DS2007SF

RECTIFIER DIODE

APPLICATIONS

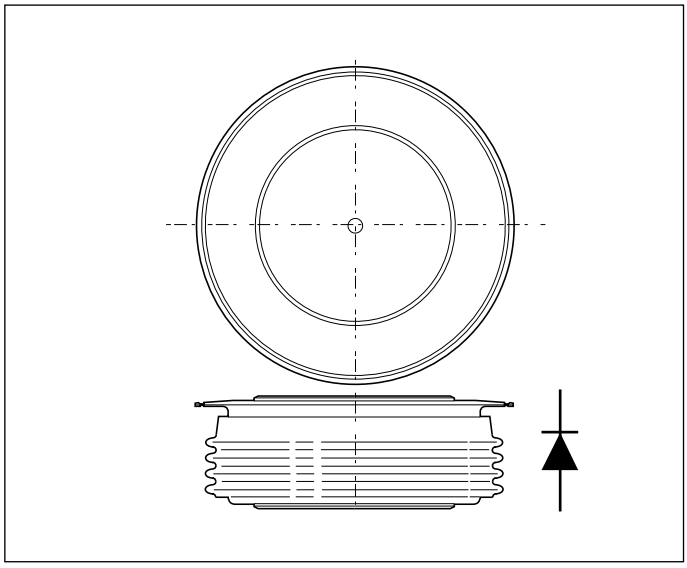
- Rectification.
- Freewheel Diode.
- DC Motor Control.
- Power Supplies.
- Welding.
- Battery Chargers.

KEY PARAMETERS

V_{RRM}	4000V
$I_{F(AV)}$	1225A
I_{FSM}	25000A

FEATURES

- Double Side Cooling.
- High Surge Capability.



Outline type code: F. Turn to page 7 for further information.

VOLTAGE RATINGS

Type Number	Repetitive Peak Reverse Voltage V_{RRM} V	Conditions
DS2007SF40	4000	$V_{RSM} = V_{RRM} + 100V$
DS2007SF39	3900	
DS2007SF38	3800	
DS2007SF37	3700	
DS2007SF36	3600	
DS2007SF35	3500	

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	1225	A
$I_{F(RMS)}$	RMS value	T_{case} = 100°C	1923	A
I_F	Continuous (direct) forward current	T_{case} = 100°C	1720	A
Single Side Cooled (Anode side)				
$I_{F(AV)}$	Mean forward current	Half wave resistive load, T_{case} = 100°C	820	A
$I_{F(RMS)}$	RMS value	T_{case} = 100°C	1287	A
I_F	Continuous (direct) forward current	T_{case} = 100°C	1050	A

SURGE RATINGS

Symbol	Parameter	Conditions	Max.	Units
I_{FSM}	Surge (non-repetitive) forward current	10ms half sine; T_{case} = 150°C	20.0	kA
I^2t	I^2t for fusing	V_R = 50% V_{RRM} - 1/4 sine	2.0 x 10^6	A^2s
I_{FSM}	Surge (non-repetitive) forward current	10ms half sine; T_{case} = 150°C	25.0	kA
I^2t	I^2t for fusing	V_R = 0	3.125 x 10^6	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	-	0.022	°C/W
		Single side cooled	Anode dc	-	0.038	°C/W
			Cathode dc	-	0.052	°C/W
$R_{th(c-h)}$	Thermal resistance - case to heatsink	Clamping force 19.5kN with mounting compound	Double side	-	0.004	°C/W
			Single side	-	0.008	°C/W
T_{vj}	Virtual junction temperature	Forward (conducting)		-	160	°C
		Reverse (blocking)		-	150	°C
T_{stg}	Storage temperature range			-55	175	°C
-	Clamping force			18.0	22.0	kN

CHARACTERISTICS

Symbol	Parameter	Conditions	Min.	Max.	Units
V_{FM}	Forward voltage	At 3400A peak, T_{case} = 25°C	-	1.6	V
I_{RRM}	Peak reverse current	At V_{RRM}, T_{case} = 150°C	-	75	mA
Q_S	Total stored charge	I_F = 2000A, dI_{RR}/dt = 3A/µs,	-	3500	µC
I_{RR}	Peak recovery current	T_{case} = 150°C, V_R = 100V	-	110	A
V_{TO}	Threshold voltage	At T_{vj} = 150°C	-	0.82	V
r_T	Slope resistance	At T_{vj} = 150°C	-	0.29	mΩ

