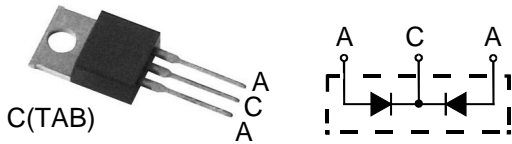


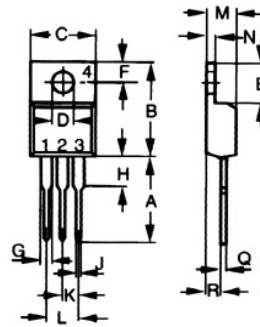
HUR20100CT, HUR20120CT

High-Performance Wide Temperature Range Ultra Fast Recovery Epitaxial Diode



A=Anode, C=Cathode, TAB=Cathode

Dimensions TO-220AB



| 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 |

| | V _{RSM} | V _{RRM} |
|------------|------------------|------------------|
| | V | V |
| HUR20100CT | 1000 | 1000 |
| HUR20120CT | 1200 | 1200 |

| Symbol | Test Conditions | Maximum Ratings | Unit |
|---|---|---------------------------------|------|
| I _{FRMS} I _{FAVM} | T _C =115°C; rectangular, d=0.5 | 35 2 x 10 | A |
| I _{FSM} | T _{VJ} =45°C; t _p =10ms (50Hz), sine | 40 | A |
| E _{AS} | T _{VJ} =25°C; non-repetitive; I _{AS} =8A; L=180uH | 6.9 | mJ |
| I _{AR} | V _A =1.25·V _R typ.; f=10kHz; repetitive | 0.8 | A |
| T _{VJ} T _{VJM} T _{stg} | | -55...+175 175 -55...+150 | °C |
| P _{tot} | T _C =25°C | 60 | W |
| M _d | mounting torque | 0.4...0.6 | Nm |
| Weight | typical | 2 | g |

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High-Performance Wide Temperature Range Ultra Fast Recovery Epitaxial Diode

| Symbol | Test Conditions | Characteristic Values | | Unit |
|--|---|-----------------------|------|------|
| | | typ. | max. | |
| I_R | T _{VJ} =25°C; V _R =V _{RRM} T _{VJ} =150°C; V _R =V _{RRM} | | 60 | uA |
| | | | 0.25 | mA |
| V_F | I _F =10A; T _{VJ} =150°C T _{VJ} =25°C | | 1.96 | V |
| | | | 2.94 | |
| R_{thJC} R_{thCH} | | 0.5 | 2.5 | K/W |
| t_{rr} | I _F =1A; -di/dt=50A/us; V _R =30V; T _{VJ} =25°C | 40 | | ns |
| I_{RM} | V _R =100V; I _F =12A; -di _F /dt=100A/us; T _{VJ} =100°C | 4 | | A |

FEATURES

- * International standard package
- * Planar passivated chips
- * Very short recovery time
- * Extremely low switching losses
- * Low I_{RM}-values
- * Soft recovery behaviour

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
- * Uninterruptible power supplies (UPS)
- * Ultrasonic cleaners and welders

ADVANTAGES

- * Avalanche voltage rated for reliable operation
- * Soft reverse recovery for low EMI/RFI
- * Low I_{RM} reduces:
 - Power dissipation within the diode
 - Turn-on loss in the commutating switch

