

### APPLICATIONS

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

### FEATURES

- Double Side Cooling
- High Surge Capability

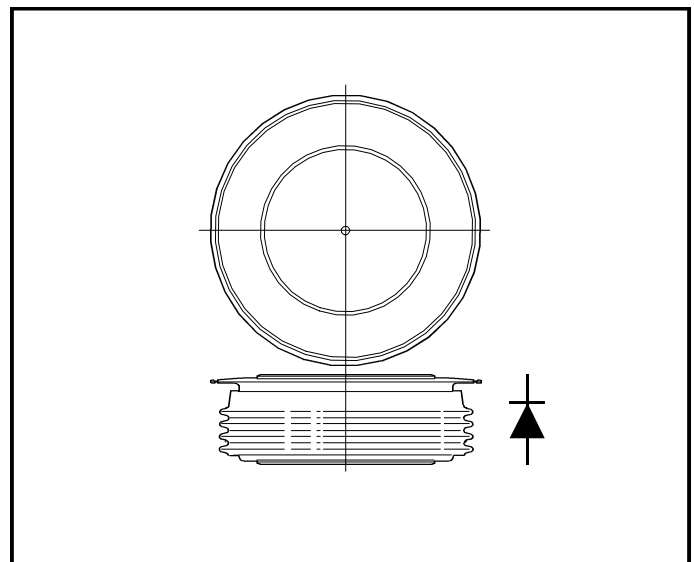
### VOLTAGE RATINGS

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.

### KEY PARAMETERS

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



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

### CURRENT RATINGS

Symbol	Parameter	Conditions	Max.	Units
<b>Double Side Cooled</b>				
$I_{F(AV)}$	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
<b>Single Side Cooled (Anode side)</b>				
$I_{F(AV)}$	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
$I_F$	Continuous (direct) forward current	$T_{case} = 100^{\circ}C$	3950	A

# TR2103SY

## SURGE RATINGS

Symbol	Parameter	Conditions	Max.	Units
$I_{FSM}$	Surge (non-repetitive) forward current	10ms half sine; $T_{case} = 175^{\circ}C$	65.0	kA
$I^2t$	$I^2t$ for fusing	$V_R = 50\% V_{RRM}$ - 1/4 sine	$21.1 \times 10^6$	A <sup>2</sup> s
$I_{FSM}$	Surge (non-repetitive) forward current	10ms half sine; $T_{case} = 175^{\circ}C$	81.0	kA
$I^2t$	$I^2t$ for fusing	$V_R = 0$	$33 \times 10^6$	A <sup>2</sup> 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	$^{\circ}C/W$
		Single side cooled	Anode dc	-	0.019	$^{\circ}C/W$
			Cathode dc	-	0.019	$^{\circ}C/W$
$R_{th(c-h)}$	Thermal resistance - case to heatsink	Clamping force 43.0kN with mounting compound	Double side	-	0.002	$^{\circ}C/W$
			Single side	-	0.004	$^{\circ}C/W$
$T_{vj}$	Virtual junction temperature	Forward (conducting)		-	200	$^{\circ}C$
		Reverse (blocking)		-	175	$^{\circ}C$
$T_{stg}$	Storage temperature range		-55	175	$^{\circ}C$	
-	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	$I_F = 2000A$ , $dI_{RR}/dt = 3A/\mu s$ $T_{case} = 175^{\circ}C$ , $V_R = 100V$	-	3000	$\mu C$
$I_{RM}$	Peak recovery current		-	125	A
$V_{TO}$	Threshold voltage	At $T_{vj} = 175^{\circ}C$	-	0.75	V
$r_T$	Slope resistance	At $T_{vj} = 175^{\circ}C$	-	0.063	m $\Omega$

