

FEATURES

- Wide current range
- High voltage ratings up to 1600 V
- High surge current capabilities
- Diffused junction
- Hockey PUK version

TYPICAL APPLICATION

- Converters
- Power supplies
- Machine tool controls
- High power drives
- Medium traction applications

TECHNICAL DATA

DEVICE TYPE	V_{RRM} (V)	V_{RSM} (V)
DS402ST1212	1200	1300
DS402ST1414	1400	1500
DS402ST1616	1600	1700



High V_{RRM} available upto 3200 V on request

Symbol	Parameter	Conditions	Max.	Units
Double Side Cooled				
$I_{F(AV)}$	Mean forward current	Half wave resistive load, $T_{case} = 100^{\circ}C$	505	A
$I_{F(RMS)}$	RMS value	$T_{case} = 100^{\circ}C$	793	A
I_F	Continuous (direct) forward current	$T_{case} = 100^{\circ}C$	640	A
Single Side Cooled (Anode side)				
$I_{F(AV)}$	Mean forward current	Half wave resistive load, $T_{case} = 100^{\circ}C$	365	A
$I_{F(RMS)}$	RMS value	$T_{case} = 100^{\circ}C$	573	A
I_F	Continuous (direct) forward current	$T_{case} = 100^{\circ}C$	390	A

SURGE RATINGS

Symbol	Parameter	Conditions	Max.	Units
I_{FSM}	Surge (non-repetitive) forward current	10ms half sine; $T_{case} = 175^{\circ}C$	4.5	kA
I^2t	I^2t for fusing	$V_R = 50\% V_{RRM}$ - 1/4 sine	101×10^3	A ² s
I_{FSM}	Surge (non-repetitive) forward current	10ms half sine; $T_{case} = 175^{\circ}C$	5.6	kA
I^2t	I^2t for fusing	$V_R = 0$	155×10^3	A ² s

THERMAL AND MECHANICAL DATA

Symbol	Parameter	Conditions	Min.	Max.	Units
$R_{th(j-c)}$	Thermal resistance - junction to case	Double side cooled	dc	-	0.08 °C/W
		Single side cooled	Anode dc	-	0.16 °C/W
			Cathode dc	-	0.16 °C/W
$R_{th(c-h)}$	Thermal resistance - case to heatsink	Clamping force 4.5kN with mounting compound	Double side	-	0.02 °C/W
			Single side	-	0.04 °C/W
T_{vj}	Virtual junction temperature	On-state (conducting)	-	185	°C
		Reverse (blocking)	-	175	°C
T_{stg}	Storage temperature range		-55	200	°C
-	Clamping force		3.5	5.0	kN

CHARACTERISTICS

Symbol	Parameter	Conditions	Min.	Max.	Units
V_{FM}	Forward voltage	At 450A peak, $T_{case} = 25^{\circ}C$	-	1.25	V
I_{RRM}	Peak reverse current	At V_{RRM} , $T_{case} = 175^{\circ}C$	-	15	mA
V_{TO}	Threshold voltage	At $T_{vj} = 175^{\circ}C$	-	0.81	V
r_T	Slope resistance	At $T_{vj} = 175^{\circ}C$	-	0.84	mΩ

