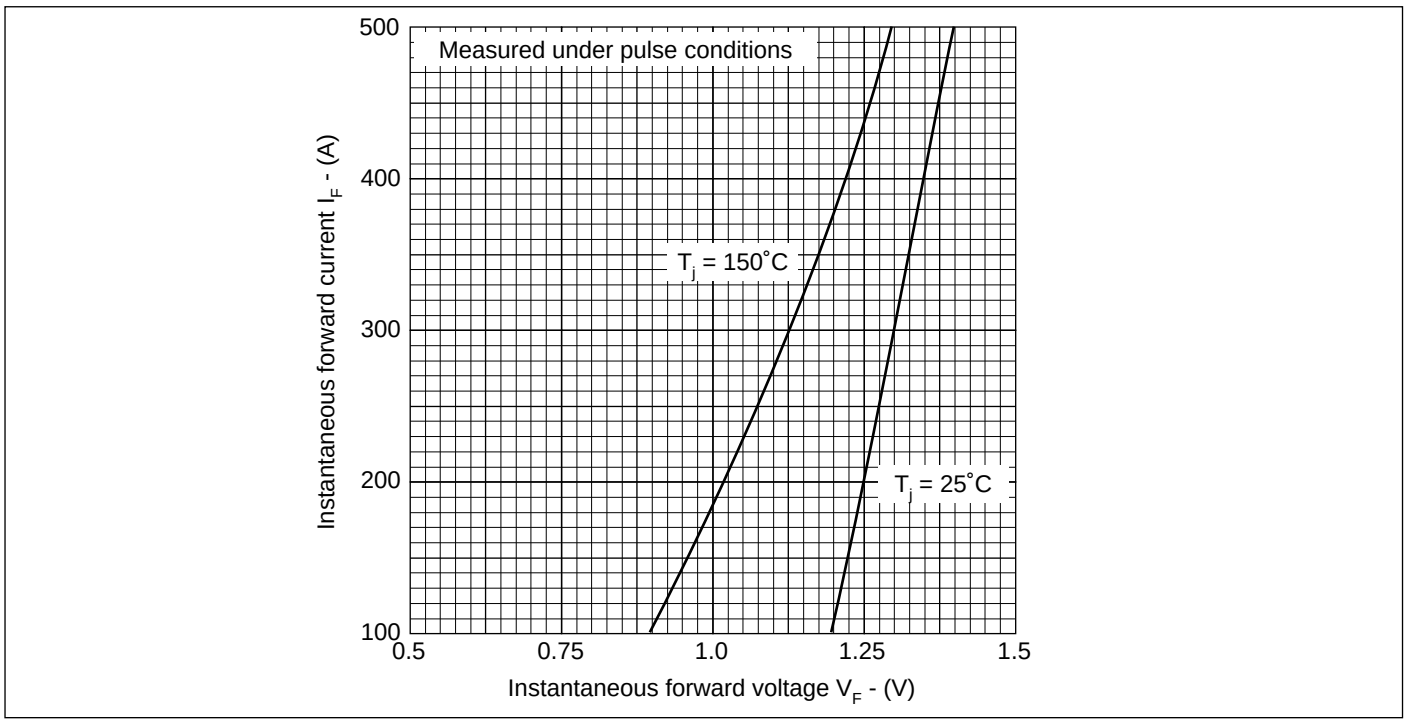


Fig.2 Maximum (limit) forward characteristics

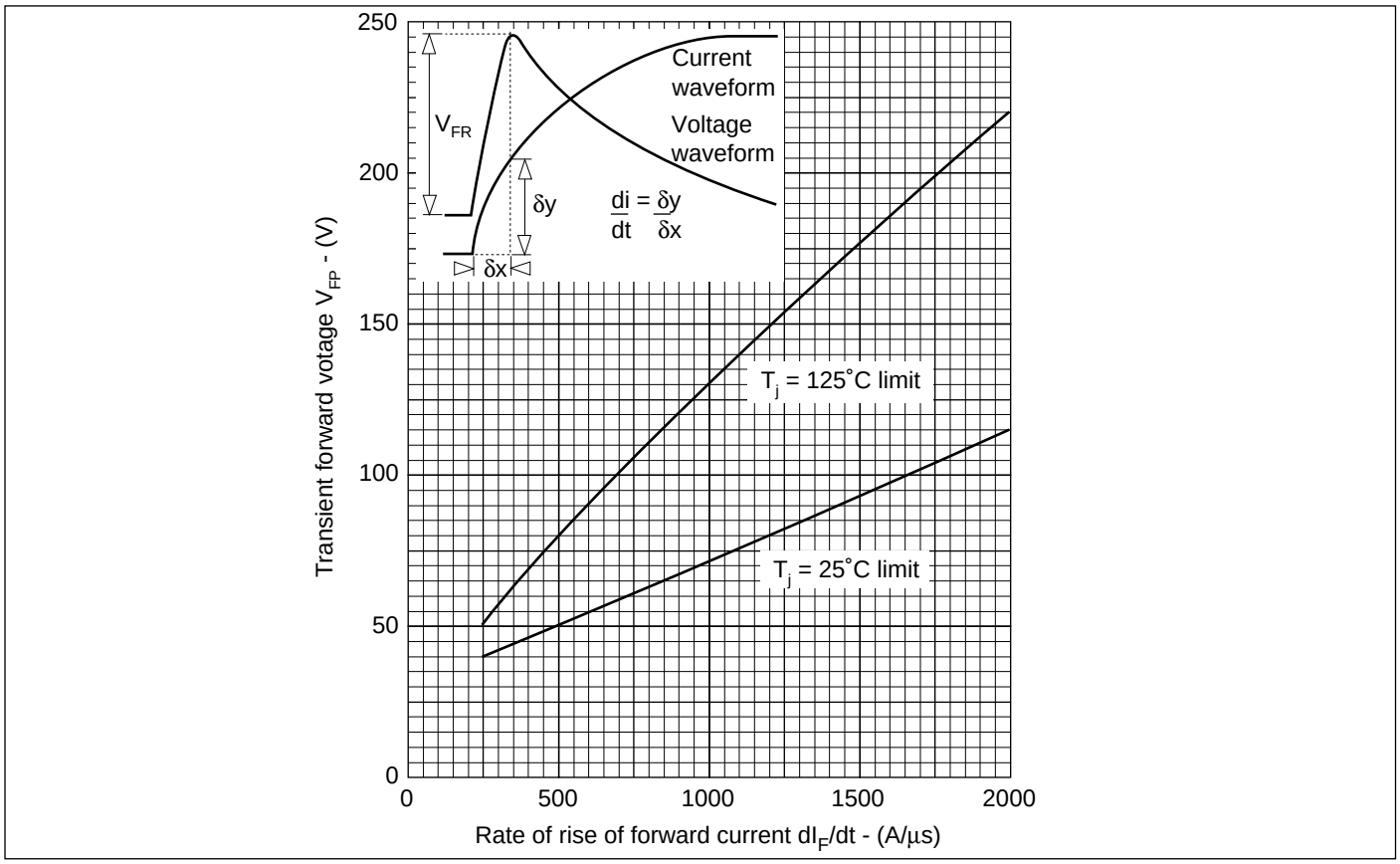


