TR2106SY

Rectifier Diode

APPLICATIONS

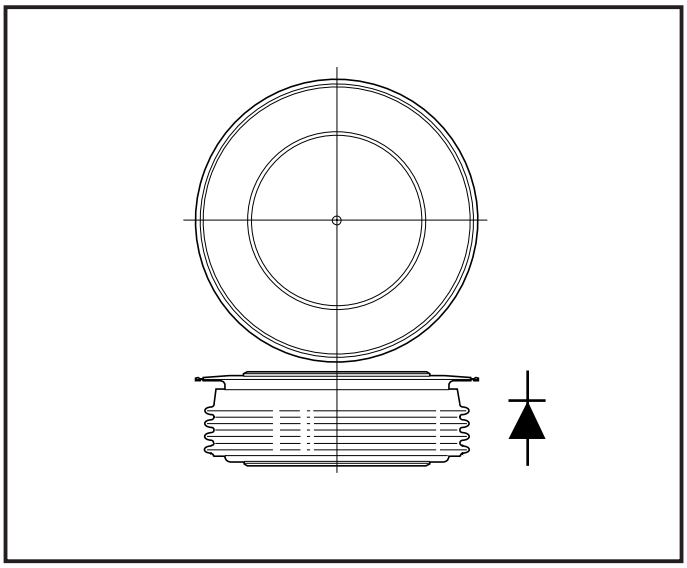
- Rectification
- Freewheel Diode
- DC Motor Control
- Power Supplies
- Welding
- Battery Chargers

KEY PARAMETERS

V_{RRM}	4000V
$I_{F(AV)}$	2850A
I_{FSM}	62500A

FEATURES

- Double Side Cooling
- High Surge Capability



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

VOLTAGE RATINGS

Type Number	Repetitive Peak Reverse Voltage V_{RRM} V	Conditions
TR2106SY40	4000	$V_{RSM} = V_{RRM} + 100V$
TR2106SY39	3900	
TR2106SY38	3800	
TR2106SY37	3700	
TR2106SY36	3600	
TR2106SY35	3500	

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} = 100°C	2850	A
$I_{F(RMS)}$	RMS value	T_{case} = 100°C	4475	A
I_F	Continuous (direct) forward current	T_{case} = 100°C	4190	A
Single Side Cooled (Anode side)				
$I_{F(AV)}$	Mean forward current	Half wave resistive load, T_{case} = 100°C	1920	A
$I_{F(RMS)}$	RMS value	T_{case} = 100°C	3014	A
I_F	Continuous (direct) forward current	T_{case} = 100°C	2500	A

TR2106SY

SURGE RATINGS

Symbol	Parameter	Conditions	Max.	Units
I_{FSM}	Surge (non-repetitive) forward current	10ms half sine; T_{case} = 150°C	50.0	kA
I^2t	I^2t for fusing	V_R = 50% V_{RRM} - 1/4 sine	12.5 x 10^6	A^2s
I_{FSM}	Surge (non-repetitive) forward current	10ms half sine; T_{case} =150°C	62.5	kA
I^2t	I^2t for fusing	V_R = 0	1.96 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	-	0.0095	°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)		-	160	°C
		Reverse (blocking)		-	150	°C
T_{stg}	Storage temperature range			-55	150	°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°C	-	1.15	V
I_{RRM}	Peak reverse current	At V_{RRM}, T_{case} = 150°C	-	250	mA
Q_S	Total stored charge	I_F = 2000A, dI_{RR}/dt = 3A/µs	-	5000	µC
I_{RR}	Peak recovery current	T_{case} = 150C, V_R = 100V	-	150	A
V_{TO}	Threshold voltage	At T_{vj} = 150C	-	0.75	V
r_T	Slope resistance	At T_{vj} = 150C	-	0.118	mΩ

