

APPLICATIONS

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

KEY PARAMETERS

V_{RRM}	4500V
$I_{F(AV)}$	2000A
I_{FSM}	31000A

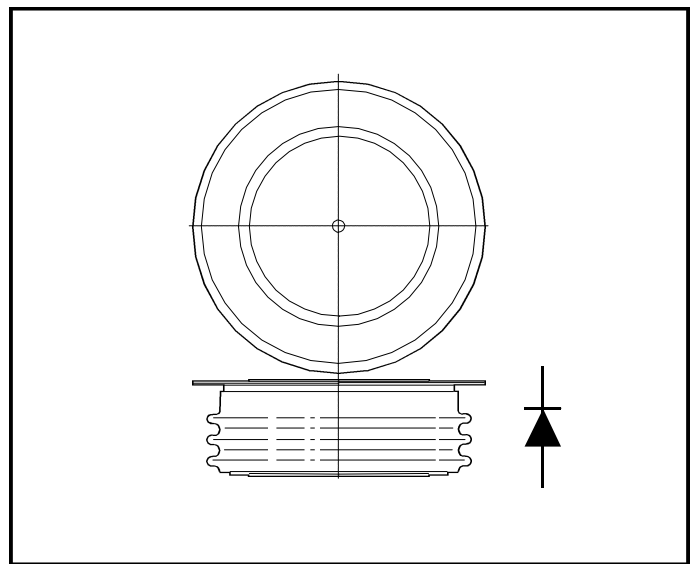
FEATURES

- Double Side Cooling.
- High Surge Capability.

VOLTAGE RATINGS

Type Number	Repetitive Peak Reverse Voltage V_{RRM} V	Conditions
TRB65 45	4500	$V_{RSM} = V_{RRM} + 100V$
TRB65 44	4400	
TRB65 42	4200	
TRB65 40	4000	
TRB65 38	3800	
TRB65 36	3600	

Lower voltage grades available.



Outline type code: DO200AD.
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, $T_{case} = 100^{\circ}C$	2000	A
$I_{F(RMS)}$	RMS value	$T_{case} = 100^{\circ}C$	3140	A
I_F	Continuous (direct) forward current	$T_{case} = 100^{\circ}C$	2800	A
Single Side Cooled (Anode side)				
$I_{F(AV)}$	Mean forward current	Half wave resistive load, $T_{case} = 100^{\circ}C$	1284	A
$I_{F(RMS)}$	RMS value	$T_{case} = 100^{\circ}C$	2017	A
I_F	Continuous (direct) forward current	$T_{case} = 100^{\circ}C$	1715	A

TRB65

SURGE RATINGS

Symbol	Parameter	Conditions	Max.	Units
I_{FSM}	Surge (non-repetitive) forward current	10ms half sine; $T_{case} = 150^{\circ}C$	24.8	kA
I^2t	I^2t for fusing	$V_R = 50\% V_{RRM}$ - 1/4 sine	3.075×10^6	A ² s
I_{FSM}	Surge (non-repetitive) forward current	10ms half sine; $T_{case} = 150^{\circ}C$	31.0	kA
I^2t	I^2t for fusing	$V_R = 0$	4.8×10^6	A ² s

THERMAL AND MECHANICAL DATA

Symbol	Parameter	Conditions	Min.	Max.	Units	
$R_{th(j-c)}$	Thermal resistance - junction to case	Double side cooled	dc	-	0.013	$^{\circ}C/W$
		Single side cooled	Anode dc	-	0.025	$^{\circ}C/W$
			Cathode dc	-	0.027	$^{\circ}C/W$
$R_{th(c-h)}$	Thermal resistance - case to heatsink	Clamping force 45.0kN with mounting compound	Double side	-	0.003	$^{\circ}C/W$
			Single side	-	0.006	$^{\circ}C/W$
T_{vj}	Virtual junction temperature	Forward (conducting)		-	150	$^{\circ}C$
		Reverse (blocking)		-	150	$^{\circ}C$
T_{stg}	Storage temperature range		-55	175	$^{\circ}C$	
-	Clamping force		40.0	48.0	kN	