Fig.3 Transient forward voltage vs rate of rise of forward current

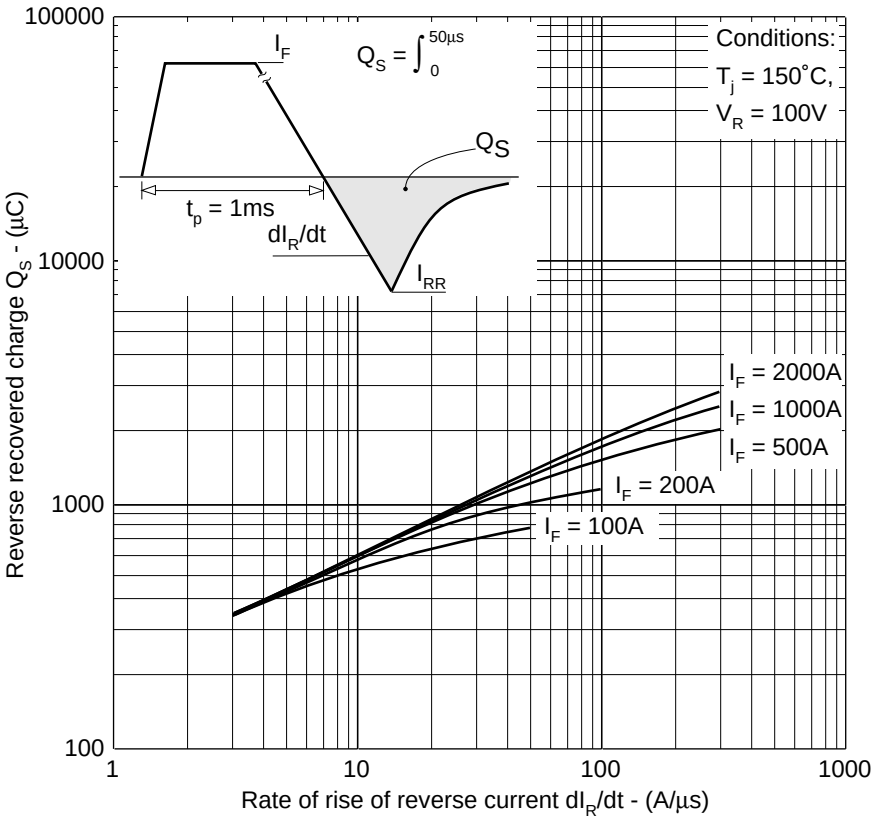


Fig.4 Recovered charge

