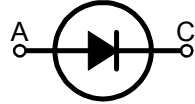
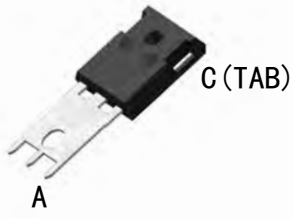
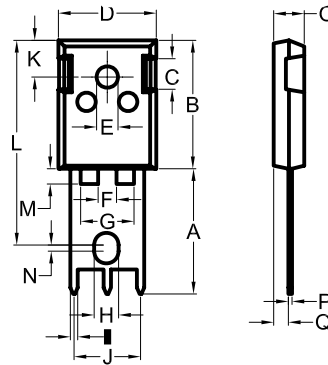


# SUR15040SR

## Ultra Fast Recovery Epitaxial Diodes



Dimensions TO-247SR



Dim	Millimeter s		Inches	
	MIN	MAX	MIN	MAX
A	19.81	20.32	0.78	0.8
B	20.8	21.46	0.819	0.845
C	4.32	5.49	0.17	0.216
D	15.75	16.26	0.61	0.64
E	3.55	3.65	0.14	0.144
F	2.95	3.05	0.116	0.12
G	8.67	8.77	0.34	0.35
H	4	4.2	0.15	0.16
I	1	1.4	0.04	0.055
J	10.8	11	0.426	0.433
K	5.4	6.2	0.212	0.244
L	33.43	33.53	1.316	1.32
M		2.5		0.1
N	1	1.1	0.039	0.04
O	4.7	5.3	0.185	0.209
P	0.4	0.8	0.016	0.031
Q	1.5	2.49	0.087	0.102

A=Anode, C(TAB)=Cathode

	$V_{RSM}$	$V_{RRM}$
	V	V
<b>SUR15040GF</b>	400	400

Symbol	Test Conditions	Maximum Ratings	Unit
$I_{FRMS}$	$T_{VJ}=T_{VJM}$	225	A
$I_{FAVM}$	$T_C=105^{\circ}C$ ; rectangular, $d=0.5$	150	
$I_{FRM}$	$t_p < 10\mu s$ ; 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	
$T_{VJ}$		-40...+175	$^{\circ}C$
$T_{VJM}$		175	
$T_{stg}$		-40...+175	
$P_{tot}$	$T_C=25^{\circ}C$	150	W
$M_d$	Mounting torque	1.2...2.4	Nm
Weight		6	g



# SUR15040SR

## Ultra Fast Recovery Epitaxial Diodes

Symbol	Test Conditions	Characteristic Values		Unit
		typ.	max.	
<b>I<sub>R</sub></b>	$T_{VJ}=25^{\circ}\text{C}; V_R=V_{RRM}$		50	$\mu\text{A}$
	$T_{VJ}=25^{\circ}\text{C}; V_R=0.8 \cdot V_{RRM}$		30	$\mu\text{A}$
	$T_{VJ}=150^{\circ}\text{C}; V_R=V_{RRM}$		4	$\text{mA}$
<b>V<sub>F</sub></b>	$I_F=150\text{A}; T_{VJ}=175^{\circ}\text{C}$		1.1	V
	$T_{VJ}=25^{\circ}\text{C}$		1.3	
<b>V<sub>TO</sub></b>	For power-loss calculations only		1.01	V
<b>r<sub>T</sub></b>	$T_{VJ}=T_{VJM}$		7.1	$\text{m}\Omega$
<b>R<sub>thJC</sub></b> <b>R<sub>thCK</sub></b> <b>R<sub>thJA</sub></b>		0.2	0.35	K/W
<b>t<sub>rr</sub></b>	$I_F=1\text{A}; -di/dt=100\text{A}/\mu\text{s}; V_R=30\text{V}; T_{VJ}=25^{\circ}\text{C}$	35	60	ns
<b>I<sub>RM</sub></b>	$V_R=350\text{V}; I_F=30\text{A}; -di_F/dt=240\text{A}/\mu\text{s}; L \leq 0.05\mu\text{H}; T_{VJ}=100^{\circ}\text{C}$	20		A

