TRB65

Recifier Diode

APPLICATIONS

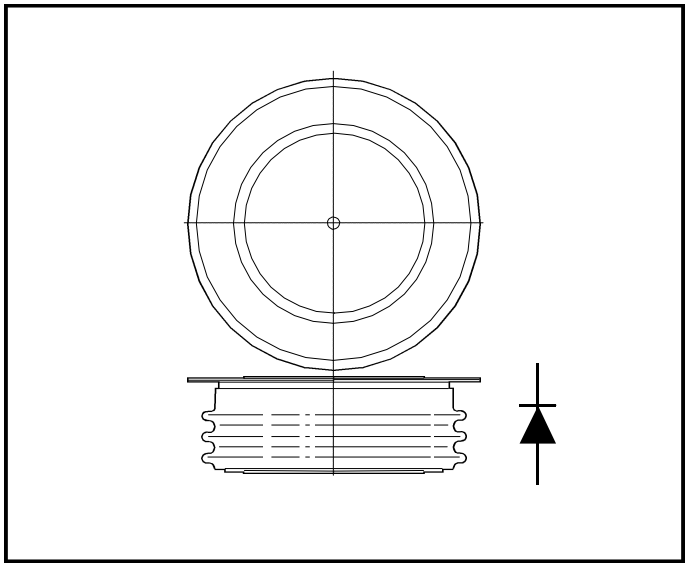
- Rectification.
- Freewheel Diode.
- DC Motor Control.
- Power Supplies.
- Welding.
- Battery Chargers.

KEY PARAMETERS

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

FEATURES

- Double Side Cooling.
- High Surge Capability.



Outline type code: DO200AD.
See Package Details for further information.

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.

CURRENT RATINGS

Symbol	Parameter	Conditions	Max.	Units
Double Side Cooled				
$I_{F(AV)}$	Mean forward current	Half wave resistive load, T_{case} = 100°C	2000	A
$I_{F(RMS)}$	RMS value	T_{case} = 100°C	3140	A
I_F	Continuous (direct) forward current	T_{case} = 100°C	2800	A
Single Side Cooled (Anode side)				
$I_{F(AV)}$	Mean forward current	Half wave resistive load, T_{case} = 100°C	1284	A
$I_{F(RMS)}$	RMS value	T_{case} = 100°C	2017	A
I_F	Continuous (direct) forward current	T_{case} = 100°C	1715	A

TRB65

SURGE RATINGS

Symbol	Parameter	Conditions	Max.	Units
I_{FSM}	Surge (non-repetitive) forward current	10ms half sine; T_{case} = 150°C	24.8	kA
I^2t	I^2t for fusing	V_R = 50% V_{RRM} - 1/4 sine	3.075 x 10^6	A^2s
I_{FSM}	Surge (non-repetitive) forward current	10ms half sine; T_{case} = 150°C	31.0	kA
I^2t	I^2t for fusing	V_R = 0	4.8 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	-	0.013	°C/W
		Single side cooled	Anode dc	-	0.025	°C/W
			Cathode dc	-	0.027	°C/W
$R_{th(c-h)}$	Thermal resistance - case to heatsink	Clamping force 45.0kN with mounting compound	Double side	-	0.003	°C/W
			Single side	-	0.006	°C/W
T_{vj}	Virtual junction temperature	Forward (conducting)		-	150	°C
		Reverse (blocking)		-	150	°C
T_{stg}	Storage temperature range			-55	175	°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°C	-	1.45	V
I_{RRM}	Peak reverse current	At V_{RRM}, T_{case} = 150°C	-	150	mA
Q_S	Total stored charge	I_F = 1500A, dI_{RR}/dt = 25A/µs 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	mΩ