CURVES

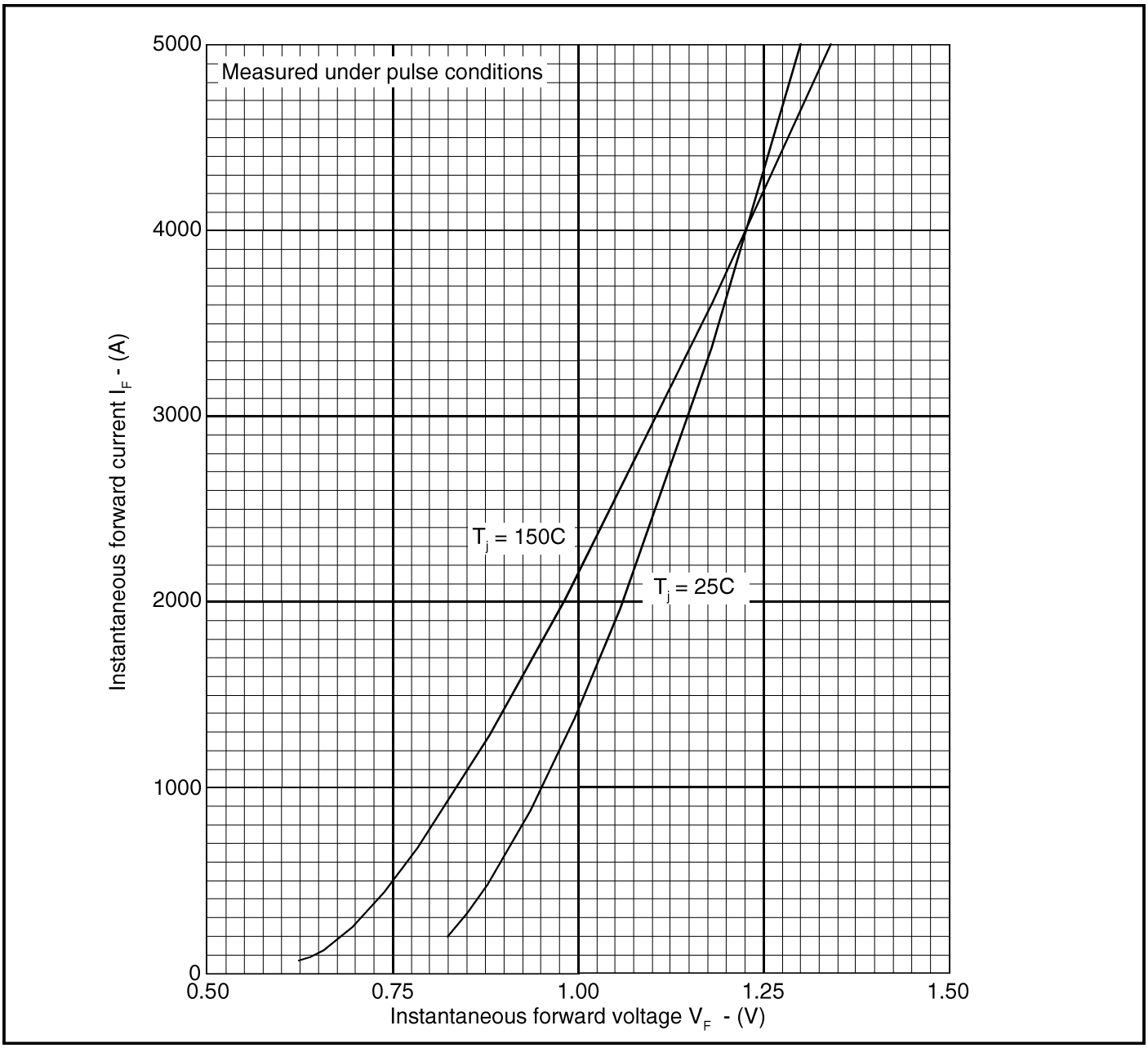


Fig. 1 Maximum (limit) forward