DS402ST

RECTIFIER DIODE

APPLICATIONS

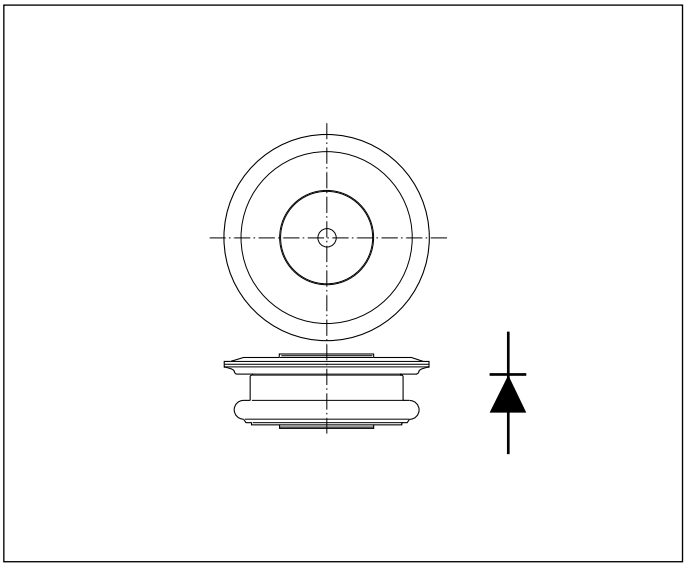
- Rectification.
- Freewheel Diode.
- DC Motor Control.
- Power Supplies.
- Welding.
- Battery Chargers.

KEY PARAMETERS

V_{RRM}	1400V
$I_{F(AV)}$	505A
I_{FSM}	5600A

FEATURES

- Double Side Cooling.
- High Surge Capability.



Outline type code: T. Turn to page 6 for further information.

VOLTAGE RATINGS

Type Number	Repetitive Peak Reverse Voltage V_{RRM} V	Conditions
DS402ST14	1400	$V_{RSM} = V_{RRM} + 100V$
DS402ST13	1300	
DS402ST12	1200	
DS402ST11	1100	
DS402ST10	1000	
DS402ST09	900	

Lower voltage grades available.

CURRENT RATINGS

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

SURGE RATINGS

Symbol	Parameter	Conditions	Max.	Units
I_{FSM}	Surge (non-repetitive) forward current	10ms half sine; T_{case} = 175°C	4.5	kA
I^2t	I^2t for fusing	V_R = 50% V_{RRM} - 1/4 sine	101 x 10^3	A^2s
I_{FSM}	Surge (non-repetitive) forward current	10ms half sine; T_{case} = 175°C	5.6	kA
I^2t	I^2t for fusing	V_R = 0	155 x 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	-	0.08	°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°C	-	1.25	V
I_{RRM}	Peak reverse current	At V_{RRM}, T_{case} = 175°C	-	15	mA
V_{TO}	Threshold voltage	At T_{vj} = 175°C	-	0.81	V
r_T	Slope resistance	At T_{vj} = 175°C	-	0.84	mΩ

