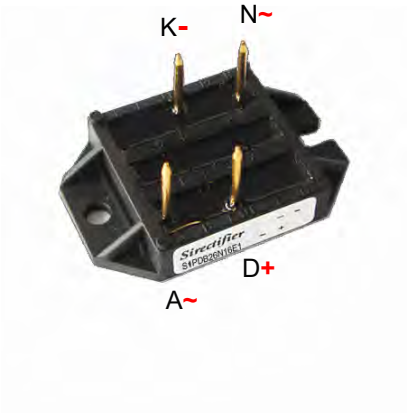
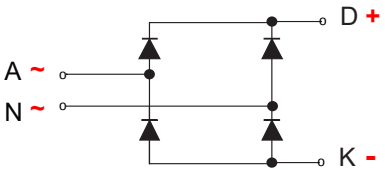
S1PDBF55N12E1

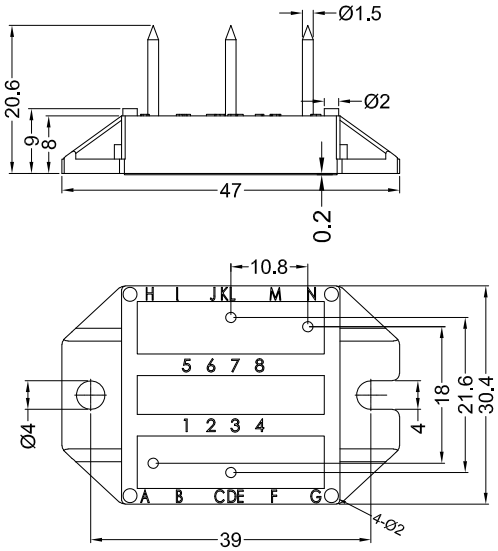
Single Phase Rectifier Bridge With FRED



Type	V_{RSM} V	V_{RRM} V
S1PDBF55N12E1	1200	1200



Dimensions in mm (1mm=0.0394")



Symbol	Test Conditions		Maximum Ratings	Unit
I_{dav} I_{davm}	T_C=100°C, module T_A=45°C (R_{thCA}=0.6K/W), module		59 90	A
I_{FSM}	T_{VJ}=45°C V_R=0	t=10ms (50Hz), sine t=8.3ms (60Hz), sine	200 220	A
	T_{VJ}=T_{VJM} V_R=0	t=10ms(50Hz), sine t=8.3ms(60Hz), sine	170 190	
I^2t	T_{VJ}=45°C V_R=0	t=10ms (50Hz), sine t=8.3ms (60Hz), sine	200 205	A^2s
	T_{VJ}=T_{VJM} V_R=0	t=10ms(50Hz), sine t=8.3ms(60Hz), sine	145 150	
T_{VJ} T_{VJM} T_{stg}			-40...+150 150 -40...+150	°C
V_{ISOL}	50/60Hz, RMS I_{ISOL}≤1mA	t=1min t=1s	3000 3600	V~
M_d	Mounting torque (M4)		1.5-2.0	Nm
Weight	typ.		19	g

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Single Phase Rectifier Bridge With FRED

Symbol	Test Conditions	Characteristic Values		Unit
		Typ.	Max	
I_R	$V_R=V_{RRM}$; $T_{VJ}=25^oC$ $V_R=V_{RRM}$; $T_{VJ}=T_{VJM}$		0.25 1.00	mA
V_F	I_F=30A; T_{VJ}=25 ^oC		2.70	V
V_{FO}	For power-loss calculations only		1.31	V
r_F	$T_{VJ}=T_{VJM}$		15	mΩ
R_{thJC}	per diode per module		0.90 0.225	K/W
R_{thCH}	per diode per module		0.30 0.075	K/W
I_{RM} t_{rr}	I_F = 50 A, -di_F/dt = 100 A/μs V_R = 100 V, L = 0.05 mH, T_{VJ} = 100°C I_F = 1 A; -di/dt = 100 A/μs; V_R = 30 V, T_{VJ} = 25°C	6 40	11.4	A ns
d_S	Creeping distance on surface	11.20		mm
d_A	Creepage distance in air	9.7		mm
a	Max. allowable acceleration	50		m/s^2

FEATURES

- Package with DCB ceramic base plate in low profile
- Isolation voltage 3000 V~
- Planar passivated chips
- Low forward voltage drop
- Leads suitable for PC board soldering

APPLICATIONS

- Supplies for DC power equipment
- Input and output rectifiers for high frequency
- Battery DC power supplies
- Field supply for DC motors

ADVANTAGES

- Space and weight savings
- Improved temperature and power cycling capability
- Small and light weight
- Low noise switching

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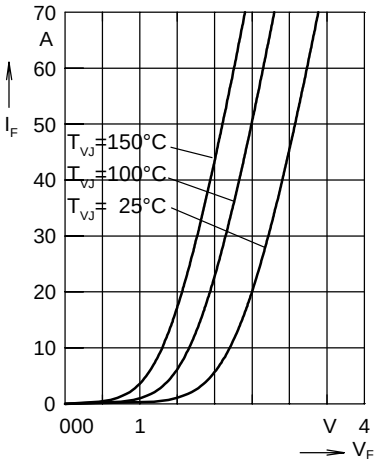