CURVES

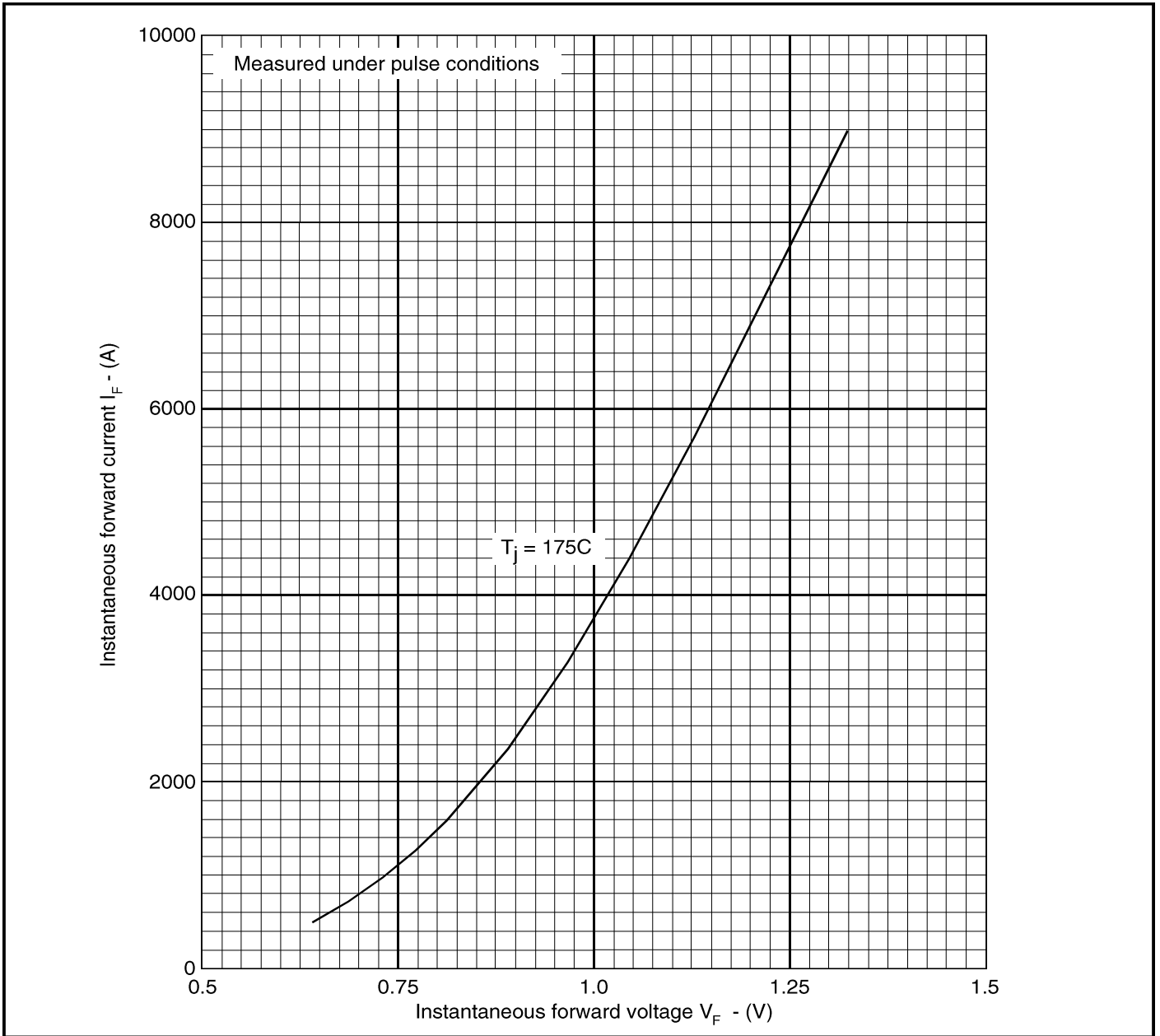


Fig.1 Maximum (limit) forward characteristics

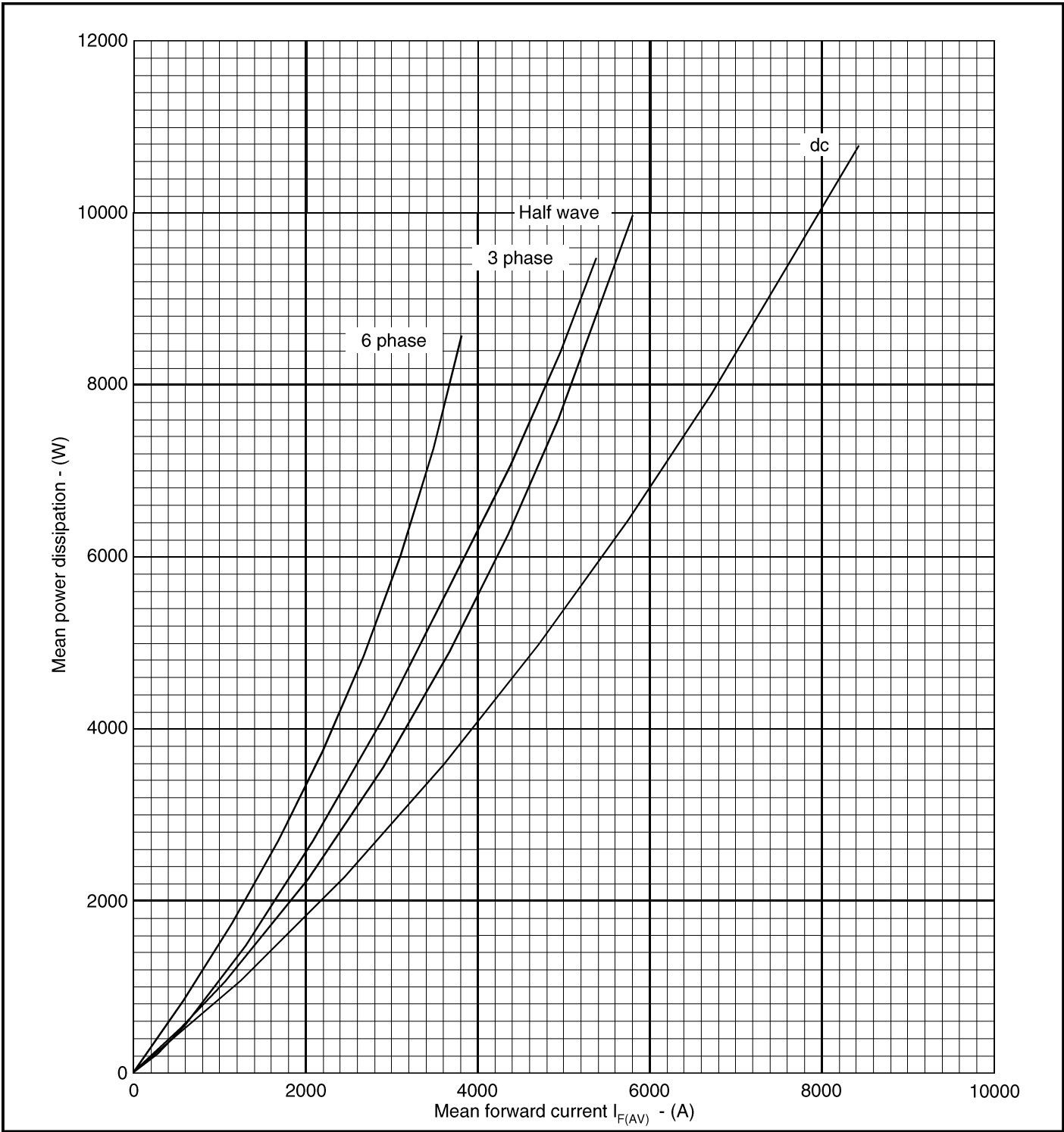


