DFB54

FAST RECOVERY DIODE

APPLICATIONS

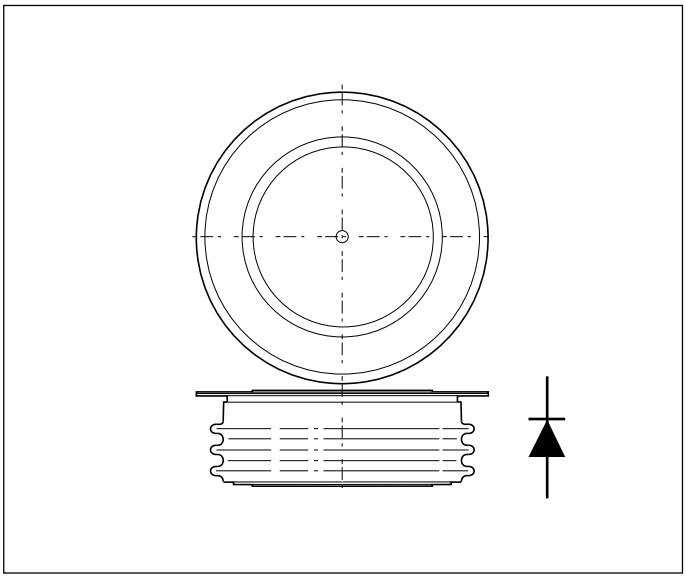
- Power Supplies.
- Freewheel Diode.
- Battery Chargers.
- D.C. Motor Control.
- Welding.
- Rectification.

KEY PARAMETERS

V_{RRM}	3500V
$I_{F(AV)}$	2135A
I_{FSM}	20000A
Q_r	1500μC
t_{rr}	6.5μs

FEATURES

- Double Side Cooling.
- High Surge Capability.
- Low Recovery Charge.



Outline type code: DO200AD.
See package outlines for further information.

VOLTAGE RATINGS

Type Number	Repetitive Peak Reverse Voltage V_{RRM} V	Conditions
DFB54 35	3500	$V_{RSM} = V_{RRM} + 100V$
DFB54 34	3400	
DFB54 33	3300	
DFB54 32	3200	
DFB54 31	3100	
DFB54 30	3000	

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} = 65°C	2135	A
$I_{F(RMS)}$	RMS value	T_{case} = 65°C	3350	A
I_F	Continuous (direct) forward current	T_{case} = 65°C	3060	A
Single Side Cooled (Anode side)				
$I_{F(AV)}$	Mean forward current	Half wave resistive load, T_{case} = 65°C	1320	A
$I_{F(RMS)}$	RMS value	T_{case} = 65°C	2080	A
I_F	Continuous (direct) forward current	T_{case} = 65°C	1810	A

SURGE RATINGS

Symbol	Parameter	Conditions	Max.	Units
I_{FSM}	Surge (non-repetitive) forward current	10ms half sine; with 0% $V_{RRM,}$ T_j = 150°C	20.0	kA
I^2t	I^2t for fusing		2000×10^3	A^2s
I_{FSM}	Surge (non-repetitive) forward current	10ms half sine; with 50% $V_{RRM,}$ T_j = 150°C	16	kA
I^2t	I^2t for fusing		1280×10^3	A^2s

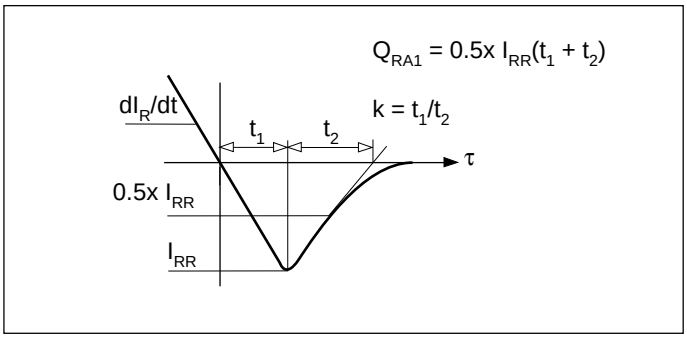
THERMAL AND MECHANICAL DATA

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 44kN with mounting compound	Double side	-	0.003	°C/W
			Single side	-	0.006	°C/W
T_{vj}	Virtual junction temperature	Forward (conducting)		-	150	°C
T_{stg}	Storage temperature range			-55	150	°C
-	Clamping force			39.6	48.4	kN

