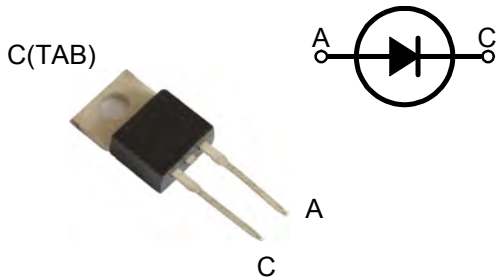


SUR29⁸⁰

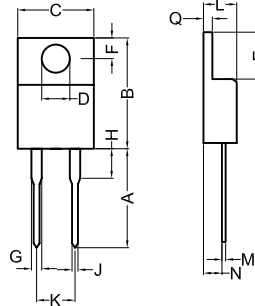
Ultra Fast Recovery Epitaxial Diodes



A=Anode, C & C(TAB)=Cathode

	V_{RSM} V	V_{RRM} V
SUR29⁸⁰	1200	1200

Dimensions TO-220



Dim.	Inches		Milimeter	
	Min.	Max.	Min.	Max.
A	0.500	0.550	12.70	13.97
B	0.580	0.630	14.73	16.00
C	0.390	0.420	9.91	10.66
D	0.139	0.161	3.54	4.08
E	0.230	0.270	5.85	6.85
F	0.100	0.125	2.54	3.18
G	0.045	0.065	1.15	1.65
H	0.110	0.230	2.79	5.84
J	0.025	0.040	0.64	1.01
K	0.100	BSC	2.54	BSC
M	0.170	0.190	4.32	4.82
N	0.045	0.055	1.14	1.39
Q	0.014	0.022	0.35	0.56
R	0.090	0.110	2.29	2.79

Symbol	Test Conditions	Maximum Ratings	Unit
I_{FRMS}	$T_{VJ}=T_{VJM}$	70	A
I_{FAVM}	$T_C=85^{\circ}C$; rectangular, $d=0.5$	29	
I_{FRM}	$t_p < 10\mu s$; rep. rating, pulse width limited by T_{VJM}	375	
I_{FSM}	$T_{VJ}=45^{\circ}C$	$t=10ms$ (50Hz), sine $t=8.3ms$ (60Hz), sine	A
	$T_{VJ}=125^{\circ}C$	$t=10ms$ (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
	$T_{VJ}=125^{\circ}C$	$t=10ms$ (50Hz), sine $t=8.3ms$ (60Hz), sine	
T_{VJ}		-40...+125	$^{\circ}C$
T_{VJM}		125	
T_{stg}		-40...+125	
P_{tot}	$T_C=25^{\circ}C$	125	W
M_d	Mounting torque	0.4...0.6	Nm
Weight		2	g



SUR29120

Ultra Fast Recovery Epitaxial Diodes

Symbol	Test Conditions	Characteristic Values		Unit
		typ.	max.	
I_R	$T_{VJ}=25^{\circ}\text{C}; V_R=V_{RRM}$		750	uA
	$T_{VJ}=25^{\circ}\text{C}; V_R=0.8 \cdot V_{RRM}$		250	uA
	$T_{VJ}=125^{\circ}\text{C}; V_R=0.8 \cdot V_{RRM}$		7	mA
V_F	$I_F=29\text{A}; T_{VJ}=125^{\circ}\text{C}$		2.20	V
	$T_{VJ}=25^{\circ}\text{C}$		2.55	
V_{TO}	For power-loss calculations only		1.65	V
r_T	$T_{VJ}=T_{VJM}$		18.20	m Ω
R_{thJC}			1.0	K/W
t_{rr}	$I_F=1\text{A}; -di/dt=100\text{A}/\mu\text{s}; V_R=30\text{V}; T_{VJ}=25^{\circ}\text{C}$	40	60	ns
I_{RM}	$V_R=350\text{V}; I_F=30\text{A}; -di_F/dt=240\text{A}/\mu\text{s}; L \leq 0.05\mu\text{H}; T_{VJ}=100^{\circ}\text{C}$	16	18	A

FEATURES

- * International standard package
- * Glass passivated chips
- * Very short recovery time
- * Extremely low losses at high switching frequencies
- * Low I_{RM}-values
- * Soft recovery behaviour
- * RoHS compliant

APPLICATIONS

- * Antiparallel diode for high frequency switching devices
- * Anti saturation 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

Sirectifier[®]

SUR29⁸⁰

Ultra Fast Recovery Epitaxial Diodes

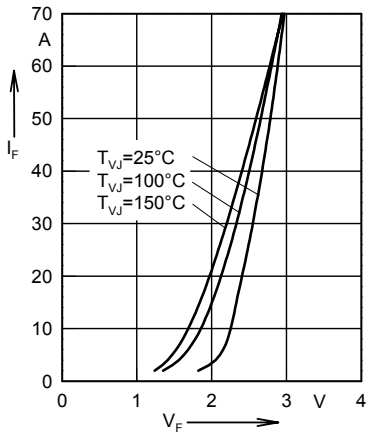


Fig. 1 Forward current versus voltage drop.

