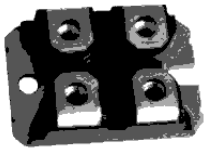
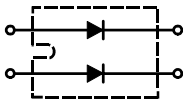
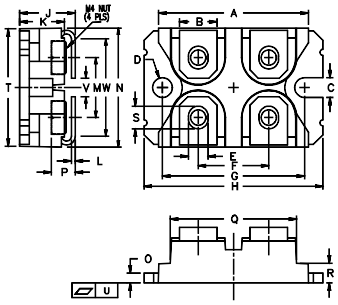
SUR2x120-02

Ultra Fast Recovery Epitaxial Diodes





Dimensions SOT-227(ISOTOP)



	V_{RSM}	V_{RRM}
	V	V
SUR2x120-02	200	200

Dim.	Millimeter		Inches	
	Min.	Max.	Min.	Max.
A	31.50	31.88	1.240	1.255
B	7.80	8.20	0.307	0.323
C	4.09	4.29	0.161	0.169
D	4.09	4.29	0.161	0.169
E	4.09	4.29	0.161	0.169
F	14.91	15.11	0.587	0.595
G	30.12	30.30	1.186	1.193
H	37.80	38.20	1.489	1.505
J	11.68	12.22	0.460	0.481
K	8.92	9.60	0.351	0.378
L	0.76	0.84	0.030	0.033
M	12.60	12.85	0.496	0.506
N	25.15	25.42	0.990	1.001
O	1.98	2.13	0.078	0.084
P	4.95	5.97	0.195	0.235
Q	26.54	26.90	1.045	1.059
R	3.94	4.42	0.155	0.174
S	4.72	4.85	0.186	0.191
T	24.59	25.07	0.968	0.987
U	-0.05	0.1	-0.002	0.004
V	3.30	4.57	0.130	0.180
W	0.780	0.830	19.81	21.08

Symbol	Test Conditions		Maximum Ratings	Unit
I_{FRMS} I_{FAVM} I_{FRM}	$T_{VJ}=T_{VJM}$ $T_C=70^oC$; rectangular, d=0.5 t_p<10us; rep. rating, pulse width limited by T_{VJM}		150 123 600	A
I_{FSM}	$T_{VJ}=45^oC$	t=10ms (50Hz), sine t=8.3ms (60Hz), sine	1200 1300	A
	$T_{VJ}=150^oC$	t=10ms(50Hz), sine t=8.3ms(60Hz), sine	1080 1170	
I^2t	$T_{VJ}=45^oC$	t=10ms (50Hz), sine t=8.3ms (60Hz), sine	7200 7100	A^2s
	$T_{VJ}=150^oC$	t=10ms(50Hz), sine t=8.3ms(60Hz), sine	5800 5700	
T_{VJ} T_{VJM} T_{stg}			-40...+150 150 -40...+150	^oC
P_{tot}	$T_C=25^oC$		250	W
V_{ISOL}	50/60Hz, RMS I_{ISOL}≤1mA		2500	V~
M_d	Mounting torque Terminal connection torque (M4)		1.5/13 1.5/13	Nm/lb.in.
Weight			30	g

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Symbol	Test Conditions	Characteristic Values typ.	max.	Unit
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}		1 0.5 20	mA
V_F	I_F=120A; T_{VJ}=150°C T_{VJ}=25°C	0.89	0.95 1.10	V
V_{TO}	For power-loss calculations only		0.7	V
r_T	T_{VJ}=T_{VJM}		2.1	mΩ
R_{thJC} R_{thCK}		1.0	0.5	K/W
t_{rr}	I_F=1A; -di/dt=400A/us; V_R=30V; T_{VJ}=25°C	35	50	ns
I_{RM}	V_R=100V; I_F=100A; -di$_F$/dt=200A/us; L<0.05uH; T_{VJ}=100°C	12	15	A

FEATURES

* International standard package miniBLOC (ISOTOP compatible)
* Isolation voltage 2500 V~
* 2 independent FRED in 1 package
* Planar passivatd chips
* Very short recovery time
* Extremely low switching losses
* Low I_{RM}-values
* Soft recovery behaviour

APPLICATIONS

* Antiparallel diode for high frequency switching devices
* Antisaturation diode
* Snubber diode
* Free wheeling diode in converters and motor control circuits
* Rectifiers in switch mode power supplies (SMPS)
* 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
* Operating at lower temperature or space saving by reduced cooling

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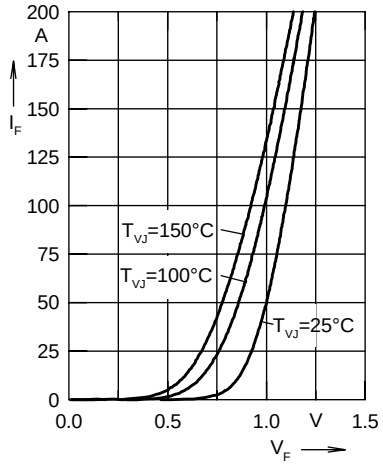

