

**APPLICATIONS**

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

**KEY PARAMETERS**

$V_{RRM}$	<b>1600V</b>
$I_{F(AV)}$	<b>40A</b>
$I_{FSM}$	<b>400A</b>
$Q_r$	<b>25<math>\mu</math>C</b>
$t_{rr}$	<b>0.25ns</b>

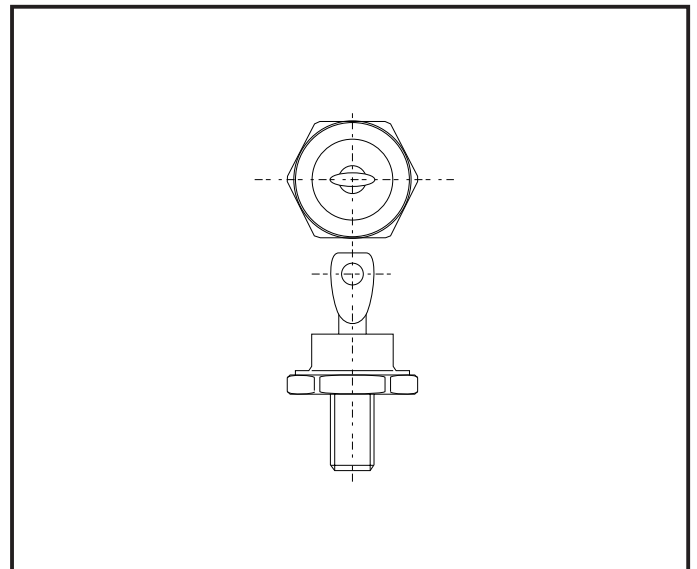
**FEATURES**

- Glass Passivation
- High Voltage Capability
- Fast Recovery Characteristics

**VOLTAGE RATINGS**

Type Number	Repetitive Peak Reverse Voltage $V_{RRM}$ V	Conditions
MF34 - 1600	1600	$V_{RSM} = V_{RRM} + 100V$
MF34 - 1400	1400	
MF34 - 1200	1200	
MF34 - 1000	1000	
MF34 - 800	800	

Lower voltage grades available.  
For stud anode add suffix 'R' to type number. e.g. MF34-1600R.



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, $T_{case} = 65^\circ C$	40	A
$I_{F(RMS)}$	RMS value	$T_{case} = 65^\circ C$	63	A
$I_F$	Continuous (direct) forward current	$T_{case} = 65^\circ C$	50	A

## MF34

### SURGE RATINGS

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

### THERMAL AND MECHANICAL DATA

Symbol	Parameter	Conditions	Min.	Max.	Units
$R_{th(j-c)}$	Thermal resistance - junction to case	dc	-	0.8	$^\circ C/W$
$R_{th(c-h)}$	Thermal resistance - case to heatsink	Mounting torque 3.5Nm with mounting compound	-	0.2	$^\circ C/W$
$T_{vj}$	Virtual junction temperature	Forward (conducting)	-	125	$^\circ C$
		Reverse (blocking)	-	125	$^\circ C$
$T_{stg}$	Storage temperature range		-55	125	$^\circ C$
-	Mounting torque		3.5	4.0	Nm

### CHARACTERISTICS

Symbol	Parameter	Conditions	Typ.	Max.	Units
$V_{FM}$	Forward voltage	At 120A peak, $T_{case} = 25^\circ C$	-	2.0	V
$I_{RM}$	Peak reverse current	At $V_{RRM}$ , $T_{case} = 100^\circ C$	-	5	mA
$t_{rr}$	Reverse recovery time	$I_F = 1A$ , $di_{RR}/dt = 25A/\mu s$ , $T_{case} = 25^\circ C$ , $V_R = 100V$	-	250	ns
$Q_R$	Recovered charge	$I_F = 50A$ , $di_{RR}/dt = 50A/\mu s$ , $T_{case} = 25^\circ C$ , $V_R = 100V$	-	25	$\mu C$
$V_{TO}$	Threshold voltage	At $T_{vj} = 125^\circ C$	-	1.2	V
$r_T$	Slope resistance	At $T_{vj} = 125^\circ C$	-	7.0	m $\Omega$