characteristics

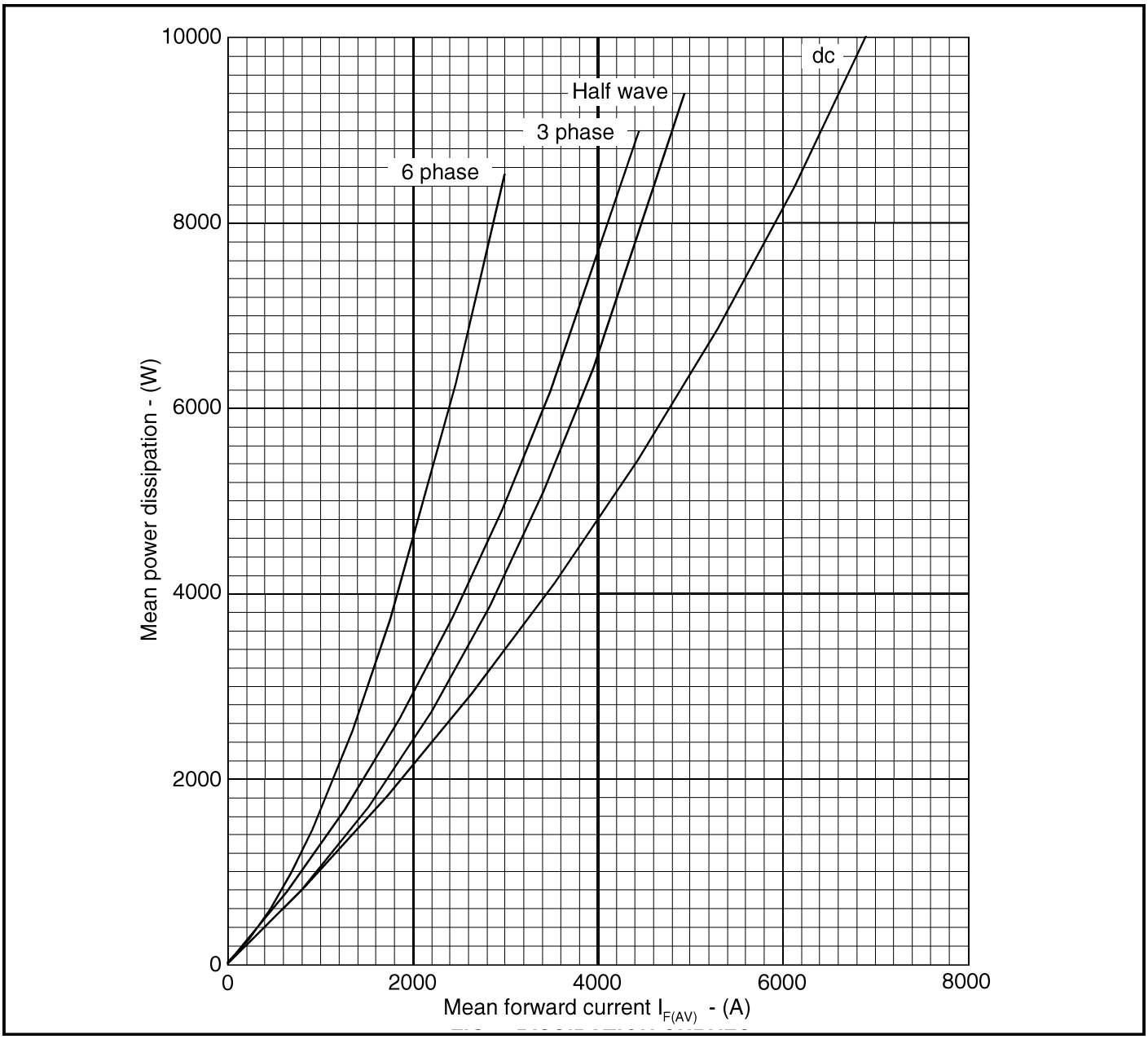


Fig. 2 Dissipation curves