CURVES

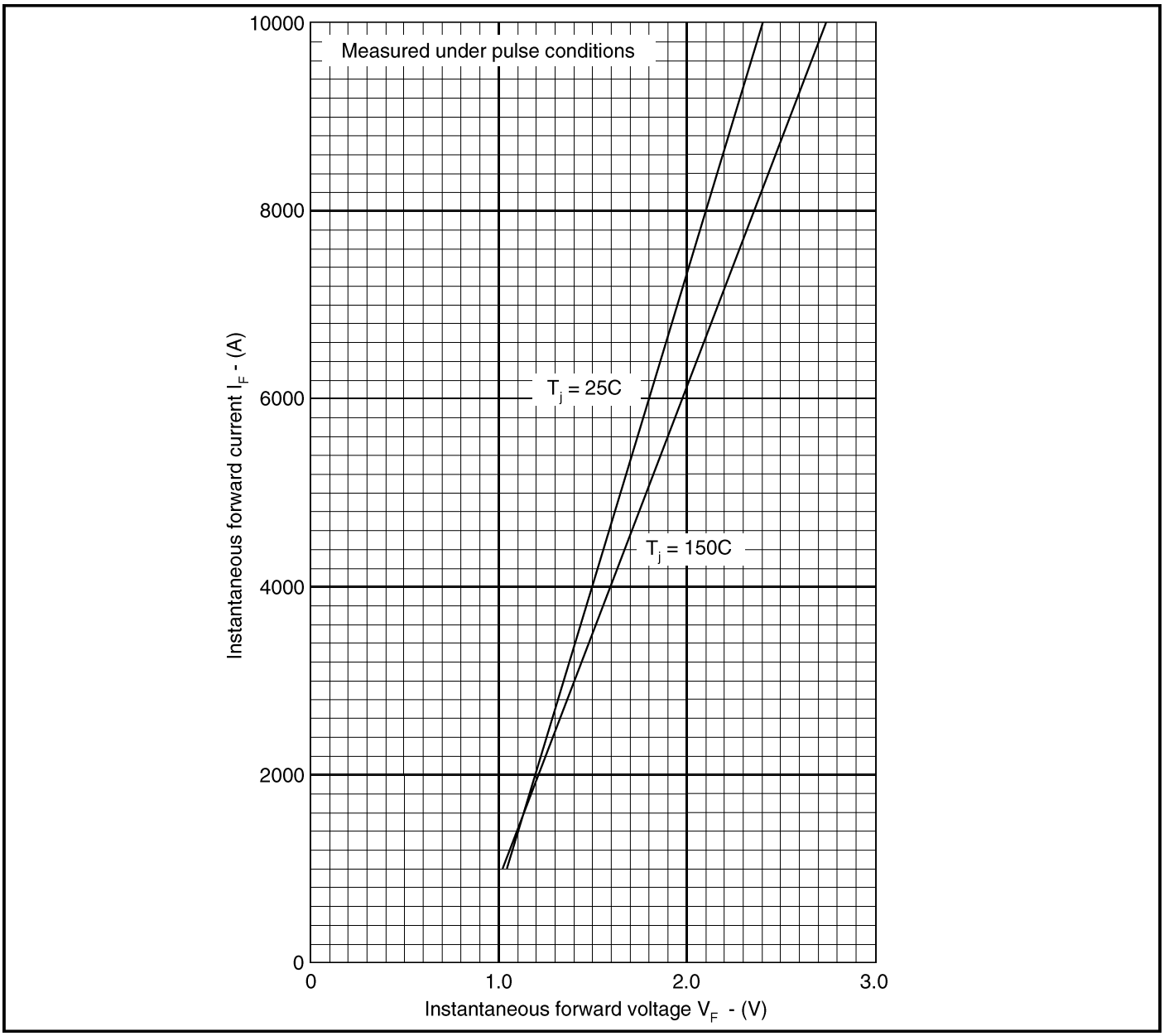


Fig.1 Maximum (limit) forward characteristics

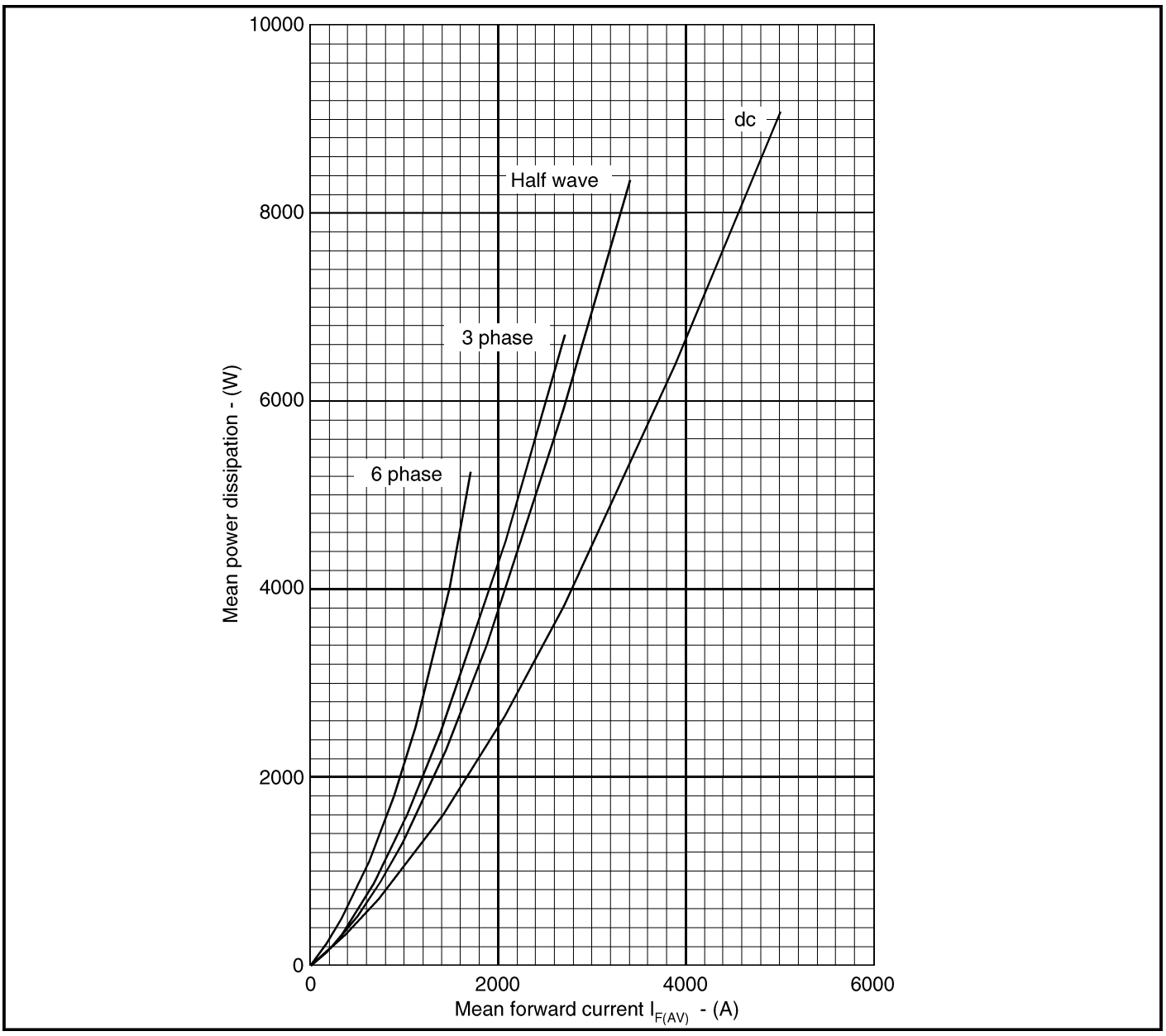