CURVES

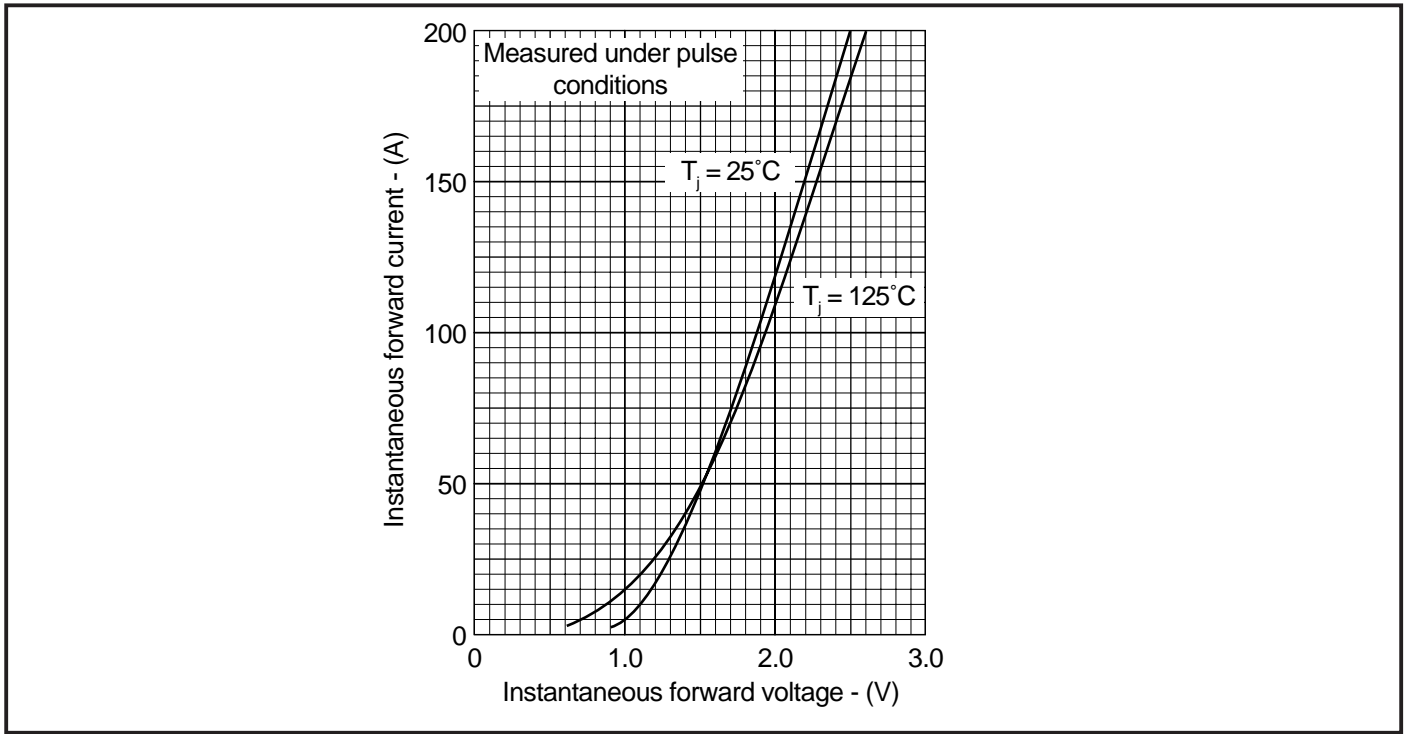


Fig.1 Maximum (limit) forward characteristics

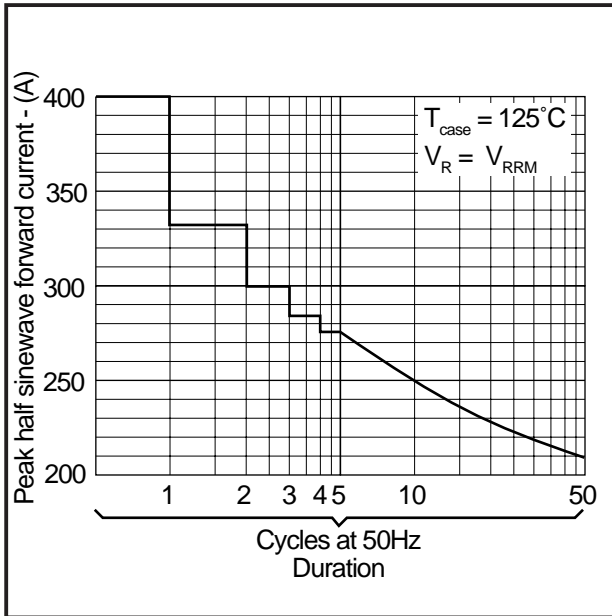


