

### APPLICATIONS

- Rectification
- Freewheel Diode
- DC Motor Control
- Power Supplies
- Welding
- Battery Chargers

### KEY PARAMETERS

$V_{RRM}$	<b>1400V</b>
$I_{F(AV)}$	<b>540A</b>
$I_{FSM}$	<b>8000A</b>

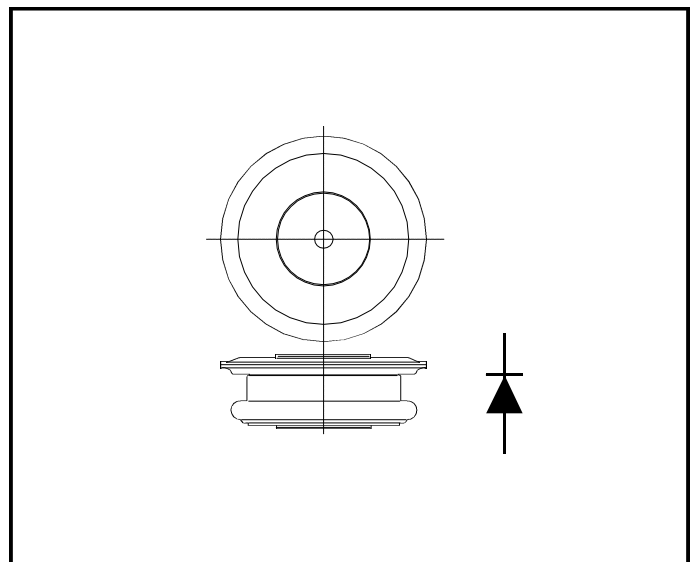
### FEATURES

- Double Side Cooling
- High Surge Capability

### VOLTAGE RATINGS

Type Number	Repetitive Peak Reverse Voltage $V_{RRM}$ V	Conditions
TR502ST14	1400	$V_{RSM} = V_{RRM} + 100V$
TR502ST13	1300	
TR502ST12	1200	
TR502ST11	1100	
TR502ST10	1000	
TR502ST09	900	

Lower voltage grades available.



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

### CURRENT RATINGS

Symbol	Parameter	Conditions	Max.	Units
<b>Double Side Cooled</b>				
$I_{F(AV)}$	Mean forward current	Half wave resistive load, $T_{case} = 100^{\circ}C$	540	A
$I_{F(RMS)}$	RMS value	$T_{case} = 100^{\circ}C$	848	A
$I_F$	Continuous (direct) forward current	$T_{case} = 100^{\circ}C$	783	A
<b>Single Side Cooled (Anode side)</b>				
$I_{F(AV)}$	Mean forward current	Half wave resistive load, $T_{case} = 100^{\circ}C$	350	A
$I_{F(RMS)}$	RMS value	$T_{case} = 100^{\circ}C$	550	A
$I_F$	Continuous (direct) forward current	$T_{case} = 100^{\circ}C$	465	A

# TR502ST

## SURGE RATINGS

Symbol	Parameter	Conditions	Max.	Units
$I_{FSM}$	Surge (non-repetitive) forward current	10ms half sine; $T_{case} = 175^{\circ}C$ $V_R = 50\% V_{RRM} - 1/4$ sine	6.5	kA
$I^2t$	$I^2t$ for fusing		$211 \times 10^3$	$A^2s$
$I_{FSM}$	Surge (non-repetitive) forward current	10ms half sine; $T_{case} = 175^{\circ}C$ $V_R = 0$	8.0	kA
$I^2t$	$I^2t$ for fusing		$320 \times 10^3$	$A^2s$

## THERMAL AND MECHANICAL DATA

Symbol	Parameter	Conditions		Min.	Max.	Units	
$R_{th(j-c)}$	Thermal resistance - junction to case	Double side cooled	dc	-	0.07	$^{\circ}C/W$	
		Single side cooled	Anode dc	-	0.14	$^{\circ}C/W$	
			Cathode dc	-	0.14	$^{\circ}C/W$	
$R_{th(c-h)}$	Thermal resistance - case to heatsink	Clamping force 4.5kN with mounting compound		Double side	-	0.02	$^{\circ}C/W$
				Single side	-	0.04	$^{\circ}C/W$
$T_{vj}$	Virtual junction temperature	Forward (conducting)		-	185	$^{\circ}C$	
		Reverse (blocking)		-	175	$^{\circ}C$	
$T_{stg}$	Storage temperature range			-55	200	$^{\circ}C$	
-	Clamping force			3.5	5.0	kN	