CHARACTERISTICS

Symbol	Parameter	Conditions	Typ.	Max.	Units
V_{FM}	Forward voltage	At 1500A peak, T_{case} = 25°C	-	1.7	V
I_{RRM}	Peak reverse current	At V_{RRM}, T_{case} = 150°C	-	100	mA
t_{rr}	Reverse recovery time	I_F = 1000A, di_{RR}/dt = 100A/µs T_{case} = 150°C, V_R = 100V	-	6.5	µs
Q_{RA1}	Recovered charge (50% chord)		-	1500	µC
I_{RM}	Reverse recovery current		-	450	A
K	Soft factor		-	-	-
V_{TO}	Threshold voltage	At T_{vj} = 150°C	-	1.15	V
r_T	Slope resistance	At T_{vj} = 150°C	-	0.32	mΩ
V_{FRM}	Forward recovery voltage	di/dt = 1000A/µs, T_j = 125°C	-	-	V

DEFINITION OF K FACTOR AND Q_{RA1}



CURVES

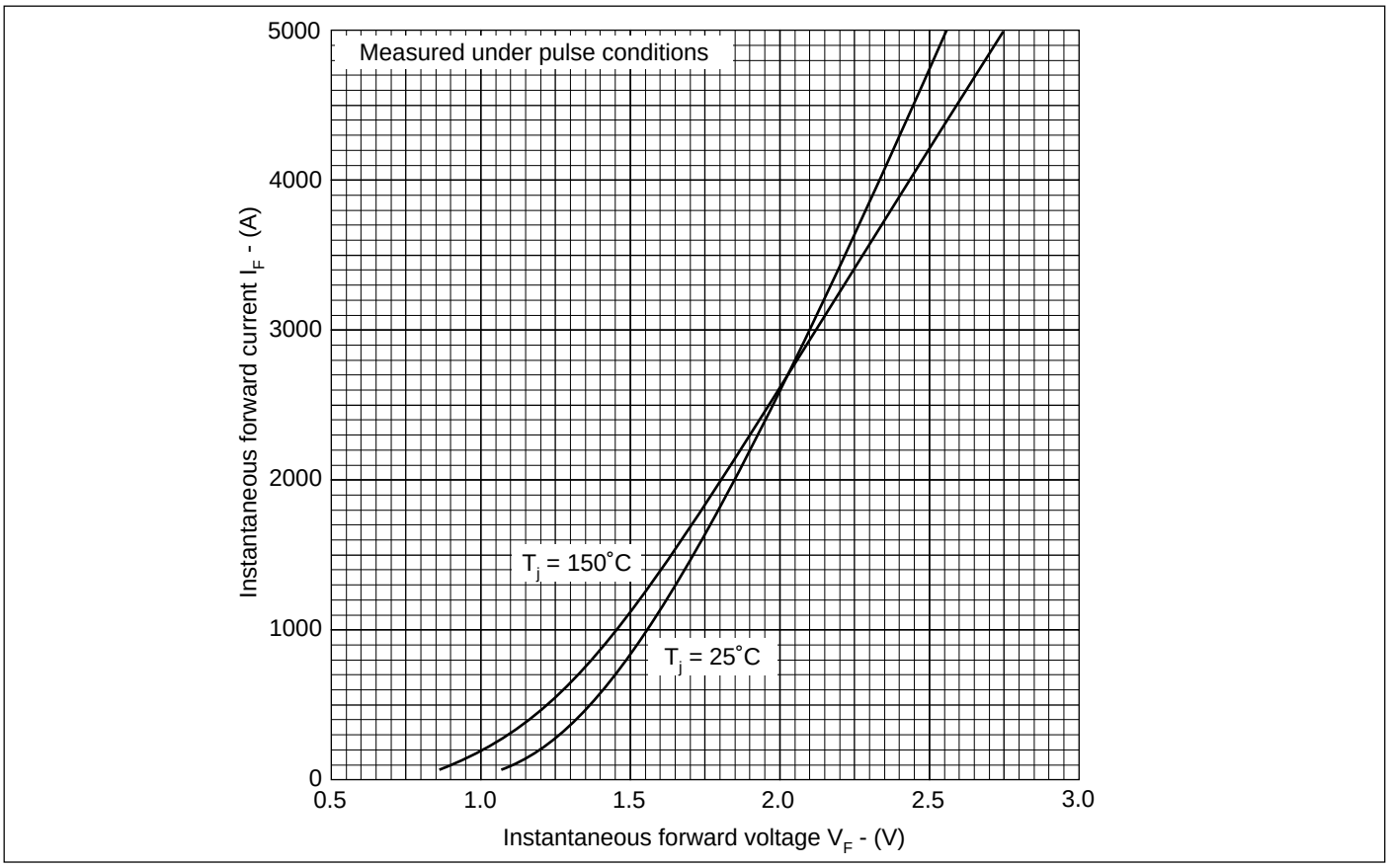


