MF35

Fast Recovery Diode

Replaces March 1998 version, DS4625-3.1 DSDS4625-4.0 January 2000

APPLICATIONS

- Inverse, Parallel Or Series Connected Diode
- Power Supplies
- High Frequency Applications

KEY PARAMETERS

V_{RRM}	1200V
$I_{F(AV)}$	40A
I_{FSM}	400A
Q_r	10µC
t_{rr}	0.2ns

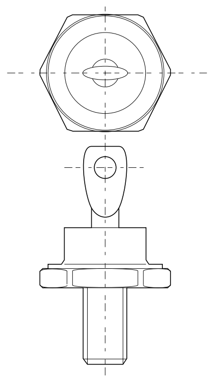
FEATURES

- Glass Passivation
- High Voltage Capability
- Fast Recovery Characteristics

VOLTAGE RATINGS

Type Number	Repetitive Peak Reverse Voltage V_{RRM} V	Conditions
MF35 - 1200 MF35 - 1000 MF35 - 800 MF35 - 600	1200 1000 800 600	$V_{RSM} = V_{RRM}$ +100V

Lower voltage grades available.
For stud anode add suffix 'R' to type number. e.g. MF35-1200R.



Outline type code: DO5.
See Package Details for further information.

CURRENT RATINGS

Symbol	Parameter	Conditions	Max.	Units
$I_{F(AV)}$	Mean forward current	Half sine wave resistive load, T_{case} = 65°C	40	A
$I_{F(RMS)}$	RMS value	T_{case} = 65°C	63	A
I_F	Continuous (direct) forward current	T_{case} = 65°C	50	A

SURGE RATINGS

Symbol	Parameter	Conditions	Max.	Units
I_{FSM}	Surge (non-repetitive) forward current	10ms half sine; with $V_{RRM} \leq 10V$, $T_j = 125^oC$	400	A
I^2t	I^2t for fusing	10ms half sine; $T_j = 125^oC$	800	A^2s

THERMAL AND MECHANICAL DATA

Symbol	Parameter	Conditions	Min.	Max.	Units
$R_{th(j-c)}$	Thermal resistance - junction to case	dc	-	0.8	$^oC/W$
$R_{th(c-h)}$	Thermal resistance - case to heatsink	Mounting torque 3.5Nm with mounting compound	-	0.2	$^oC/W$
T_{vj}	Virtual junction temperature	Forward (conducting)	-	125	^oC
		Reverse (blocking)	-	125	^oC
T_{stg}	Storage temperature range		-55	125	$^{\circ}C$
-	Mounting torque		3.2	3.8	Nm

CHARACTERISTICS

Symbol	Parameter	Conditions	Typ.	Max.	Units
V_{FM}	Forward voltage	At 120A peak, $T_{case} = 25^oC$	-	2.0	V
I_{RM}	Peak reverse current	At V_{RRM}, $T_{case} = 100^oC$	-	5	mA
t_{rr}	Reverse recovery time	$I_F = 1A$, $di_{RR}/dt = 25A/\mu s$, $T_{case} = 25^{\circ}C$, $V_R = 100V$	-	200	ns
Q_R	Recovered charge	$I_F = 50A$, $di_{RR}/dt = 50A/\mu s$, $T_{case} = 25^{\circ}C$, $V_R = 100V$	-	10	μC
V_{TO}	Threshold voltage	At $T_{vj} = 125^oC$	-	1.2	V
r_T	Slope resistance	At $T_{vj} = 125^oC$	-	7.0	mΩ