Fig.2 Dissipation curves

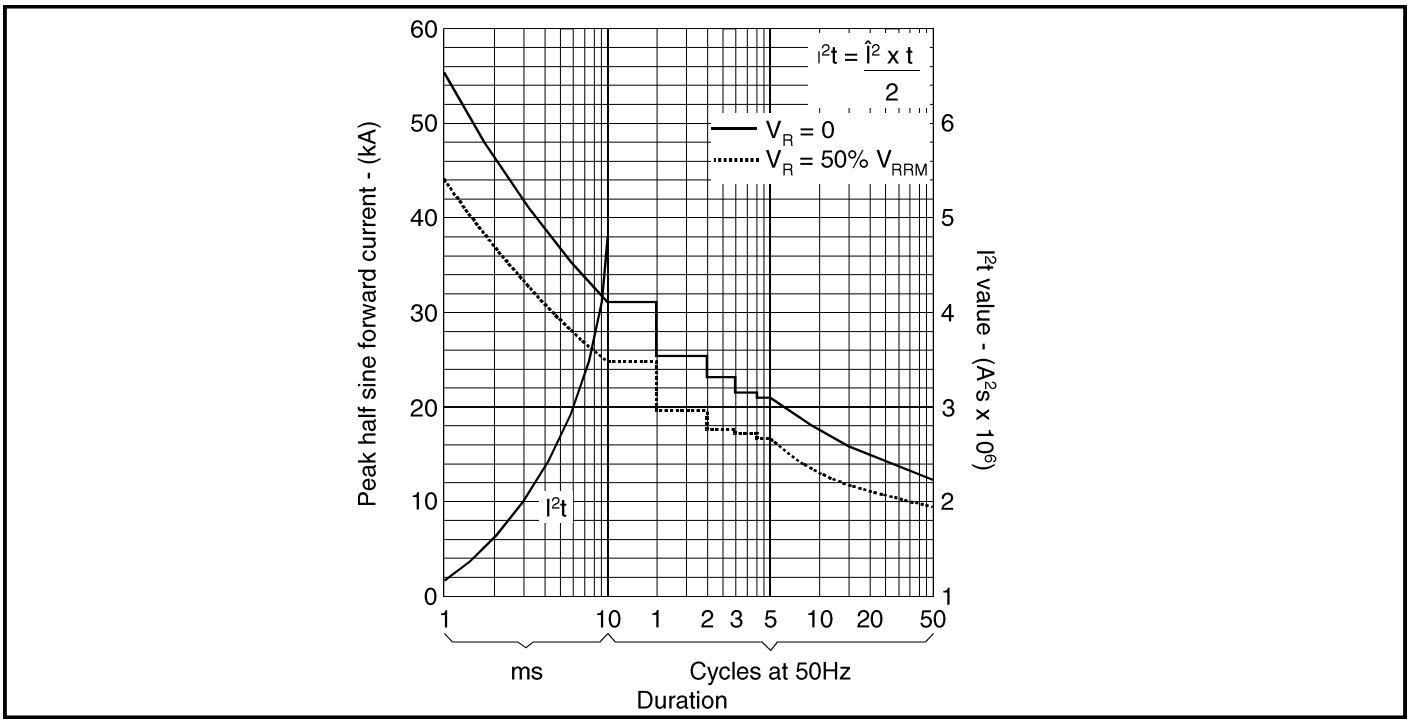


Fig.3 Surge (non-repetitive forward current vs time (T_{case} = 150C)