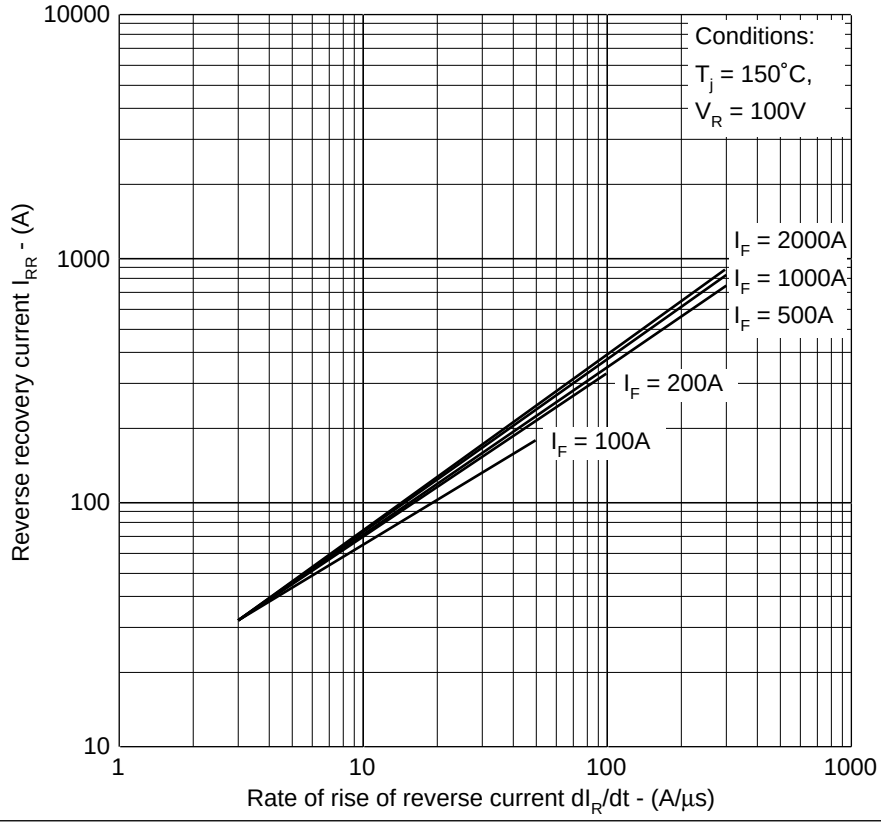


Fig.5 Typical reverse recovery current vs rate of rise of reverse current

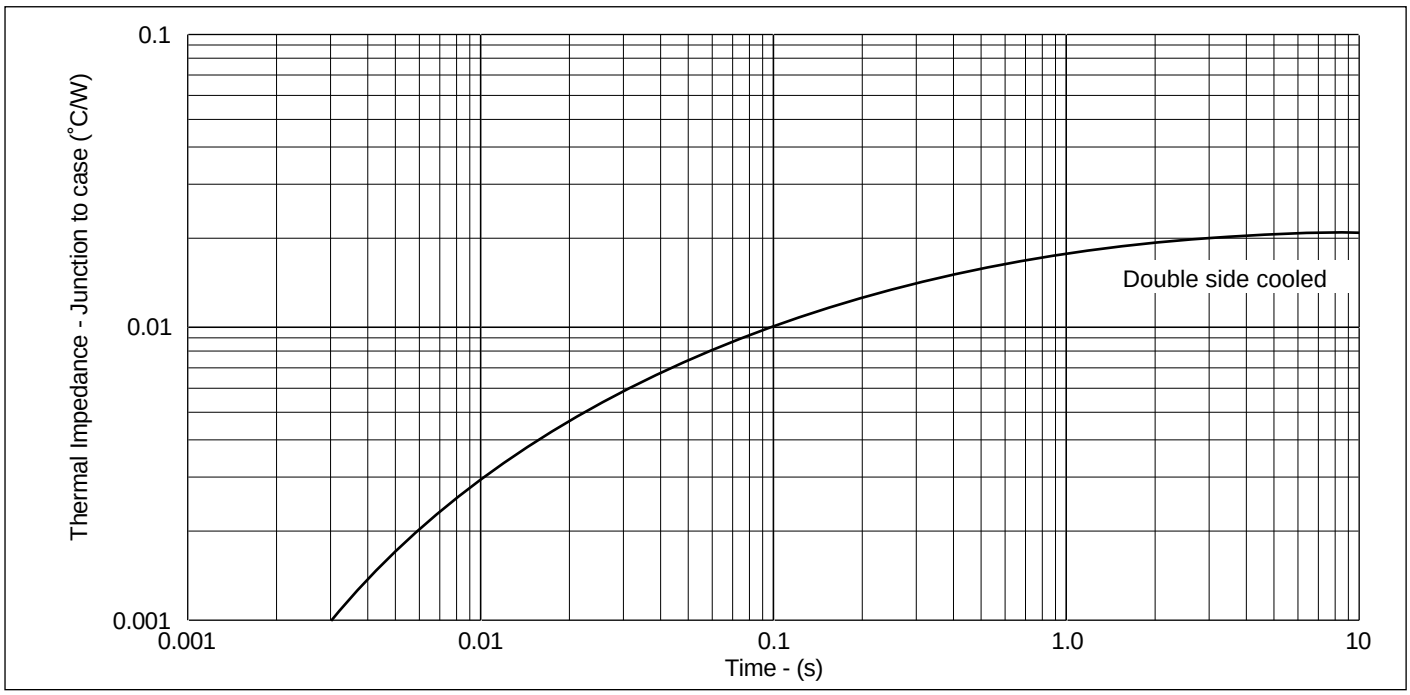