CURVES

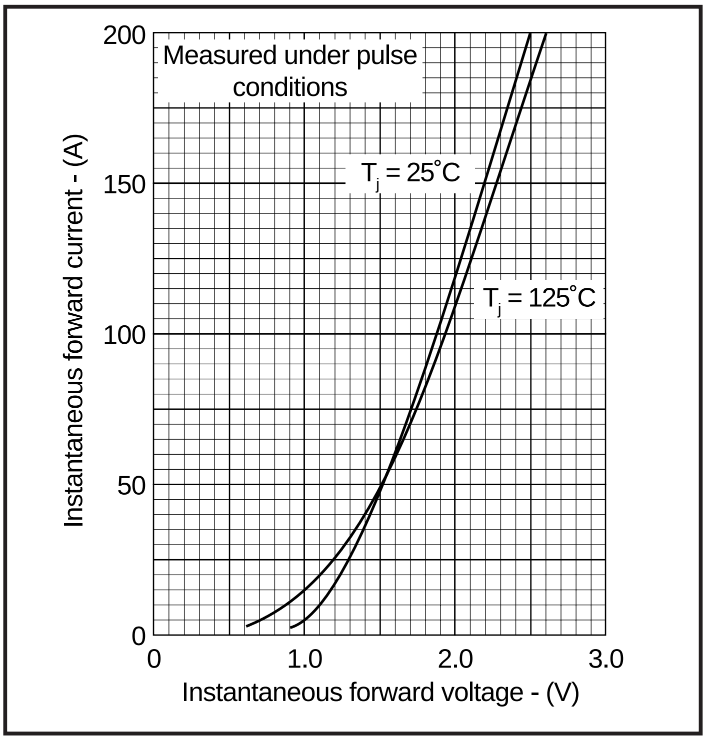


Fig.1 Maximum (limit) forward characteristics

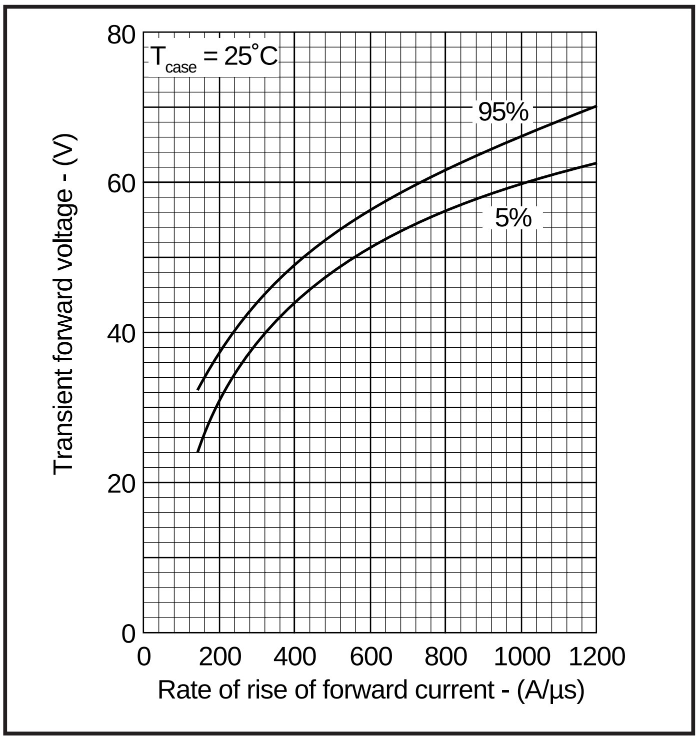


Fig.2 Forward recovery voltage vs rate of rise of forward voltage

