

# TV18..F

## FAST RECOVERY DIODE

### APPLICATIONS

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

### FEATURES

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

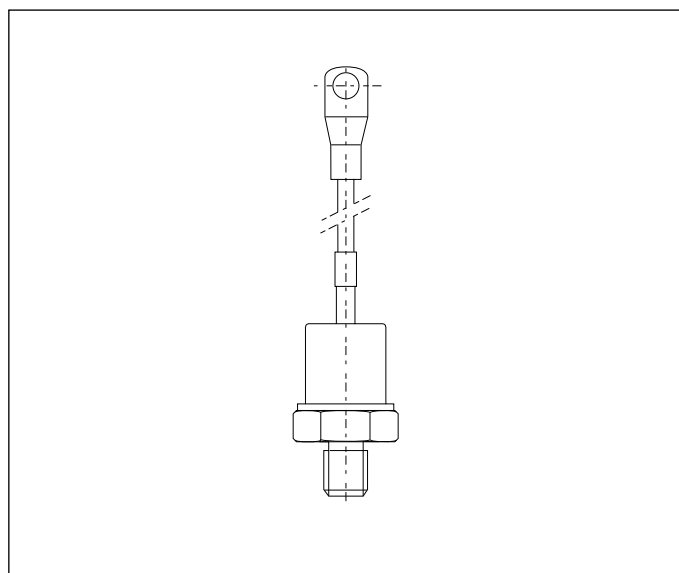
### VOLTAGE RATINGS

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

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.

### KEY PARAMETERS

$V_{RRM}$	2500V
$I_{F(AV)}$	200A
$I_{FSM}$	3500A
$Q_r$	240μC
$t_{rr}$	2.0μs



Outline type codes: DO9.  
See package outlines 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

## 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		$39.2 \times 10^3$	$\text{A}^2\text{s}$

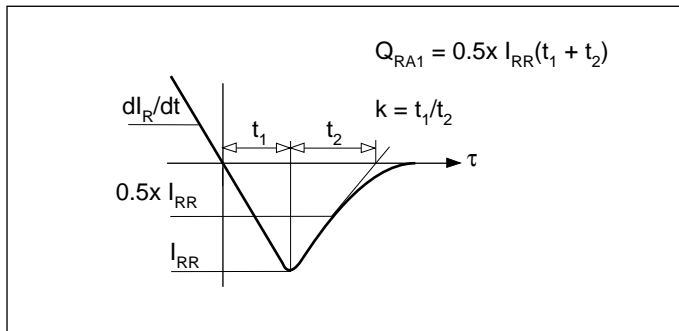
## THERMAL AND MECHANICAL DATA

Symbol	Parameter	Conditions	Min.	Max.	Units
$R_{th(j-c)}$	Thermal resistance - junction to case	dc	-	0.16	$^\circ\text{C/W}$
$R_{th(c-h)}$	Thermal resistance - case to heatsink	Mounting torque 35.0Nm with mounting compound	-	0.06	$^\circ\text{C/W}$
$T_{vj}$	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, $T_{case} = 25^{\circ}C$	-	3.1	V
$I_{RRM}$	Peak reverse current	At $V_{RRM}$ , $T_{case} = 150^{\circ}C$	-	50	mA
$t_{rr}$	Reverse recovery time	$I_F = 1000A$ , $di_{RR}/dt = 100A/\mu s$ $T_{case} = 150^{\circ}C$ , $V_R = 100V$	-	3.2	$\mu s$
$Q_{RA1}$	Recovered charge (50% chord)		-	240	$\mu C$
$I_{RM}$	Reverse recovery current		-	160	A
K	Soft factor		1.3	-	-
$V_{TO}$	Threshold voltage	At $T_{vj} = 150^{\circ}C$	-	1.64	V
$r_T$	Slope resistance	At $T_{vj} = 150^{\circ}C$	-	1.54	$m\Omega$
$V_{FRM}$	Forward recovery voltage	$di/dt = 1000A/\mu s$ , $T_j = 125^{\circ}C$	-	120	V