CURVES

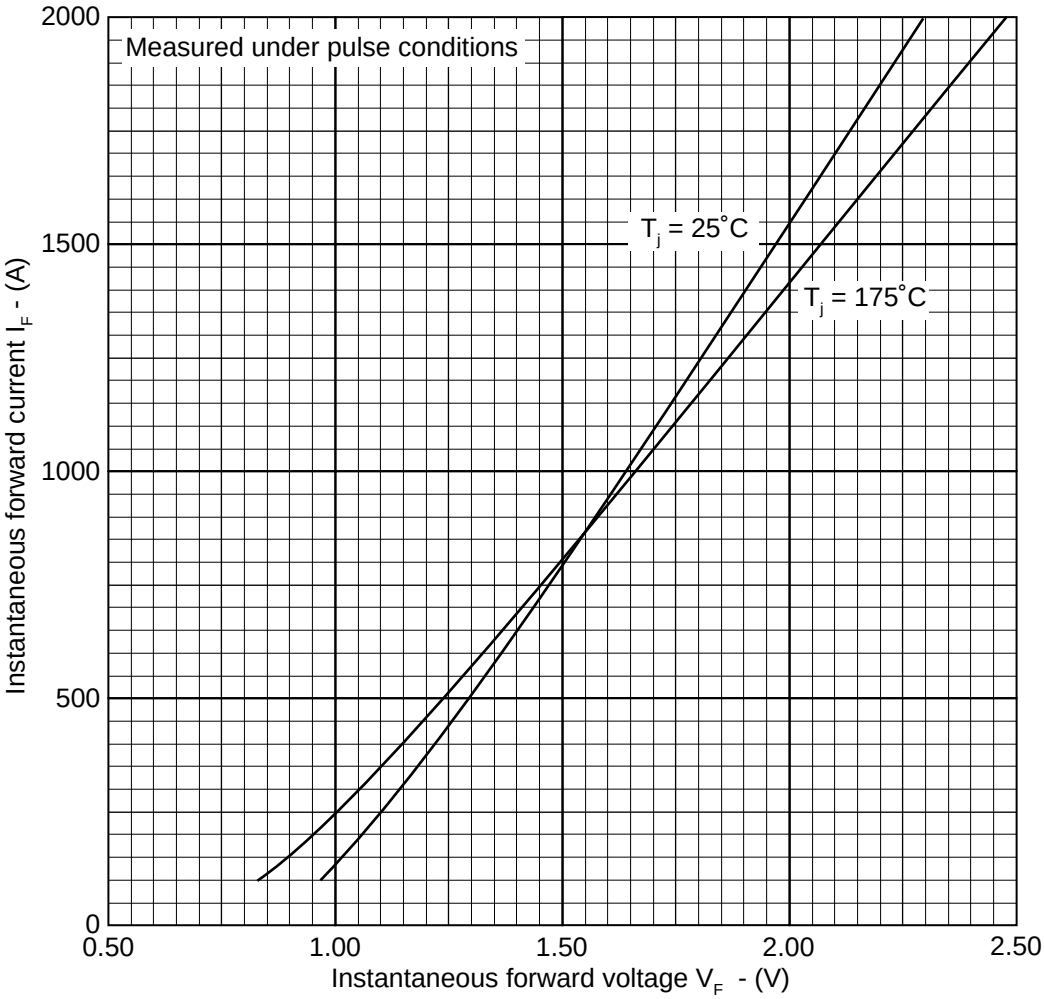


FIG. 1 MAXIMUM (LIMIT) FORWARD CHARACTERISTICS

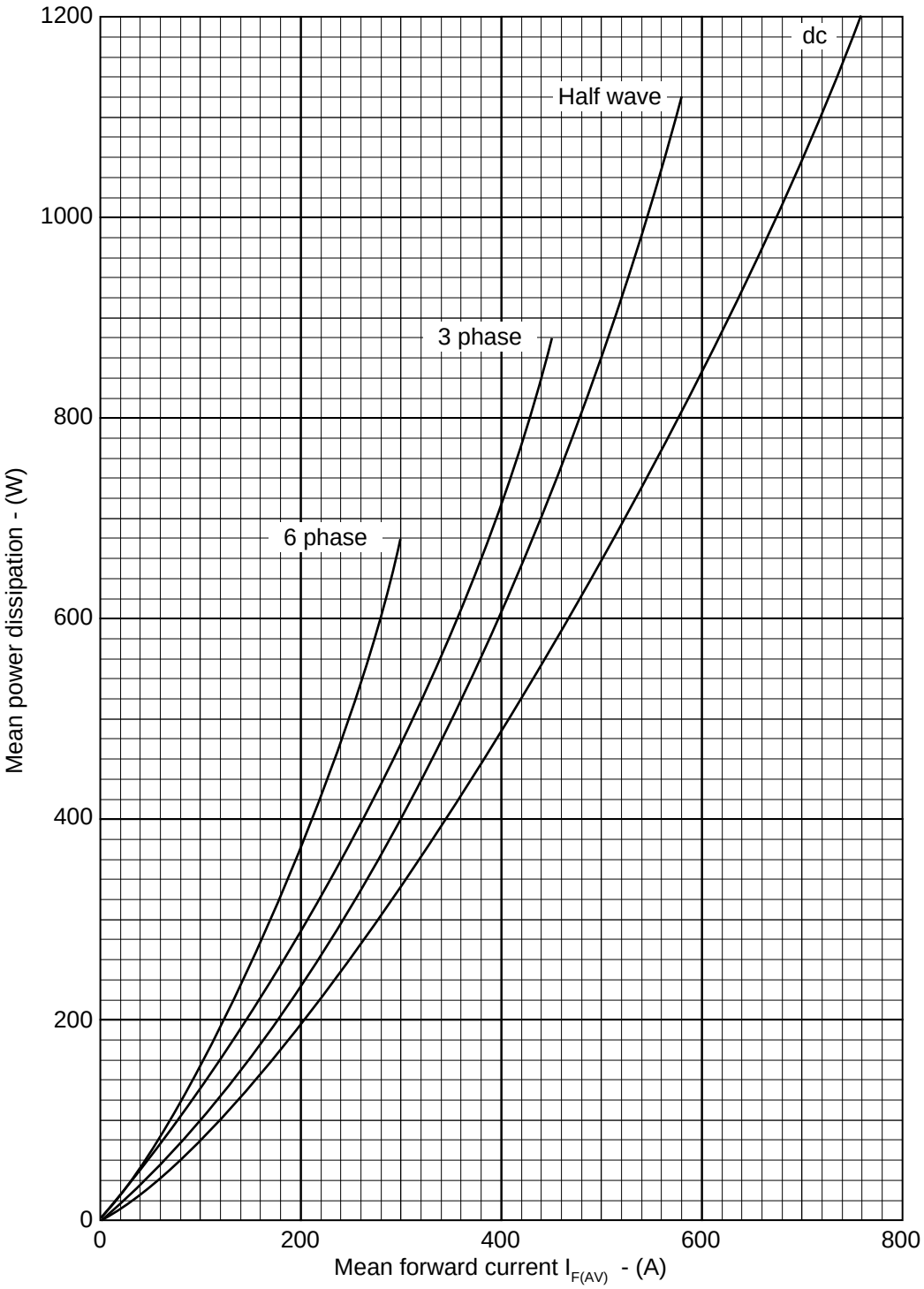


