

### APPLICATIONS

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

### FEATURES

- Double Side Cooling
- High Surge Capability

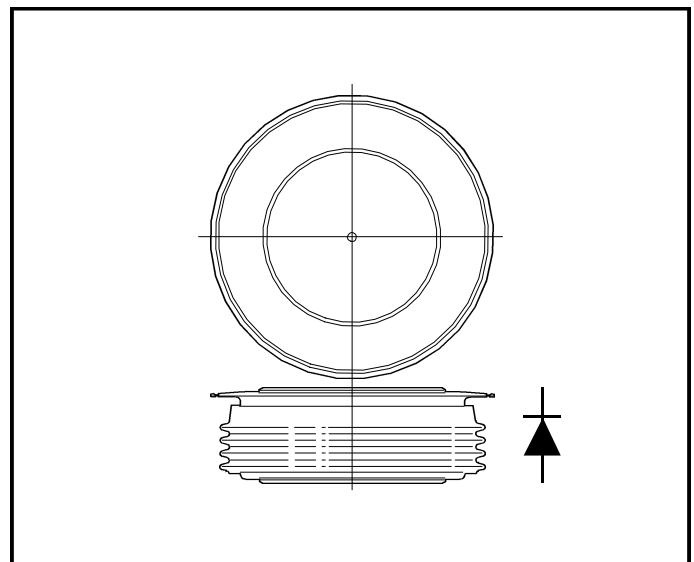
### VOLTAGE RATINGS

Type Number	Repetitive Peak Reverse Voltage $V_{RRM}$ V	Conditions
TR2107SY45	4500	$V_{RSM} = V_{RRM} + 100V$
TR2107SY44	4400	
TR2107SY43	4300	
TR2107SY42	4200	
TR2107SY41	4100	
TR2107SY40	4000	

Lower voltage grades available.

### KEY PARAMETERS

$V_{RRM}$	4500V
$I_{F(AV)}$	2590A
$I_{FSM}$	52500A



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, $T_{case} = 100^{\circ}C$	2590	A
$I_{F(RMS)}$	RMS value	$T_{case} = 100^{\circ}C$	4070	A
$I_F$	Continuous (direct) forward current	$T_{case} = 100^{\circ}C$	3510	A
<b>Single Side Cooled (Anode side)</b>				
$I_{F(AV)}$	Mean forward current	Half wave resistive load, $T_{case} = 100^{\circ}C$	1710	A
$I_{F(RMS)}$	RMS value	$T_{case} = 100^{\circ}C$	2685	A
$I_F$	Continuous (direct) forward current	$T_{case} = 100^{\circ}C$	2110	A

# TR2107SY

## SURGE RATINGS

Symbol	Parameter	Conditions	Max.	Units
$I_{FSM}$	Surge (non-repetitive) forward current	10ms half sine; $T_{case} = 150^{\circ}C$ $V_R = 50\% V_{RRM} - 1/4$ sine	42.0	kA
$I^2t$	$I^2t$ for fusing		$8.82 \times 10^6$	$A^2s$
$I_{FSM}$	Surge (non-repetitive) forward current	10ms half sine; $T_{case} = 150^{\circ}C$ $V_R = 0$	52.5	kA
$I^2t$	$I^2t$ for fusing		$13.8 \times 10^6$	$A^2s$

## 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	$^{\circ}C/W$
		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)		-	160	$^{\circ}C$
		Reverse (blocking)		-	150	$^{\circ}C$
$T_{stg}$	Storage temperature range		-55	150	$^{\circ}C$	
-	Clamping force		38.0	47.0	kN	

## CHARACTERISTICS

Symbol	Parameter	Conditions	Min.	Max.	Units
$V_{FM}$	Forward voltage	At 3000A peak, $T_{case} = 25^{\circ}C$	-	1.275	V
$I_{RRM}$	Peak reverse current	At $V_{RRM}$ , $T_{case} = 150^{\circ}C$	-	250	mA
$Q_S$	Total stored charge	$I_F = 2000A$ , $dI_{RR}/dt = 3A/\mu s$ $T_{case} = 150C$ , $V_R = 100V$	-	5000	$\mu C$
$I_{RR}$	Peak recovery current		-	150	A
$V_{TO}$	Threshold voltage	At $T_{vj} = 150C$	-	0.77	V
$r_T$	Slope resistance	At $T_{vj} = 150C$	-	0.167	$m\Omega$