Fig.2 Surge (non-repetitive) forward current vs time

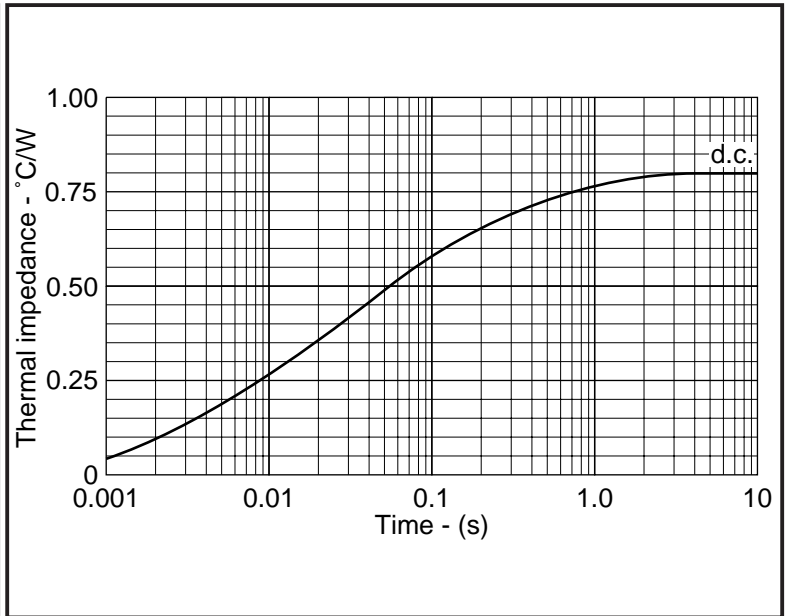