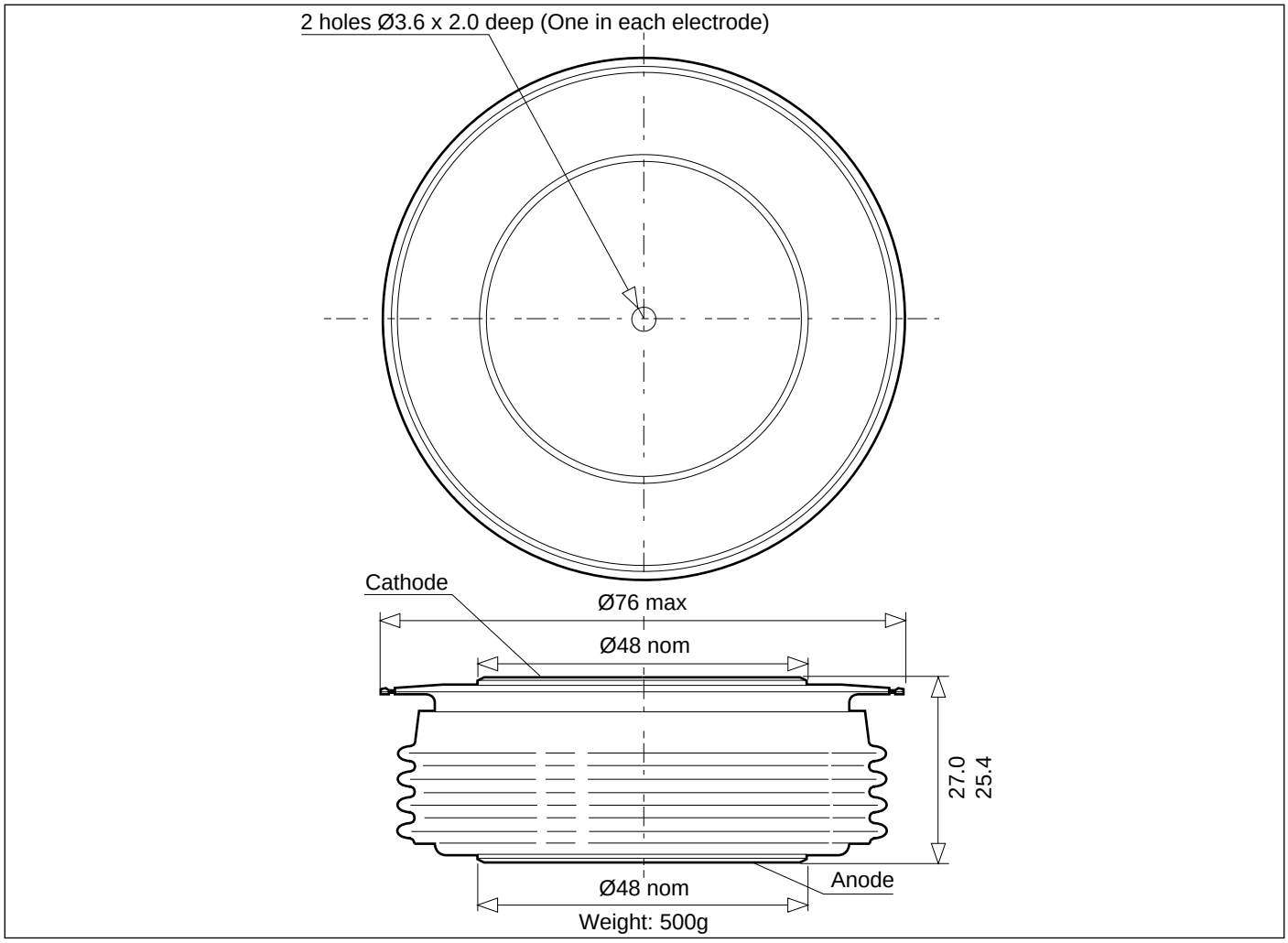


Fig.6 Maximum (limit) transient thermal impedance - junction to case - (˚C/W)

PACKAGE DETAILS - CB450

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



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