## CHARACTERISTICS

Symbol	Parameter	Conditions	Min.	Max.	Units
$I_{RRM}$	Peak reverse current	At $V_{RRM}$ , $T_{case} = 175^{\circ}C$	-	30	mA
$V_{TO}$	Threshold voltage	At $T_{vj} = 175C$	-	0.84	V
$r_T$	Slope resistance	At $T_{vj} = 175C$	-	0.667	$m\Omega$

CURVES

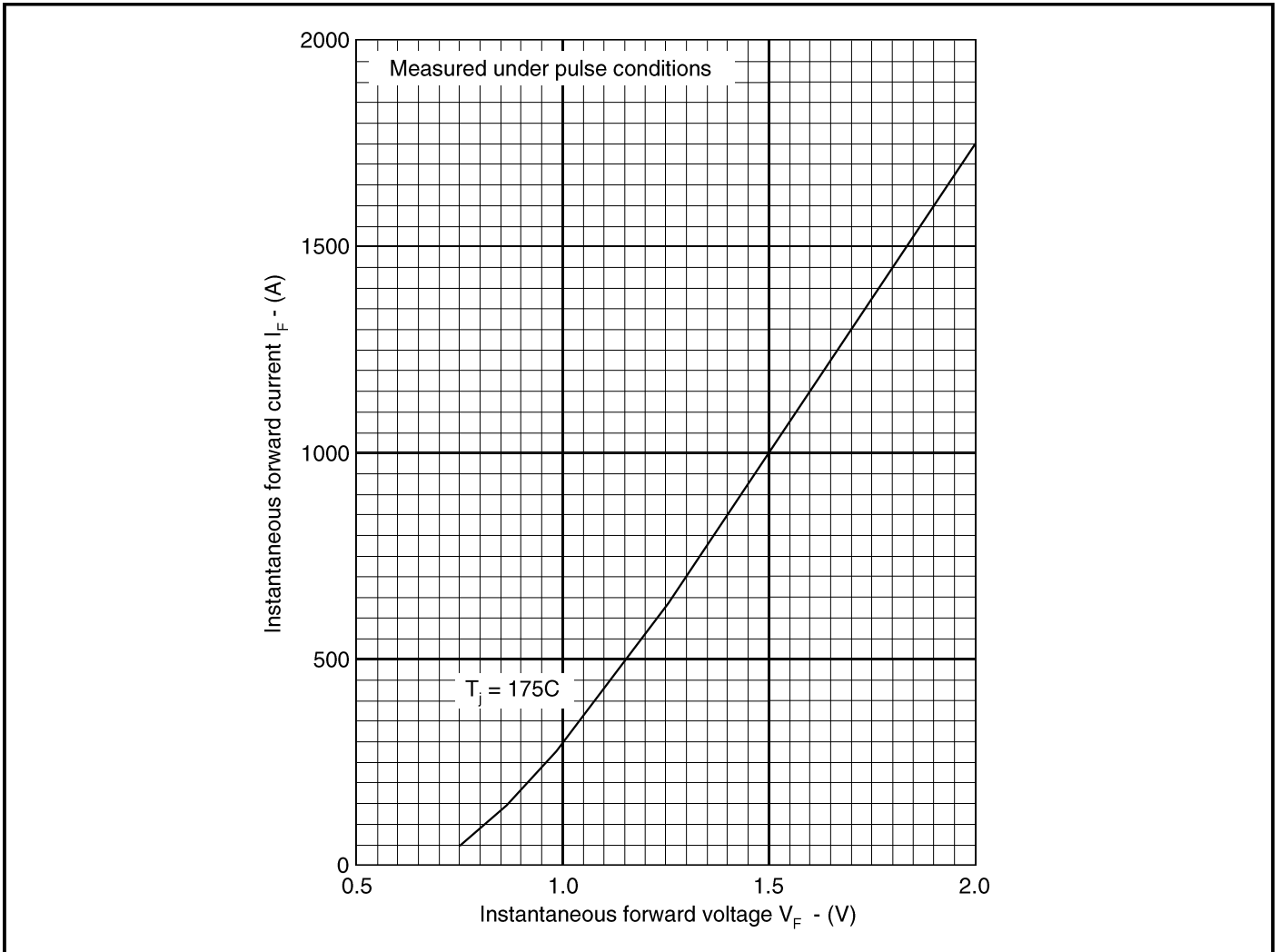


Fig.1 Maximum (limit) forward characteristics