CHARACTERISTICS

Symbol	Parameter	Conditions	Typ.	Max.	Units
V_{FM}	Forward voltage	At 3000A peak, $T_{case} = 25^{\circ}C$	-	1.45	V
I_{RRM}	Peak reverse current	At V_{RRM} , $T_{case} = 150^{\circ}C$	-	150	mA
Q_S	Total stored charge	$I_F = 1500A$, $di_{RR}/dt = 25A/\mu s$ $T_{case} = 25C$, $V_R = 100V$	6000	-	μC
I_{RM}	Peak recovery current		-	500	A
t_{rr}	Reverse recovery time		25	-	μs
V_{TO}	Threshold voltage	At $T_{vj} = 150C$	-	0.84	V
r_T	Slope resistance	At $T_{vj} = 150C$	-	0.19	m Ω

CURVES

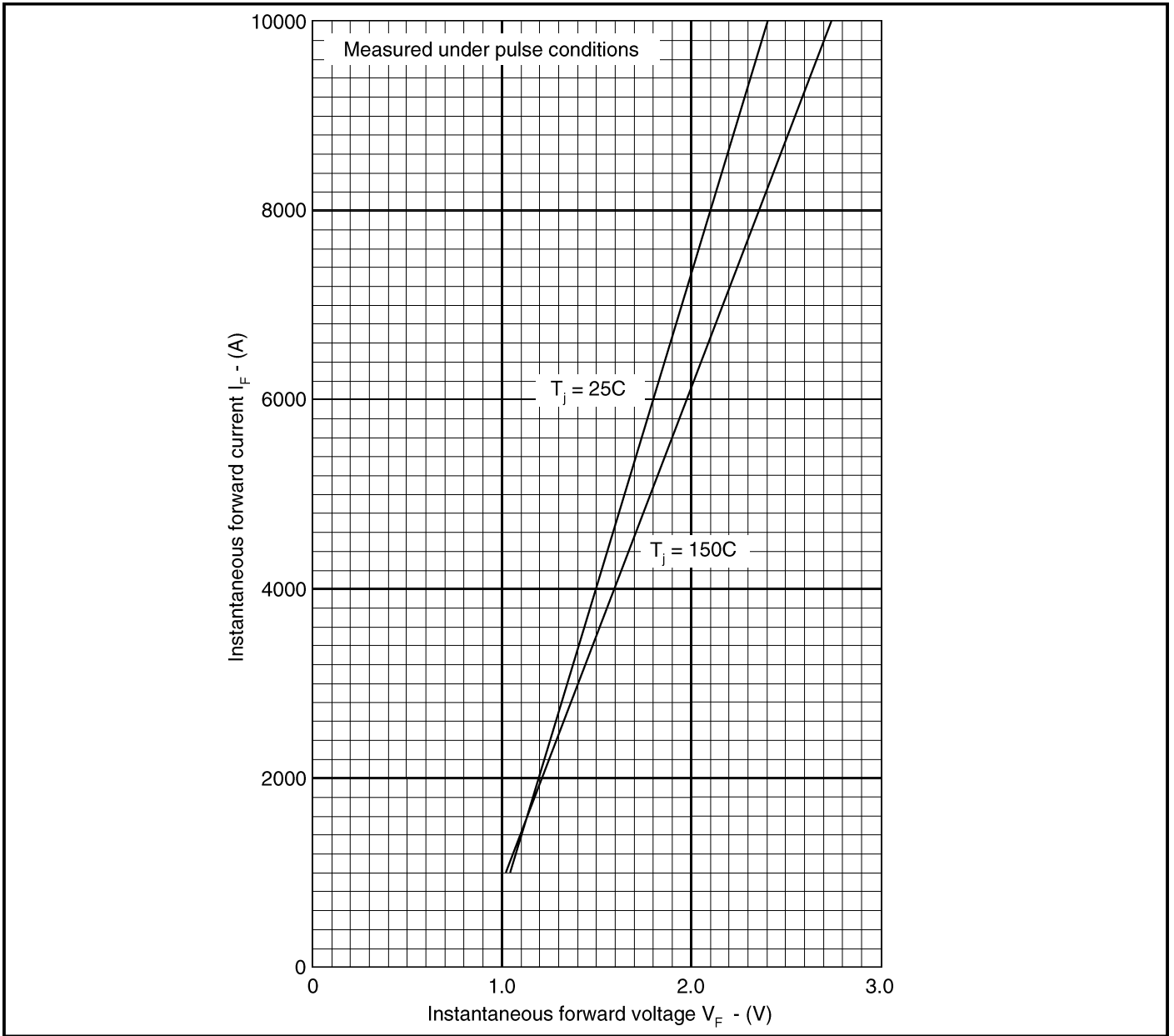


Fig.1 Maximum (limit) forward characteristics

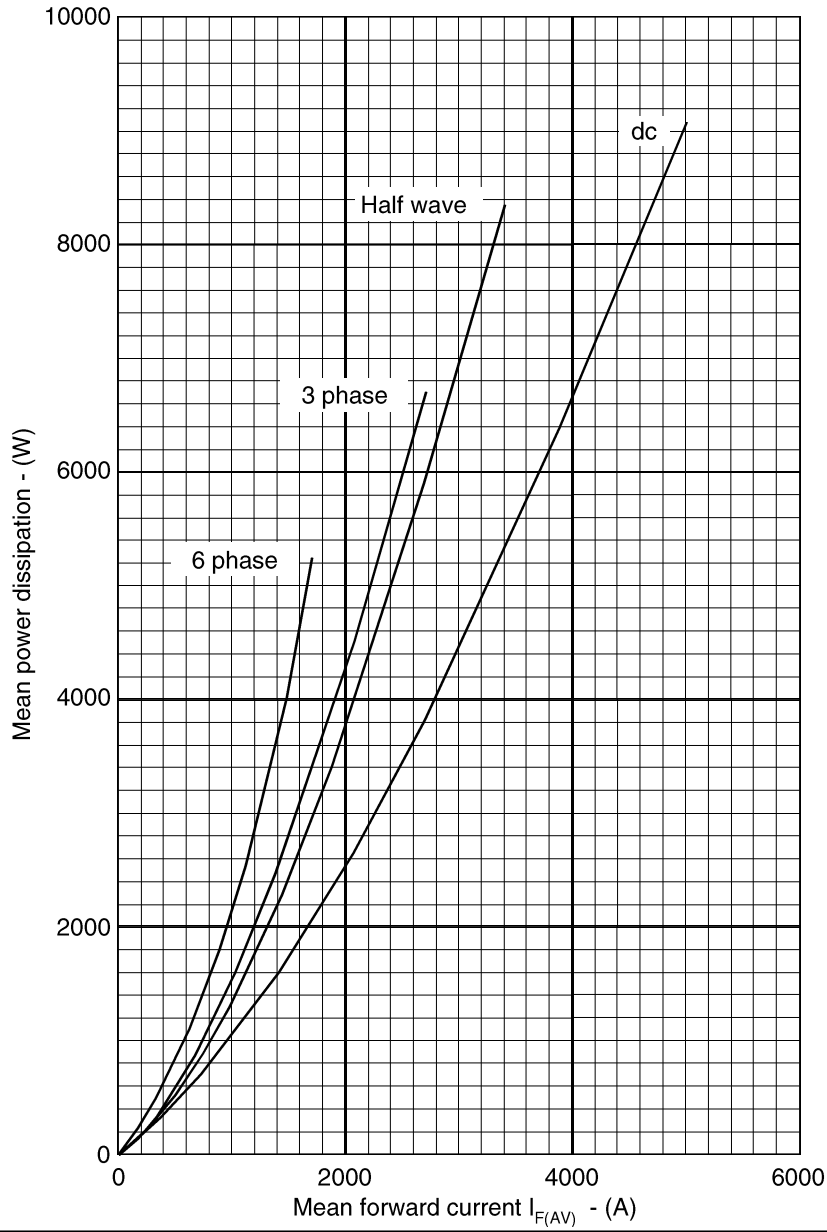


Fig.2 Dissipation curves

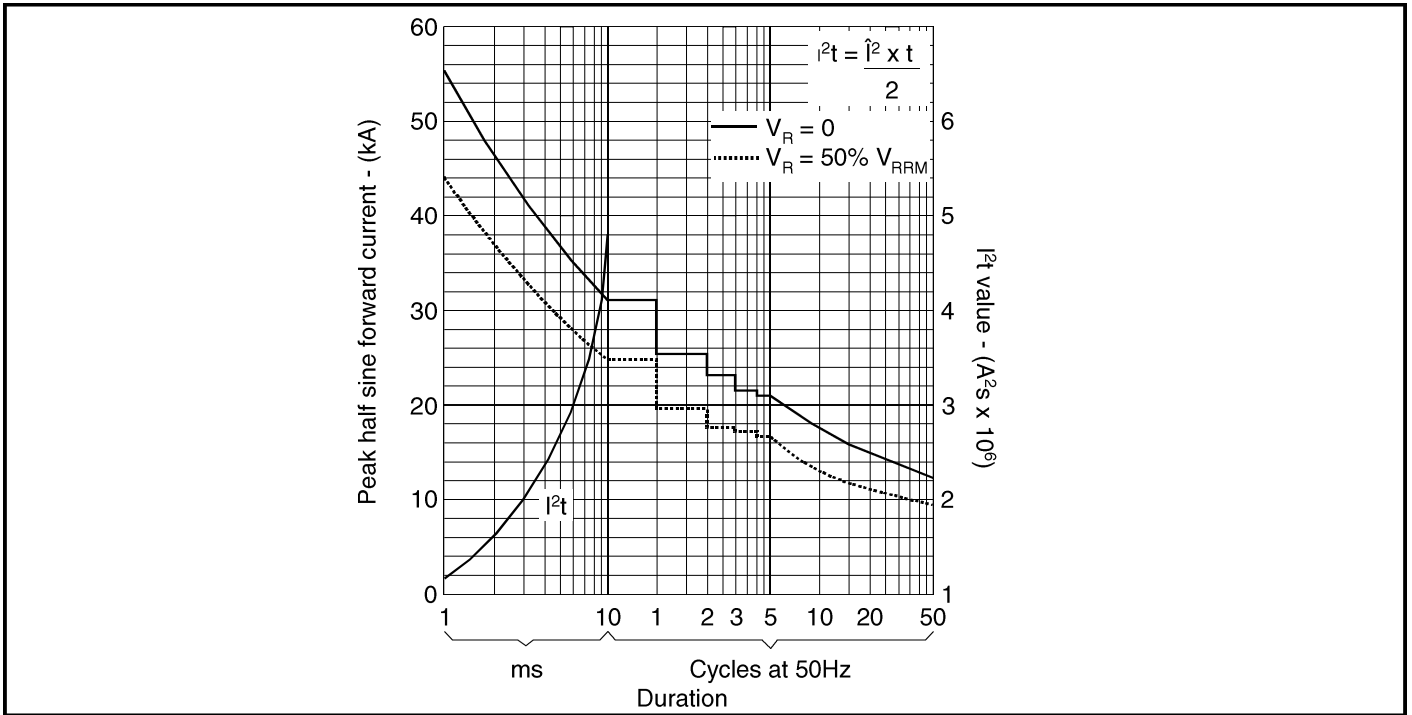


Fig.3 Surge (non-repetitive forward current vs time ($T_{case} = 150C$))