CURVES

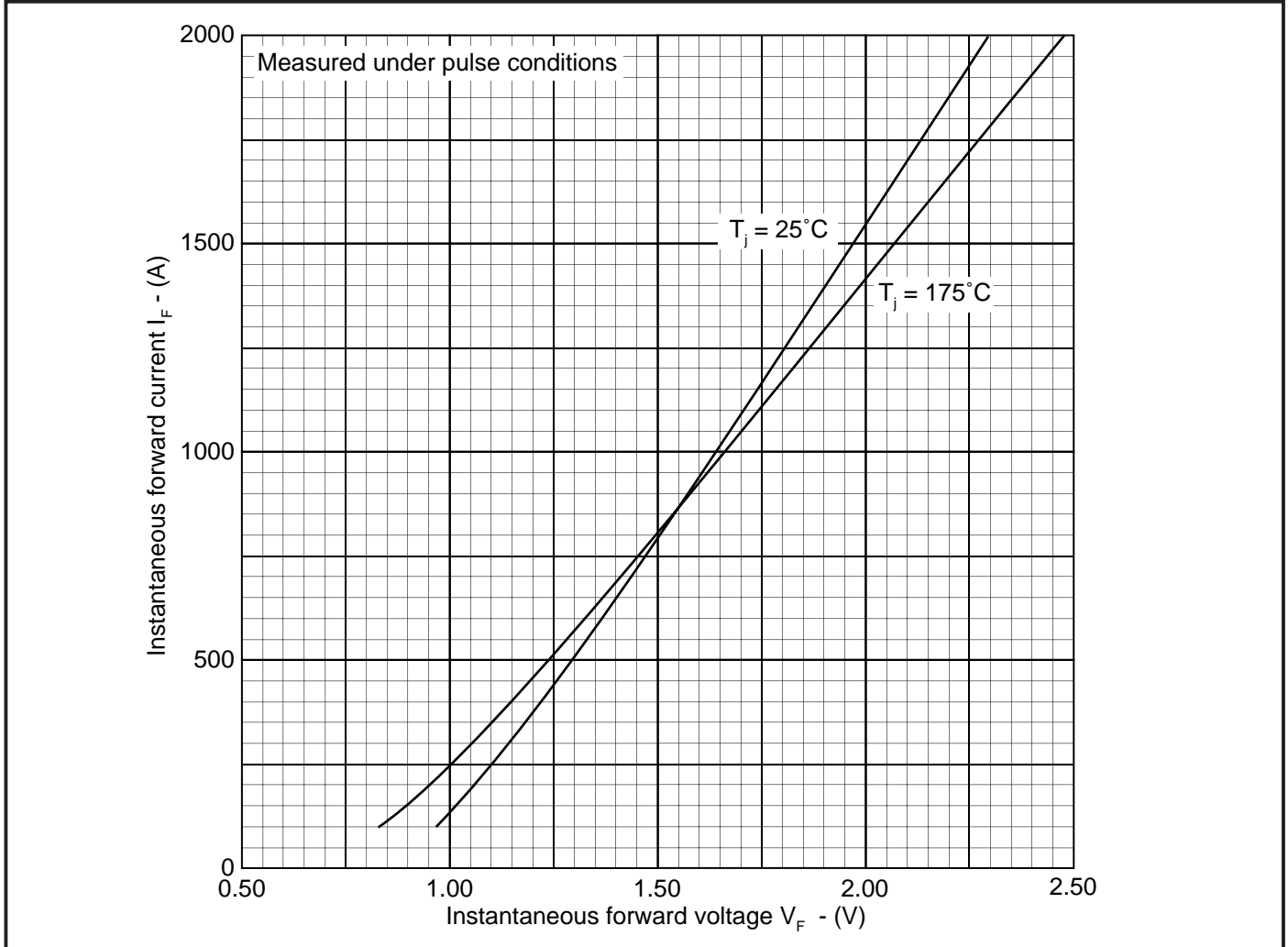


Fig. 1 Maximum (limit) forward characteristics

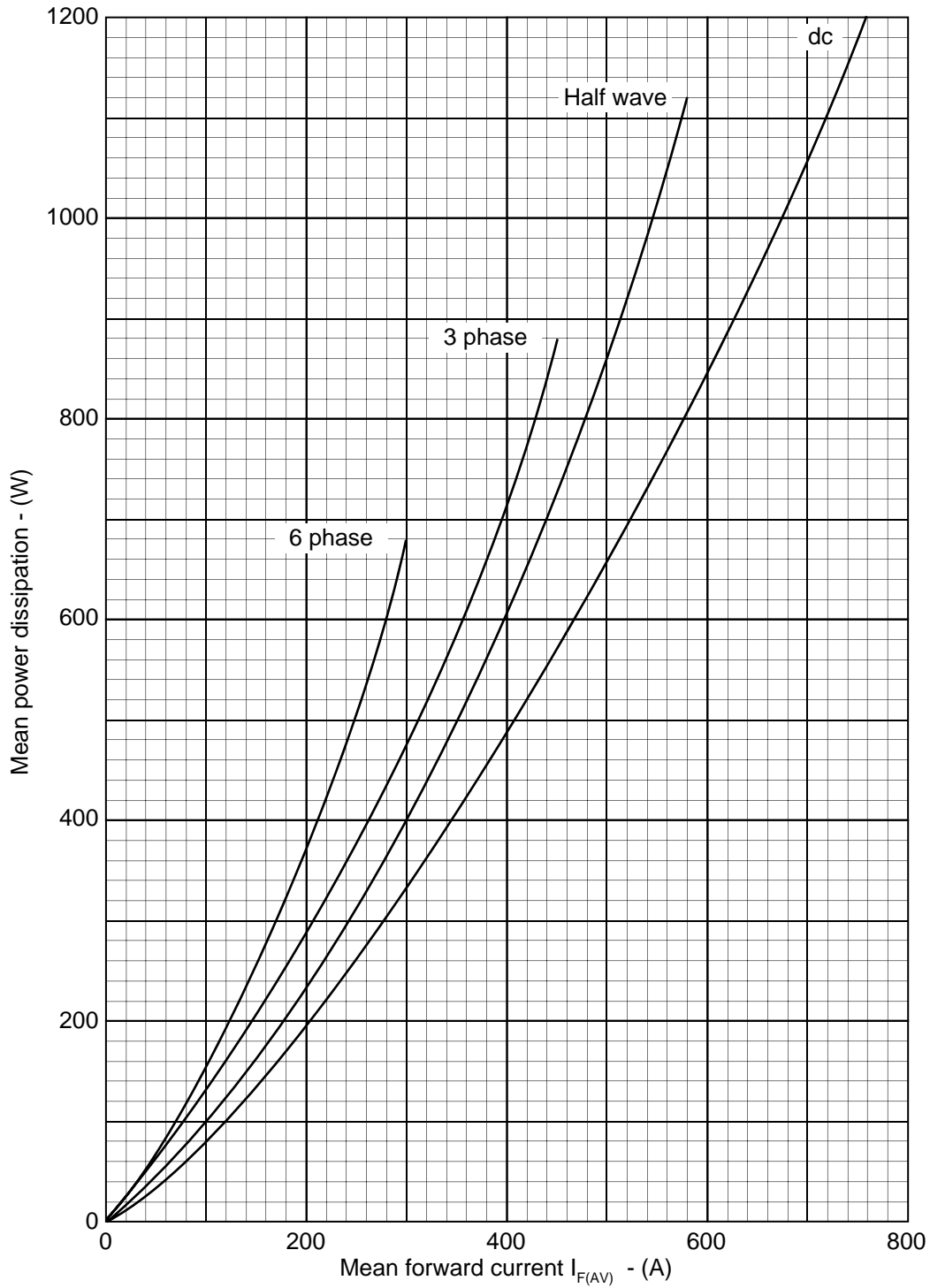


Fig. 2 Dissipation curves

