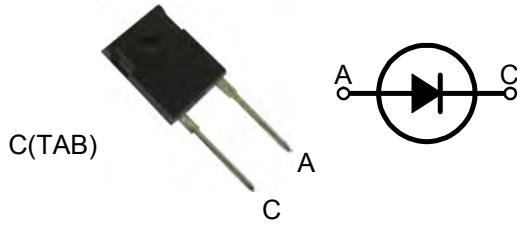


SUR6080 thru SUR60120

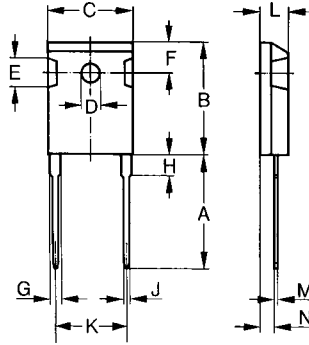
Soft Recovery Behaviour Ultra Fast Recovery Epitaxial Diodes



A=Anode, C=Cathode, TAB=Cathode

| | V_{RSM} V | V_{RRM} V |
|-----------------|----------------|----------------|
| SUR6080 | 800 | 800 |
| SUR60100 | 1000 | 1000 |
| SUR60120 | 1200 | 1200 |

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 |

| Symbol | Test Conditions | Maximum Ratings | Unit |
|------------|---|---|----------------------|
| I_{FRMS} | $T_{VJ}=T_{VJM}$ | 100 | A |
| I_{FAVM} | $T_C=60^\circ\text{C}$; rectangular, $d=0.5$ | 60 | |
| I_{FRM} | $t_p < 10\mu\text{s}$; rep. rating, pulse width limited by T_{VJM} | 800 | |
| I_{FSM} | $T_{VJ}=45^\circ\text{C}$ | $t=10\text{ms}$ (50Hz), sine $t=8.3\text{ms}$ (60Hz), sine | A |
| | $T_{VJ}=150^\circ\text{C}$ | $t=10\text{ms}$ (50Hz), sine $t=8.3\text{ms}$ (60Hz), sine | |
| I^2t | $T_{VJ}=45^\circ\text{C}$ | $t=10\text{ms}$ (50Hz), sine $t=8.3\text{ms}$ (60Hz), sine | A^2s |
| | $T_{VJ}=150^\circ\text{C}$ | $t=10\text{ms}$ (50Hz), sine $t=8.3\text{ms}$ (60Hz), sine | |
| T_{VJ} | | -40...+150 | $^\circ\text{C}$ |
| T_{VJM} | | 150 | |
| T_{stg} | | -40...+150 | |
| P_{tot} | $T_C=25^\circ\text{C}$ | 189 | W |
| M_d | Mounting torque | 0.8...1.2 | Nm |
| Weight | | 6 | g |

Sirectifier[®]

SUR6080 thru SUR60120

Soft Recovery Behaviour 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 |
| | $T_{VJ}=25^{\circ}\text{C}; V_R=0.8 \cdot V_{RRM}$ | | 0.5 | |
| | $T_{VJ}=125^{\circ}\text{C}; V_R=0.8 \cdot V_{RRM}$ | | 14 | |
| V_F | $I_F=60\text{A}; T_{VJ}=150^{\circ}\text{C}$ | | 1.8 | V |
| | $T_{VJ}=25^{\circ}\text{C}$ | | 2.3 | |
| V_{TO} | For power-loss calculations only | | 1.43 | V |
| r_T | $T_{VJ}=T_{VJM}$ | | 6.1 | m Ω |
| R_{thJC} R_{thCK} R_{thJA} | | 0.25 | 0.66 | K/W |
| | | | 35 | |
| | | | | |
| t_{rr} | $I_F=1\text{A}; -di/dt=200\text{A}/\mu\text{s}; V_R=30\text{V}; T_{VJ}=25^{\circ}\text{C}$ | 35 | 50 | ns |
| I_{RM} | $V_R=540\text{V}; I_F=60\text{A}; -di_F/dt=480\text{A}/\mu\text{s}; L \leq 0.05\mu\text{H}; T_{VJ}=100^{\circ}\text{C}$ | 32 | 36 | A |

FEATURES

- * International standard package JEDEC TO-247AC
- * 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



SUR6080 thru SUR60120

Soft Recovery Behaviour Ultra Fast Recovery Epitaxial Diodes

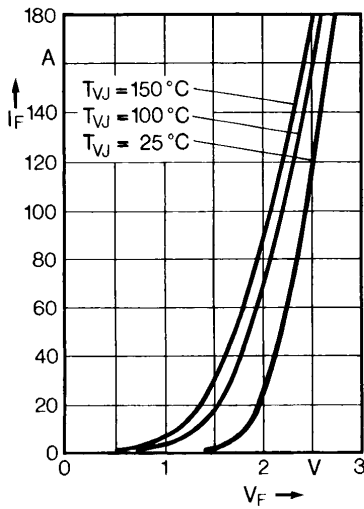


Fig. 1 Forward current versus voltage drop.

