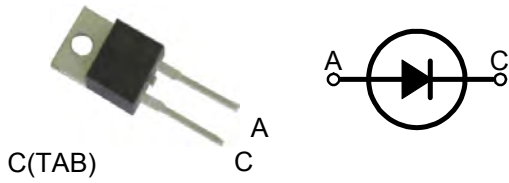


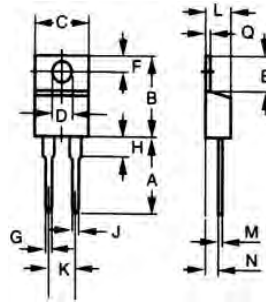
SUR1520 thru SUR1560

Soft Recovery Behaviour Ultra Fast Recovery Epitaxial Diodes



A=Anode, C=Cathode, TAB=Cathode

Dimensions TO-220AC



Dim.	Inches		Milimeter	
	Min.	Max.	Min.	Max.
A	0.500	0.580	12.70	14.73
B	0.560	0.650	14.23	16.51
C	0.380	0.420	9.66	10.66
D	0.139	0.161	3.54	4.08
E	2.300	0.420	5.85	6.85
F	0.100	0.135	2.54	3.42
G	0.045	0.070	1.15	1.77
H	-	0.250	-	6.35
J	0.025	0.035	0.64	0.89
K	0.190	0.210	4.83	5.33
L	0.140	0.190	3.56	4.82
M	0.015	0.022	0.38	0.56
N	0.080	0.115	2.04	2.49
Q	0.025	0.055	0.64	1.39

	V_{RSM}	V_{RRM}
	V	V
SUR1520	200	200
SUR1560	600	600

Symbol	Test Conditions	Maximum Ratings	Unit
I_{FRMS}	$T_{VJ}=T_{VJM}$	25	A
I_{FAVM}	$T_C=100^{\circ}C$; rectangular, $d=0.5$	15	
I_{FRM}	$t_p < 10\mu s$; rep. rating, pulse width limited by T_{VJM}	150	
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}	$T_C=25^{\circ}C$	62	W
M_d	Mounting torque	0.4...0.6	Nm
Weight		2	g

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SUR1520 thru SUR1560

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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}		50	uA
			25	uA
			3	mA
V_F	I _F =16A; T _{VJ} =150°C T _{VJ} =25°C		1.5 1.7	V
V_{TO}	For power-loss calculations only		1.12	V
r_T	T _{VJ} =T _{VJM}		23.2	mΩ
R_{thJC} R_{thCK} R_{thJA}		0.5	2 60	K/W
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	4	4.4	A

FEATURES

- * International standard package JEDEC TO-220AC
- * Glass passivated chips
- * Very short recovery time
- * Extremely low switching losses
- * Low I_{RM}-values
- * Soft recovery behaviour
- * RoHS compliant

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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SUR1520 thru SUR1560

Soft Recovery Behaviour Ultra Fast Recovery Epitaxial Diodes

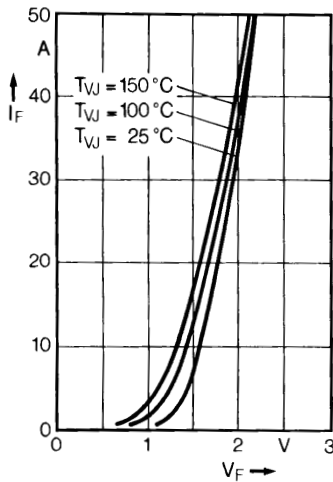


Fig. 1 Forward current versus voltage drop.

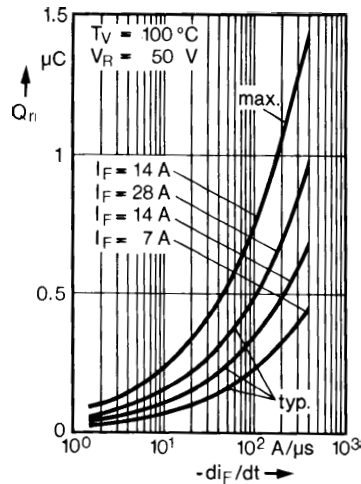


Fig. 2 Recovery charge versus $-di_F/dt$.