## CURVES

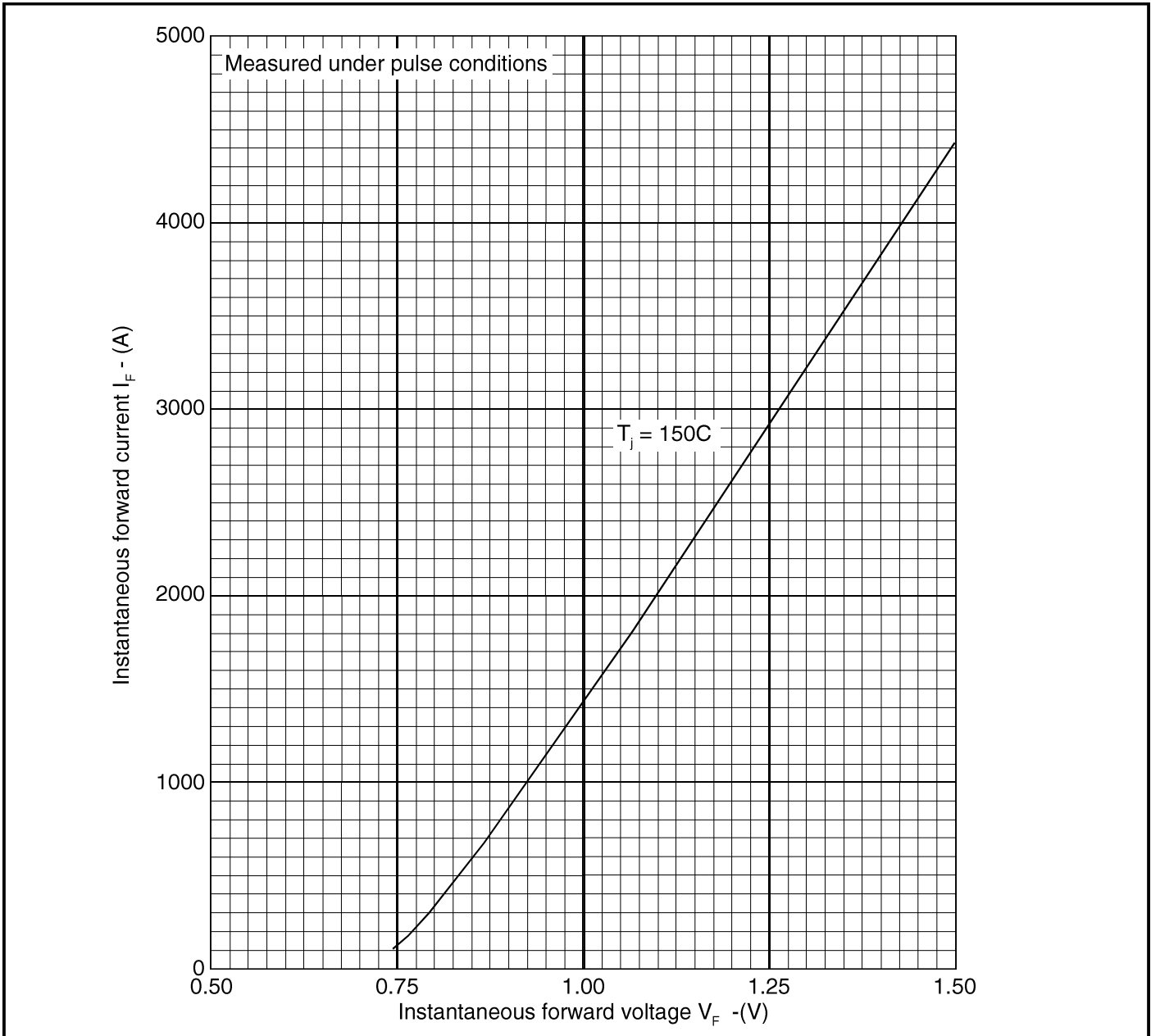


Fig. 1 Maximum (limit) forward characteristics

