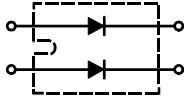
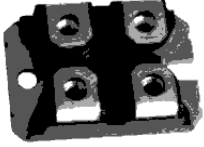
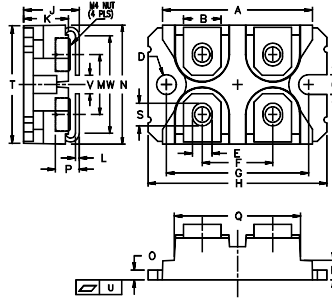


SUR2x100-12

Ultra Fast Recovery Epitaxial Diodes



Dimensions SOT-227(ISOTOP)



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	0.031	0.033

	V_{RSM} V	V_{RRM} V
SUR2x100-12	1200	1200

Symbol	Test Conditions	Maximum Ratings	Unit
I_{FRMS}	$T_{VJ}=T_{VJM}$	130	A
I_{FAVM}	$T_C=50^{\circ}C$; rectangular, $d=0.5$	91	
I_{FRM}	$t_p < 10\mu s$; rep. rating, pulse width limited by T_{VJM}	TBD	
I_{FSM}	$T_{VJ}=45^{\circ}C$	$t=10ms$ (50Hz), sine $t=8.3ms$ (60Hz), sine	A
	$T_{VJ}=150^{\circ}C$	$t=10ms$ (50Hz), sine $t=8.3ms$ (60Hz), sine	
I^2t	$T_{VJ}=45^{\circ}C$	$t=10ms$ (50Hz), sine $t=8.3ms$ (60Hz), sine	A^2s
	$T_{VJ}=150^{\circ}C$	$t=10ms$ (50Hz), sine $t=8.3ms$ (60Hz), sine	
T_{VJ} T_{VJM} T_{stg}		-40...+150 150 -40...+150	$^{\circ}C$
P_{tot}	$T_C=25^{\circ}C$	250	W
V_{ISOL}	50/60Hz, RMS $I_{ISOL} \leq 1mA$	2500	V~
M_d	Mounting torque Terminal connection torque (M4)	1.5/13 1.5/13	Nm/lb.in.
Weight		30	g

SUR2x100-12

Ultra Fast Recovery Epitaxial Diodes

Symbol	Test Conditions	Characteristic Values		Unit
		typ.	max.	
I_R	$T_{VJ}=25^{\circ}\text{C}; V_R=V_{RRM}$		3	mA
	$T_{VJ}=25^{\circ}\text{C}; V_R=0.8 \cdot V_{RRM}$		1.5	
	$T_{VJ}=125^{\circ}\text{C}; V_R=0.8 \cdot V_{RRM}$		15	
V_F	$I_F=100\text{A}; T_{VJ}=150^{\circ}\text{C}$		1.61	V
	$T_{VJ}=25^{\circ}\text{C}$		1.87	
V_{TO}	For power-loss calculations only		1.01	V
r_T			6.1	m Ω
R_{thJC} R_{thCK}		0.05	0.5	K/W
t_{rr}	$I_F=1\text{A}; -di/dt=400\text{A}/\mu\text{s}; V_R=30\text{V}; T_{VJ}=25^{\circ}\text{C}$	40	60	ns
I_{RM}	$V_R=100\text{V}; I_F=75\text{A}; -di_F/dt=200\text{A}/\mu\text{s}; L \leq 0.05\text{mH}; T_{VJ}=100^{\circ}\text{C}$	24	30	A

FEATURES

- * International standard package miniBLOC (ISOTOP compatible)
- * Isolation voltage 2500 V~
- * Matched diodes f. parallel operation
- * Planar passivated chips
- * Two independent diodes
- * 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