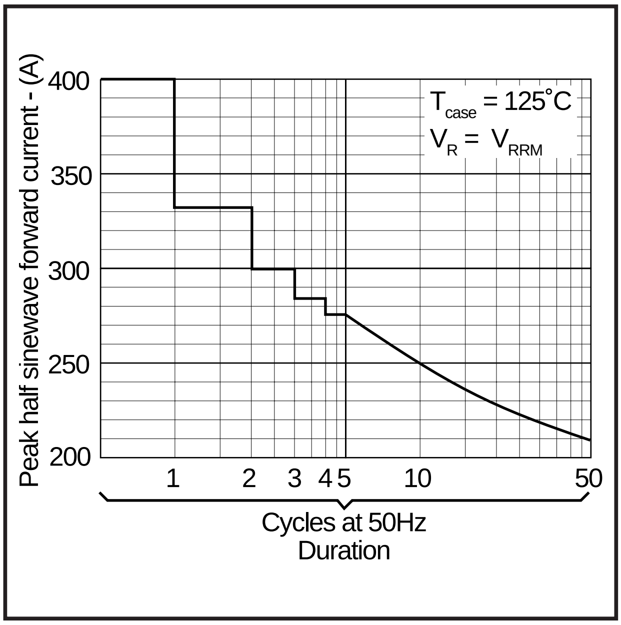


Fig.3 Surge (non-repetitive) forward current vs time

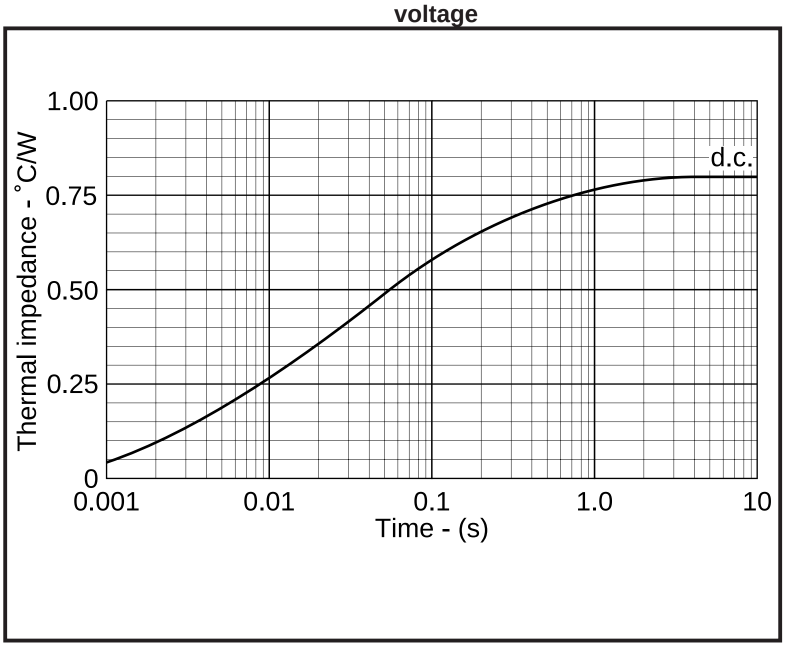


Fig.4 Maximum transient thermal impedance