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



CURVES

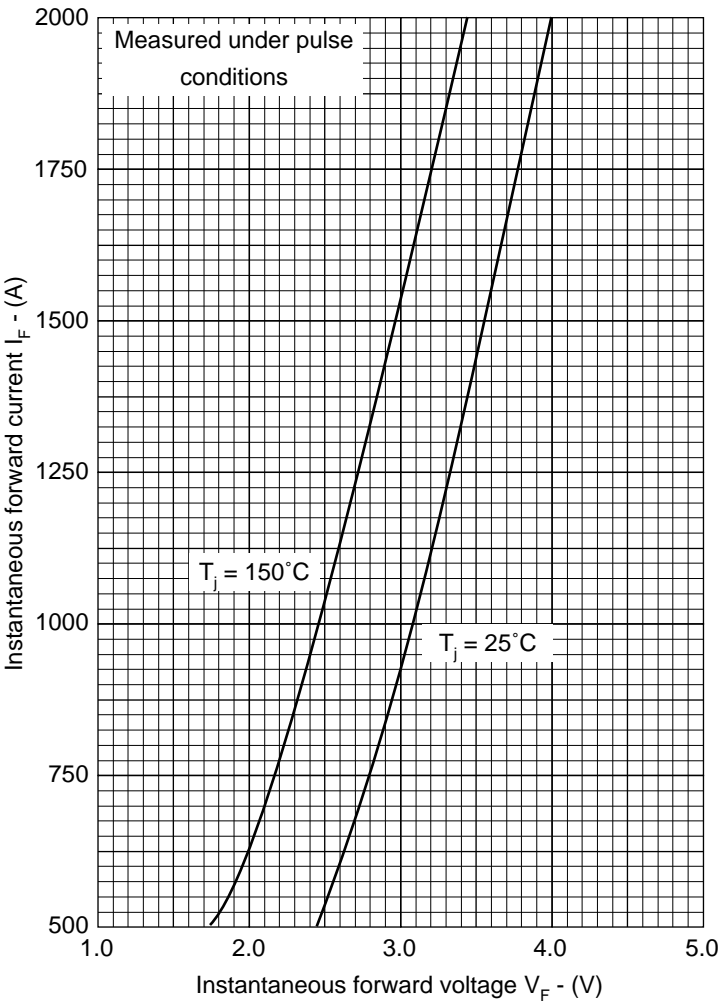


Fig.1 Maximum (limit) forward characteristics