CURVES

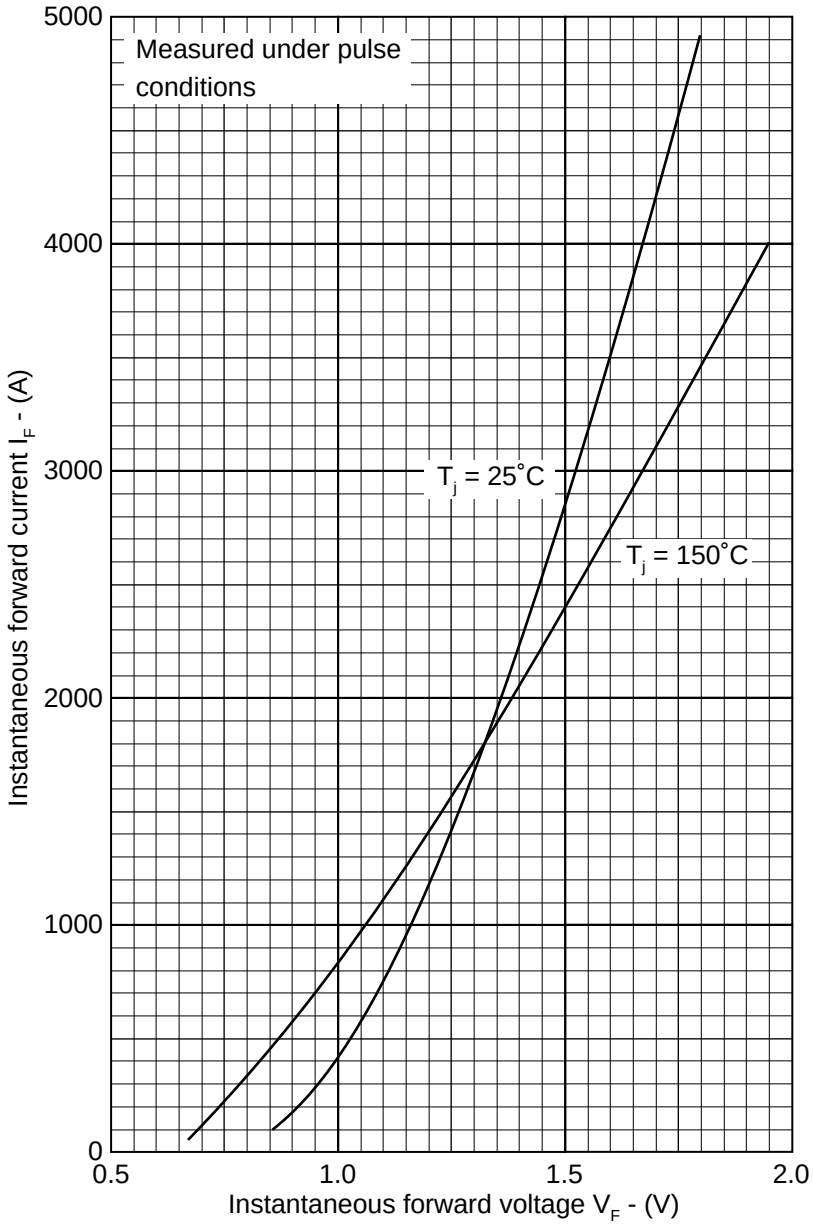


FIG. 1 MAXIMUM (LIMIT) FORWARD CHARACTERISTICS

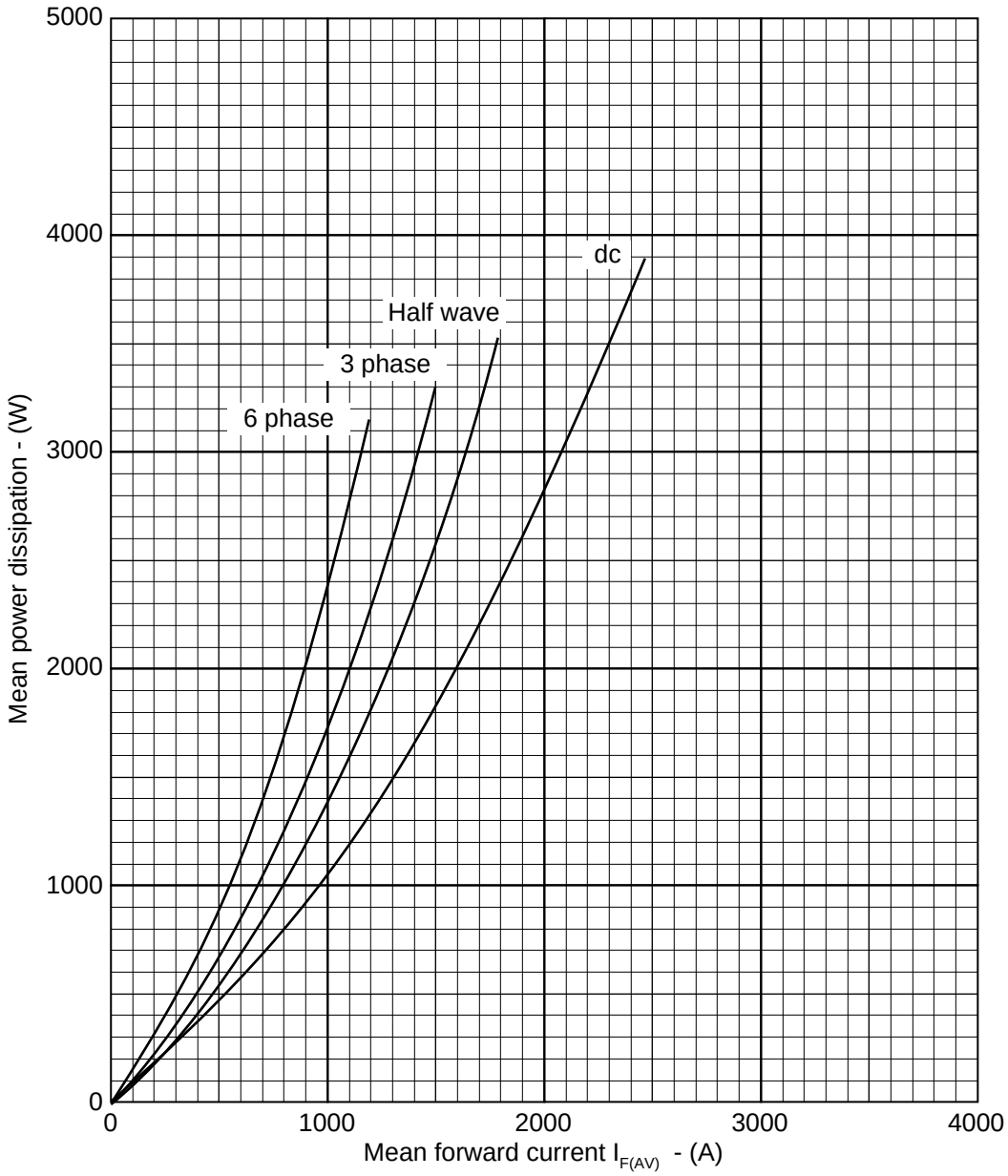