Fig.2 Dissipation curves

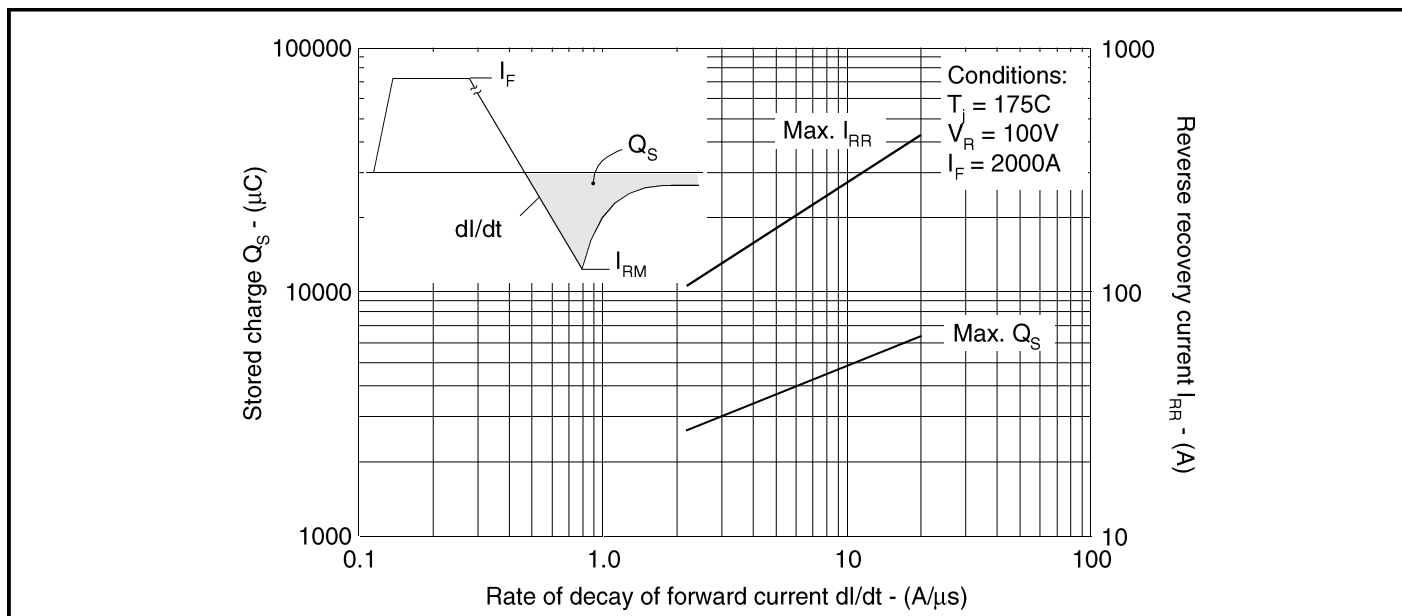


Fig.3 Maximum stored charge and reverse recovery current vs di/dt