Fig.3 Maximum transient thermal impedance

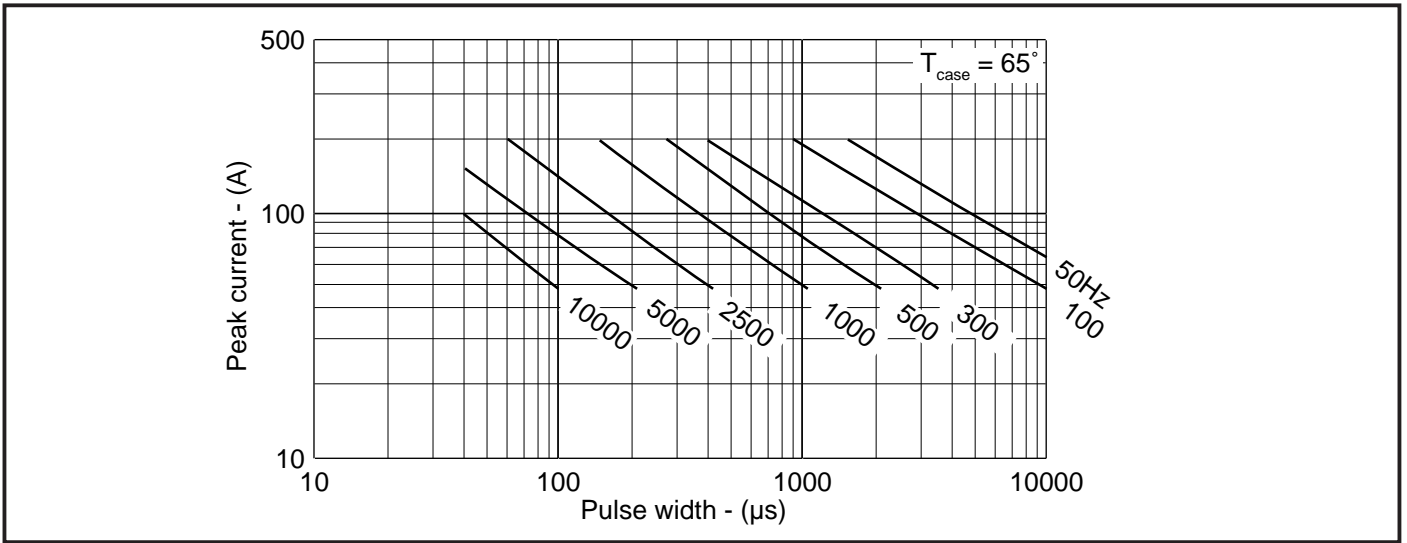


Fig.4 Frequency curves - square waveform