FIG. 2 DISSIPATION CURVES

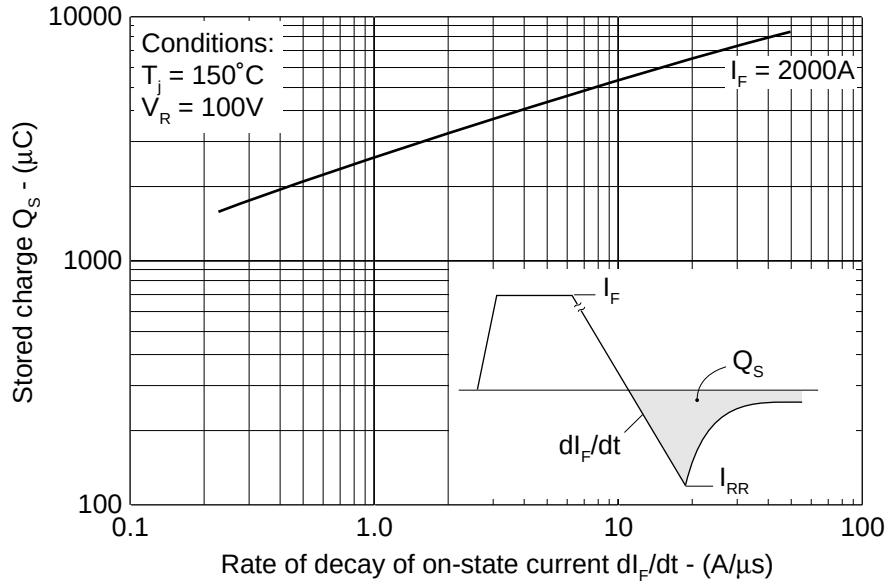


FIG. 3 MAXIMUM TOTAL STORED CHARGE

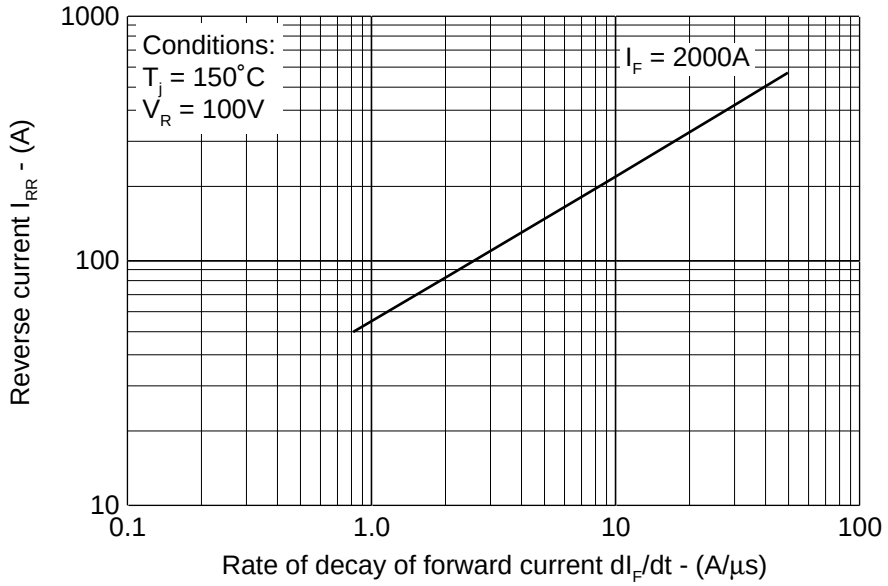