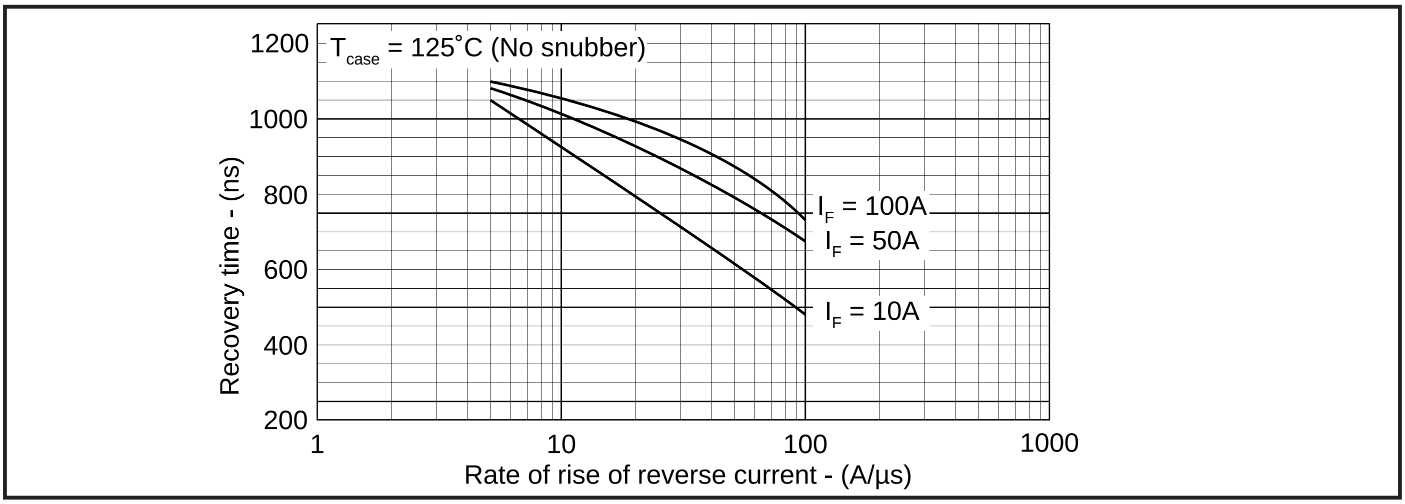


Fig.5 Recovery time vs dI_R/dt

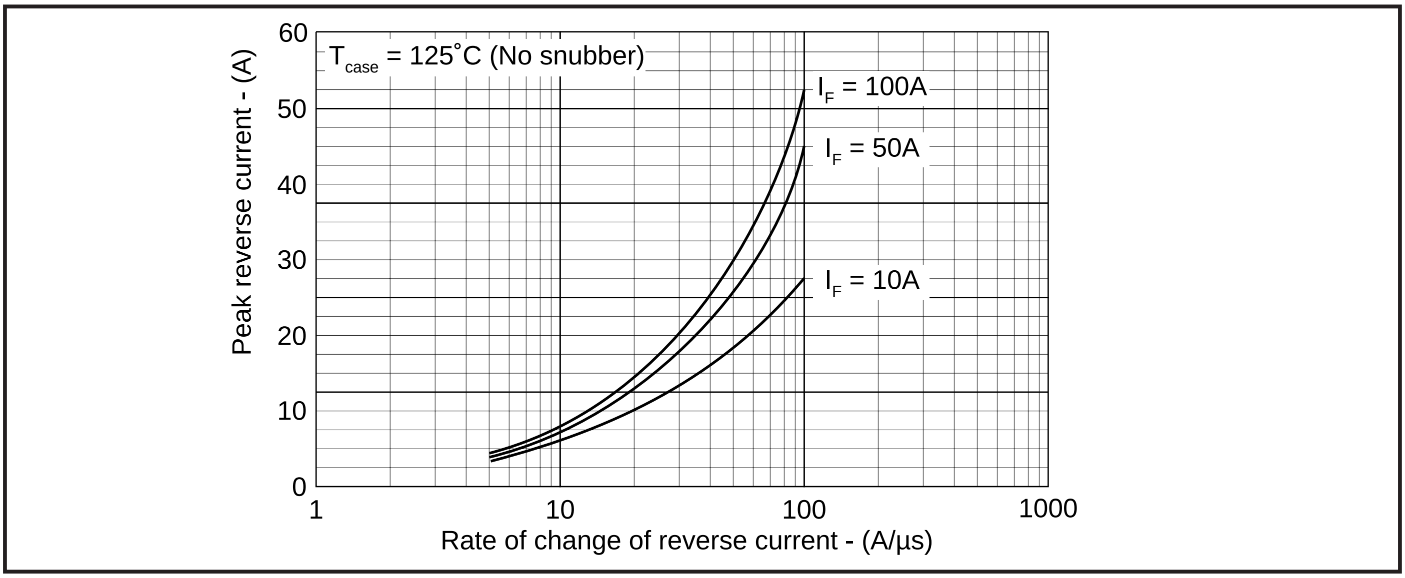


Fig.6 Peak reverse current vs dI_R/dt