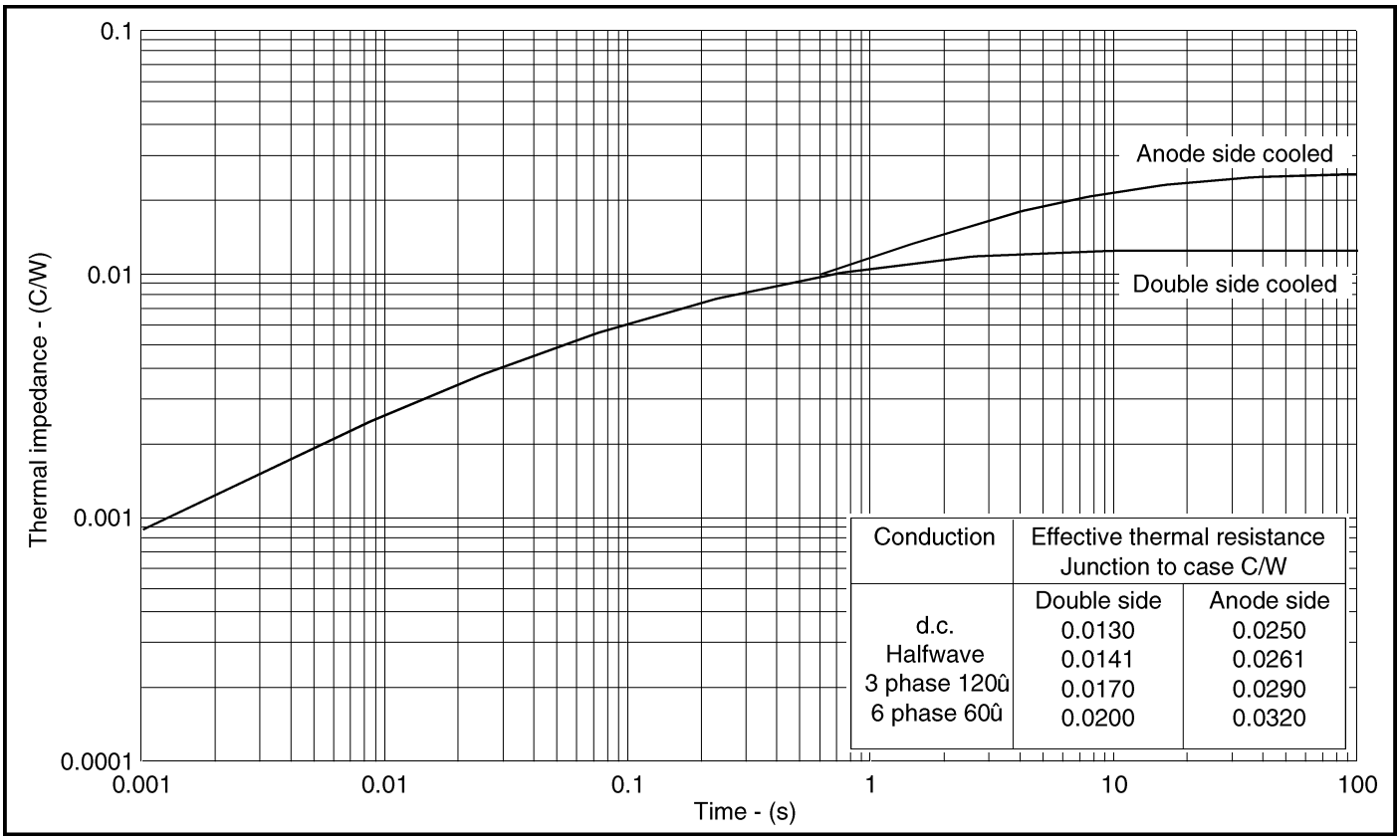


Fig.4 Maximum (limit) transient thermal impedance - junction to case - (C/W)