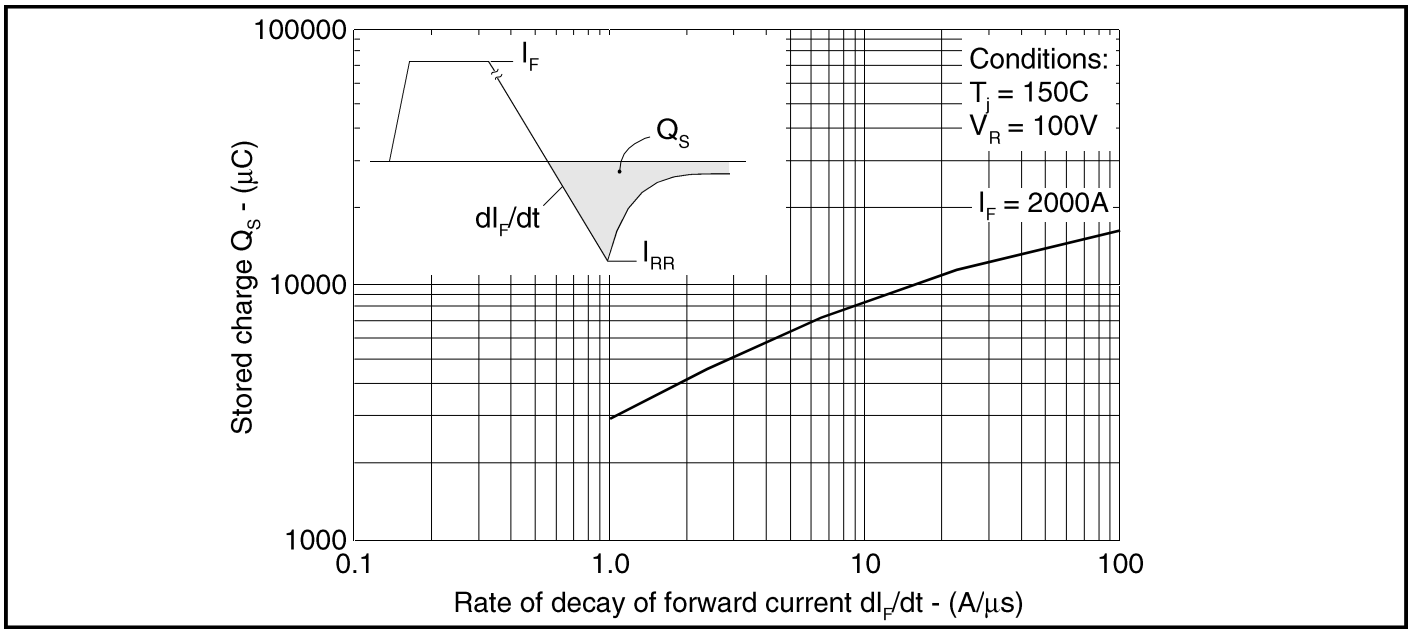


Fig. 3 Maximum stored charge