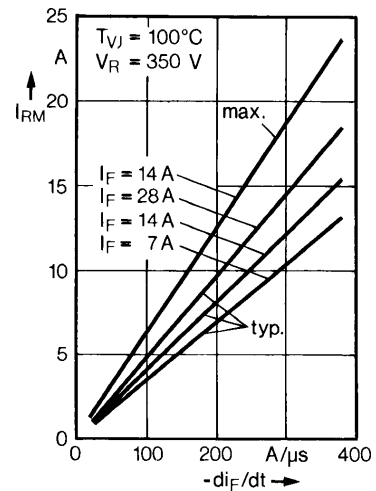


Fig. 3 Peak reverse current versus $-di_F/dt$.

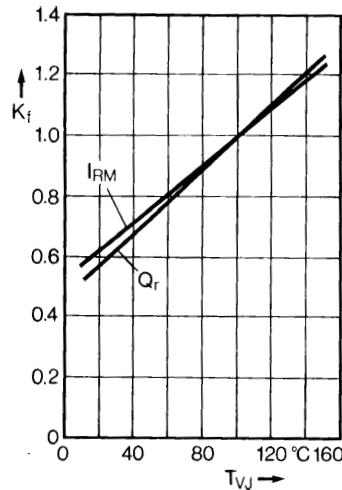


Fig. 4 Dynamic parameters versus junction temperature.

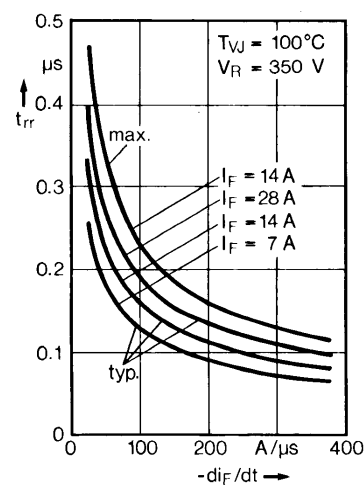


Fig. 5 Recovery time versus $-di_F/dt$.

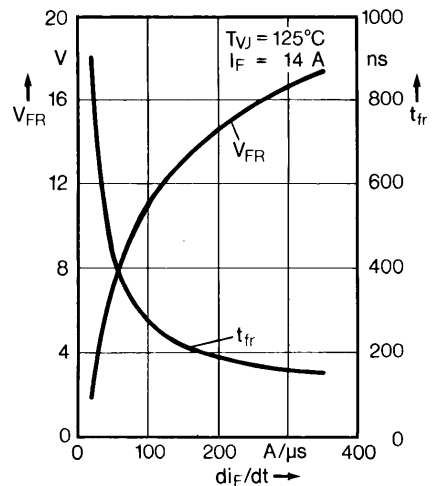


Fig. 6 Peak forward voltage versus di_F/dt .

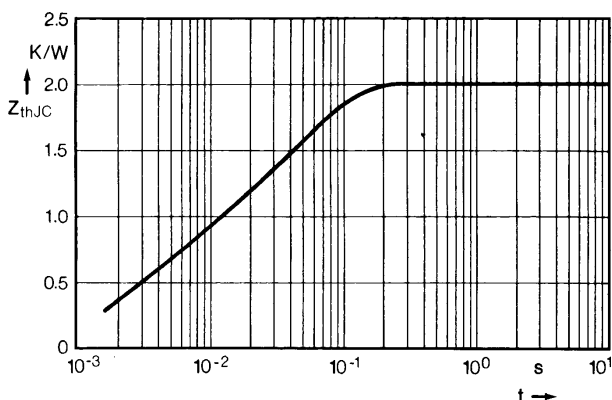


Fig. 7 Transient thermal impedance junction to case.

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