

### APPLICATIONS

- Induction Heating
- A.C. Motor Drives
- Snubber Diode
- Welding
- High Frequency Rectification
- UPS

### KEY PARAMETERS

$V_{RRM}$	<b>2500V</b>
$I_{F(AV)}$	<b>200A</b>
$I_{FSM}$	<b>3500A</b>
$Q_r$	<b>240<math>\mu</math>C</b>
$t_{rr}$	<b>2.0<math>\mu</math>s</b>

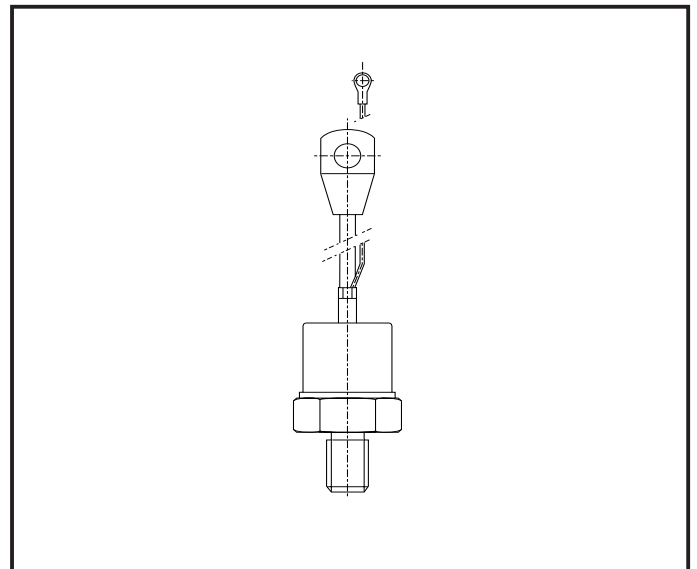
### FEATURES

- Thermal Fatigue Free Pressure Contact
- High Surge Capability
- Low Recovery Charge

### VOLTAGE RATINGS

Type Number	Repetitive Peak Reverse Voltage $V_{RRM}$ V	Conditions
TV18 25F M or K	2500	$V_{RSM} = V_{RRM} + 100V$
TV18 24F M or K	2400	
TV18 22F M or K	2200	
TV18 20F M or K	2000	

For 3/4" 16 UNF thread, add suffix K, e.g. TV18 25FK.  
 For M16 thread, add suffix M, e.g. TV18 25FM.  
 For stud anode add 'R' to type number, e.g. TV18 25FMR.



**Outline type codes: DO9.**  
**See Package Details for further information.**

### CURRENT RATINGS

Symbol	Parameter	Conditions	Max.	Units
$I_{F(AV)}$	Mean forward current	Half wave resistive load, $T_{case} = 65^{\circ}C$	200	A
$I_{F(RMS)}$	RMS value	$T_{case} = 65^{\circ}C$	320	A

## TV18..F

### SURGE RATINGS

Symbol	Parameter	Conditions	Max.	Units
$I_{FSM}$	Surge (non-repetitive) forward current	10ms half sine; with 0% $V_{RRM}$ , $T_j = 150^\circ\text{C}$	3.5	kA
$I^2t$	$I^2t$ for fusing		$61 \times 10^3$	$\text{A}^2\text{s}$
$I_{FSM}$	Surge (non-repetitive) forward current	10ms half sine; with 50% $V_{RRM}$ , $T_j = 150^\circ\text{C}$	2.8	kA
$I^2t$	$I^2t$ for fusing		$39.2 \times 10^3$	$\text{A}^2\text{s}$