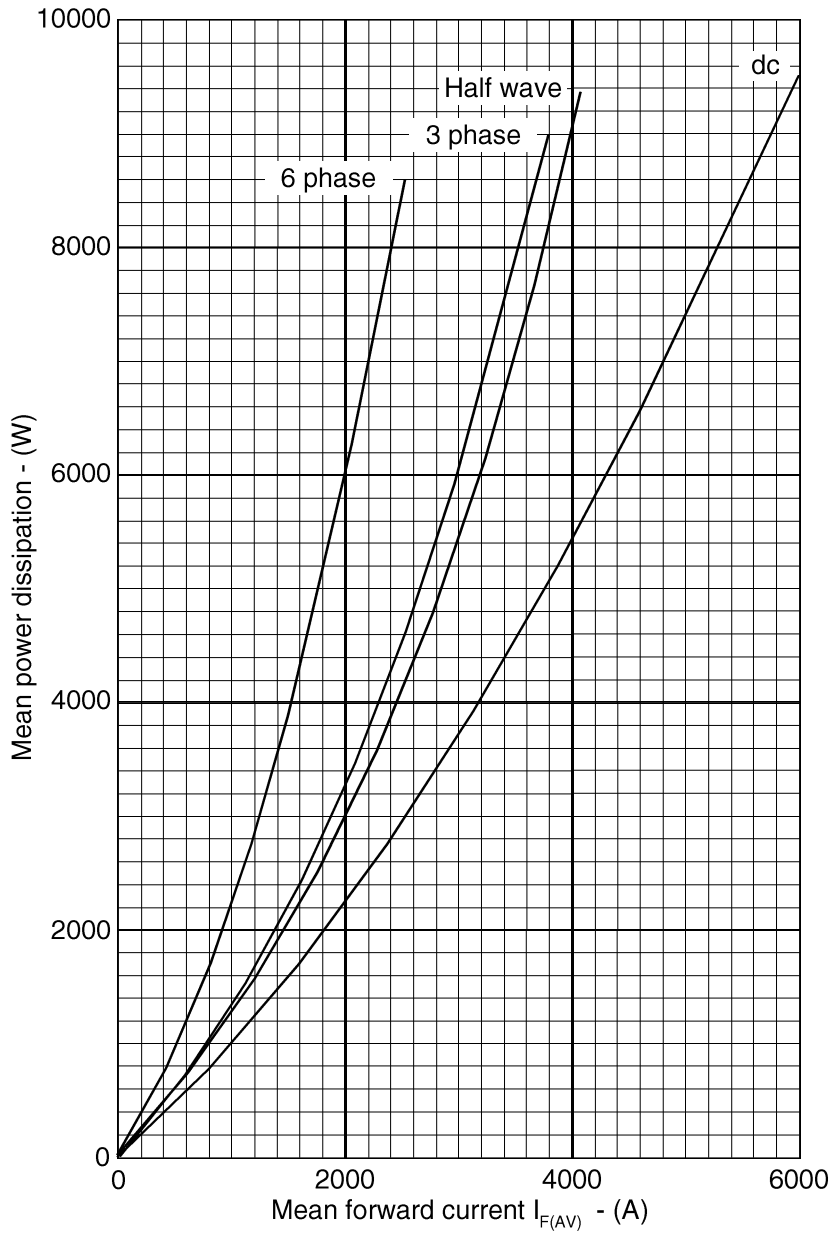


Fig. 2 Dissipation curves

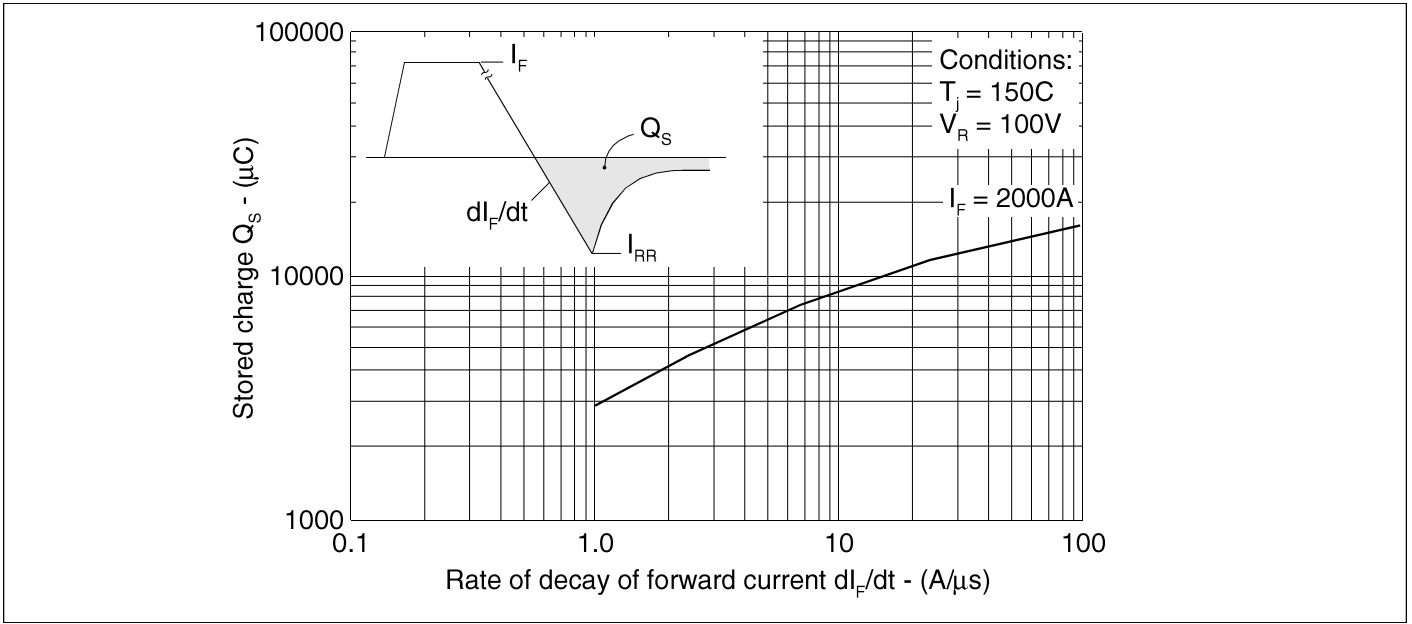


Fig. 3 Maximum total stored charge

