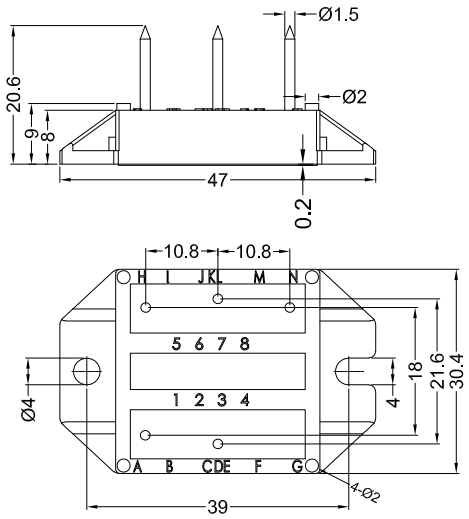
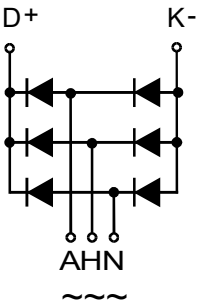
S3PDBF56N06E1

Three Phase Rectifier Bridge with FRED

Type	V_{RSM} V	V_{RRM} V
S3PDBF56N06E1	600	600

Dimensions in mm (1mm=0.0394")





I_{dAV}= 56A
V_{RRM}=600
V t_{rr}= 35 ns

Symbol	Test Conditions		Maximum Ratings	Unit
I_{dav}	T_C=85°C, module		56	A
I_{FSM}	T_{VJ}=45°C V_R=0	t=10ms (50Hz), sine t=8.3ms (60Hz), sine	110 120	A
	T_{VJ}=T_{VJM} V_R=0	t=10ms(50Hz), sine t=8.3ms(60Hz), sine	94 108	
I^2t	T_{VJ}=45°C V_R=0	t=10ms (50Hz), sine t=8.3ms (60Hz), sine	160 170	A^2s
	T_{VJ}=T_{VJM} V_R=0	t=10ms(50Hz), sine t=8.3ms(60Hz), sine	135 150	
T_{VJ} T_{VJM} T_{stg}			-40...+175 175 -40...+125	°C
V_{ISOL}	50/60Hz, RMS I_{ISOL}≤1mA	t=1min t=1s	3000 3600	V~
M_d	Mounting torque (M4)		1.5-2 14-18	Nm lb.in.
Weight	typical		18	g

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Symbol	Test Conditions	Characteristic Values	Unit
I_R	$V_R=V_{RRM}$; $T_{VJ}=25^oC$ $V_R=V_{RRM}$; $T_{VJ}=T_{VJM}$	≤0.25 ≤ 1.0	mA
V_F	I_F=20A; $T_{VJ}=25^oC$	≤ 1.70	V
V_{FO}	For power-loss calculations only	1.14	V
r_F		13	mΩ
R_{thJC}	per diode; DC current per module	1.56 0.26	K/W
t_{rr}	I_F = 1A; -di/dt = 200 A/μs; V_R = 30 V; T_{VJ} = 25°C	35	ns
I_{RM}	I_F = 50 A; -di_F/dt = 100 A/μs; V_R = 100 V; L = 0.05 mH; T_{VJ} = 100°C	5.3	A
d_S	Creeping distance on surface	11.2	mm
d_A	Creepage distance in air	9.7	mm
a	Max. allowable acceleration	50	m/s^2

FEATURES

* Package with DCB base plate
* Isolation voltage 3000 V~
* Planar passivated chips
* Leads suitable for PCB soldering
* Low forward voltage drop
* RoHS compliant

APPLICATIONS

* Supplies for DC power equipment
* Input and Output rectifiers for high frequency
* Battery DC power supplies
* Field supply for DC motors

ADVANTAGES

* Easy to mount with two screws
* Space and weight savings
* Improved temperature and power cycling

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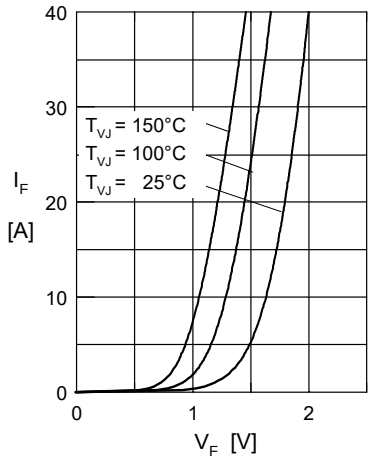