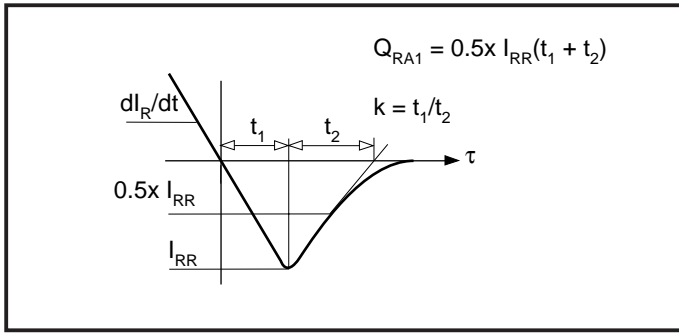
### THERMAL AND MECHANICAL DATA

Symbol	Parameter	Conditions	Min.	Max.	Units
$R_{th(j-c)}$	Thermal resistance - junction to case	dc	-	0.16	$^\circ\text{C}/\text{W}$
$R_{th(c-h)}$	Thermal resistance - case to heatsink	Mounting torque 35.0Nm with mounting compound	-	0.06	$^\circ\text{C}/\text{W}$
$T_{vj}$	Virtual junction temperature	On-state (conducting)	-	150	$^\circ\text{C}$
$T_{stg}$	Storage temperature range		-55	175	$^\circ\text{C}$
-	Mounting torque		30.0	35.0	Nm