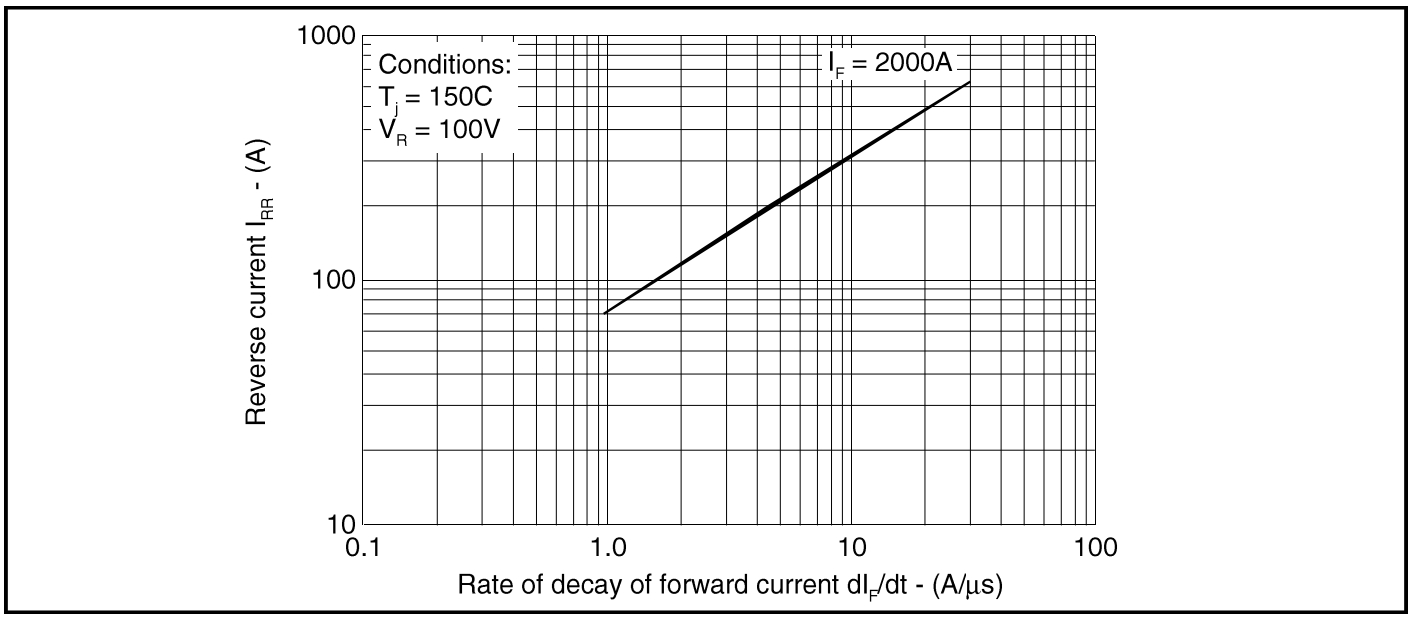


Fig. 4 Maximum reverse recovery current

