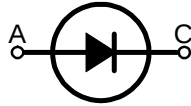
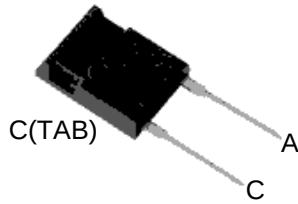
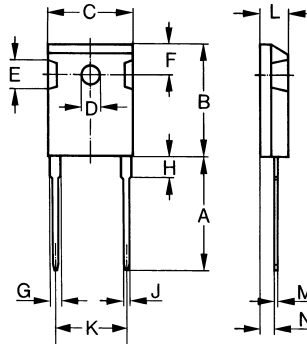


SUR6020

Ultra Fast Recovery Epitaxial Diodes



Dimensions TO-247AC



Dim.	Millimeter		Inches	
	Min.	Max.	Min.	Max.
A	19.81	20.32	0.780	0.800
B	20.80	21.46	0.819	0.845
C	15.75	16.26	0.610	0.640
D	3.55	3.65	0.140	0.144
E	4.32	5.49	0.170	0.216
F	5.4	6.2	0.212	0.244
G	1.65	2.13	0.065	0.084
H	-	4.5	-	0.177
J	1.0	1.4	0.040	0.055
K	10.8	11.0	0.426	0.433
L	4.7	5.3	0.185	0.209
M	0.4	0.8	0.016	0.031
N	1.5	2.49	0.087	0.102

A=Anode, C=Cathode, TAB=Cathode

	V_{RSM}	V_{RRM}
	V	V
SUR6020	200	200

Symbol	Test Conditions	Maximum Ratings	Unit
I_{FRMS}	$T_{VJ}=T_{VJM}$	98	A
I_{FAVM}	$T_C=85^{\circ}C$; rectangular, $d=0.5$	60	
I_{FRM}	$t_p < 10\mu s$; rep. rating, pulse width limited by T_{VJM}	800	
I_{FSM}	$T_{VJ}=45^{\circ}C$	$t=10ms$ (50Hz), sine	A
		$t=8.3ms$ (60Hz), sine	
	$T_{VJ}=150^{\circ}C$	$t=10ms$ (50Hz), sine	
		$t=8.3ms$ (60Hz), sine	
I^2t	$T_{VJ}=45^{\circ}C$	$t=10ms$ (50Hz), sine	A^2s
		$t=8.3ms$ (60Hz), sine	
	$T_{VJ}=150^{\circ}C$	$t=10ms$ (50Hz), sine	
		$t=8.3ms$ (60Hz), sine	
T_{VJ}		-40...+150	$^{\circ}C$
T_{VJM}		150	
T_{stg}		-40...+150	
P_{tot}	$T_C=25^{\circ}C$	150	W
M_d	Mounting torque	0.8...1.2	Nm
Weight		6	g

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Ultra Fast Recovery Epitaxial Diodes

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}		50	uA
			40	uA
			11	mA
V_F	I _F =60A; T _{VJ} =150°C T _{VJ} =25°C		0.88	V
			1.08	
V_{TO}	For power-loss calculations only		0.70	V
r_T	T _{VJ} =T _{VJM}		4.0	mΩ
R_{thJC} R_{thCK} R_{thJA}		0.25	0.75	K/W
			35	
t_{rr}	I _F =1A; -di/dt=200A/us; V _R =30V; T _{VJ} =25°C	35	50	ns
I_{RM}	V _R =100V; I _F =60A; -di _F /dt=200A/us; L≤0.05uH; T _{VJ} =100°C	8	10	A

FEATURES

- * International standard package JEDEC TO-247AC
- * Planar passivated 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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Ultra Fast Recovery Epitaxial Diodes

