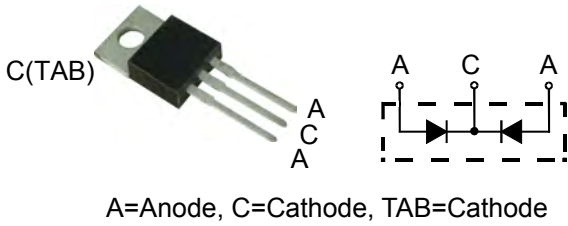
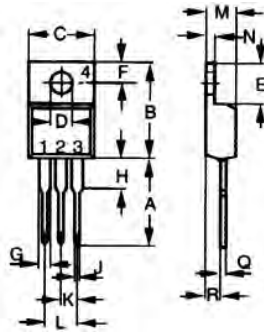


SUR20100CT

Soft Recovery Behaviour Ultra Fast Recovery Epitaxial Diodes



Dimensions TO-220AB



| Dim. | Inches | | Millimeter | |
|------|--------|-------|------------|-------|
| | 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 |

| | V_{RSM} | V_{RRM} |
|-------------------|-----------|-----------|
| | V | V |
| SUR20100CT | 1000 | 1000 |

| Symbol | Test Conditions | Maximum Ratings | Unit |
|------------------------------------|---|---|------------------|
| I_{FRMS} | $T_{VJ}=T_{VJM}$ | 25 | A |
| I_{FAVM} | $T_C=100^{\circ}C$; rectangular, $d=0.5$ | 10 | |
| 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 $t=8.3ms$ (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 ² s |
| | $T_{VJ}=150^{\circ}C$ | $t=10ms$ (50Hz), sine $t=8.3ms$ (60Hz), sine | |
| T_{VJ} T_{VJM} T_{stg} | | -40...+150 150 -40...+150 | $^{\circ}C$ |
| P_{tot} | $T_C=25^{\circ}C$ | 78 | W |
| M_d | Mounting torque | 0.4...0.6 | Nm |
| Weight | | 2 | g |

Sirectifier[®]

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Soft Recovery Behaviour Ultra Fast Recovery Epitaxial Diodes

| Symbol | Test Conditions | Characteristic Values | | Unit |
|--|---|-----------------------|------|---------------------|
| | | typ. | max. | |
| I_R | $T_{VJ}=25^{\circ}\text{C}; V_R=V_{RRM}$ | | 250 | μA |
| | $T_{VJ}=25^{\circ}\text{C}; V_R=0.8 \cdot V_{RRM}$ | | 150 | μA |
| V_F | $T_{VJ}=125^{\circ}\text{C}; V_R=0.8 \cdot V_{RRM}$ | | 4 | mA |
| | $I_F=12\text{A}; T_{VJ}=150^{\circ}\text{C}$ | | 2.1 | V |
| | $T_{VJ}=25^{\circ}\text{C}$ | | 2.7 | |
| V_{TO} | For power-loss calculations only | | 1.67 | V_{Ω} |
| r_T | $T_{VJ}=T_{VJM}$ | | 33.6 | m |
| R_{thJC} R_{thCK} | | 0.5 | 1.6 | K/W |
| R_{thJA} | | | 60 | |
| t_{rr} | $I_F=1\text{A}; -di/dt=50\text{A}/\mu\text{s}; V_R=30\text{V}; T_{VJ}=25^{\circ}\text{C}$ | 50 | 60 | ns |
| I_{RM} | $V_R=540\text{V}; I_F=10\text{A}; -di_F/dt=100\text{A}/\mu\text{s}; L \leq 0.05\mu\text{H}; T_{VJ}=100^{\circ}\text{C}$ | 6.5 | 7.2 | A |

FEATURES

- * International standard package JEDEC TO-220AB
- * 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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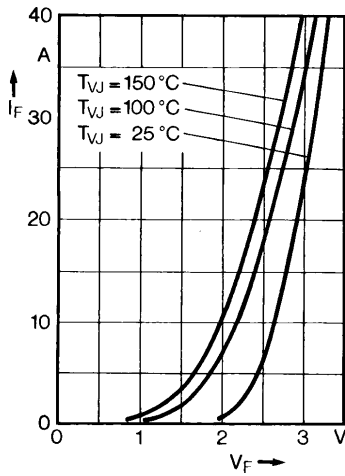


Fig. 1 Forward current versus voltage drop.