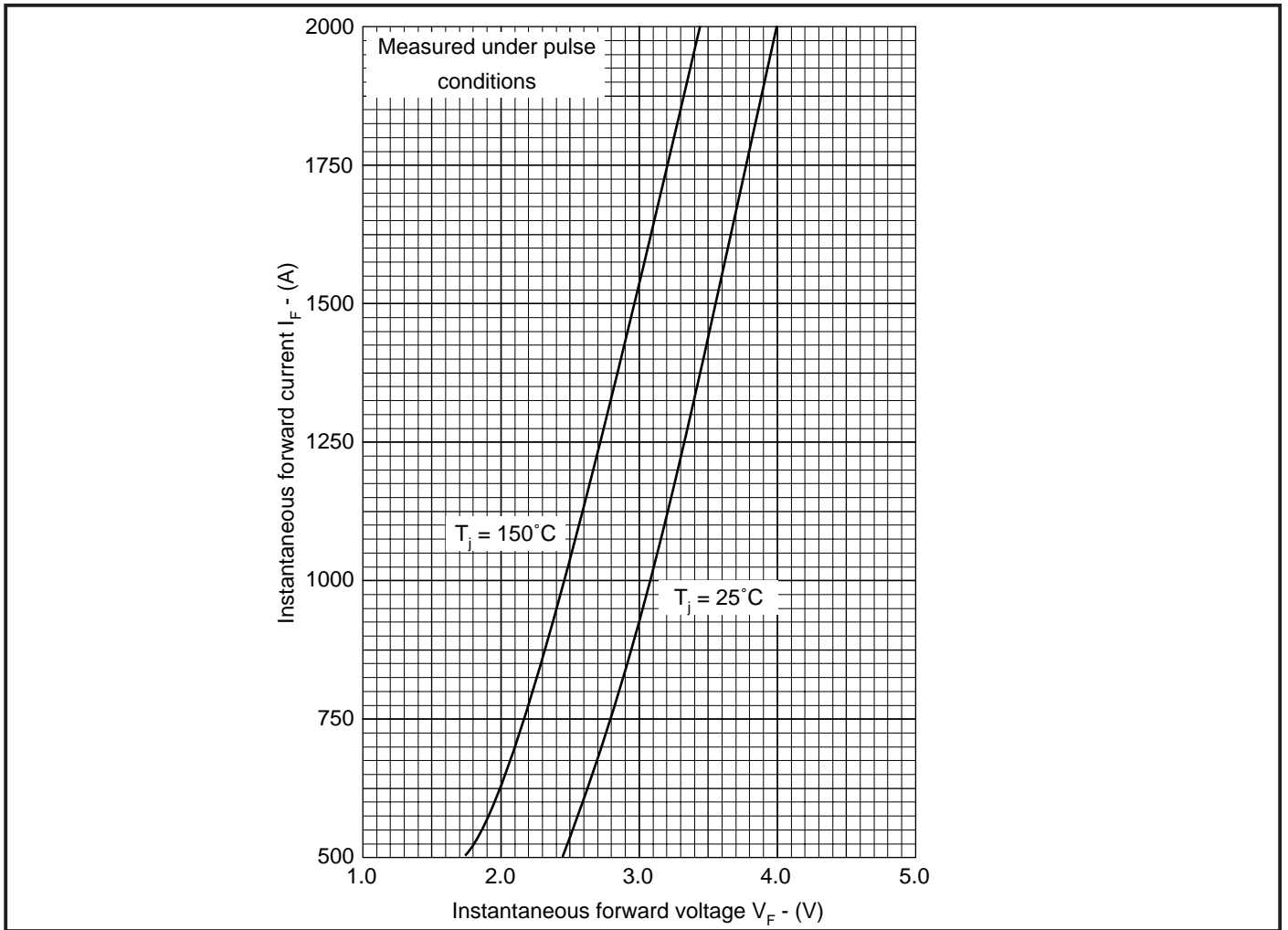
### CHARACTERISTICS

Symbol	Parameter	Conditions	Typ.	Max.	Units
$V_{FM}$	Forward voltage	At 1000A peak, $T_{case} = 25^\circ\text{C}$	-	3.1	V
$I_{RRM}$	Peak reverse current	At $V_{RRM}$ , $T_{case} = 150^\circ\text{C}$	-	50	mA
$t_{rr}$	Reverse recovery time	$I_F = 1000\text{A}$ , $di_{RR}/dt = 100\text{A}/\mu\text{s}$ $T_{case} = 150^\circ\text{C}$ , $V_R = 100\text{V}$	-	3.2	$\mu\text{s}$
$Q_{RA1}$	Recovered charge (50% chord)		-	240	$\mu\text{C}$
$I_{RM}$	Reverse recovery current		-	160	A
K	Soft factor		1.3	-	-
$V_{TO}$	Threshold voltage	At $T_{vj} = 150^\circ\text{C}$	-	1.64	V
$r_T$	Slope resistance	At $T_{vj} = 150^\circ\text{C}$	-	1.54	$\text{m}\Omega$
$V_{FRM}$	Forward recovery voltage	$di/dt = 1000\text{A}/\mu\text{s}$ , $T_j = 125^\circ\text{C}$	-	120	V