FIG. 2 DISSIPATION CURVES

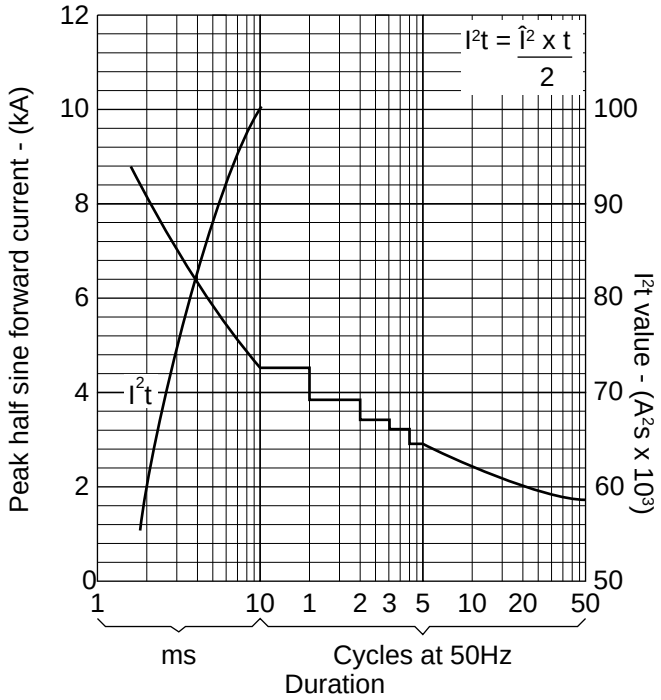


FIG. 3 SURGE (NON-REPETITIVE) FORWARD CURRENT vs TIME (WITH 50% V_{RRM} T_{case} = 175˚C)