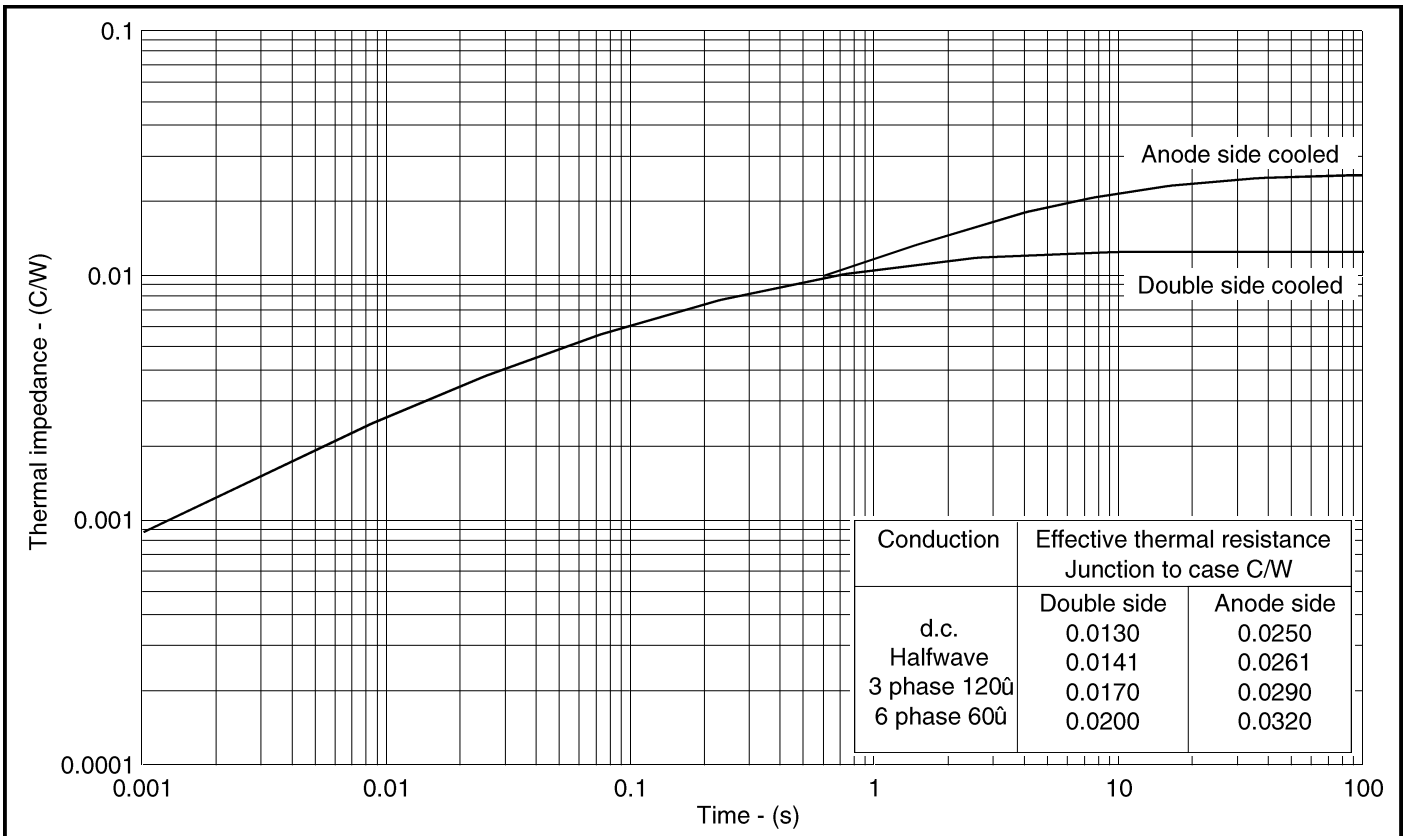


Fig.4 Maximum (limit) transient thermal impedance - junction to case - (C/W)