**DEFINITION OF K FACTOR AND  $Q_{RA1}$**



**CURVES**



**Fig.1 Maximum (limit) forward characteristics**

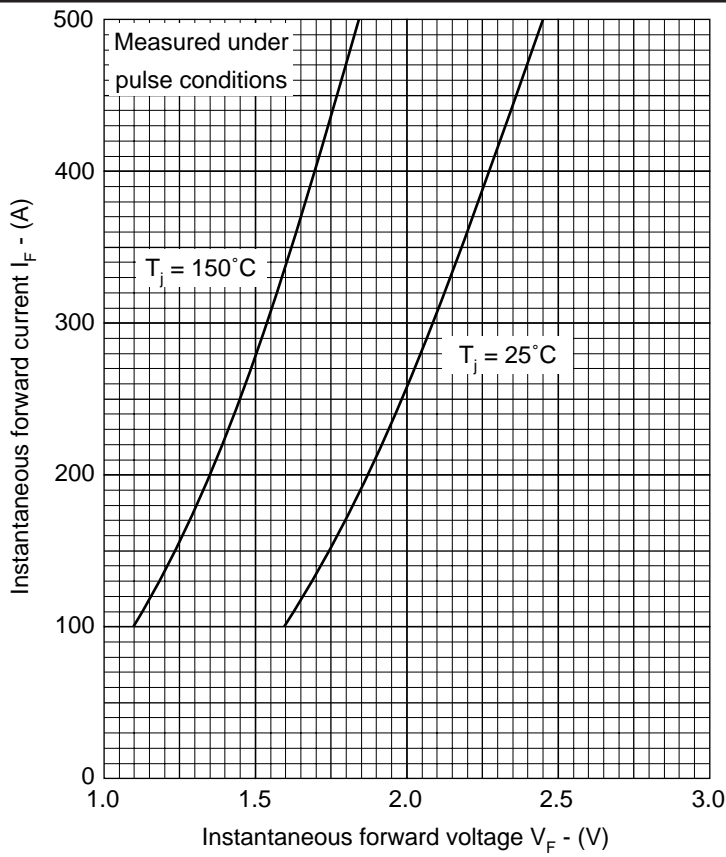


Fig.2 Maximum (limit) forward characteristics

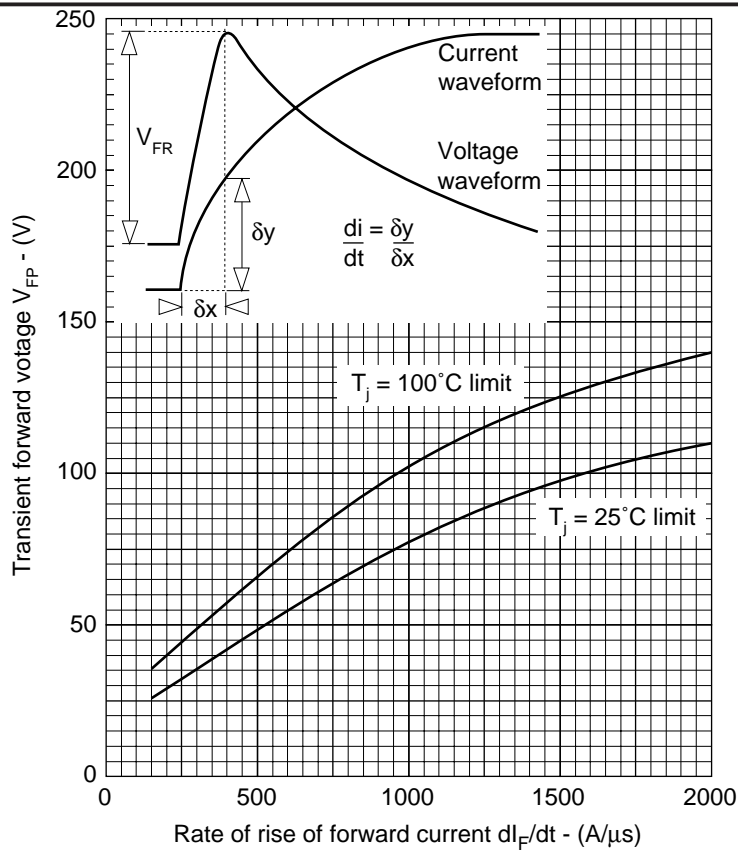