Fig. 1 Forward current I_F versus V_F

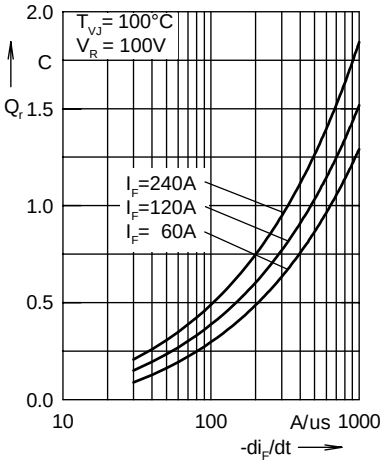

Fig. 2 Typ. reverse recovery charge Q_r versus -di_F/dt

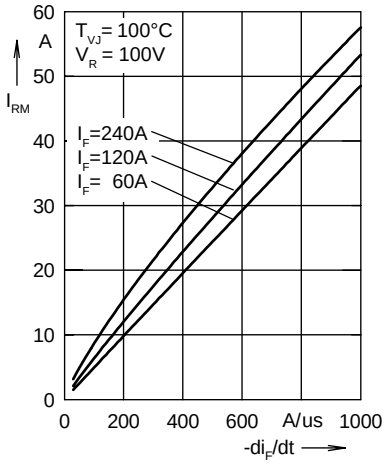

Fig. 3 Typ. peak reverse current I_{RM} versus -di_F/dt

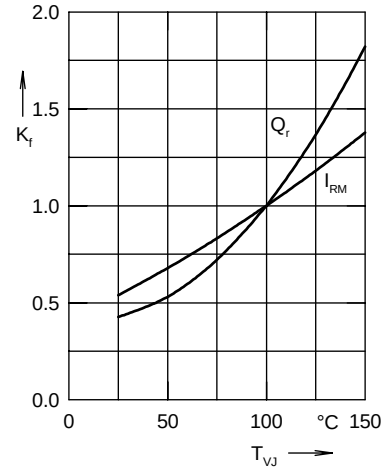

Fig. 4 Dynamic parameters Q_r, I_{RM} versus T_{VJ}

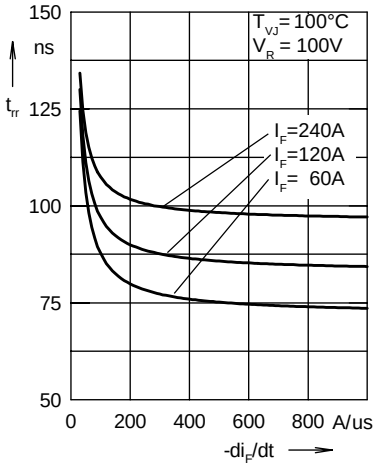

Fig. 5 Typ. recovery time t_{rr} versus -di_F/dt

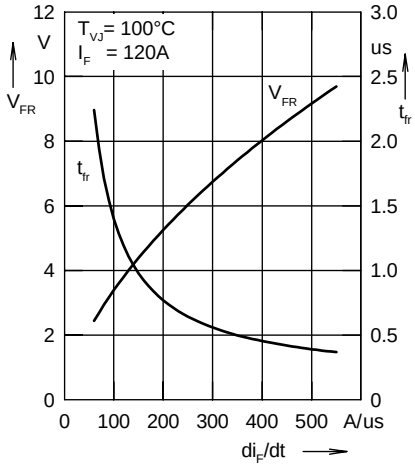

Fig. 6 Typ. peak forward voltage V_{FR} and t_{fr} versus di_F/dt

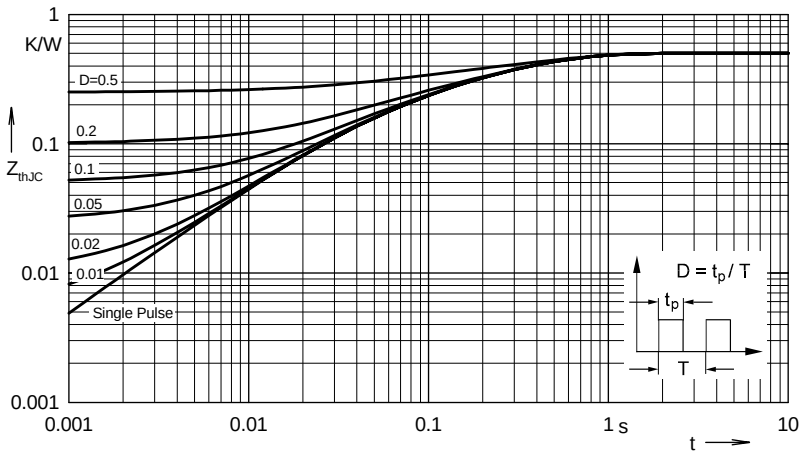

Fig. 7 Transient thermal impedance junction to case at various duty cycles

Constants for Z_{thJC} calculation:

i	R_{thi} (K/W)	t_i (s)
1	0.0725	0.028
2	0.1423	0.092
3	0.2852	0.35