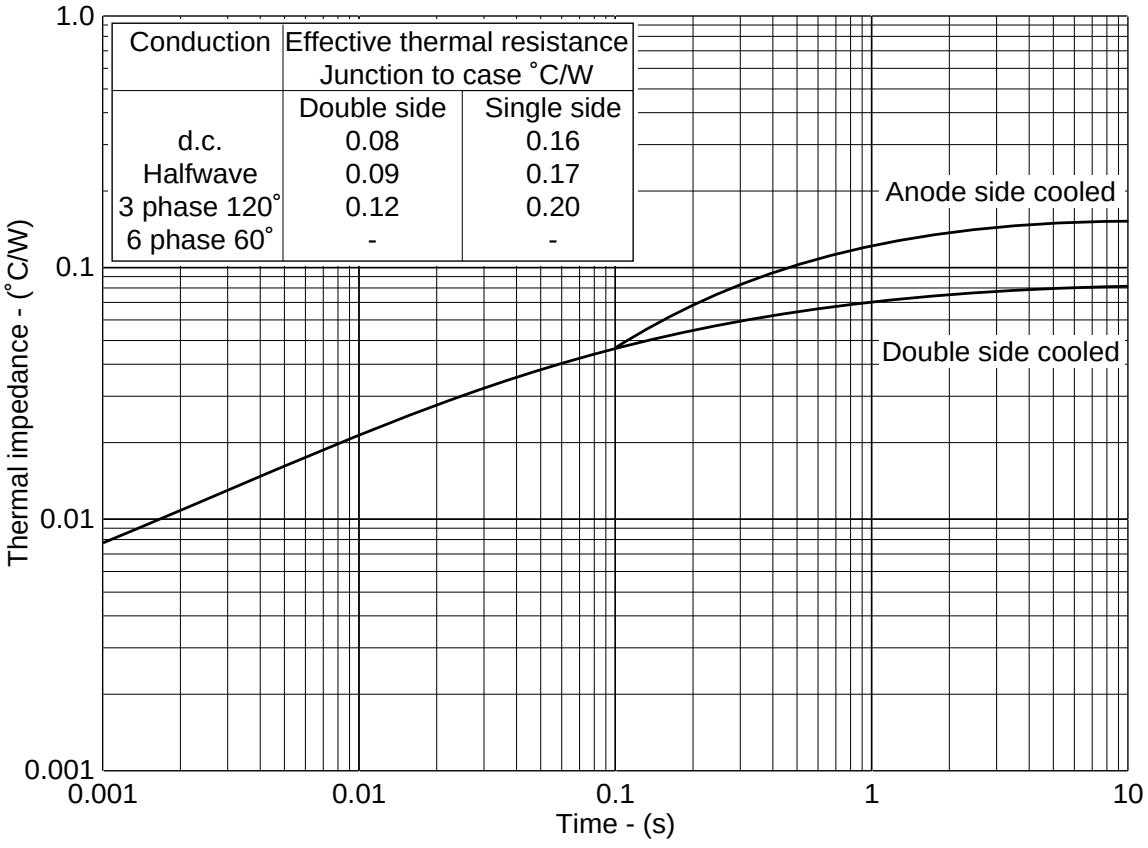
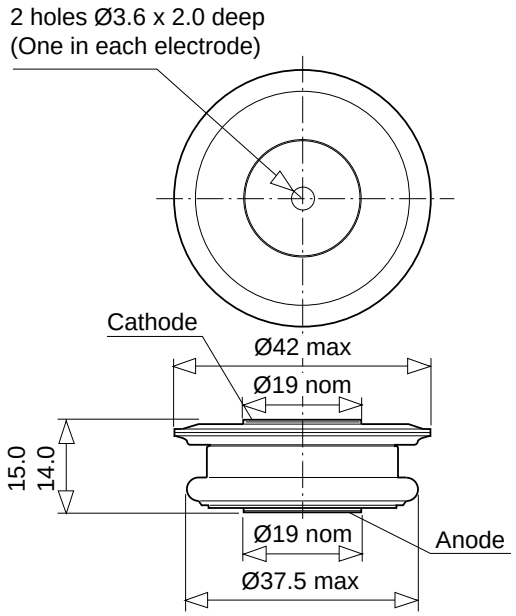


FIG. 4 MAXIMUM (LIMIT) TRANSIENT THERMAL IMPEDANCE - JUNCTION TO CASE - (˚C/W)

PACKAGE DETAILS - T

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



Weight: 50g

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