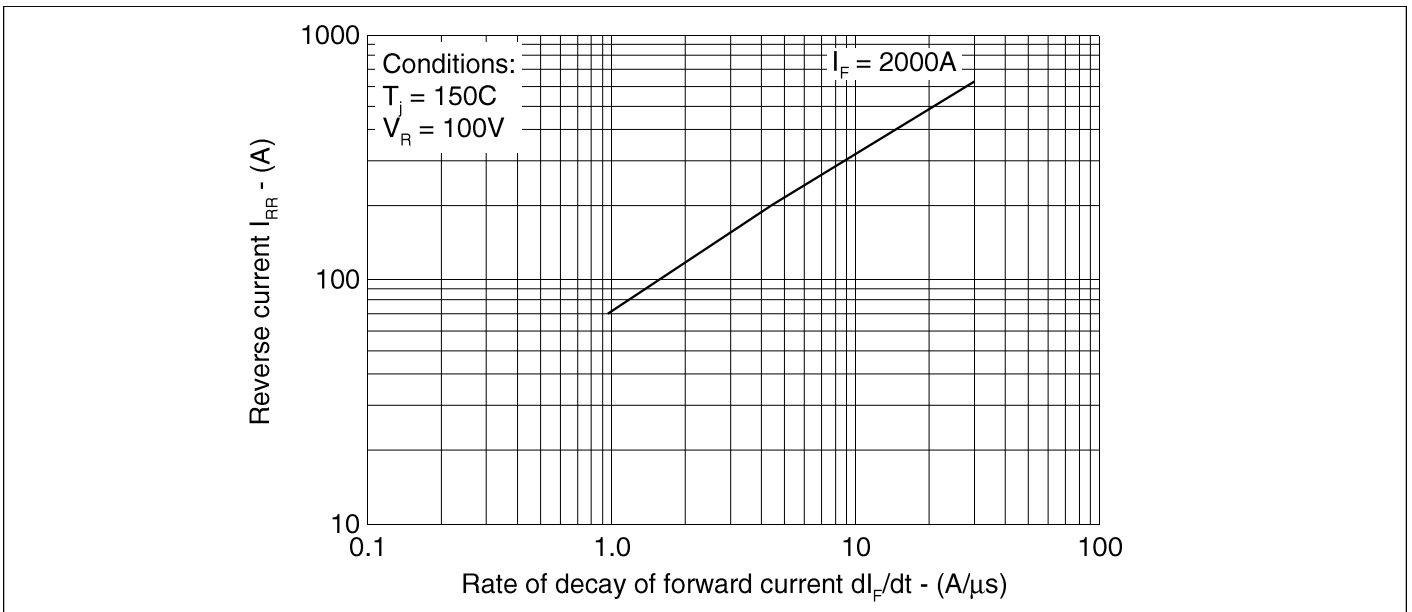


Fig. 4 Maximum reverse recovery current

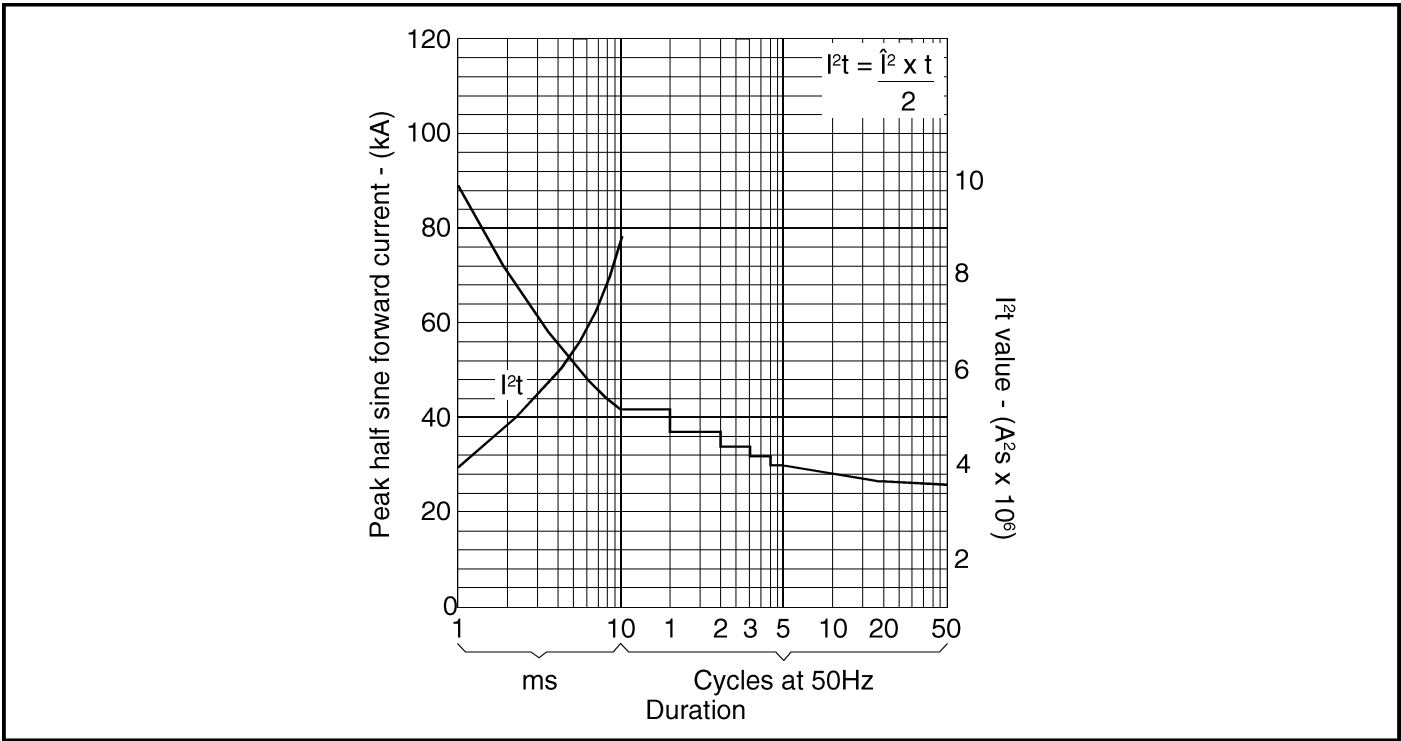


Fig. 5 Surge (non-repetitive) forward current vs time (with 50%  $V_{RRM}$ ,  $T_{case} = 150C$ )