Fig.1 Maximum (limit) forward characteristics

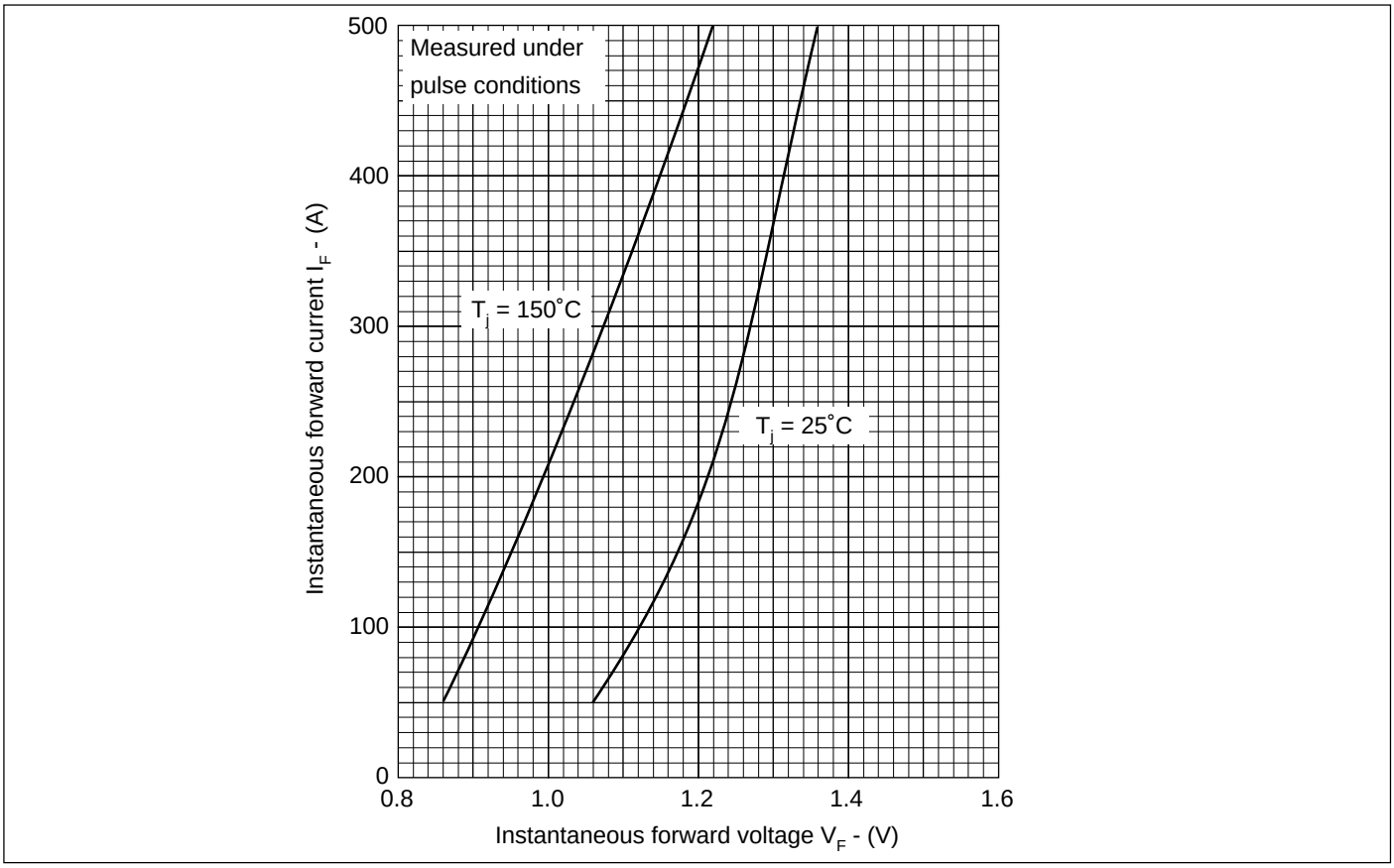


Fig.2 Maximum (limit) forward characteristics

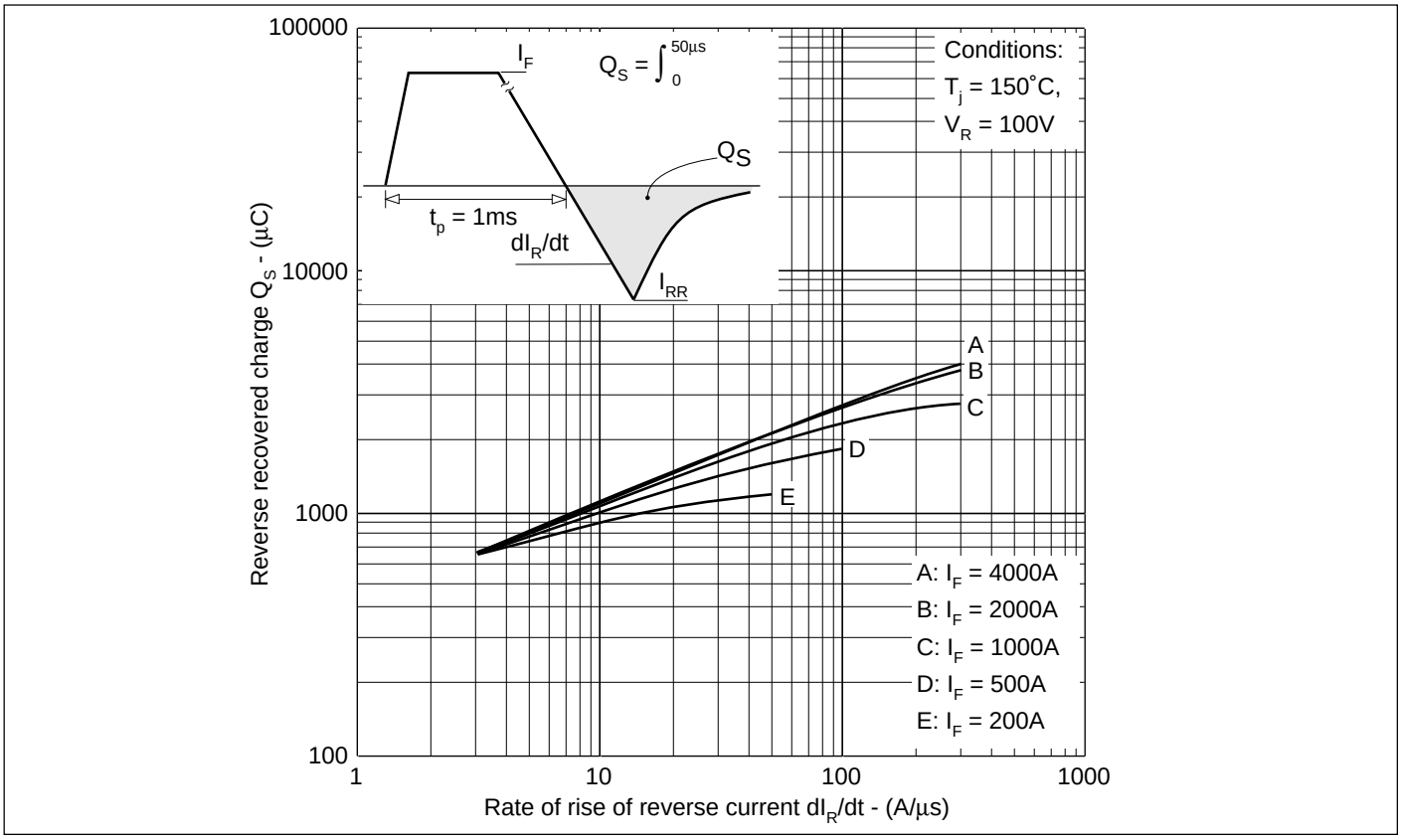


Fig.3 Recovered charge