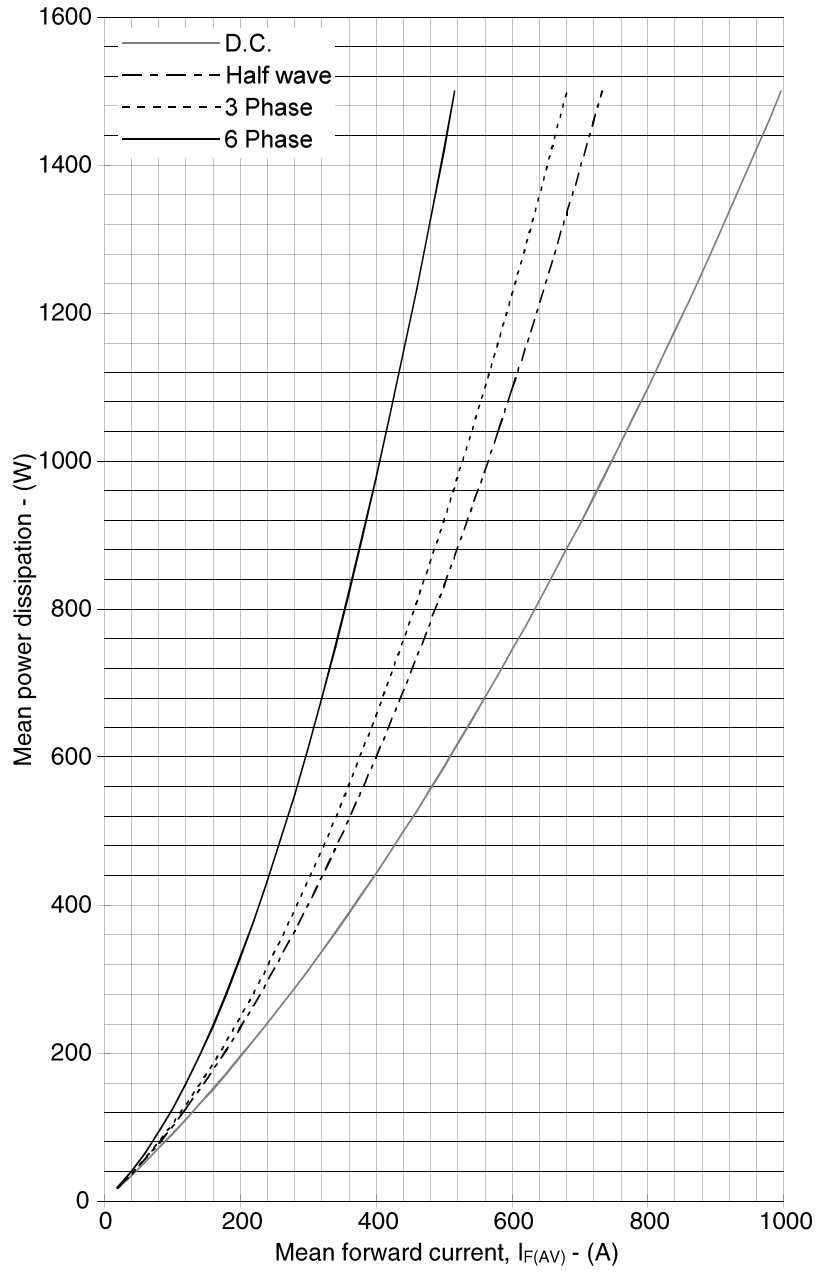


Fig.2 Dissipation curves

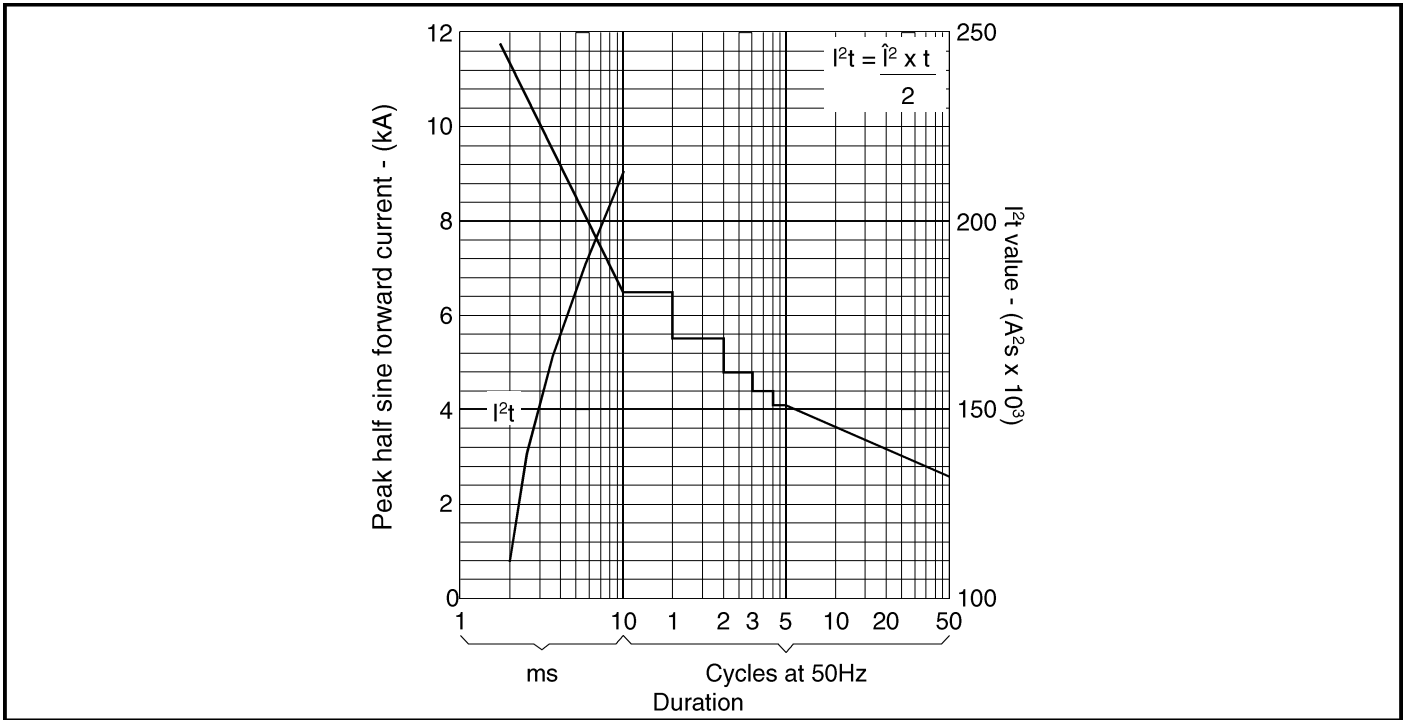


Fig.3 Surge (non-repetitive) forward current vs time (with 50%  $V_{RRM}$  @  $T_{case} = 175C$ )