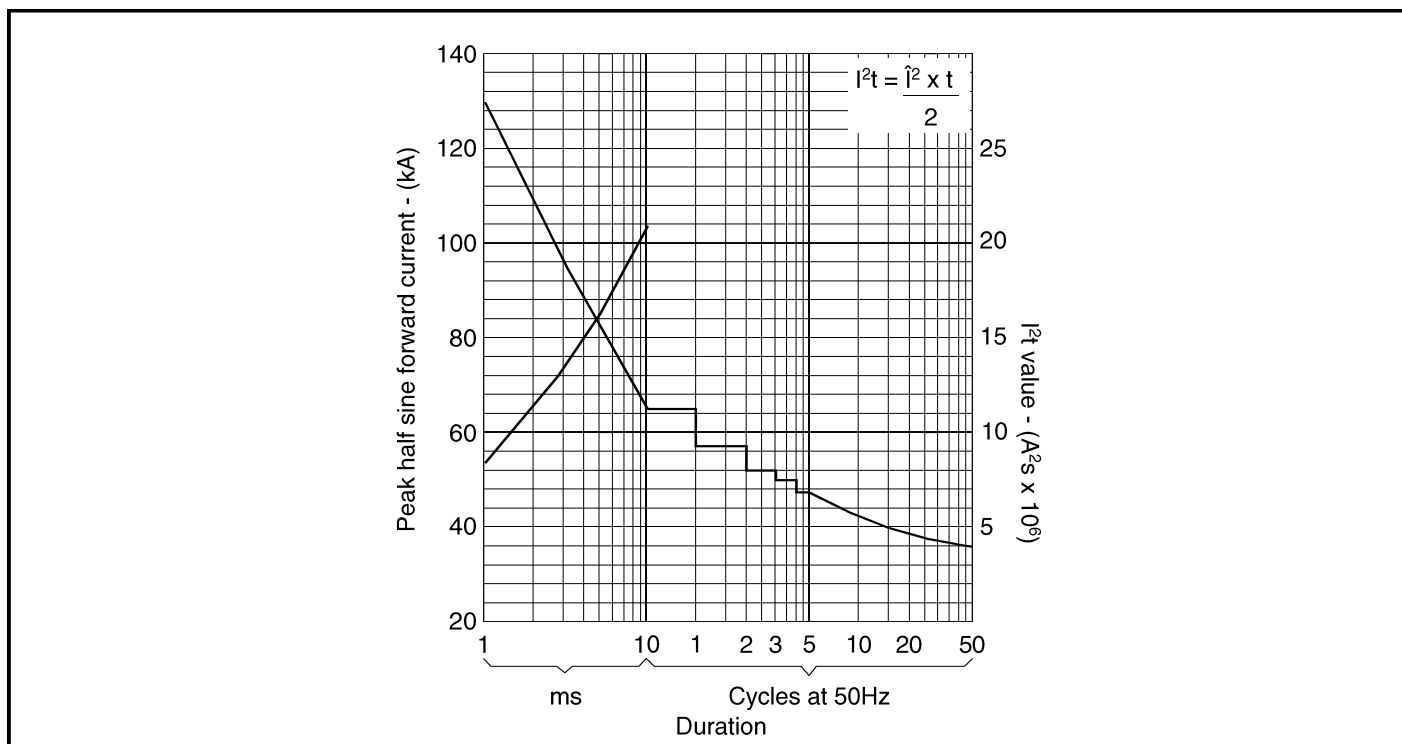


Fig.4 Surge (non-repetitive) forward current vs time (with 50%  $V_{RRM}$  @  $T_{case} = 175^\circ\text{C}$ )