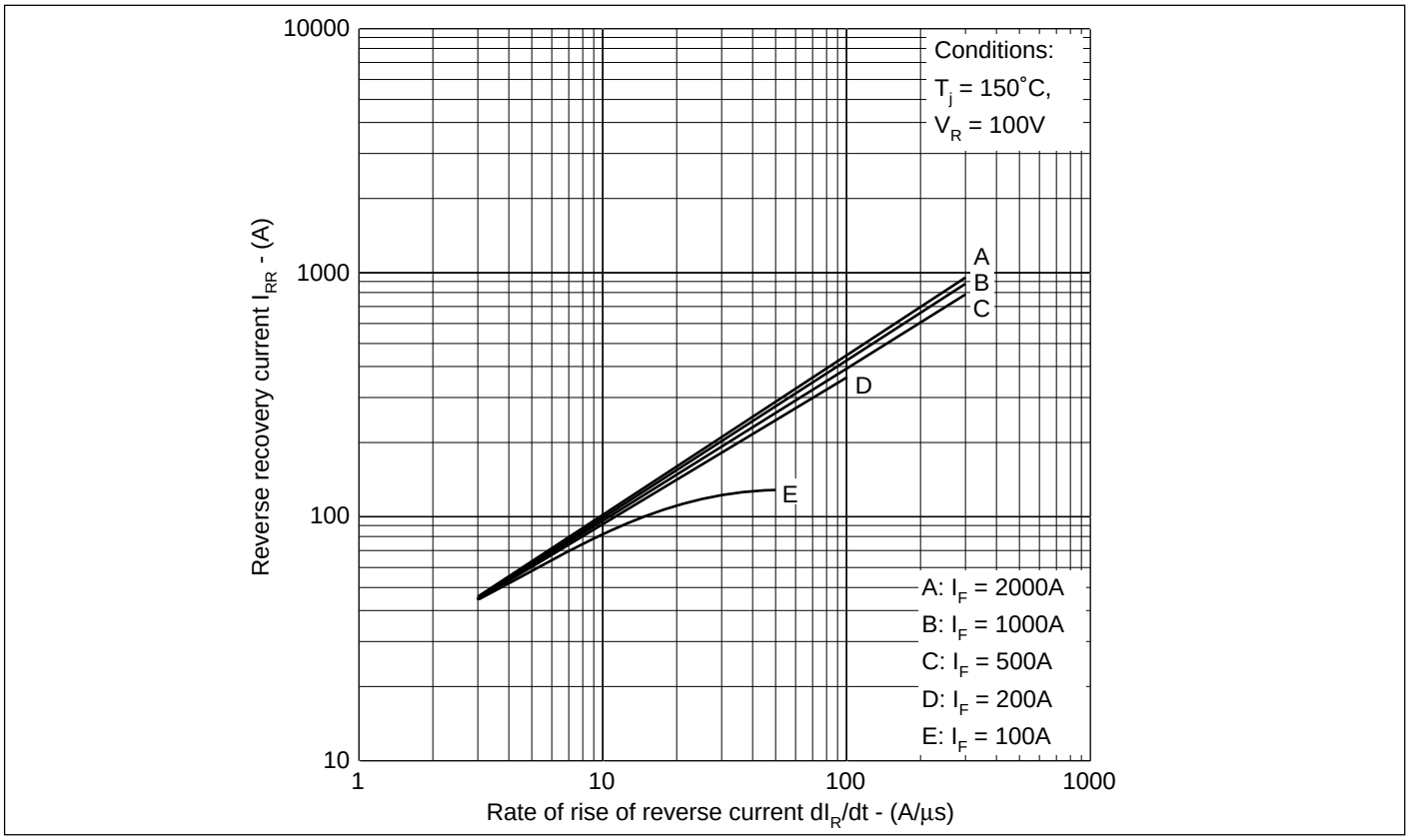


Fig.4 Typical reverse recovery current vs rate of rise of reverse current

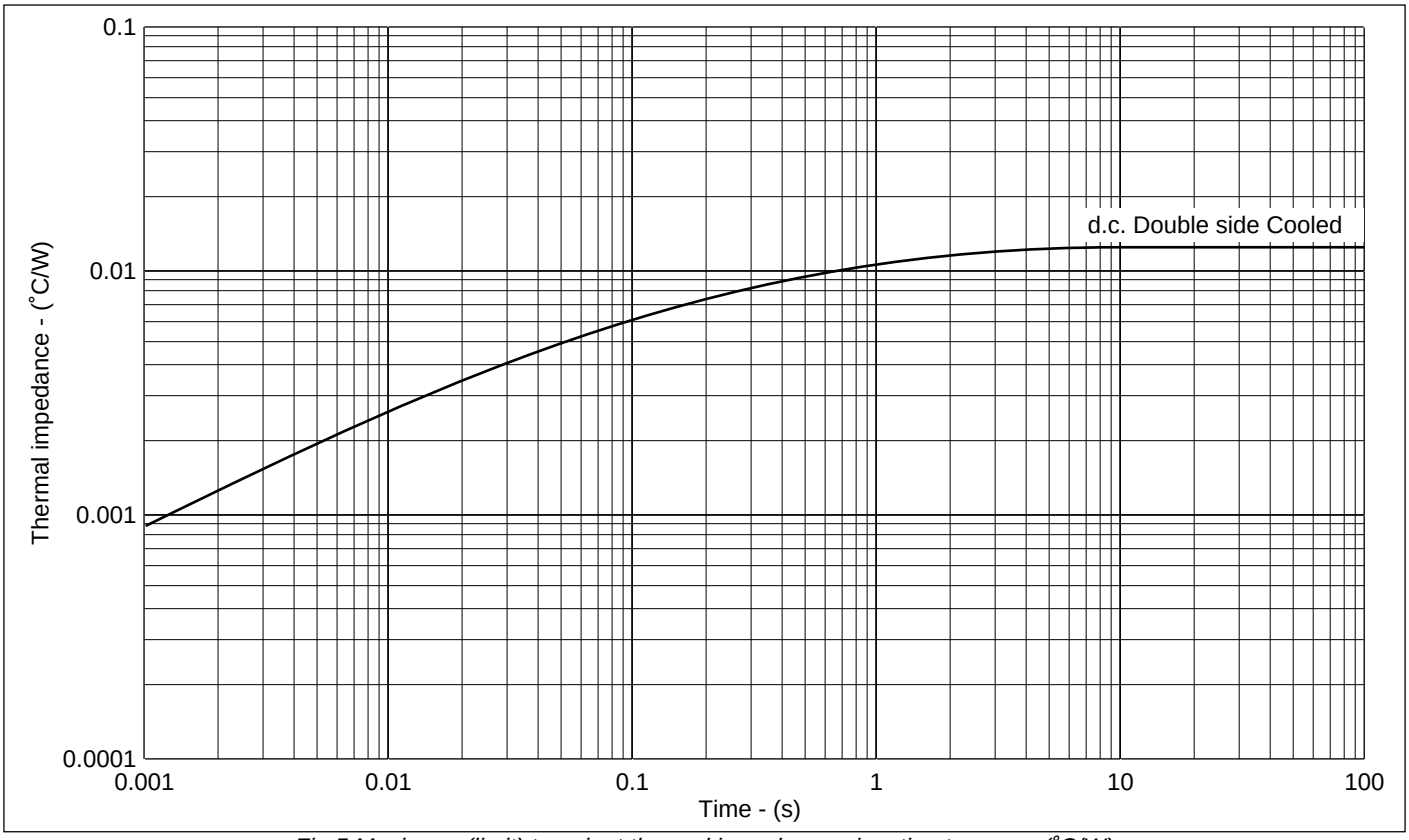
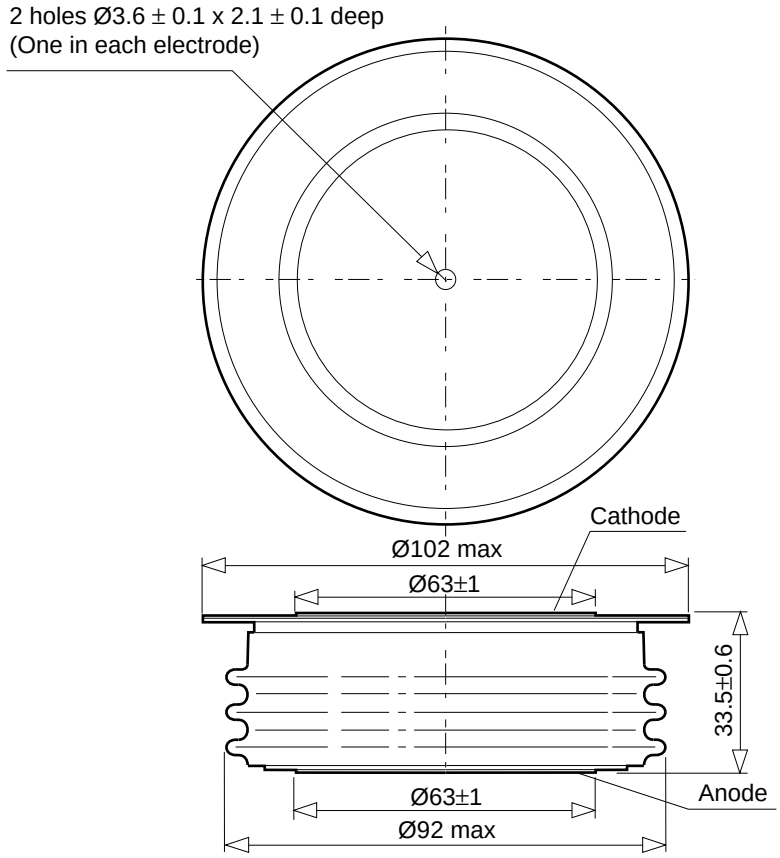