### FEATURES

- \* Lead -Free Plating
- \* Very short recovery time
- \* Extremely low switching losses
- \* Low I<sub>RM</sub>-values
- \* Soft recovery behaviour
- \* Screw Mounting only

### 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

- \* Reduced RFI and EMI
- \* Higher Frequency Operation
- \* Reduced Snubbing
- \* Reduced Parts Count



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## Ultra Fast Recovery Epitaxial Diodes

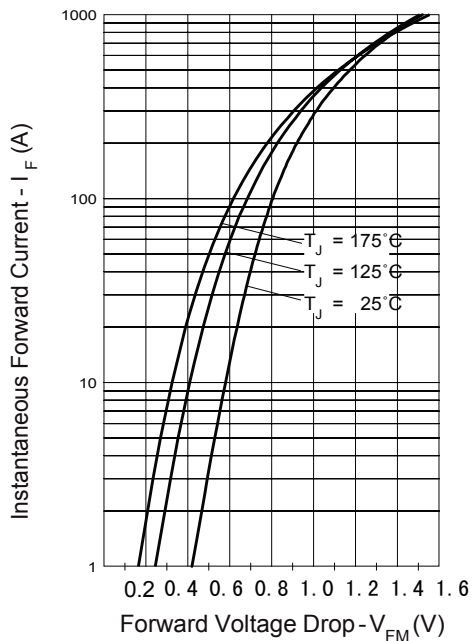


Fig. 1 - Maximum Forward Voltage Drop Characteristics

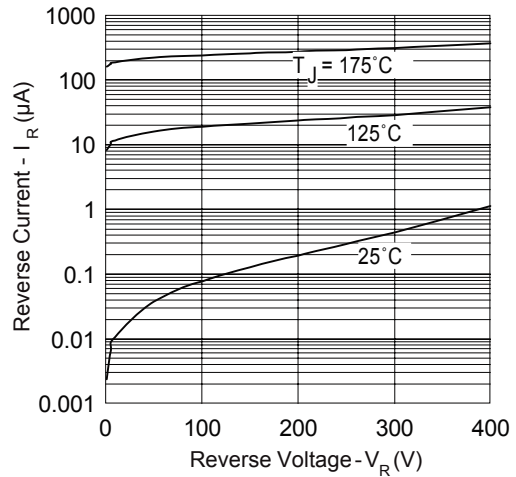


Fig. 2 - Typical Values of Reverse Current vs. Reverse Voltage

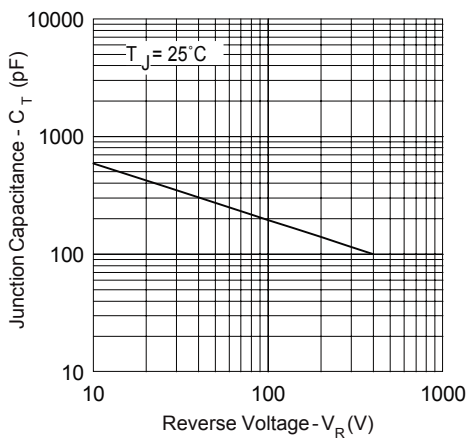


Fig. 3 - Typical Junction Capacitance vs. Reverse Voltage

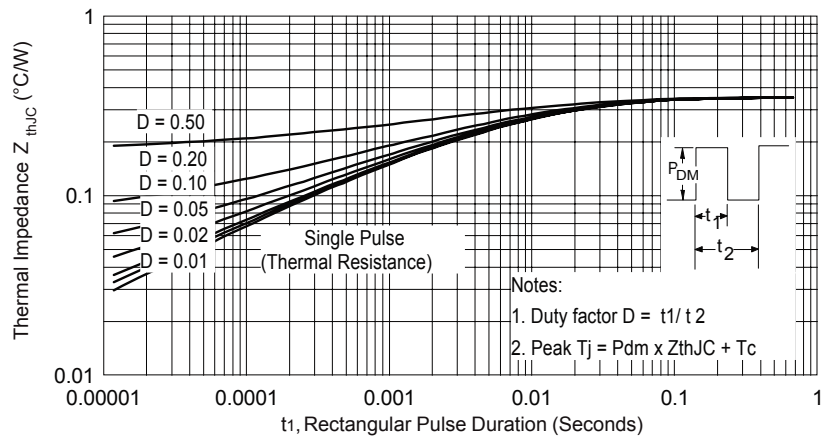


Fig. 4 - Maximum Thermal Impedance  $Z_{thJC}$  Characteristic



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## Ultra Fast Recovery Epitaxial Diodes