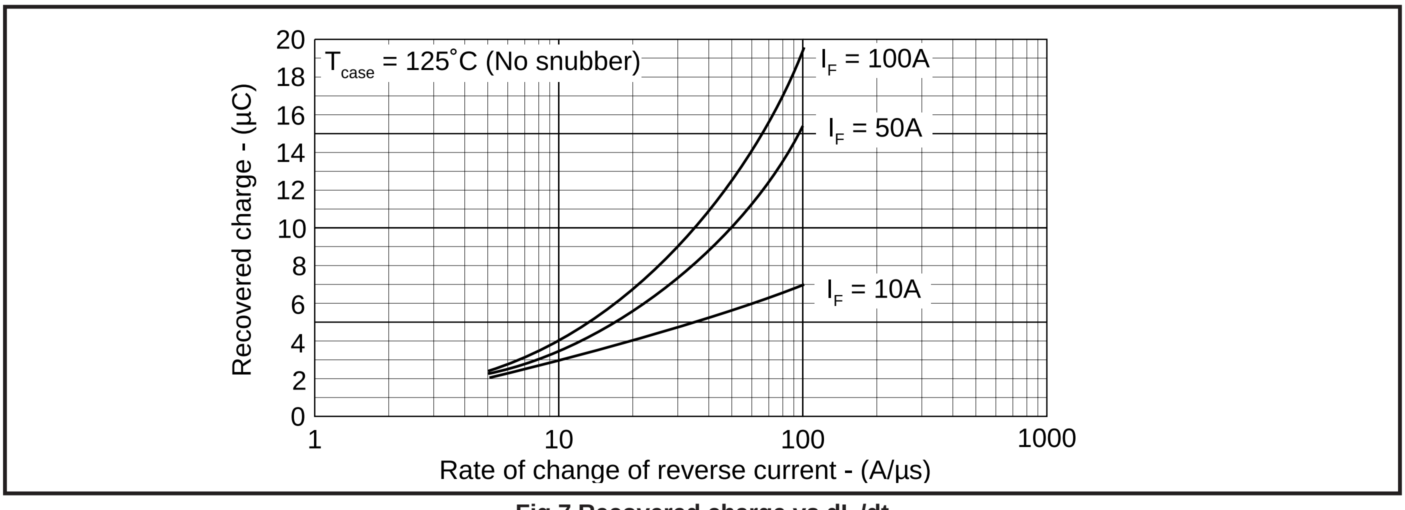


Fig.7 Recovered charge vs dI_R/dt

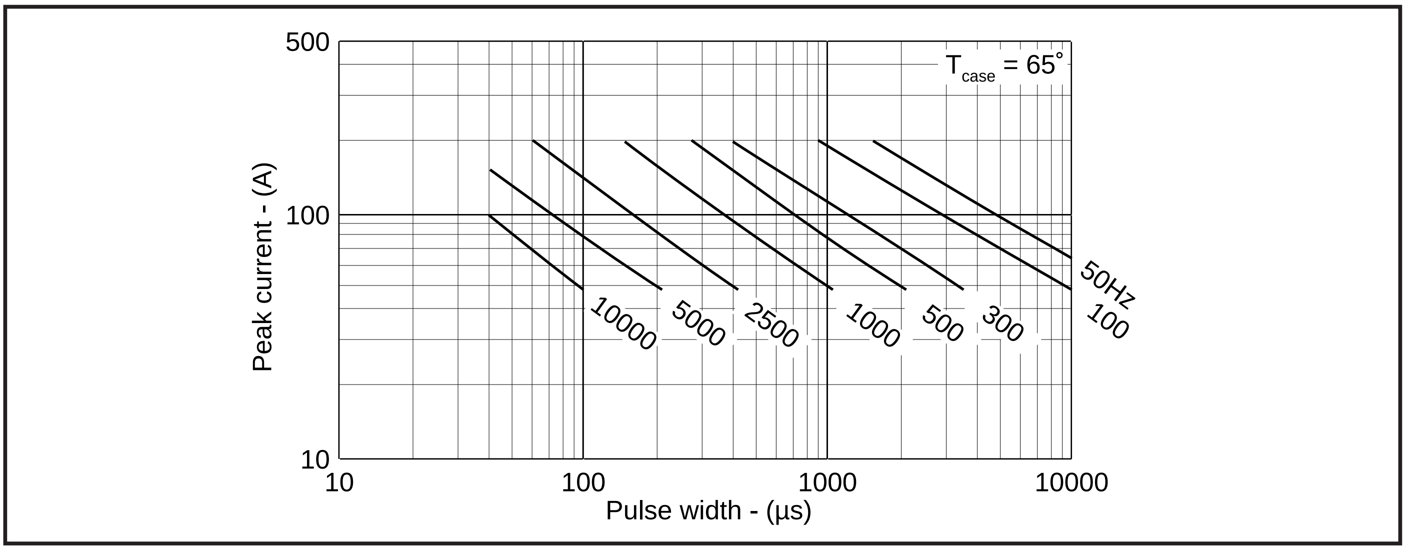


Fig.8 Frequency curves - square waveform

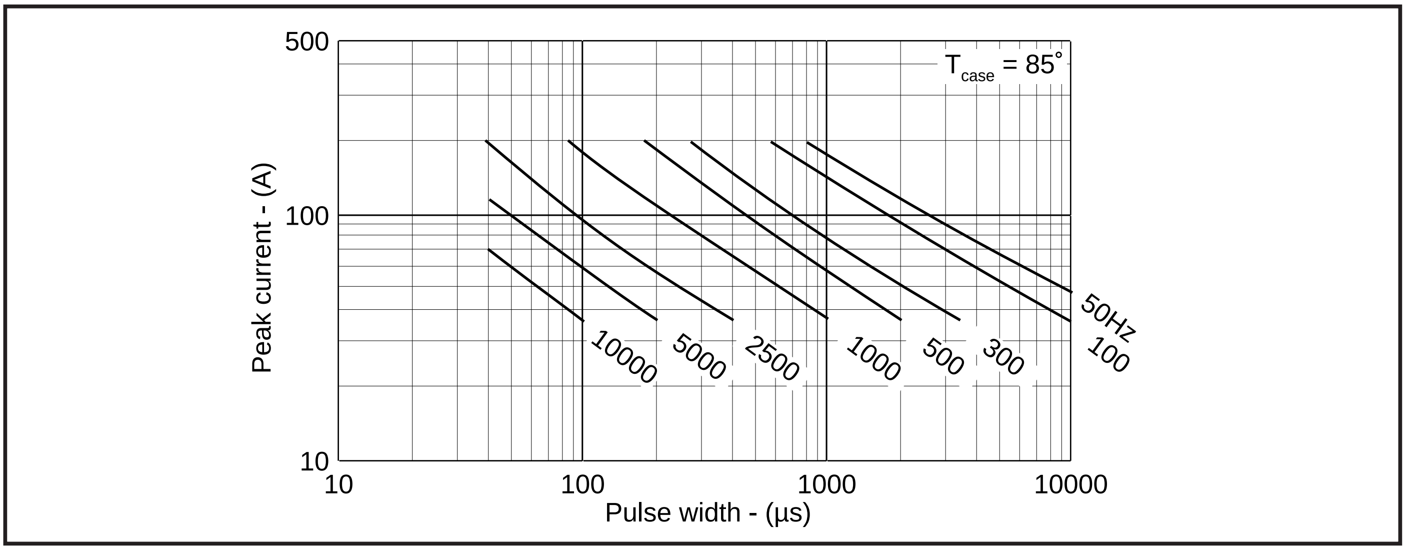