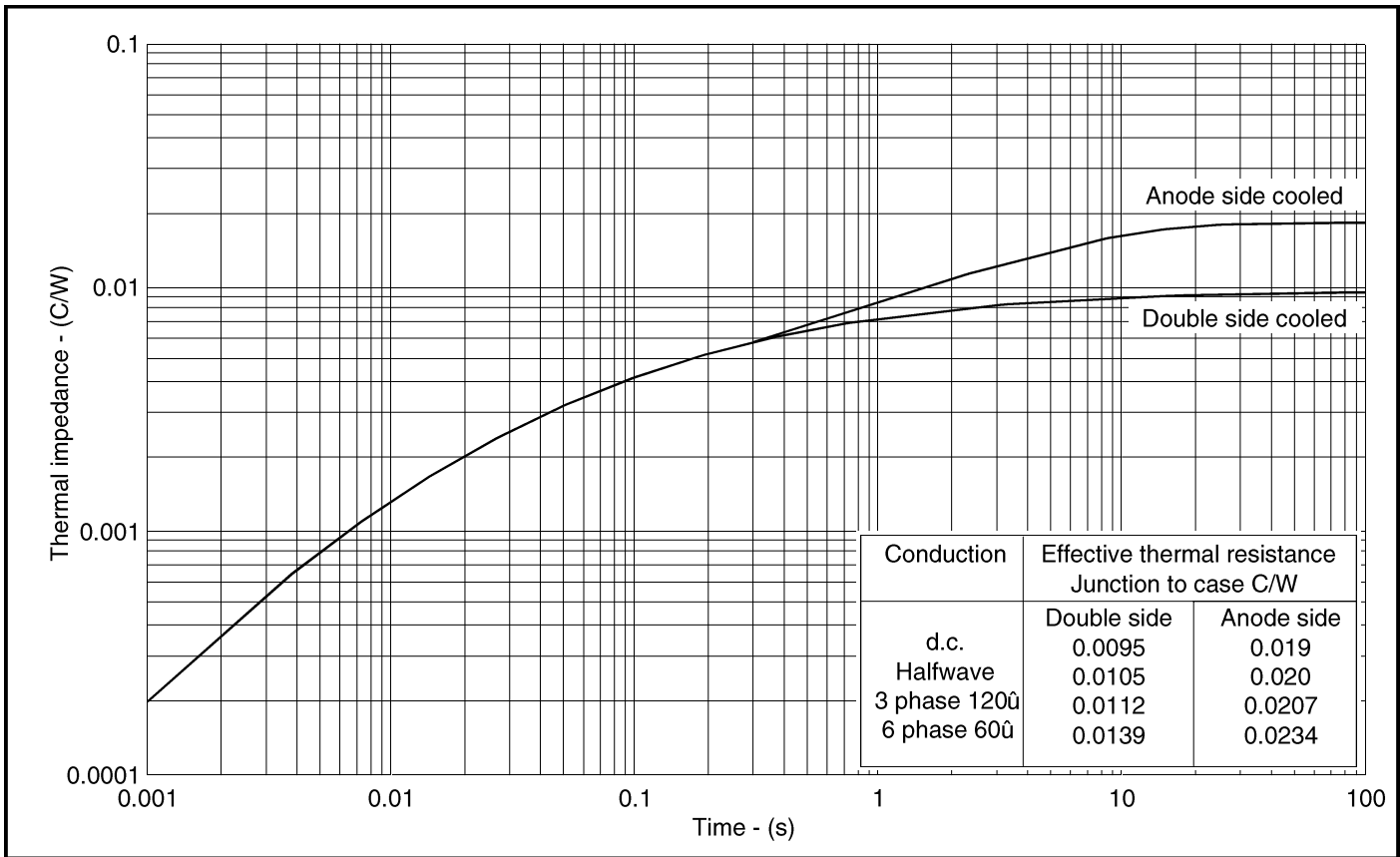


Fig.5 Maximum (limit) transient thermal impedance - junction to case (C/W)

**PACKAGE DETAILS**

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