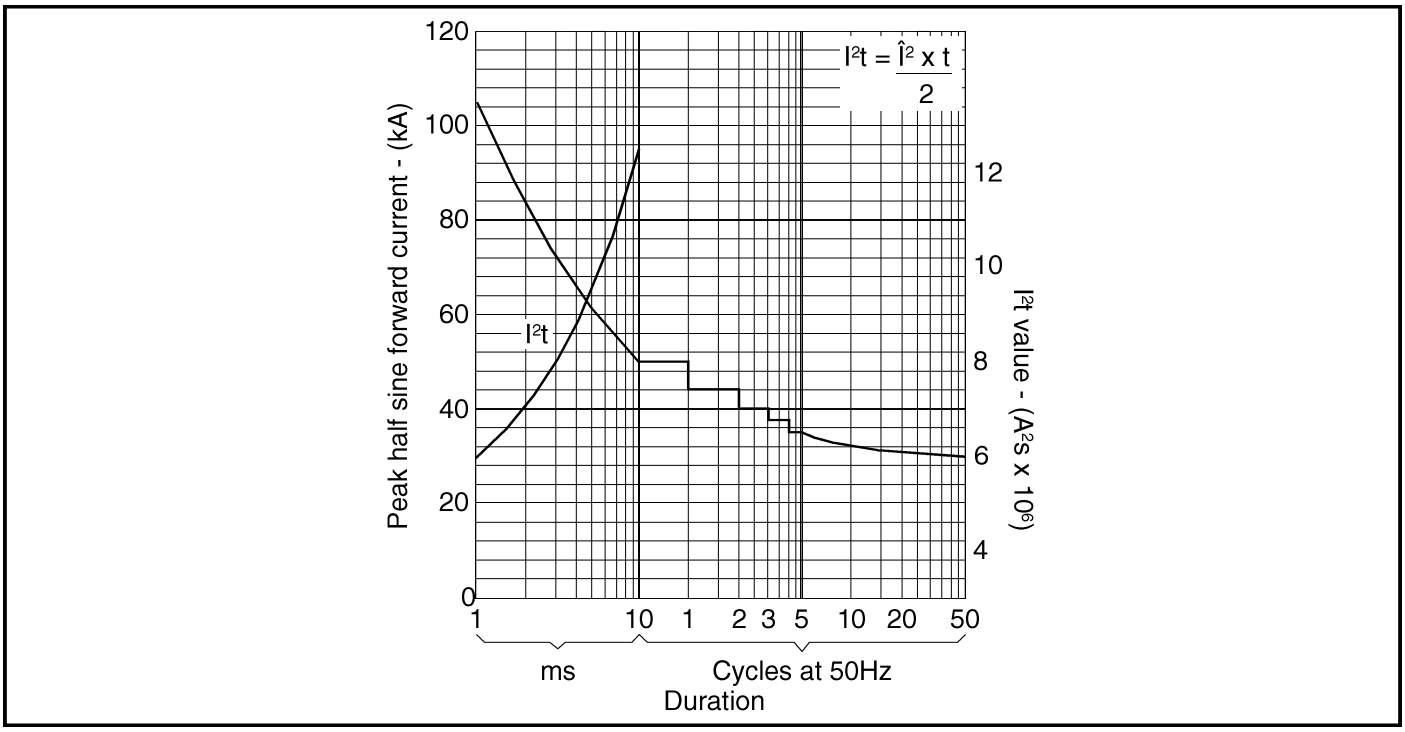
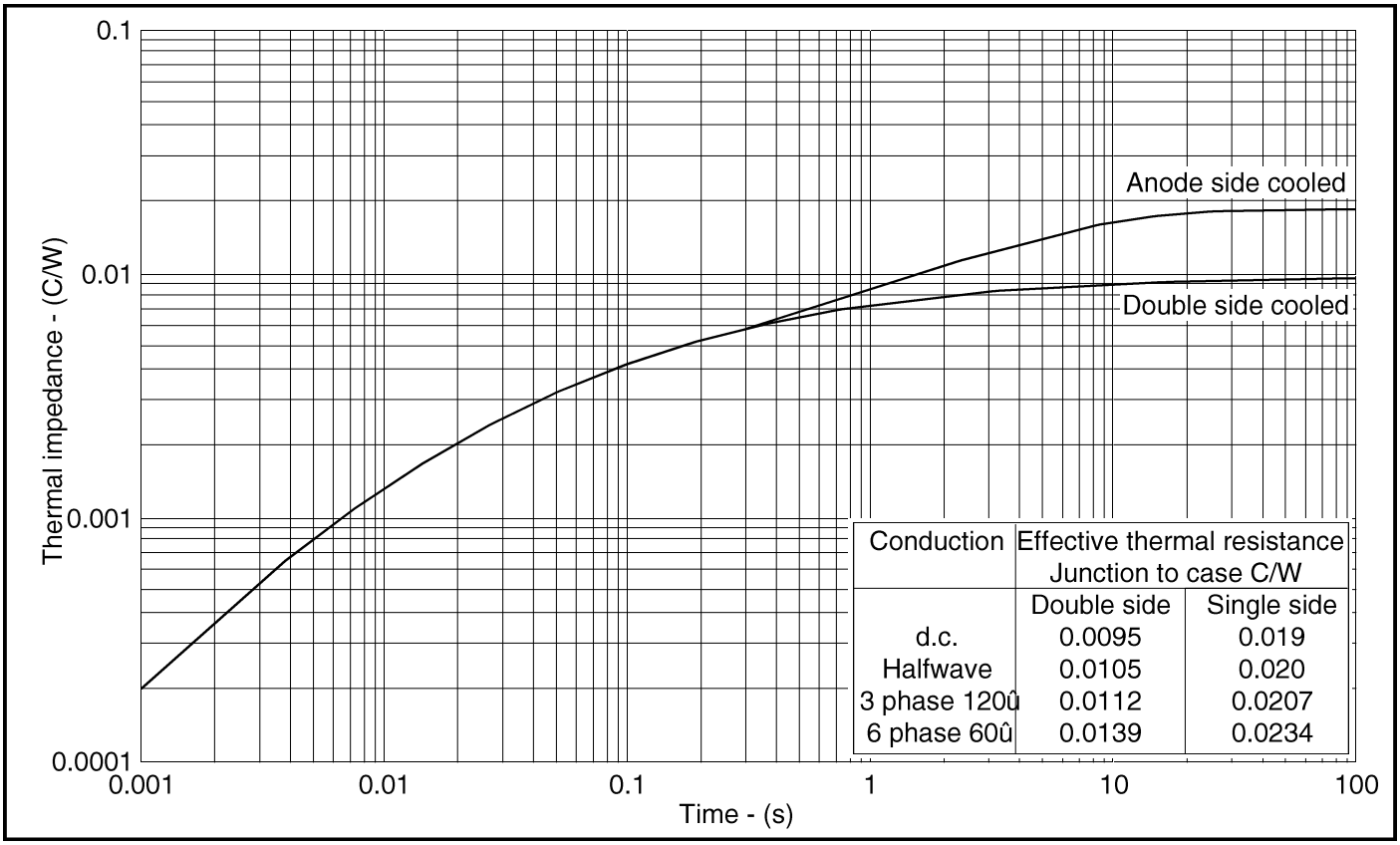