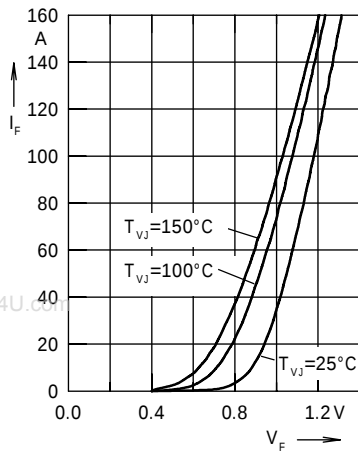


Fig. 1 Forward current I_F versus V_F

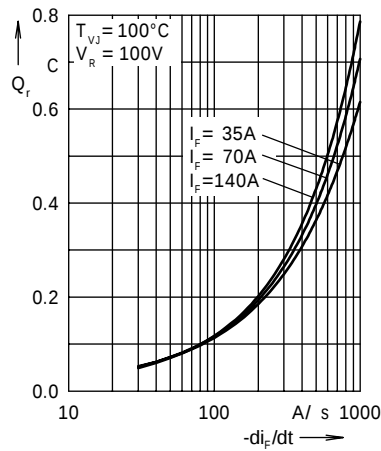


Fig. 2 Typ. reverse recovery charge Q_r versus $-di_F/dt$

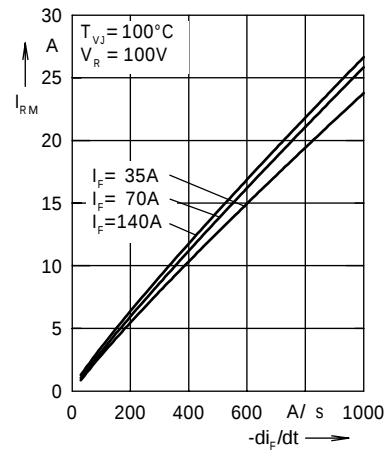


Fig. 3 Typ. peak reverse current I_{RM} versus $-di_F/dt$

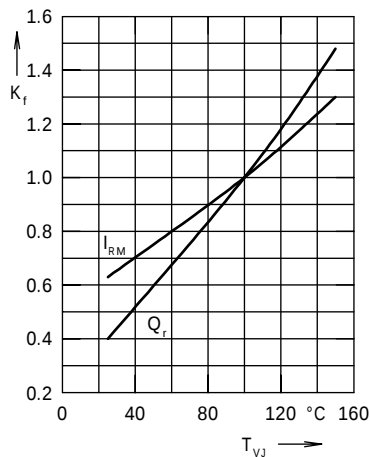


Fig. 4 Dynamic parameters Q_r , I_{RM} versus T_{VJ}

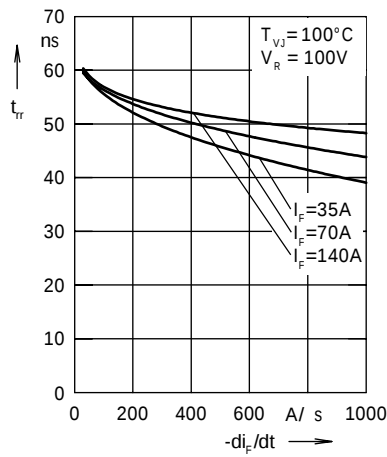


Fig. 5 Typ. recovery time t_{rr} versus $-di_F/dt$

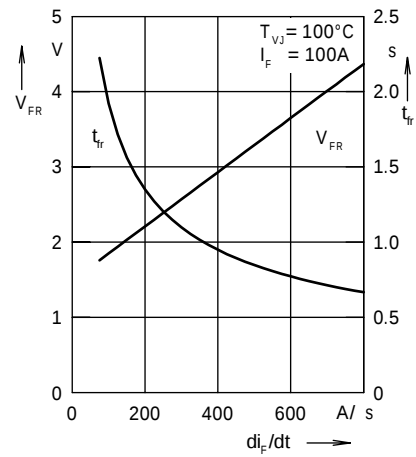


Fig. 6 Typ. peak forward voltage V_{FR} and t_{rr} versus di_F/dt

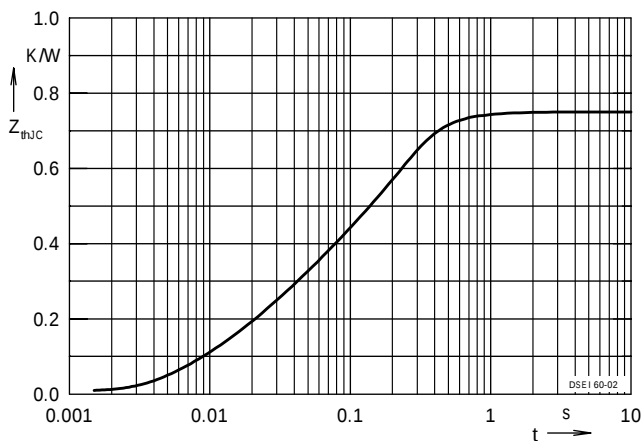


Fig. 7 Transient thermal impedance junction to case