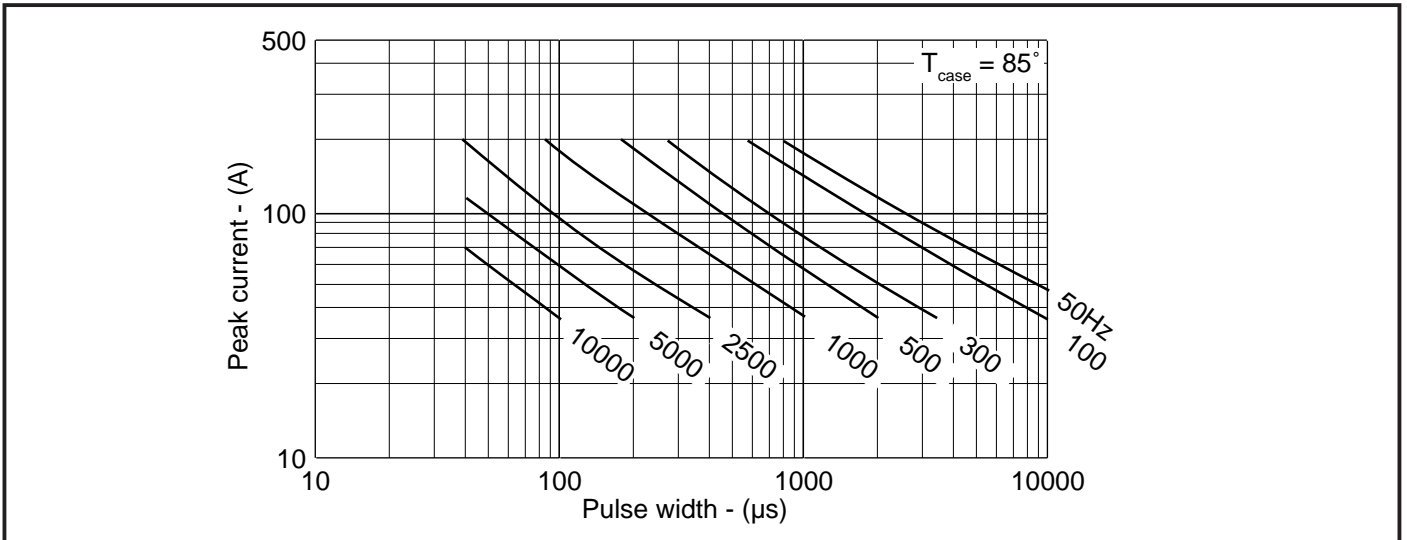


Fig.5 Frequency curves - square waveform

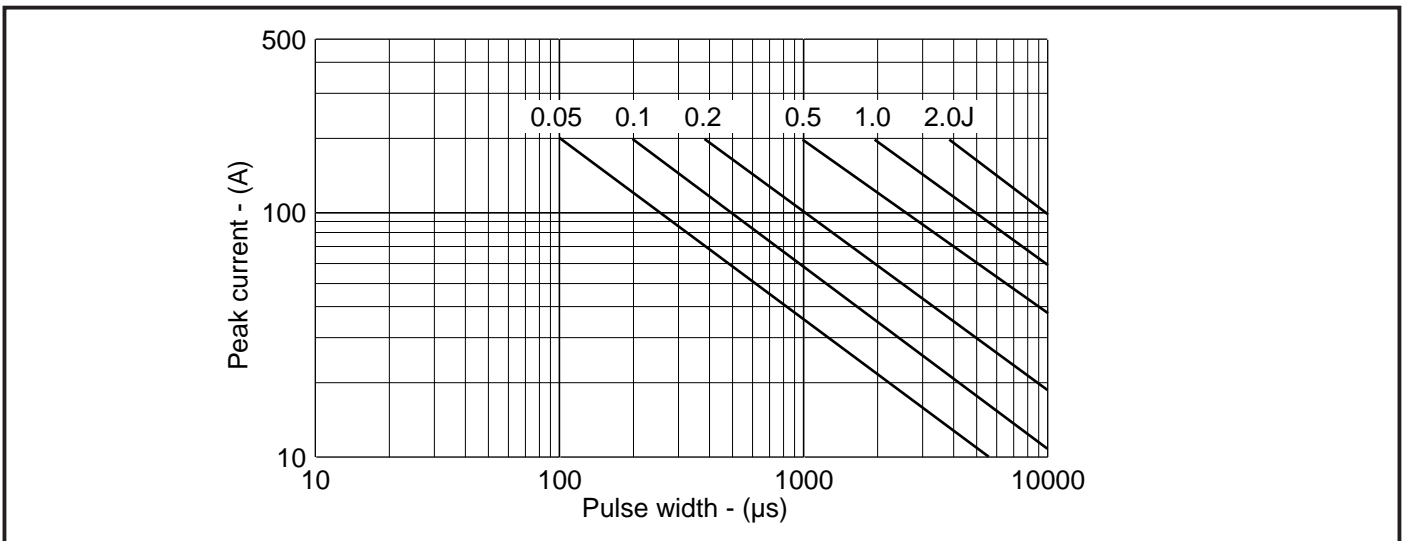