Fig. 5 Surge (non-repetitive) forward current vs time (with 50% V_{RRM}, T_{case} = 150C)

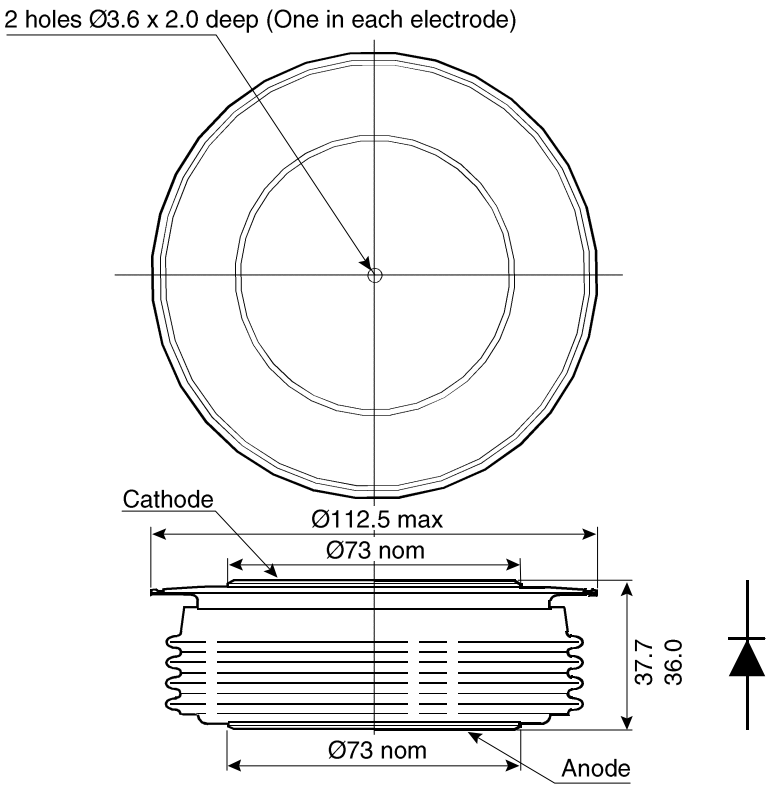


Conduction	Effective thermal resistance Junction to case C/W	
	Double side	Single side
d.c.	0.0095	0.019
Halfwave	0.0105	0.020
3 phase 120û	0.0112	0.0207
6 phase 60û	0.0139	0.0234

Fig. 6 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: 1600g
Clamping force: 50kN ±10%

Package outine type code: Y