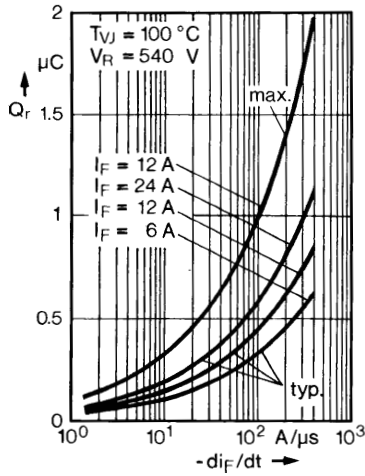


Fig. 2 Recovery charge versus $-di_F/dt$.

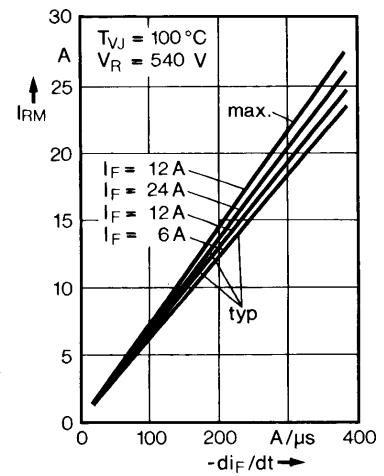


Fig. 3 Peak reverse current versus $-di_F/dt$.

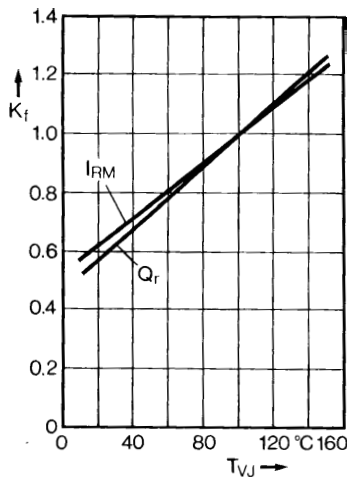


Fig. 4 Dynamic parameters versus junction temperature.

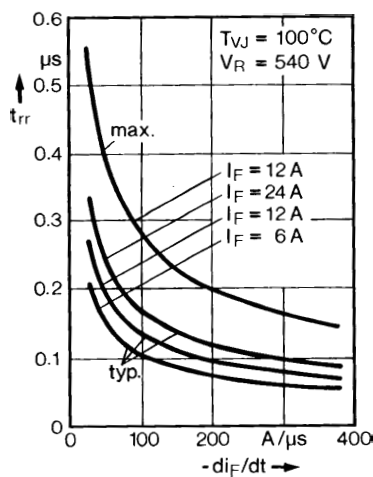


Fig. 5 Recovery time versus $-di_F/dt$.

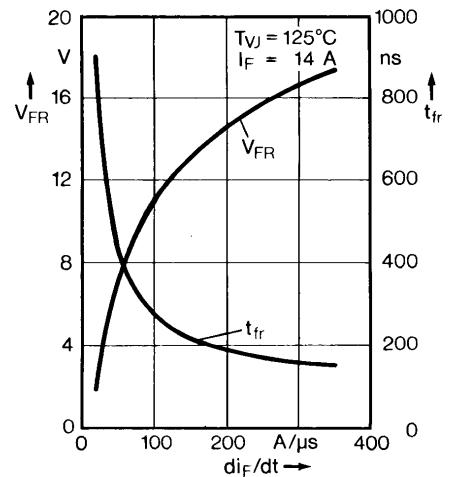


Fig. 6 Peak forward voltage versus di_F/dt .

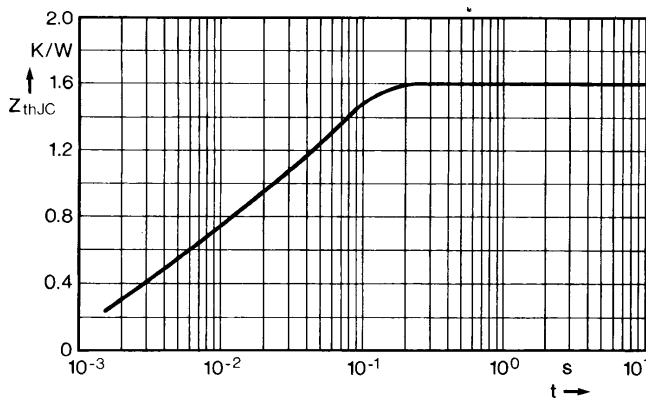


Fig. 7 Transient thermal impedance junction to case.