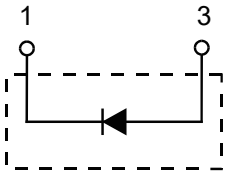
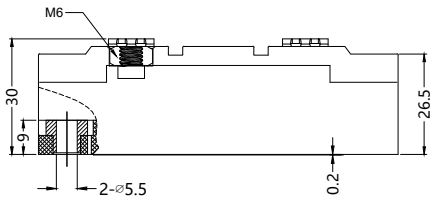
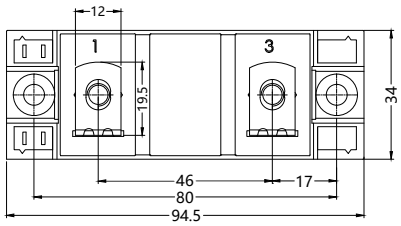
SDF500-06

Soft Recovery Behaviour Ultra Fast Recovery Epitaxial Diode Modules



Dimensions in mm





	V_{RSM} V	V_{RRM} V
SDF500-06	600	600

Symbol	Test Conditions		Maximum Ratings	Unit
I_{FRMS} I_{FAVM} I_{FRM}	T_C=75°C T_C=75°C; rectangular, d=0.5 t_P<10us; rep. rating, pulse width limited by T_{VJM}		726 514 2680	A
I_{FSM}	T_{VJ}=45°C	t=10ms (50Hz), sine t=8.3ms (60Hz), sine	4800 5280	A
	T_{VJ}=150°C	t=10ms(50Hz), sine t=8.3ms(60Hz), sine	4320 4750	
I^2t	T_{VJ}=45°C	t=10ms (50Hz), sine t=8.3ms (60Hz), sine	115200 117100	A^2s
	T_{VJ}=150°C	t=10ms(50Hz), sine t=8.3ms(60Hz), sine	93300 94800	
T_{VJ} T_{stg} T_{Smax}			-40...+150 -40...+125 110	°C
P_{tot}	T_C=25°C		1750	W
V_{ISOL}	50/60Hz, RMS I_{ISOL}≤1mA	t=1min t=1s	3000 3600	V~
M_d	Mounting torque (M6) Terminal connection torque (M6)		2.25-2.75/20-25 4.50-5.50/40-48	Nm/lb.in.
d_S d_A a	Creeping distance on surface Strike distance through air Maximum allowable acceleration		12.7 9.6 50	mm mm m/s^2
Weight			170	g

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Symbol	Test Conditions	Characteristic Values		Unit
		typ.	max.	
I_R	T_{VJ}=25°C; V_R=V_{RRM} T_{VJ}=25°C; V_R=0.8·V_{RRM} T_{VJ}=125°C; V_R=0.8·V_{RRM}		24 6 160	mA
V_F	I_F=300A; T_{VJ}=125°C T_{VJ}=25°C I_F=520A; T_{VJ}=125°C T_{VJ}=25°C		1.17 1.36 1.41 1.52	V
V_{TO}	For power-loss calculations only		0.85	V
r_T			1.09	mΩ
R_{thJH} R_{thJC}	DC current DC current		0.114 0.071	K/W
t_{rr} I_{RM}	I_F=600A; T_{VJ}=100°C V_R=300V; T_{VJ}=25°C -di/dt=800A/us; T_{VJ}=100°C	250	300 88 132	ns A A

FEATURES

* International standard package
* DCB base plate
* Planar passivated chips
* Short recovery time
* Low switching losses
* Soft recovery behaviour
* Isolation voltage 3600 V~
* UL File NO.E310749
* RoHS compliant

APPLICATIONS

* Antiparallel diode for high frequency switching devices
* Free wheeling diode in converters and motor control circuits
* Inductive heating and melting
* Uninterruptible power supplies (UPS)
* Ultrasonic cleaners and welders

ADVANTAGES

* High reliability circuit operation
* Low voltage peaks for reduced protection circuits
* Low noise switching
* Low losses

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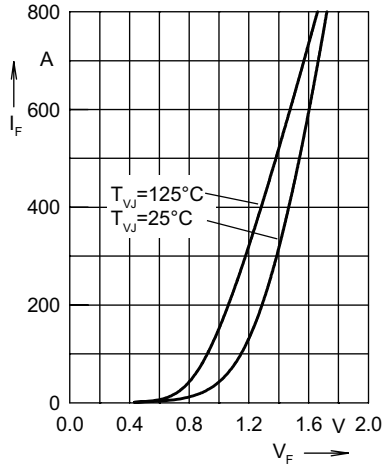