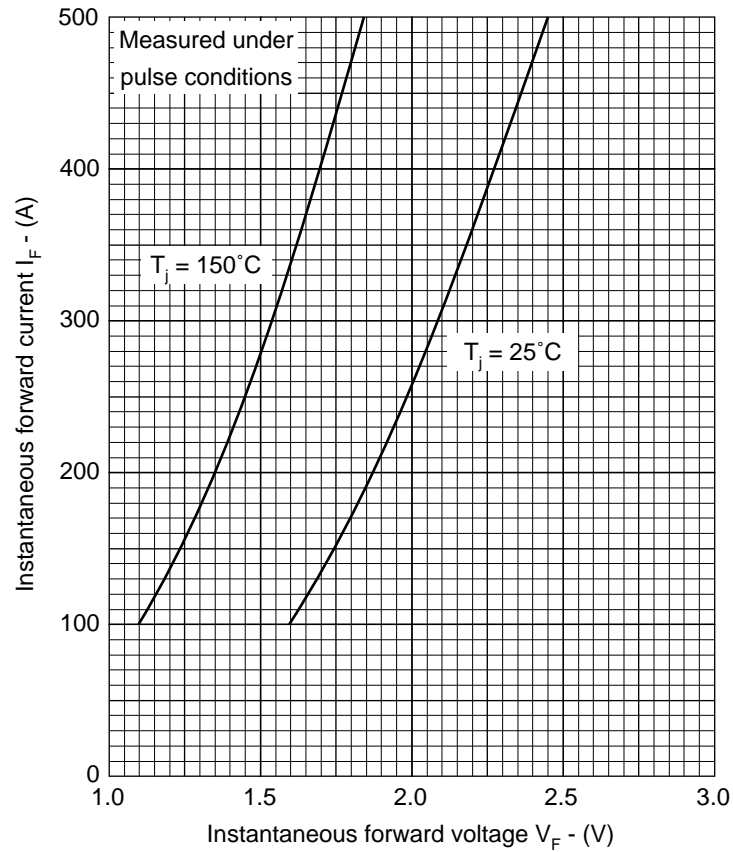


Fig.2 Maximum (limit) forward characteristics

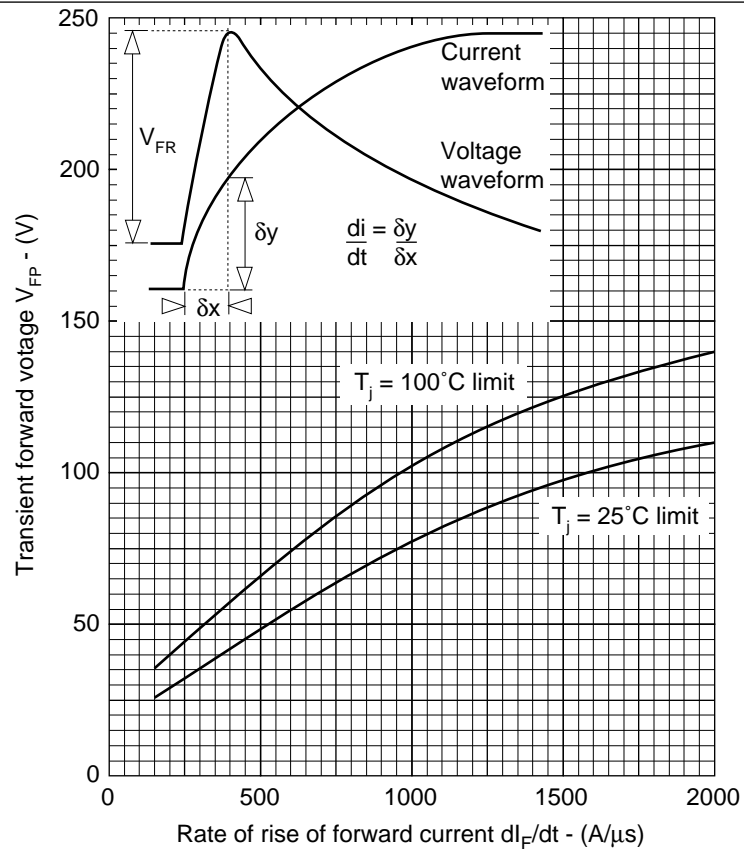


Fig.3 Transient forward voltage vs rate of rise of forward current