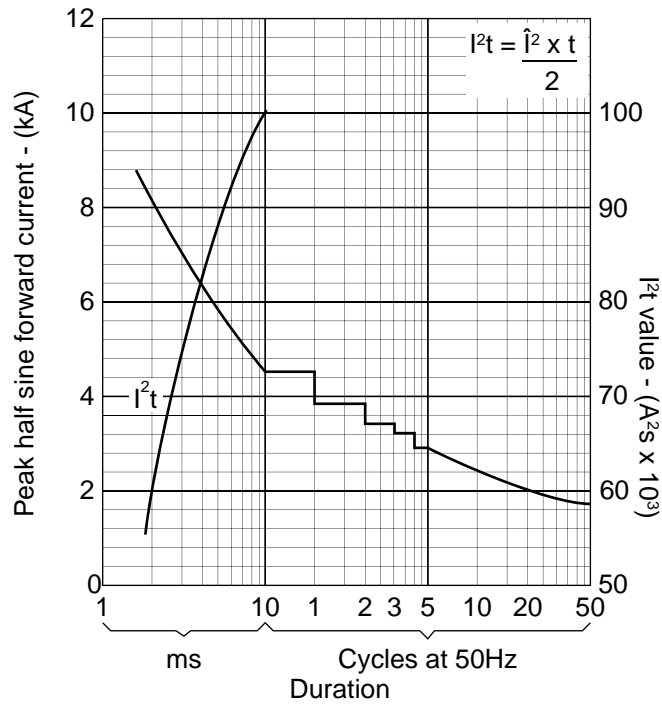


Fig. 3 Surge (non-repetitive) forward current vs time (with 50% V_{RRM} , $T_{case} = 175^{\circ}C$)