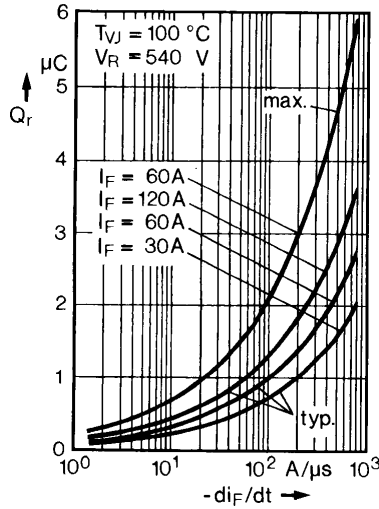


Fig. 2 Recovery charge versus $-di_F/dt$.

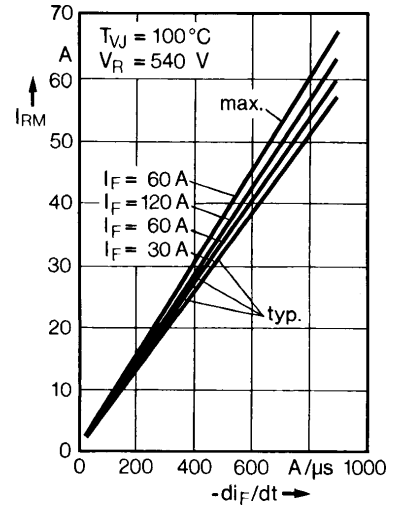


Fig. 3 Peak reverse current versus $-di_F/dt$.

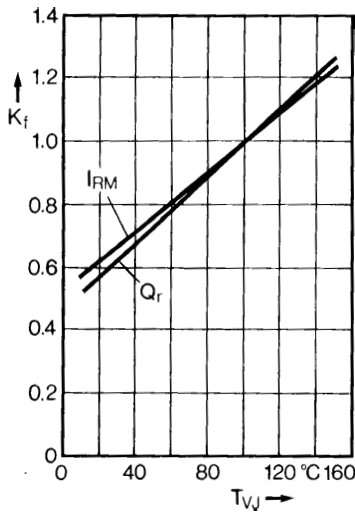


Fig. 4 Dynamic parameters versus junction temperature.

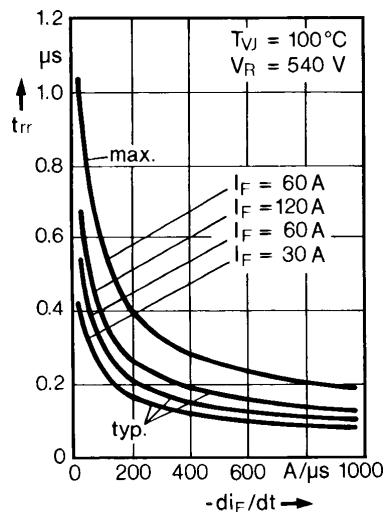


Fig. 5 Recovery time versus $-di_F/dt$.

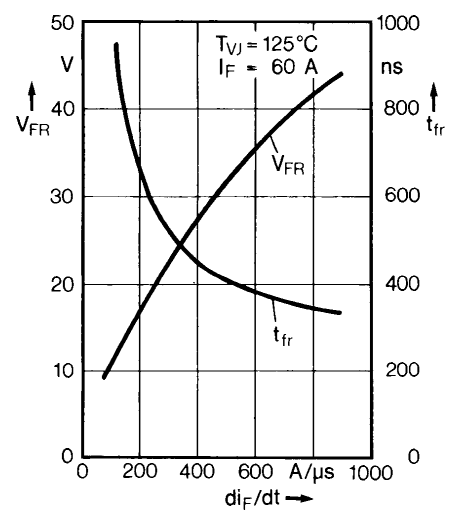


Fig. 6 Peak forward voltage versus di_F/dt .

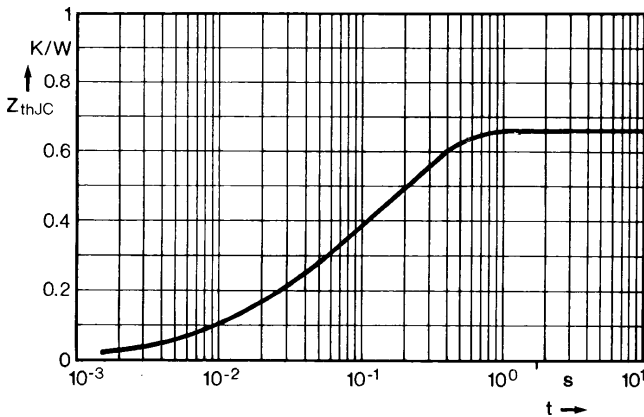


Fig. 7 Transient thermal impedance junction to case.