Fig.3 Transient forward voltage vs rate of rise of forward current

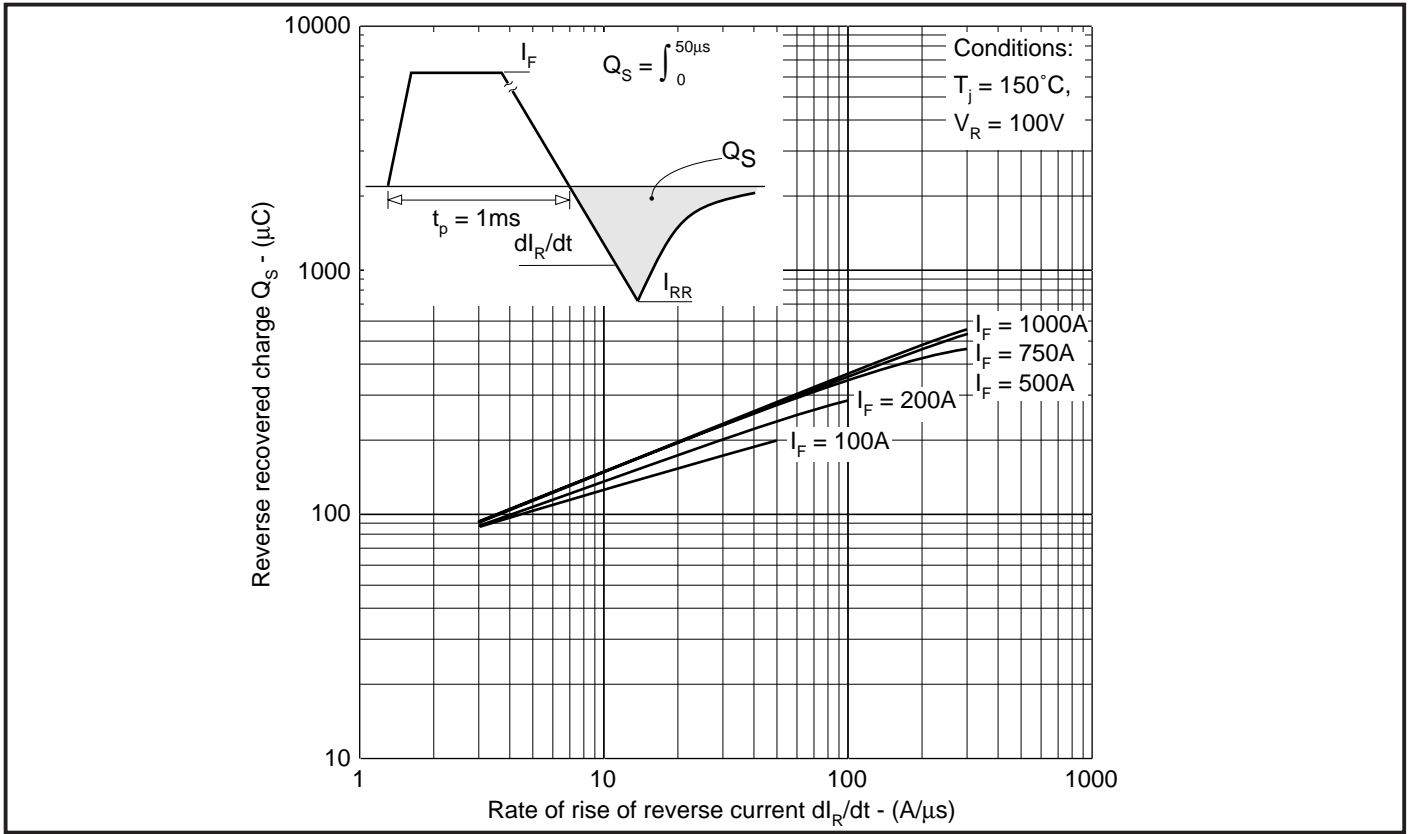


Fig.4 Recovered charge

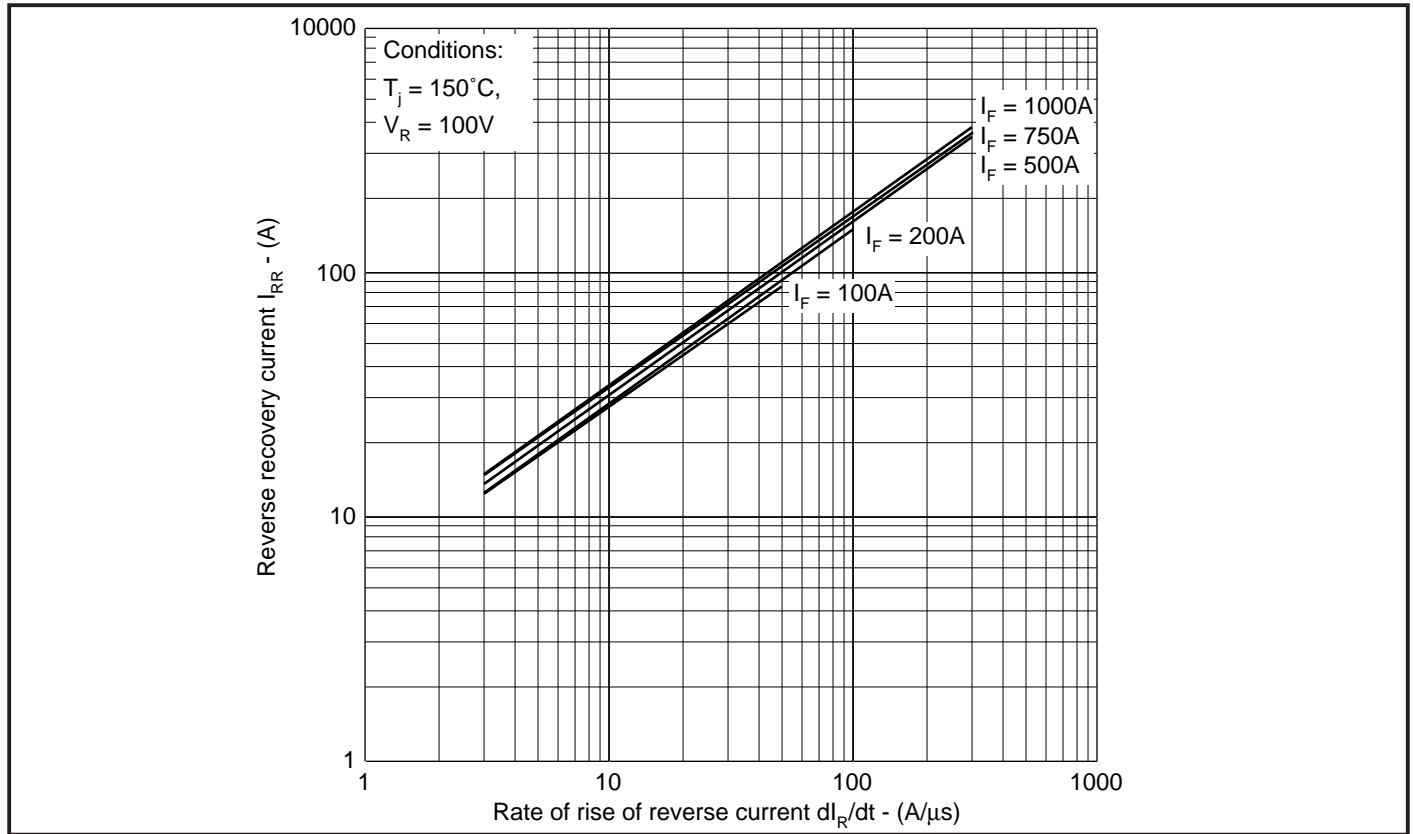


Fig.5 Typical reverse recovery current vs rate of rise of reverse current