Fig. 1 Forward current I_F versus V_F

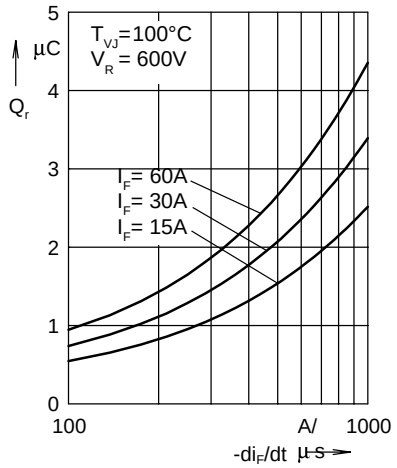

Fig. 2 Reverse recovery charge Q_r versus $-di_F/dt$

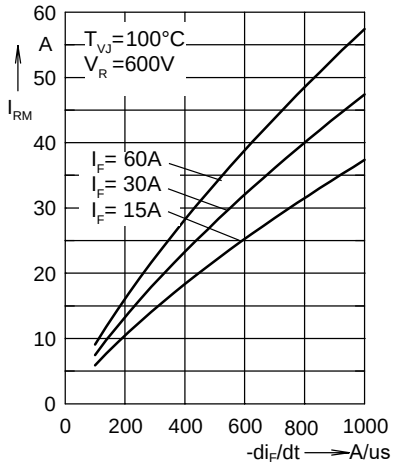

Fig. 3 Peak reverse current I_{RM} versus $-di_F/dt$

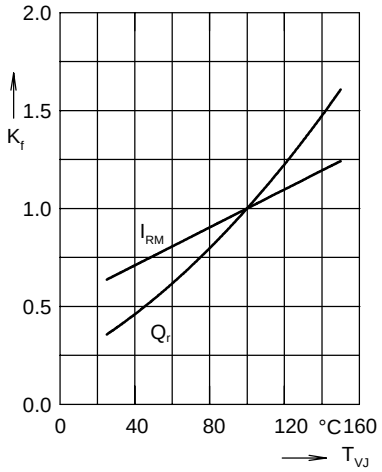

Fig. 4 Dynamic parameters Q_r, I_{RM} versus T_{VJ}

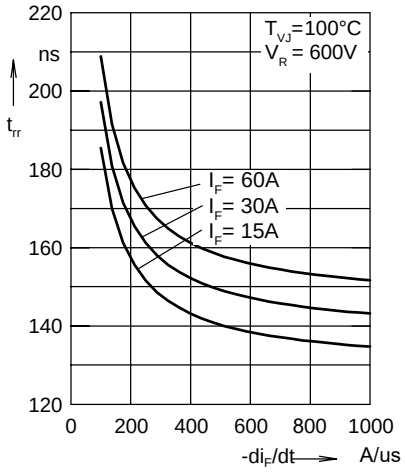

Fig. 5 Recovery time t_{rr} versus $-di_F/dt$

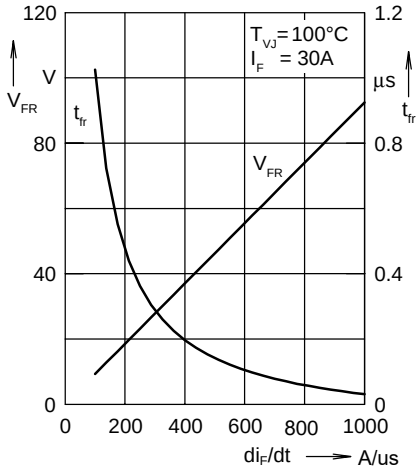

Fig. 6 Peak forward voltage V_{FR} and t_{fr} versus di_F/dt

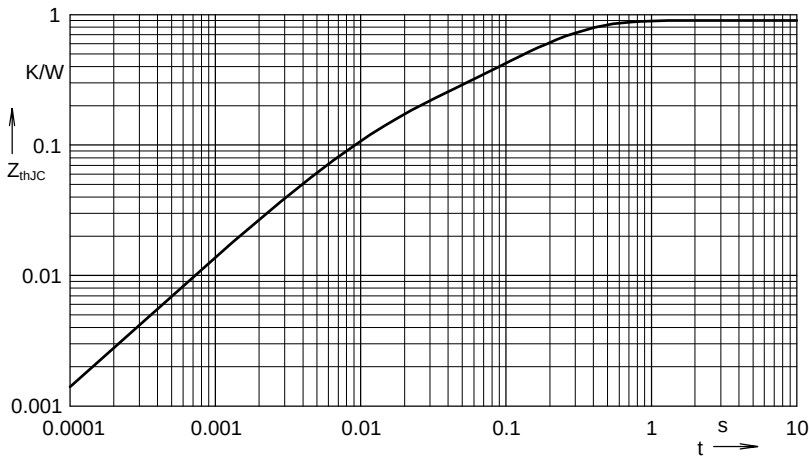

Fig. 7 Transient thermal resistance junction to case

Constants for Z_{thJC} calculation:

i	R_{thi}(K/W)	t_i(s)
1	0.3012	0.0052
2	0.116	0.0003
3	0.0241	0.0004
4	0.4586	0.0092

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