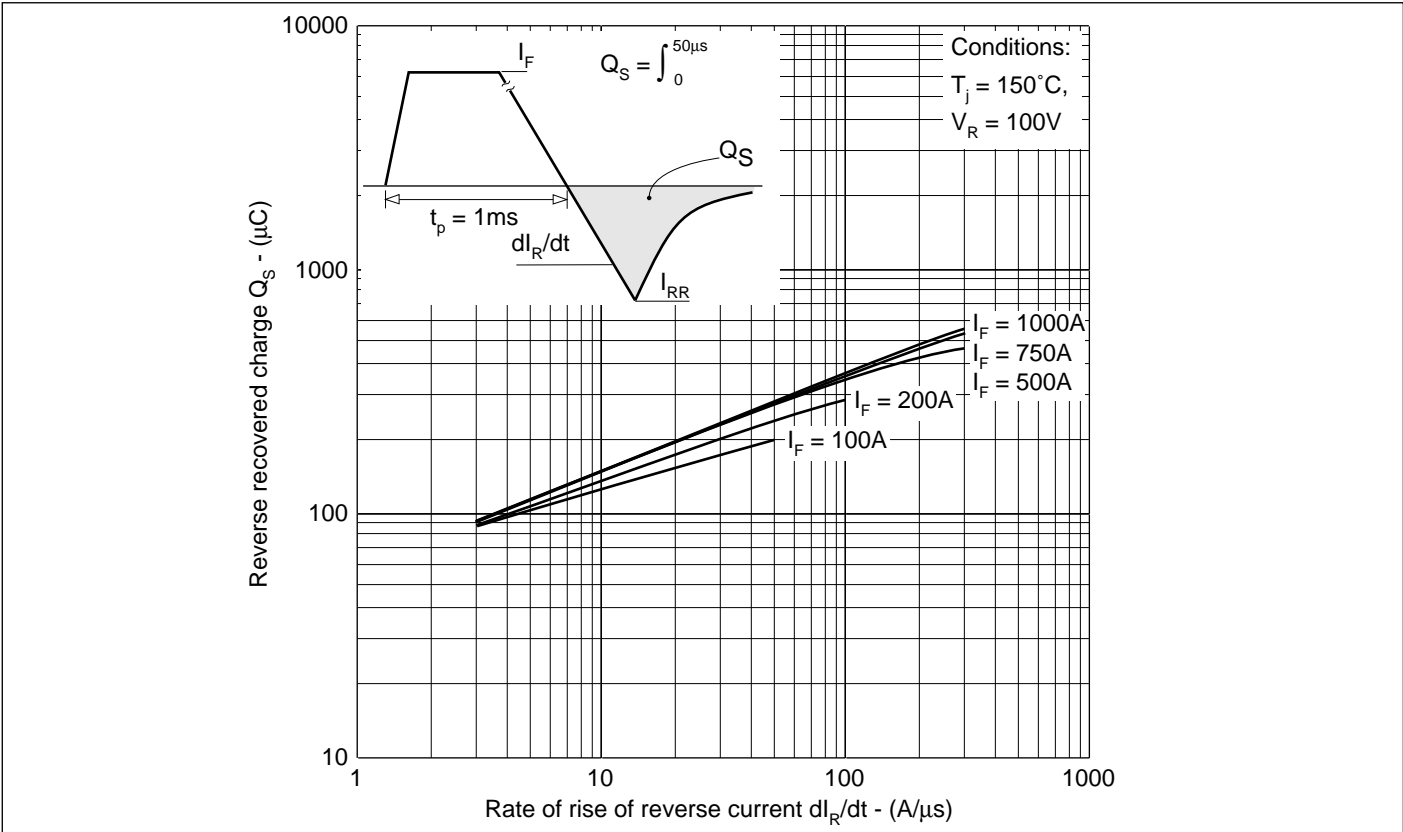


Fig.4 Recovered charge

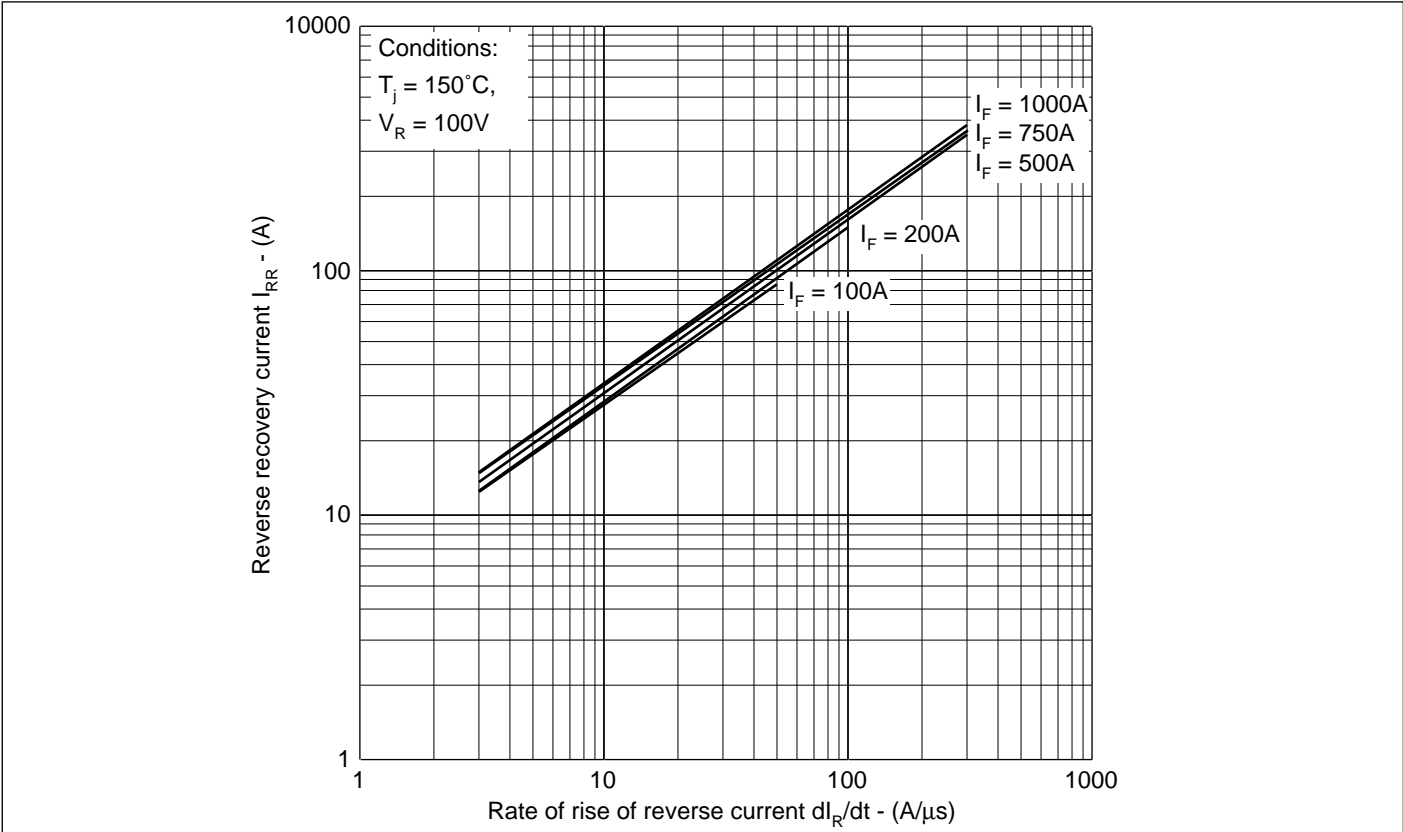


Fig.5 Typical reverse recovery current vs rate of rise of reverse current