FIG. 4 MAXIMUM REVERSE RECOVERY CURRENT

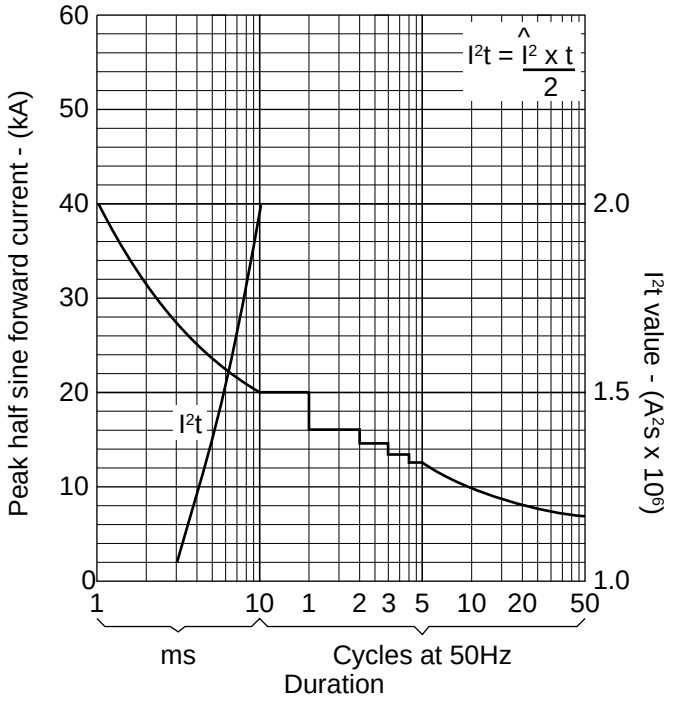


FIG. 5 SURGE (NON-REPETITIVE) FORWARD CURRENT vs TIME (WITH 50% V_{RRM} T_{case} = 150˚C)