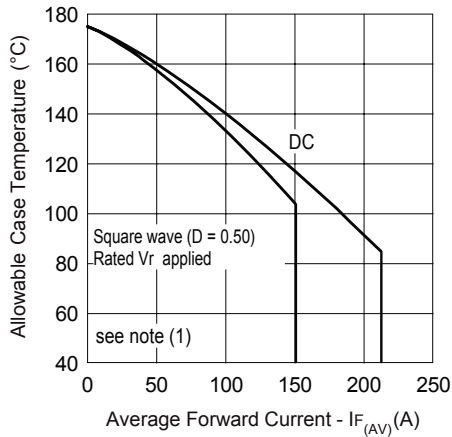


Fig. 5 - Maximum Allowable Case Temperature vs. Average Forward Current

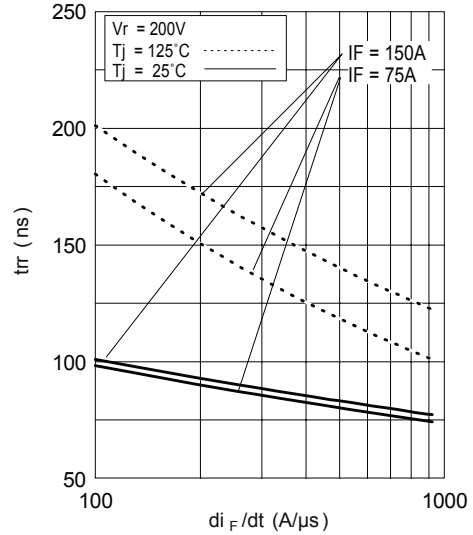


Fig. 7 - Typical Reverse Recovery Time vs.  $di_F/dt$

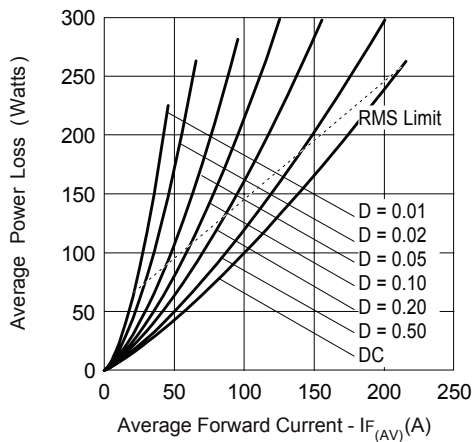


Fig. 6 - Forward Power Loss Characteristics

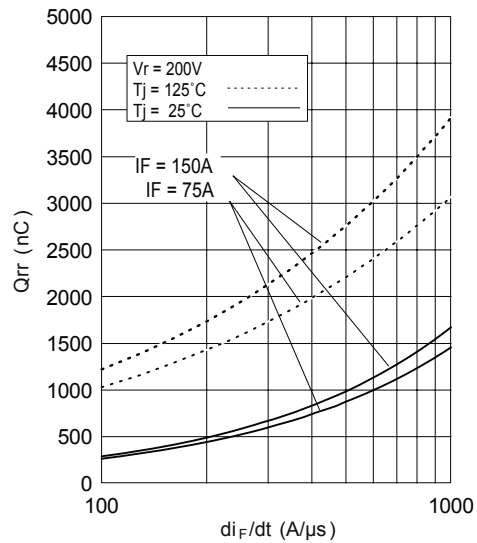


Fig. 8 - Typical Stored Charge vs.  $di_F/dt$