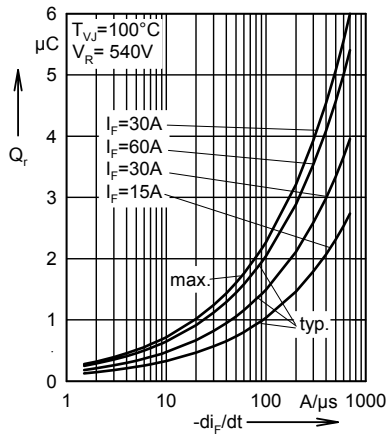


Fig. 2 Recovery charge versus $-di_F/dt$.

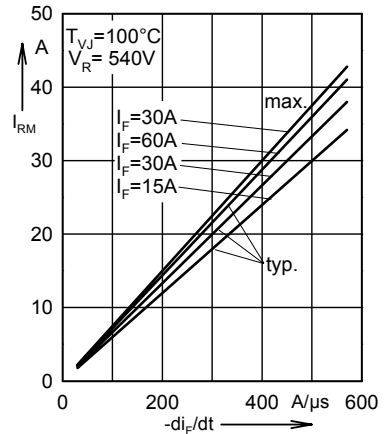


Fig. 3 Peak reverse current versus $-di_F/dt$.

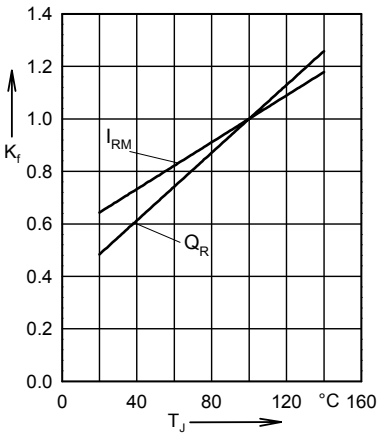


Fig. 4 Dynamic parameters versus junction temperature.

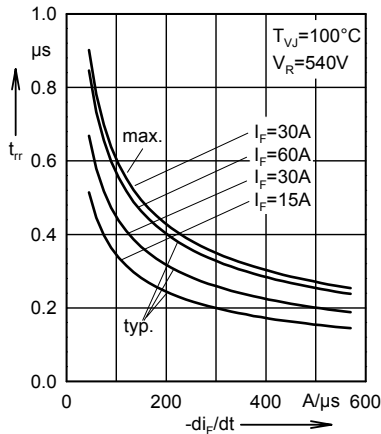


Fig. 5 Recovery time versus $-di_F/dt$.

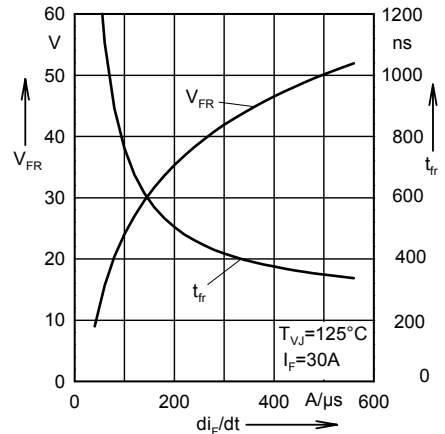


Fig. 6 Peak forward voltage versus di_F/dt .

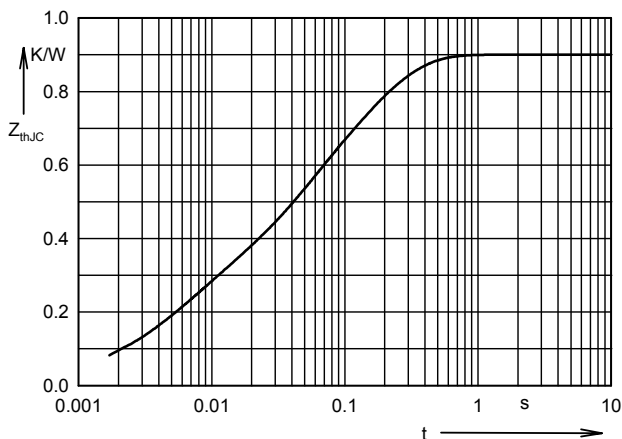


Fig. 7 Transient thermal impedance junction to case.