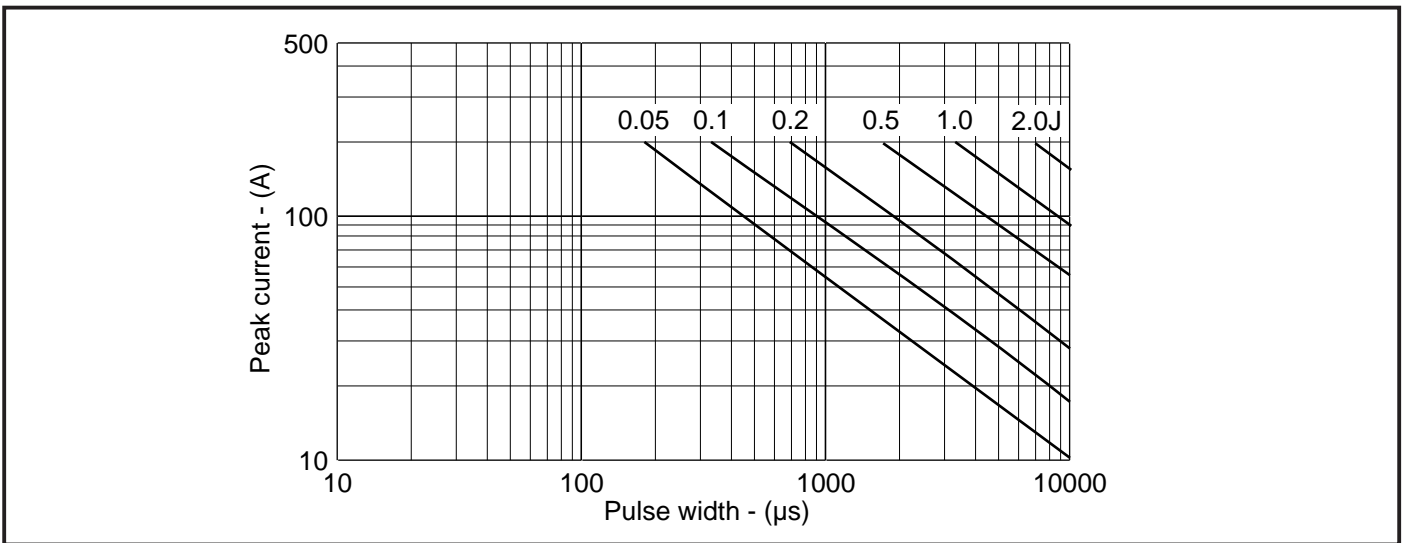
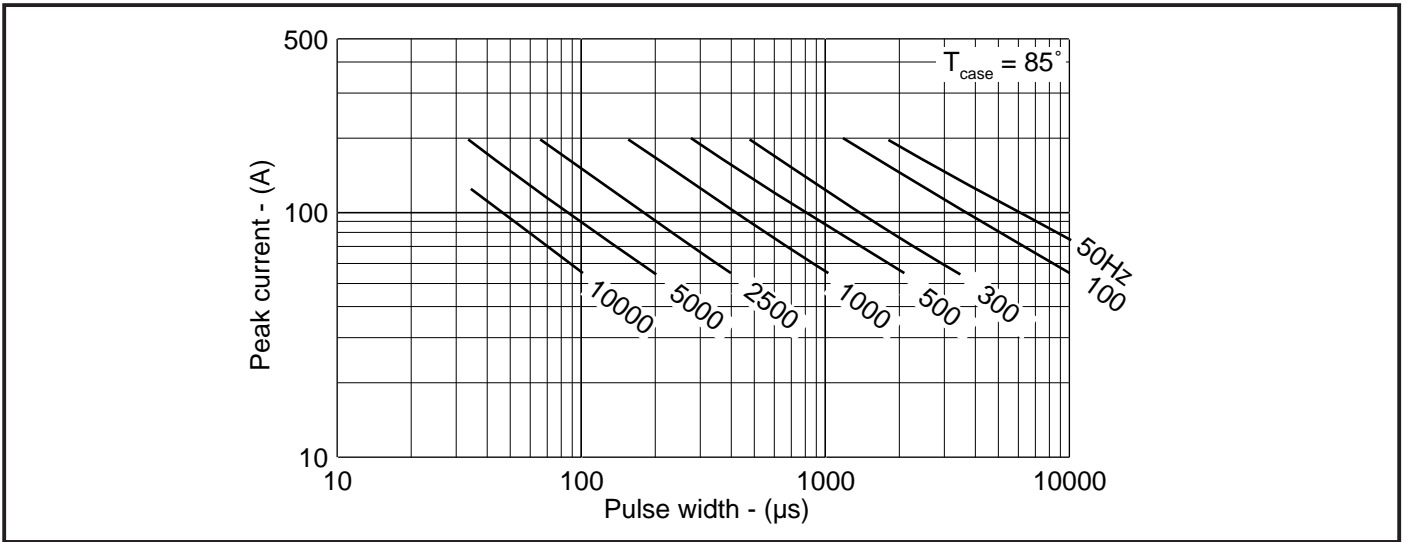
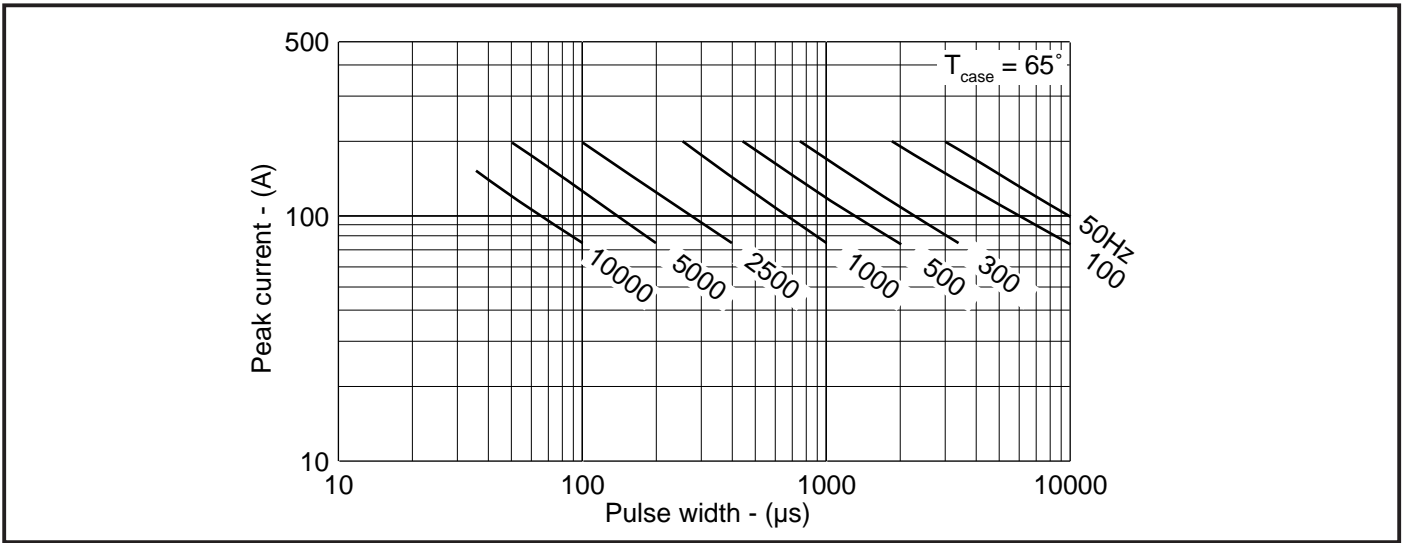