Fig.5 Maximum (limit) transient thermal impedance - junction to case - (°C/W)

PACKAGE DETAILS - DO200AD

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



Weight: 1100g

GEC PLESSEY
SEMICONDUCTORS

HEADQUARTERS OPERATIONS

GEC PLESSEY SEMICONDUCTORS
Cheney Manor, Swindon,
Wiltshire, SN2 2QW, United Kingdom.
Tel: + 44 (0)1793 518000
Fax: + 44 (0)1793 518411

GEC PLESSEY SEMICONDUCTORS
P.O. Box 660017
1500 Green Hills Road,
Scotts Valley, California 95067-0017,
United States of America.
Tel: + 1 (408) 438 2900
Fax: + 1 (408) 438 5576

POWER PRODUCT CUSTOMER SERVICE CENTRES

- **FRANCE.** 2 rue Henri-Bergson, 92665 Asnieres Cedex.
  Tel: + 33 1 40 80 54 00. Fax: + 33 1 40 80 55 87.
- **GERMANY**. Ungererstrasse 129, 80505 München.
  Tel: + 49 (0)89 36 09 060. Fax: + 49 (0)89 36 09 06 55.
- **NORTH AMERICA.** At Dedham Place, Suite 125, 3 Allied Drive, Dedham. MA 02026.
  Tel: + 1 617 251 0126. Fax: + 1 617 251 0106.
- **UNITED KINGDOM.** Doddington Road, Lincoln. LN6 3LF.
  Tel: + 44 (0)1522 500500. Fax: + 44 (0)1522 500550.

These are supported by Agents and Distributors in major countries world-wide.

 Publication No. DS4219-2 Issue No. 2.3 September 1996

TECHNICAL DOCUMENTATION - NOT FOR RESALE. PRINTED IN UNITED KINGDOM.