Fig.9 Frequency curves - square waveform

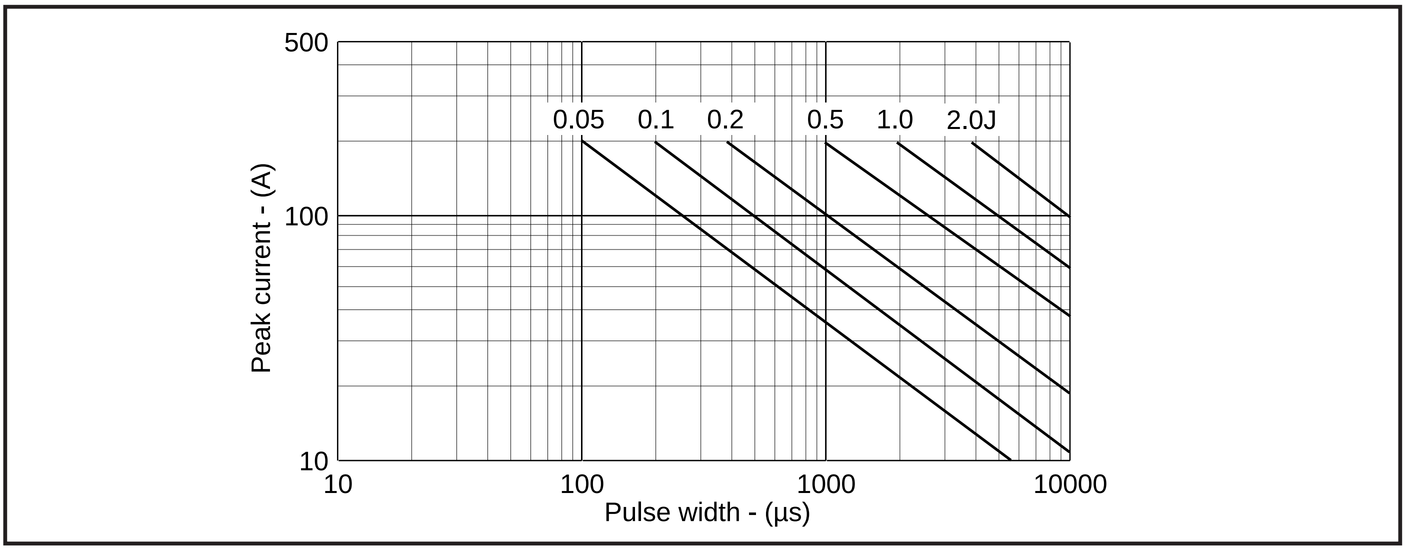


Fig.10 Energy per pulse - square waveform

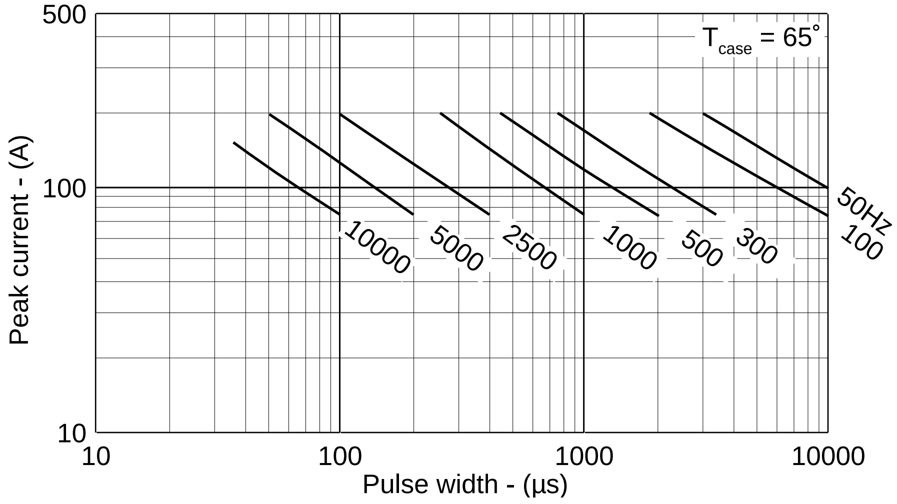