Fig. 1 Forward current I_F vs. V_F

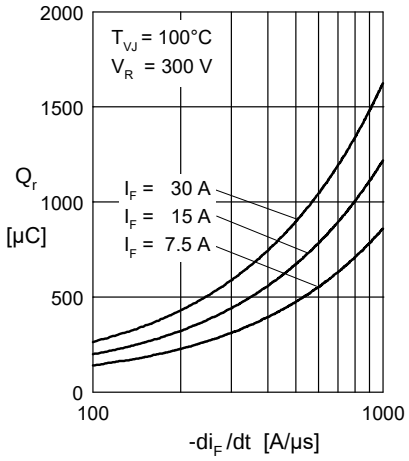

Fig. 2 Reverse recovery charge Q_r versus -di$_F$/dt

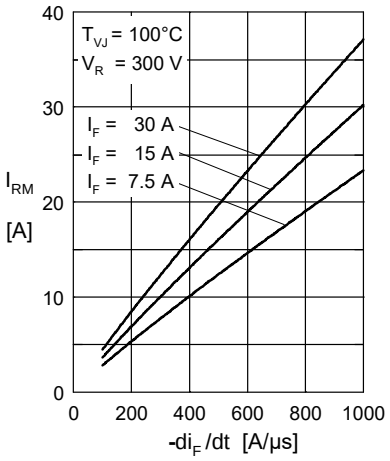

Fig. 3 Peak reverse current I_{RM} versus -di$_F$/dt

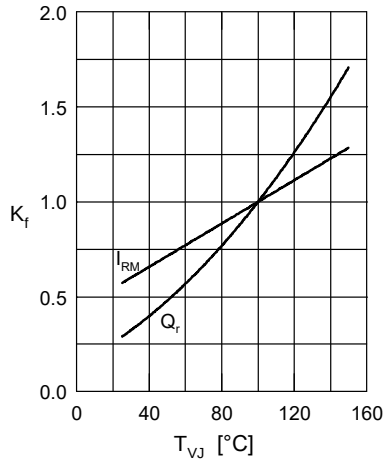

Fig. 4 Dynamic parameters Q_r, I_{RM} versus T_{VJ}

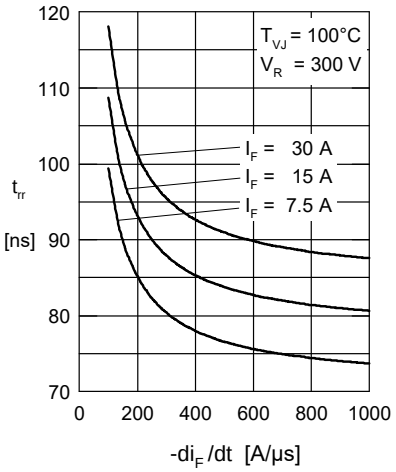

Fig. 5 Recovery time t_{rr} vs. -di$_F$/dt

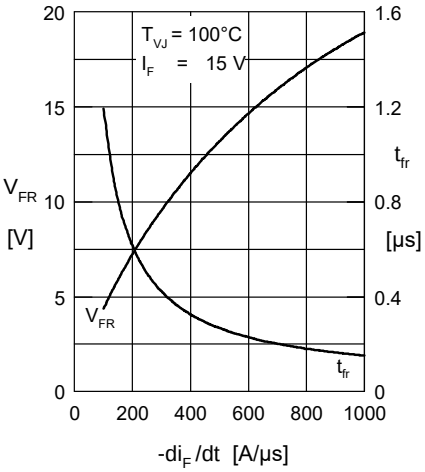

Fig. 6 Peak forward voltage V_{FR} and t_{fr} vs. -di$_F$/dt

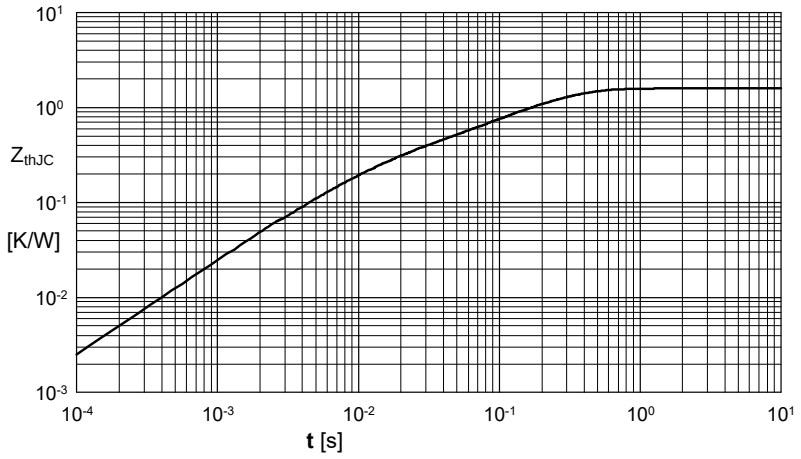

Fig. 7 Transient thermal resistance junction to case

Constants for Z_{thJC} calculation:

i	R_{thi} (K/W)	t_i (s)
1	0.5464	0.0052
2	0.2104	0.0003
3	0.0432	0.0004
4	0.8000	0.0092

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