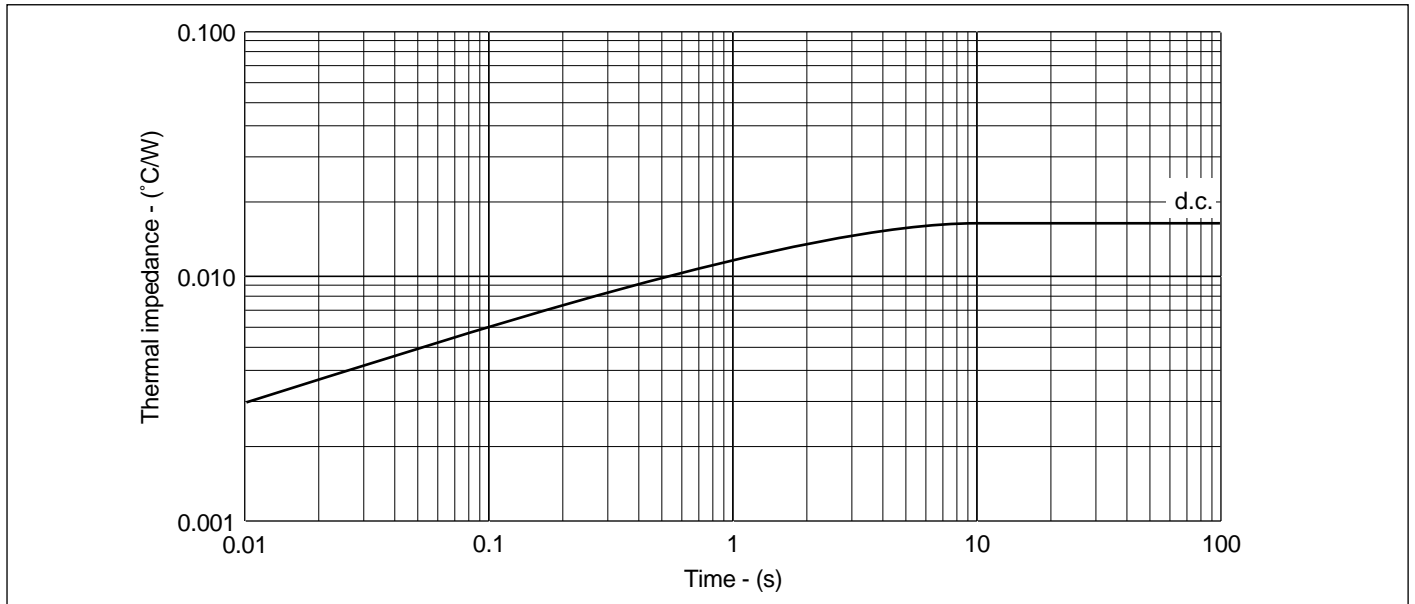
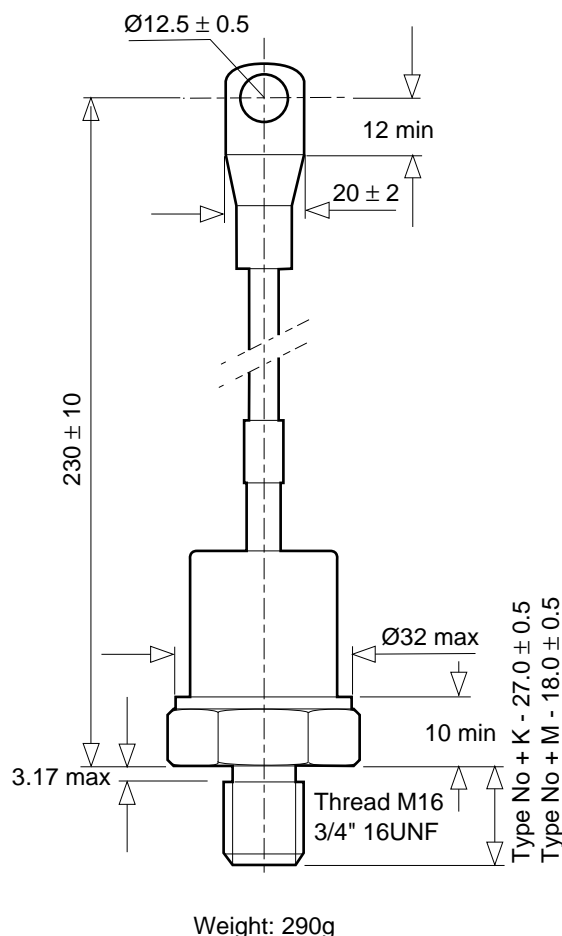


Fig.6 Maximum (limit) transient thermal impedance - junction to case - ( $^{\circ}\text{C/W}$ )

**PACKAGE DETAILS - DO9**

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



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