Fig.11 Frequency curves - sine waveform

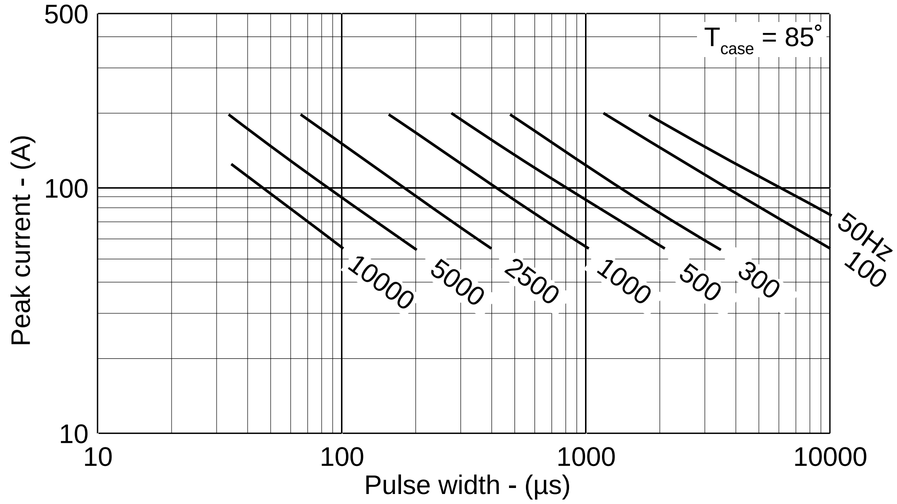


Fig.12 Frequency curves - sine waveform

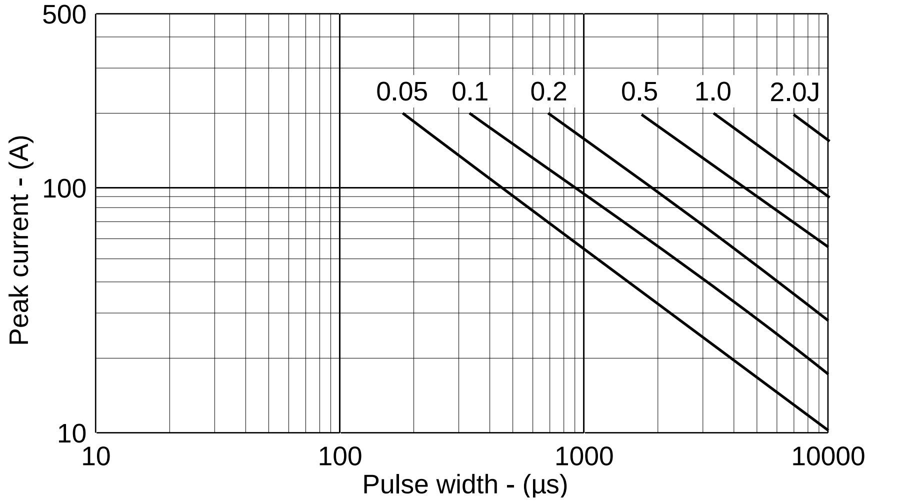
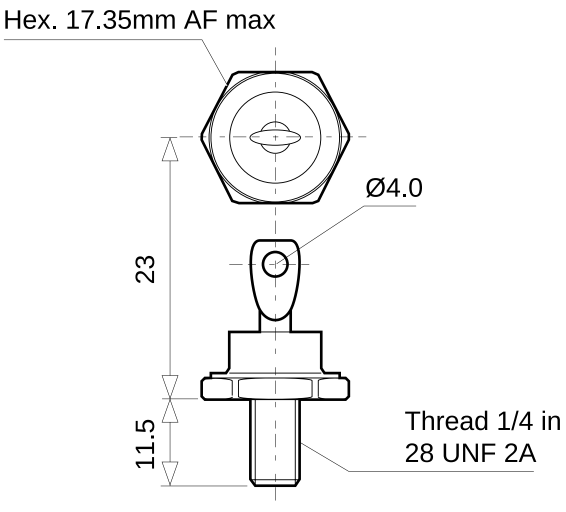