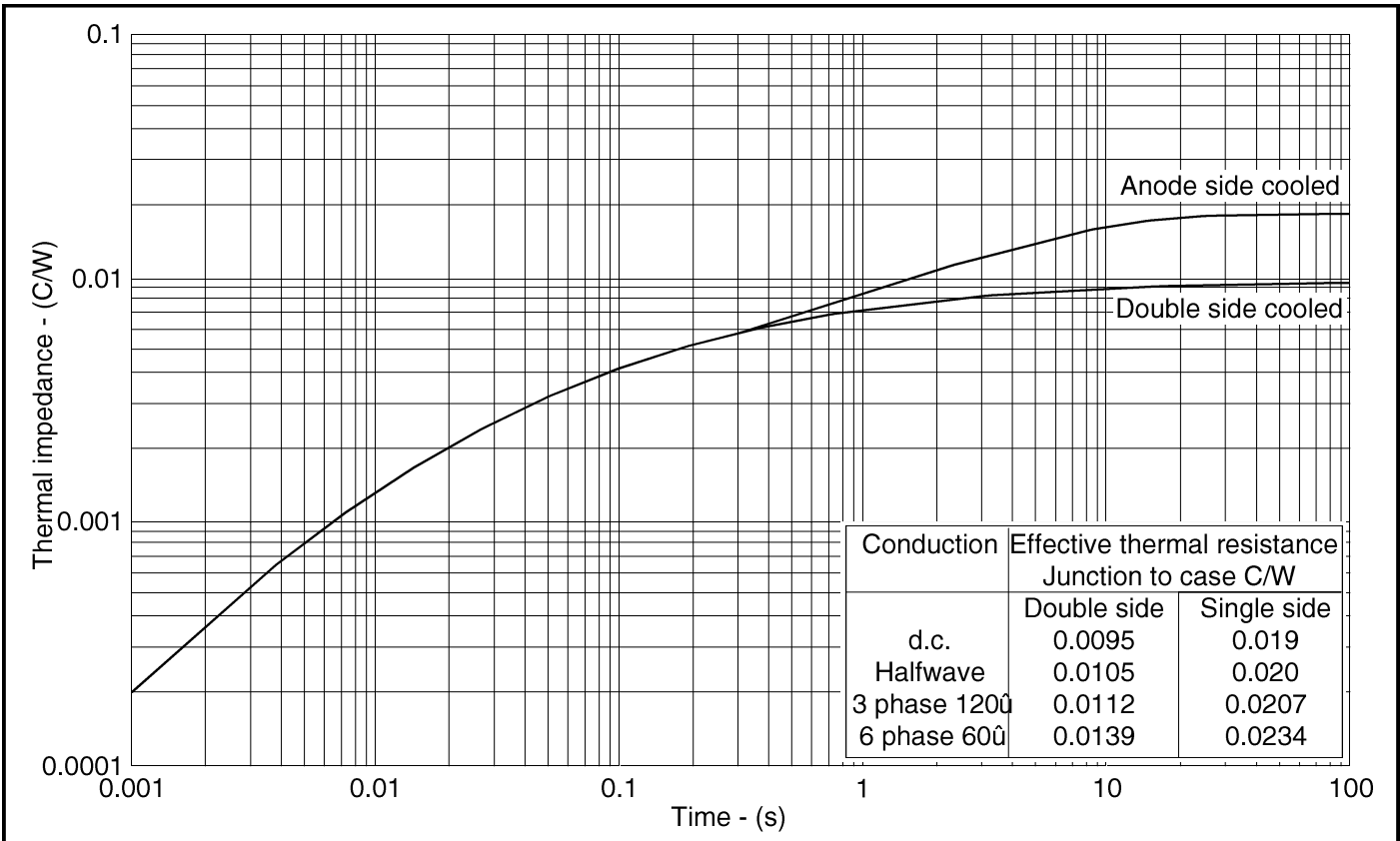


Fig. 6 Transient thermal impedance - junction to case - (C/W)

**PACKAGE DETAILS**

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