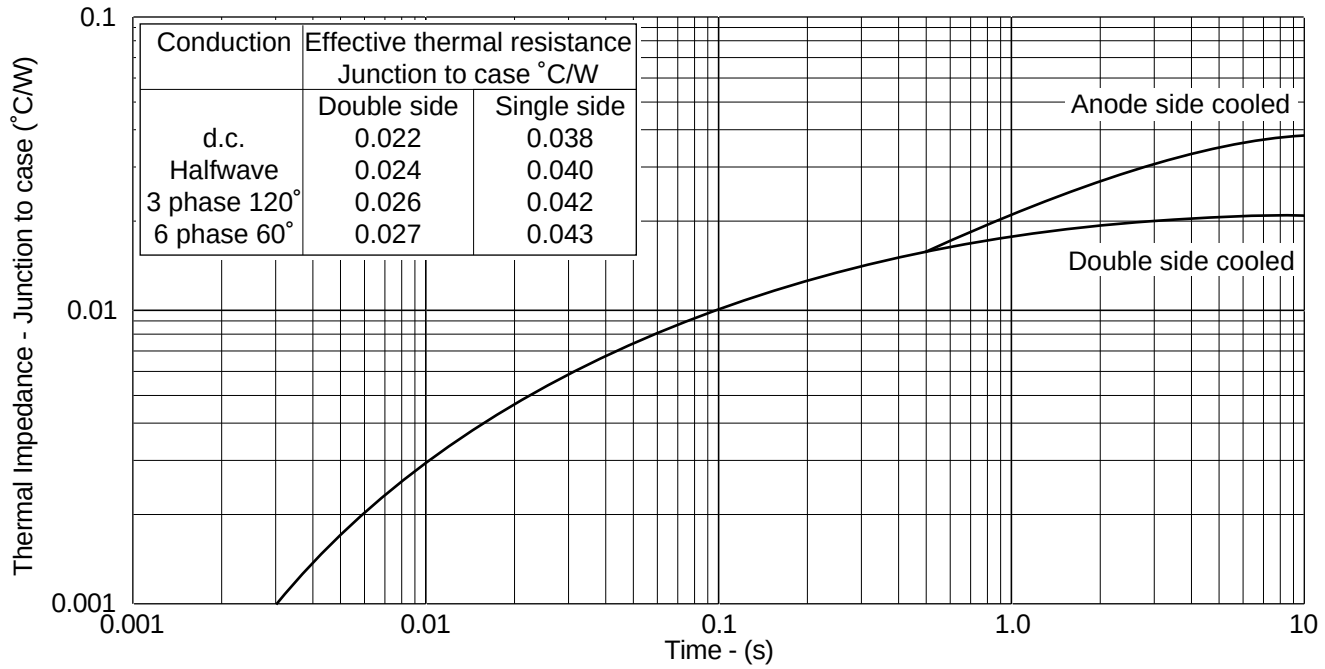
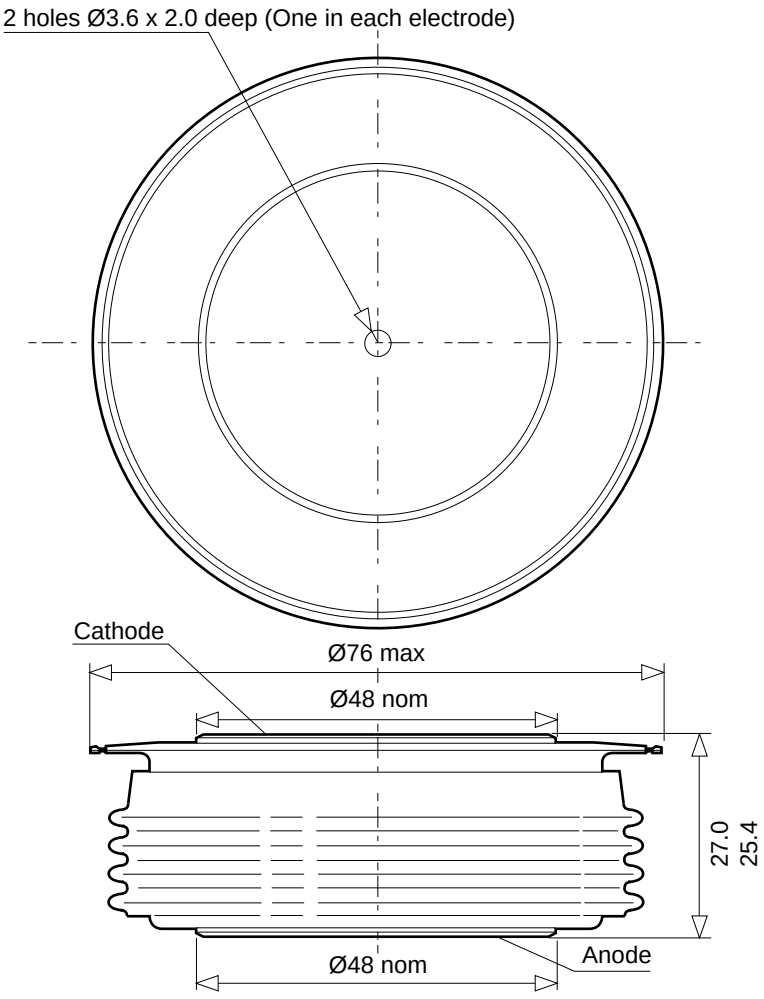


FIG. 6 TRANSIENT THERMAL IMPEDANCE - JUNCTION TO CASE - (˚C/W)

PACKAGE DETAILS - F

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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