SUR2x100-12

Ultra Fast Recovery Epitaxial Diodes

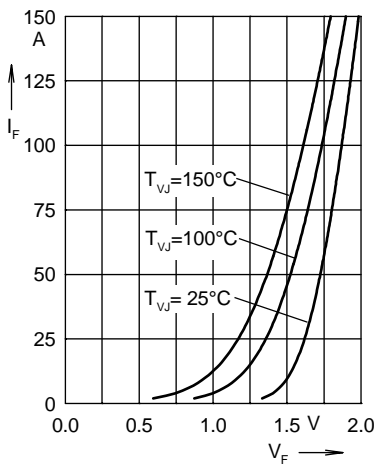


Fig. 1 Forward current I_F versus V_F

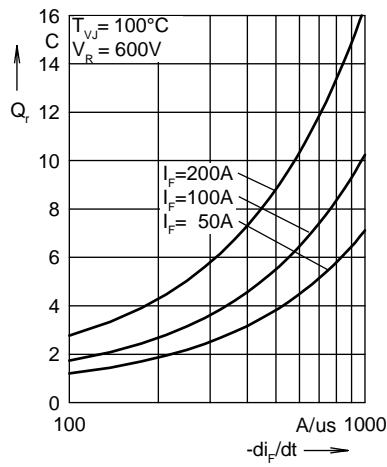


Fig. 2 Reverse recovery charge Q_r versus $-di_F/dt$

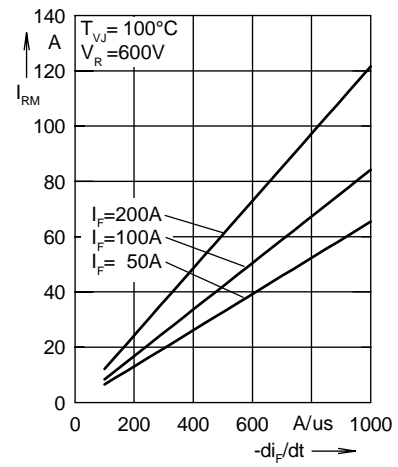


Fig. 3 Peak reverse current I_{RM} versus $-di_F/dt$

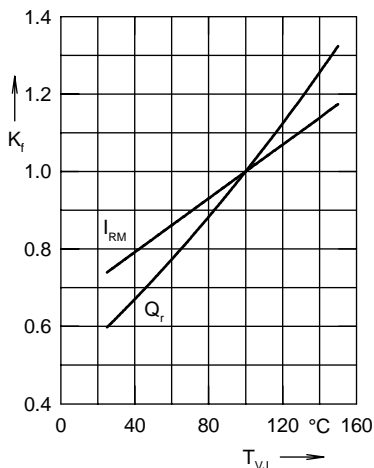


Fig. 4 Dynamic parameters Q_r , I_{RM} versus T_{VJ}

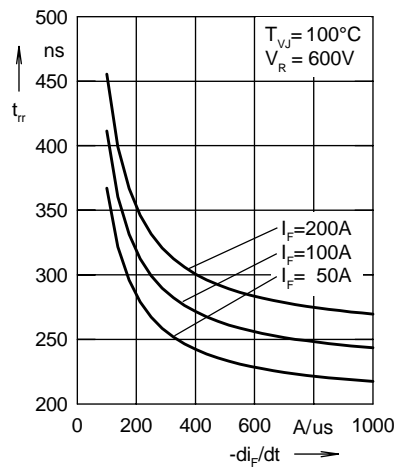


Fig. 5 Recovery time t_{tr} versus $-di_F/dt$

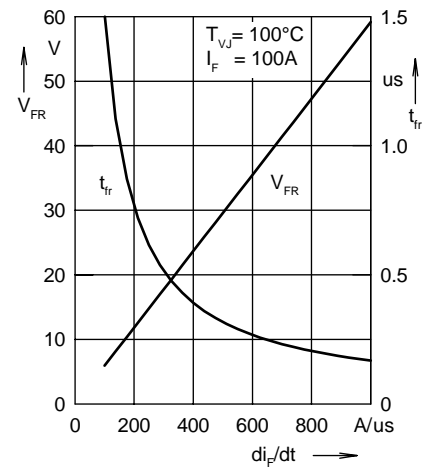


Fig. 6 Peak forward voltage V_{FR} and t_{tr} versus di_F/dt

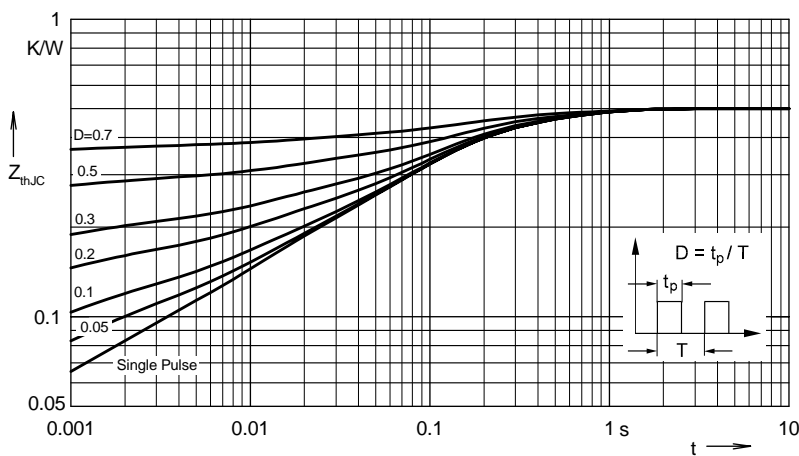


Fig. 7 Transient thermal impedance junction to case at various duty cycles

Constants for Z_{thJC} calculation:

i	R_{thi} (K/W)	t_i (s)
1	0.02	0.00002
2	0.05	0.00081
3	0.076	0.01
4	0.24	0.94
5	0.114	0.45