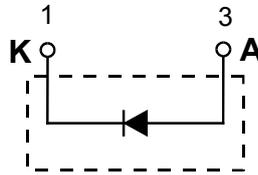
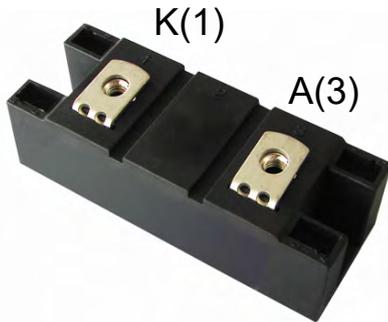
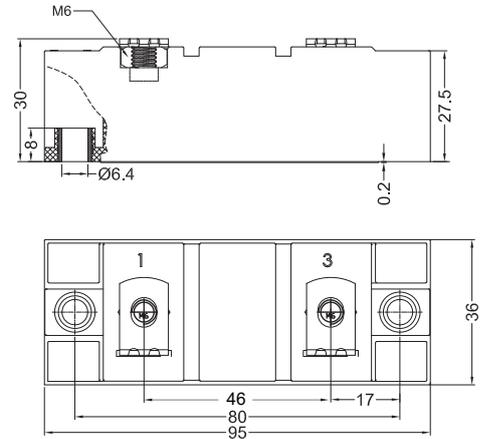


SDF450-12

Soft Recovery Behaviour Ultra Fast Recovery Epitaxial Diode Modules



Dimensions in mm



	V _{RSM} V	V _{RRM} V
SDF450-12	1200	1200



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}	640 453 2460	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	
i²t	T _{VJ} =45°C t=10ms (50Hz), sine t=8.3ms (60Hz), sine	115200 117100	A ² s
	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 t=1min	3000	V~
	I _{ISOL} ≤1mA t=1s	3600	
M_d	Mounting torque (M6) Terminal connection torque (M6)	2.25-2.75/20-25 4.50-5.50/40-48	Nm/lb.in.
ds d_A a	Creeping distance on surface	12.7	mm
	Strike distance through air	9.6	mm
	Maximum allowable acceleration	50	m/s ²
Weight		170	g

Sirectifier[®]

SDF450-12

Soft Recovery Behaviour Ultra Fast Recovery Epitaxial Diode Modules

Symbol	Test Conditions	Characteristic Values		Unit
		typ.	max.	
I_R	$T_{VJ}=25^{\circ}\text{C}; V_R=V_{RRM}$		24	mA
	$T_{VJ}=25^{\circ}\text{C}; V_R=0.8\cdot V_{RRM}$		6	
	$T_{VJ}=125^{\circ}\text{C}; V_R=0.8\cdot V_{RRM}$		120	
V_F	$I_F=300\text{A}; T_{VJ}=125^{\circ}\text{C}$		1.51	V
	$T_{VJ}=25^{\circ}\text{C}$		1.78	
	$I_F=520\text{A}; T_{VJ}=125^{\circ}\text{C}$		1.76	
	$T_{VJ}=25^{\circ}\text{C}$		1.96	
V_{Fo}	For power-loss calculations only		1.16	V
r_F			1.15	mΩ
R_{thJH}	DC current		0.114	K/W
R_{thJC}	DC current		0.071	
t_{rr}	$I_F=600\text{A}; T_{VJ}=100^{\circ}\text{C}$	450	500	ns
I_{RM}	$V_R=600\text{V}; T_{VJ}=25^{\circ}\text{C}$		110	A
	$-di/dt=800\text{A/us}; T_{VJ}=100^{\circ}\text{C}$		165	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