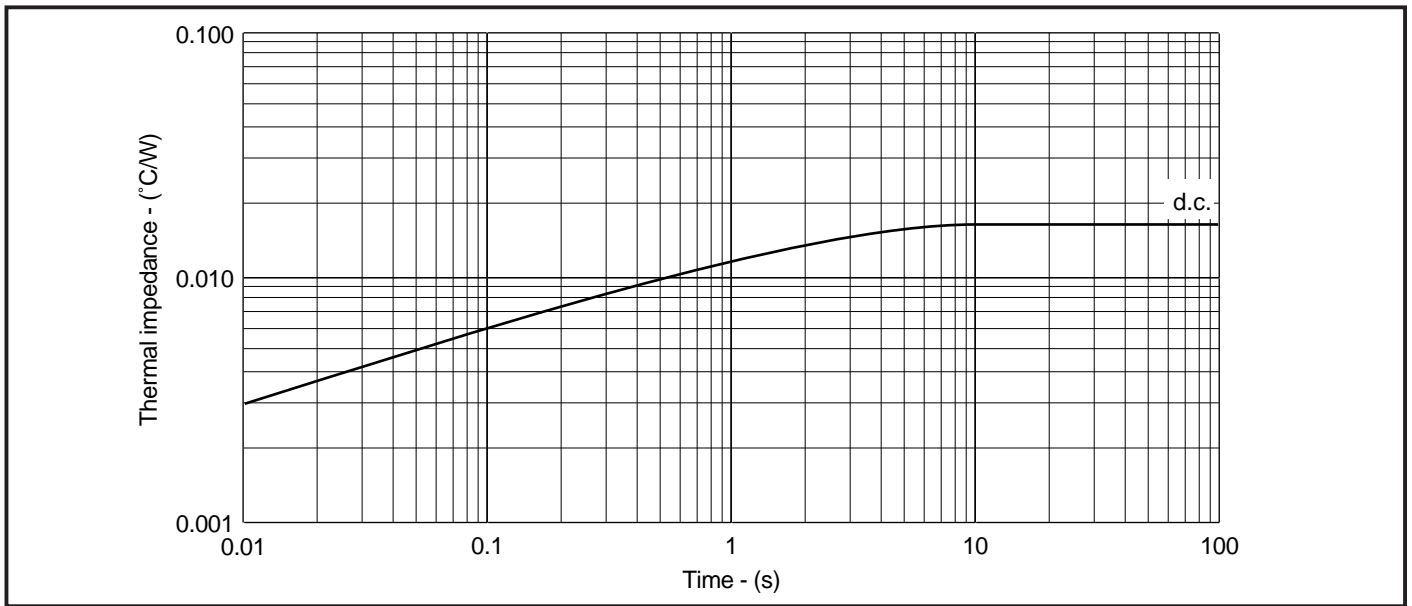
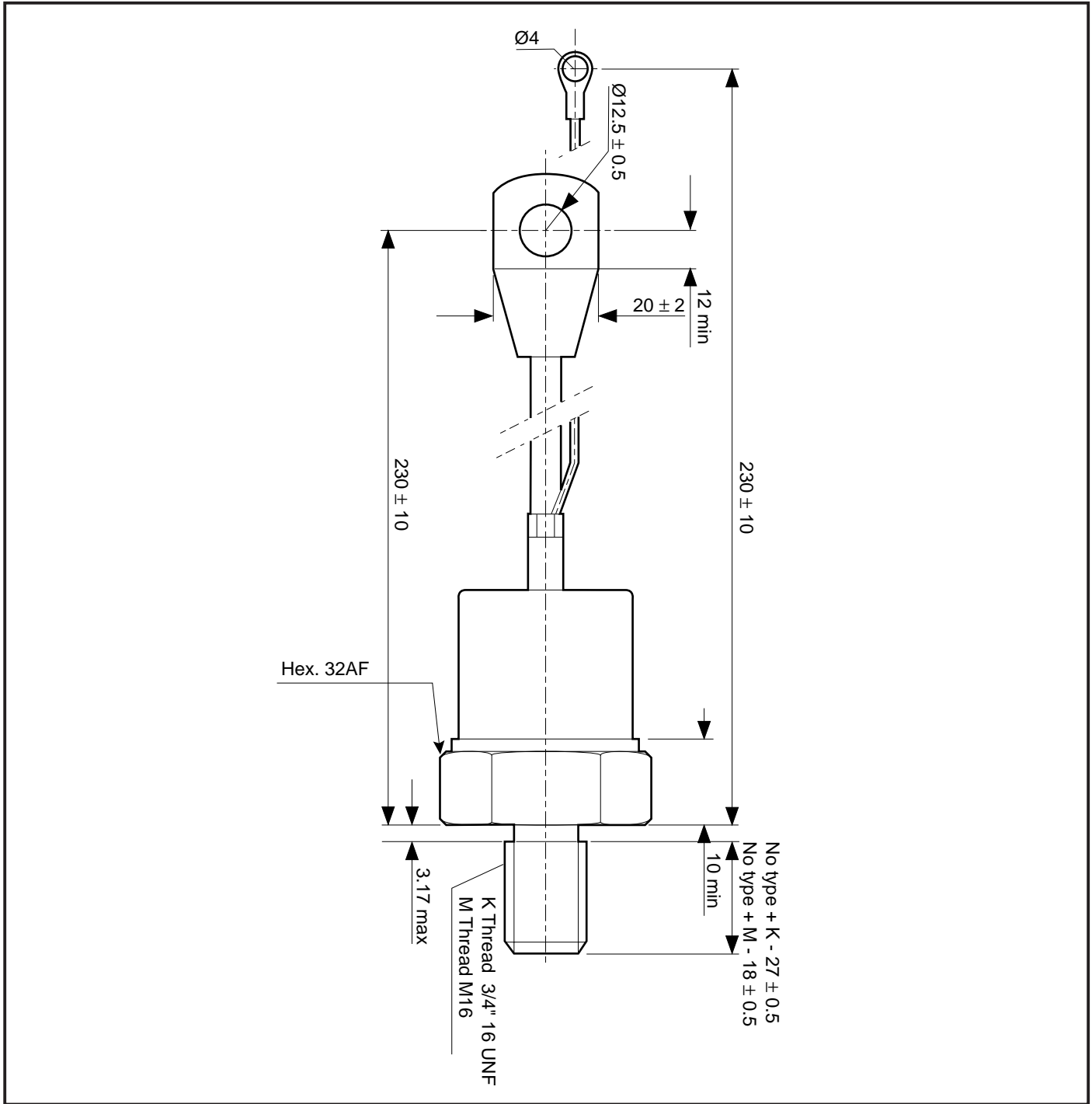


Fig.6 Maximum (limit) transient thermal impedance - junction to case - (°C/W)

**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

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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).

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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.

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