Fig. 1 Forward current I_F versus max. voltage drop V_F per leg

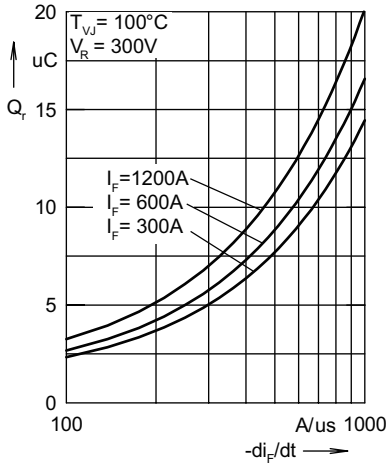

Fig. 2 Typ. reverse recovery charge Q_r versus $-di_F/dt$

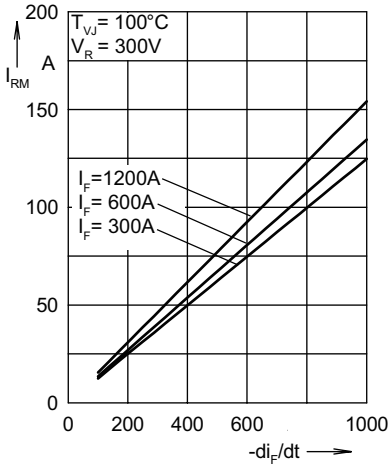

Fig. 3 Typ. peak reverse current I_{RM} versus $-di_F/dt$

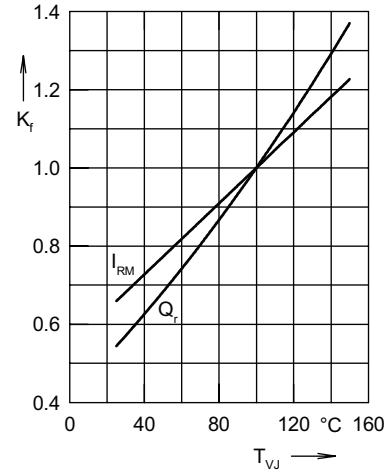

Fig. 4 Dynamic parameters Q_r, I_{RM} versus junction temperature T_{VJ}

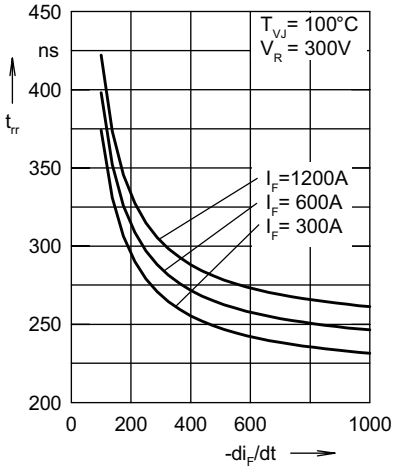

Fig. 5 Typ. recovery time t_{rr} versus $-di_F/dt$

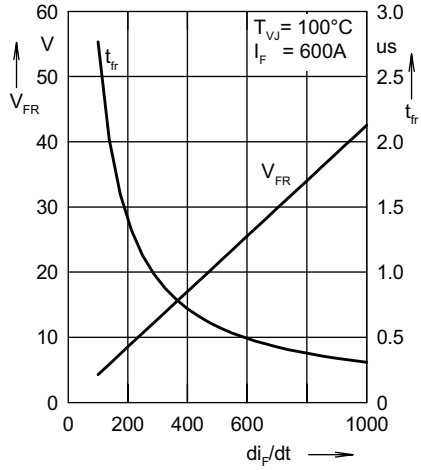

Fig. 6 Typ. peak forward voltage V_{FR} and t_{fr} versus di_F/dt

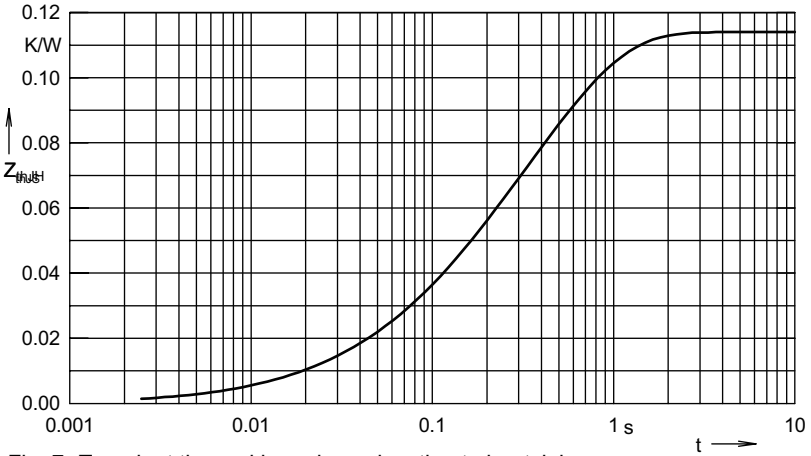

Fig. 7 Transient thermal impedance junction to heatsink

Constants for Z_{thJS} calculation:

i	R_{thi} (K/W)	t_i (s)
1	0.001	0.08
2	0.004	0.024
3	0.027	0.112
4	0.082	0.464

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