SDF450-12

Soft Recovery Behaviour Ultra Fast Recovery Epitaxial Diode Modules

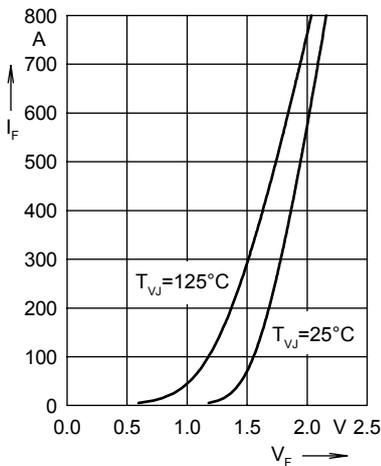


Fig. 1 Forward current I_F versus V_F

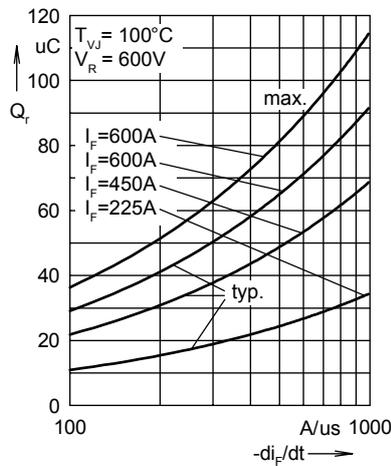


Fig. 2 Reverse recovery charge Q_r versus $-di_F/dt$

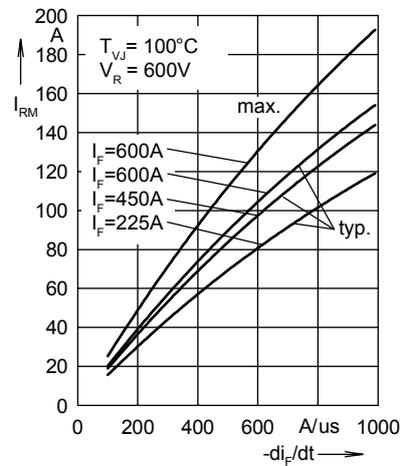


Fig. 3 Peak reverse current I_{RM} versus $-di_F/dt$

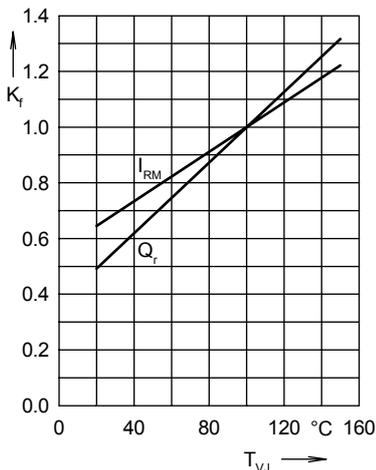


Fig. 4 Dynamic parameters Q_r , I_{RM} versus T_{VJ}

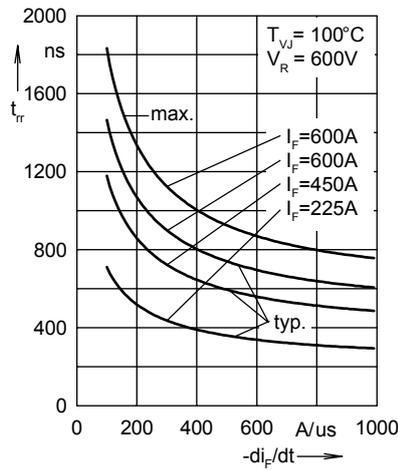


Fig. 5 Recovery time t_{tr} versus $-di_F/dt$

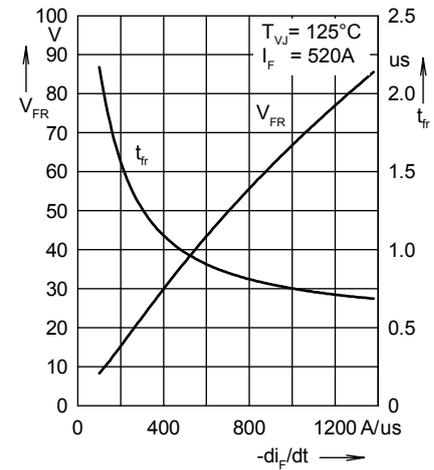


Fig. 6 Peak forward voltage V_{FR} and t_{tr} versus di_F/dt

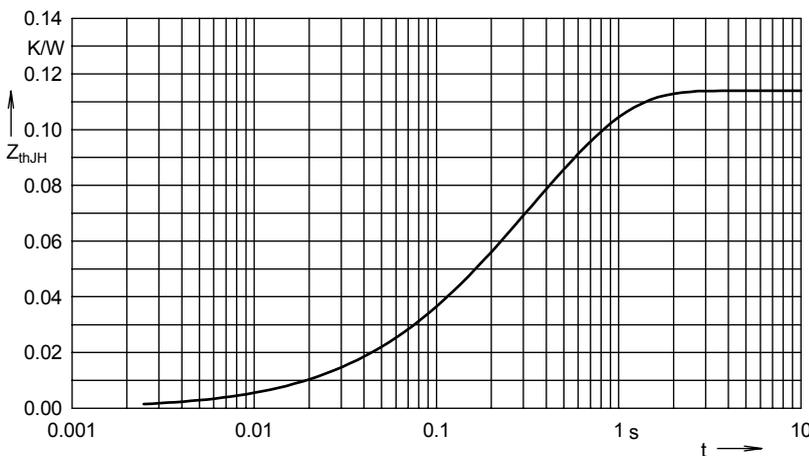


Fig. 7 Transient thermal impedance junction to case

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