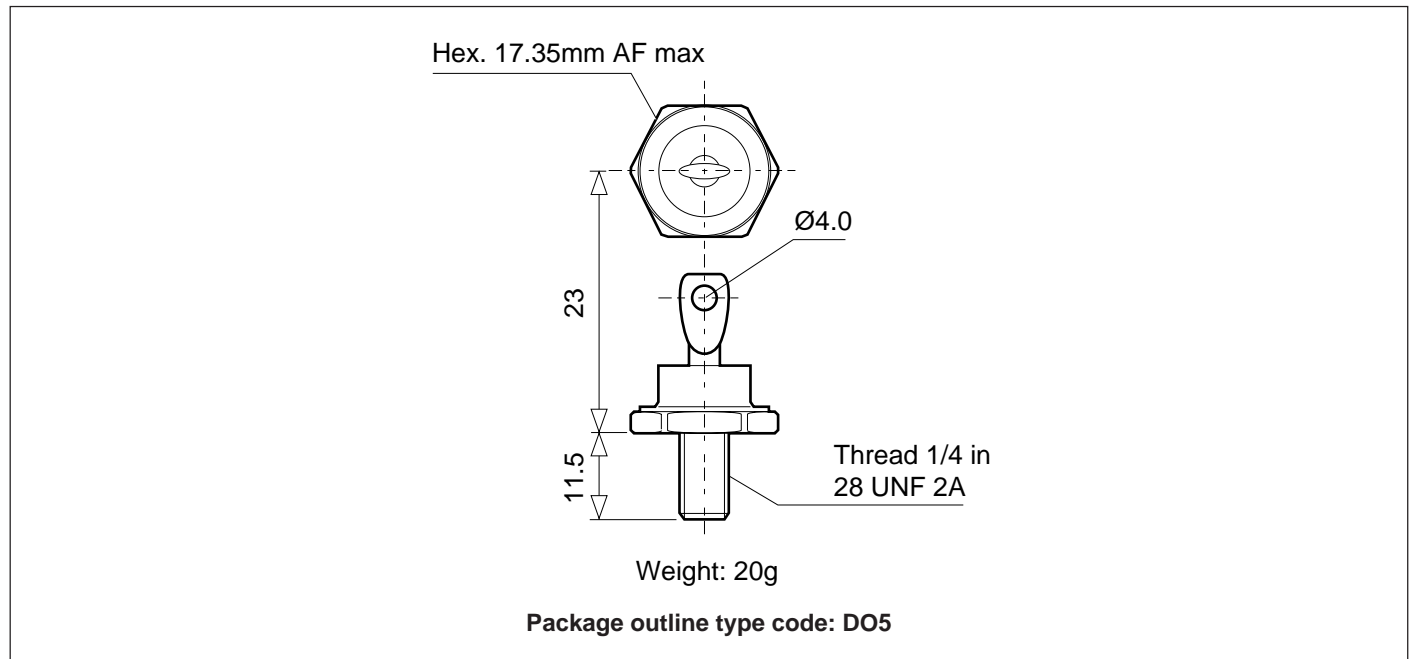
Fig.6 Energy per pulse - square waveform



## MF34

### PACKAGE DETAILS

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



### 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).

## DEVICE CLAMPS

Disc devices require the correct clamping force to ensure their safe operation. The PACs range offers a varied selection of pre-loaded clamps to suit all of our manufactured devices. This include cube clamps for single side cooling of 'T' 22mm

Clamps are available for single or double side cooling, with high insulation versions for high voltage assemblies.

Please refer to our application note on device clamping, AN4839

## HEATSINKS

Power Assembly has it's own proprietary range of extruded aluminium heatsinks. They have been designed to optimise the performance of 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.



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**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.

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