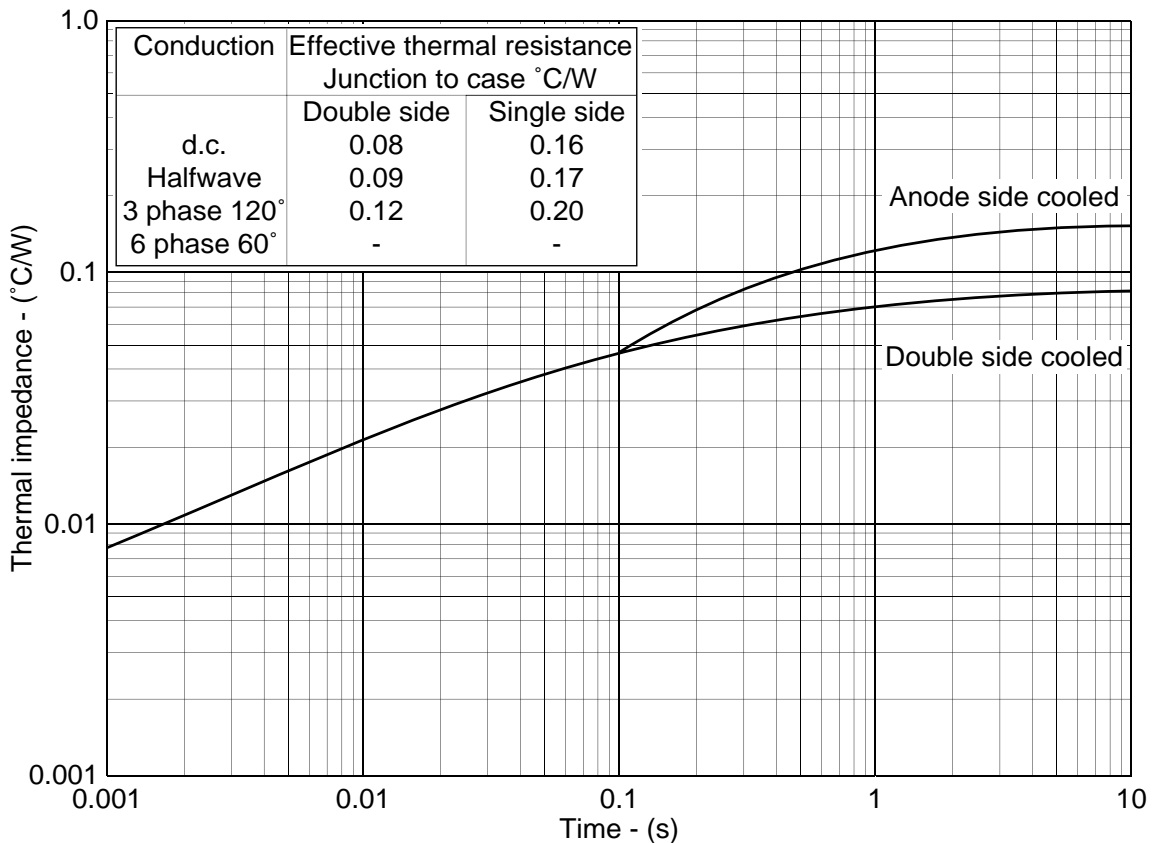
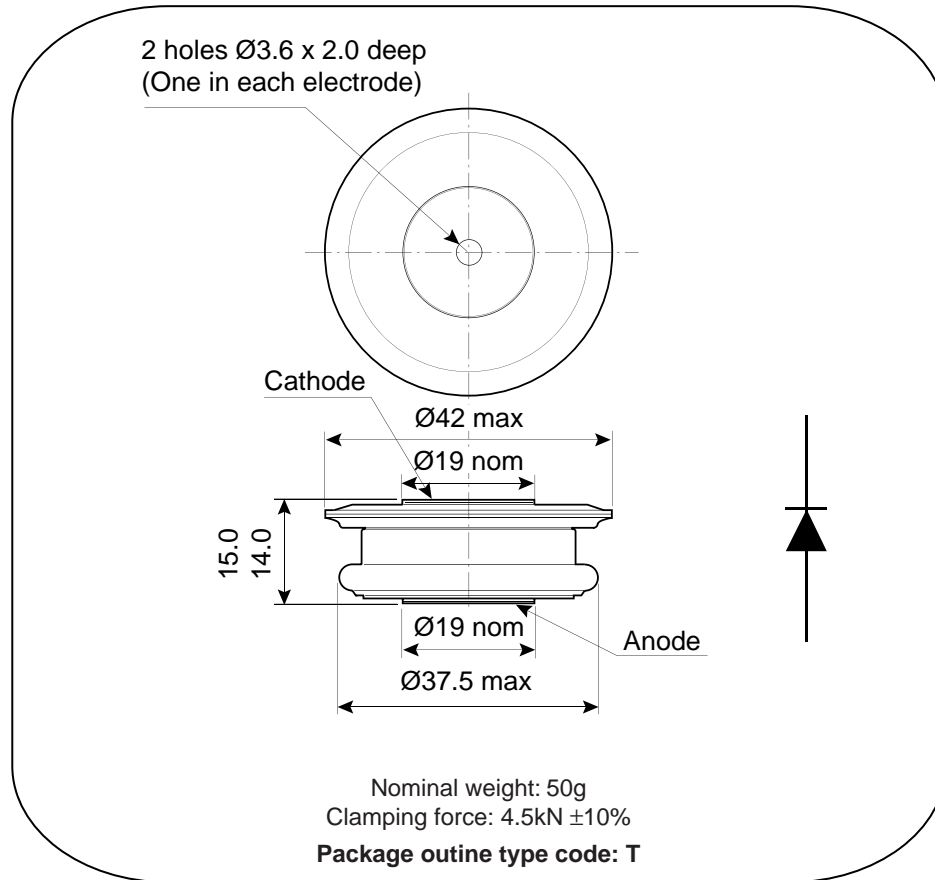


Fig. 4 Transient thermal impedance - junction to case - ($^{\circ}C/W$)

PACKAGE OUTLINE



All dimensions are in mm.

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