Fig.13 Energy per pulse - sine waveform

PACKAGE DETAILS

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



Weight: 20g

Package outline type code: DO5

ASSOCIATED PUBLICATIONS

Title	Application Note Number
Calculating the junction temperature or power semiconductors	AN4506
Thyristor and diode measurement with a multi-meter	AN4853
Use of V_{TO}, r_T on-state characteristic	AN5001

POWER ASSEMBLY CAPABILITY

The Power Assembly group was set up to provide a support service for those customers requiring more than the basic semiconductor, and has developed a flexible range of heatsink / clamping systems in line with advances in device types and the voltage and current capability of our semiconductors.

We offer an extensive range of air and liquid cooled assemblies covering the full range of circuit designs in general use today. The Assembly group continues to offer high quality engineering support dedicated to designing new units to satisfy the growing needs of our customers.

Using the up to date CAD methods our team of design and applications engineers aim to provide the Power Assembly Complete solution (PACs).

HEATSINKS

Power Assembly has it's own proprietary range of extruded aluminium heatsinks. They have been designed to optimise the performance or our semiconductors. Data with respect to air natural, forced air and liquid cooling (with flow rates) is available on request.

For further information on device clamps, heatsinks and assemblies, please contact your nearest Sales Representative or the factory.

DYNEX SEMICONDUCTOR

http://www.dynexsemi.com

e-mail: power_solutions@dynexsemi.com

HEADQUARTERS OPERATIONS
DYNEX SEMICONDUCTOR LTD
Doddington Road, Lincoln.
Lincolnshire. LN6 3LF. United Kingdom.
Tel: 00-44-(0)1522-500500
Fax: 00-44-(0)1522-500550

DYNEX POWER INC.
Unit 7 - 58 Antares Drive,
Nepean, Ontario, Canada K2E 7W6.
Tel: 613.723.7035
Fax: 613.723.1518
Toll Free: 1.888.33.DYNEX (39639)

CUSTOMER SERVICE CENTRES
France, Benelux, Italy and Spain Tel: +33 (0)1 69 18 90 00. Fax: +33 (0)1 64 46 54 50
North America Tel: 011-800-5554-5554. Fax: 011-800-5444-5444
UK, Germany, Scandinavia & Rest Of World Tel: +44 (0)1522 500500. Fax: +44 (0)1522 500020

SALES OFFICES
France, Benelux, Italy and Spain Tel: +33 (0)1 69 18 90 00. Fax: +33 (0)1 64 46 54 50
Germany Tel: 07351 827723
North America Tel: (613) 723-7035. Fax: (613) 723-1518. Toll Free: 1.888.33.DYNEX (39639) /
Tel: (831) 440-1988. Fax: (831) 440-1989 / Tel: (949) 733-3005. Fax: (949) 733-2986.
UK, Germany, Scandinavia & Rest Of World Tel: +44 (0)1522 500500. Fax: +44 (0)1522 500020
These offices are supported by Representatives and Distributors in many countries world-wide.

Datasheet Annotations:

Dynex Semiconductor annotate datasheets in the top right hard corner of the front page, to indicate product status. The annotations are as follows:-

Target Information: This is the most tentative form of information and represents a very preliminary specification. No actual design work on the product has been started.

Preliminary Information: The product is in design and development. The datasheet represents the product as it is understood but details may change.

Advance Information: The product design is complete and final characterisation for volume production is well in hand.

No Annotation: The product parameters are fixed and the product is available to datasheet specification.