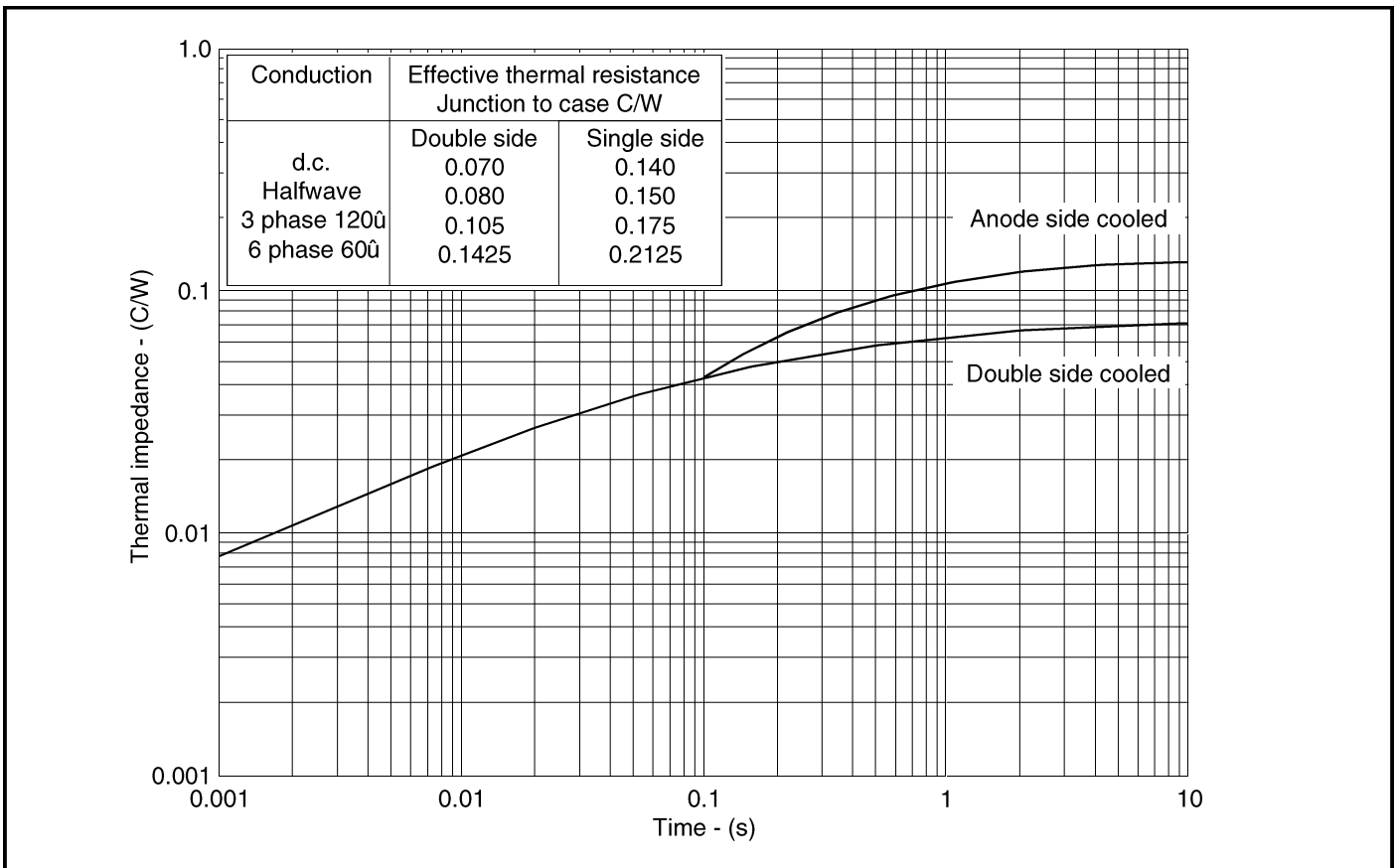


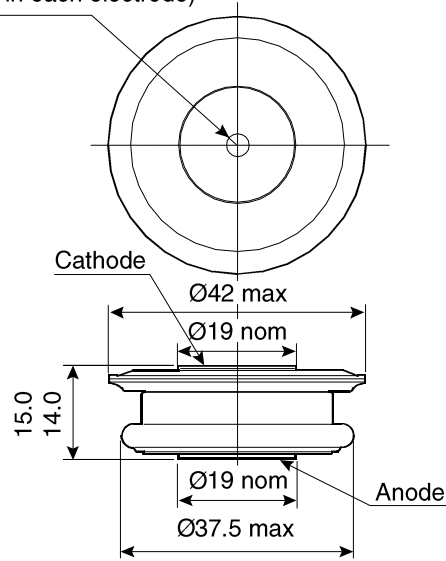
Fig.4 Maximum (limit) transient thermal impedance - junction to case - (C/W)

# TR502ST

## PACKAGE DETAILS

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

2 holes  $\text{Ø}3.6 \times 2.0$  deep  
(One in each electrode)



Nominal weight: 50g  
Clamping force: 4.5kN  $\pm 10\%$

**Package outline type code: T**