Sirectifier®

HUR20100CT, HUR20120CT

High-Performance Wide Temperature Range Ultra Fast Recovery Epitaxial Diode

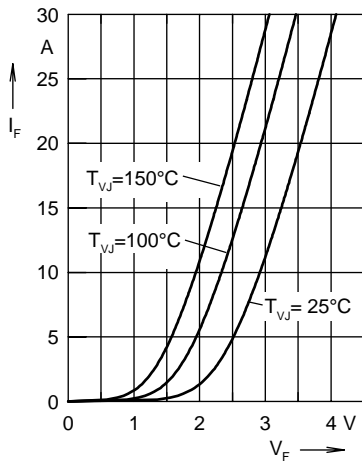


Fig. 1 Forward current I_F versus V_F

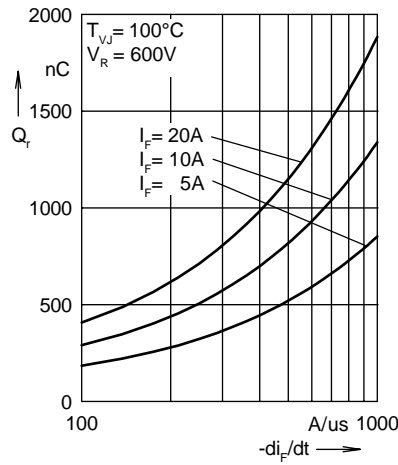


Fig. 2 Reverse recovery charge Q_r versus $-di_F/dt$

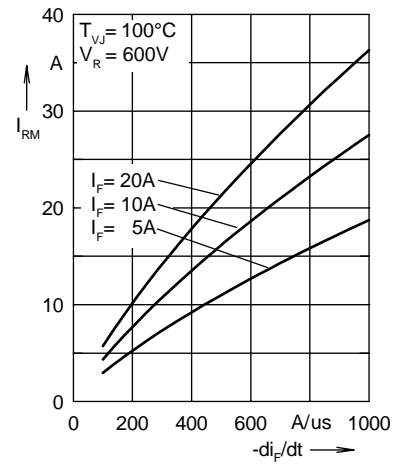


Fig. 3 Peak reverse current I_{RM} versus $-di_F/dt$

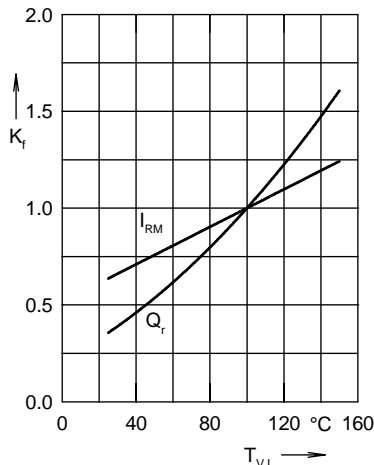


Fig. 4 Dynamic parameters Q_r , I_{RM} versus T_{VJ}

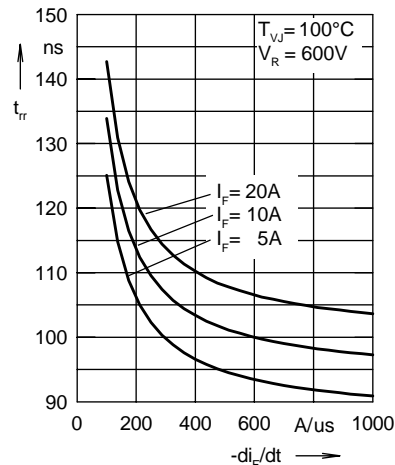


Fig. 5 Recovery time t_{tr} versus $-di_F/dt$

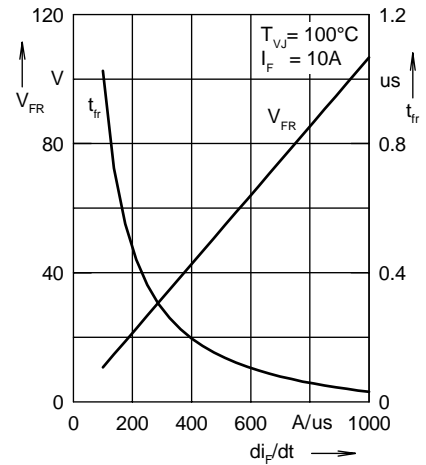


Fig. 6 Peak forward voltage V_{FR} and t_{tr} versus di_F/dt

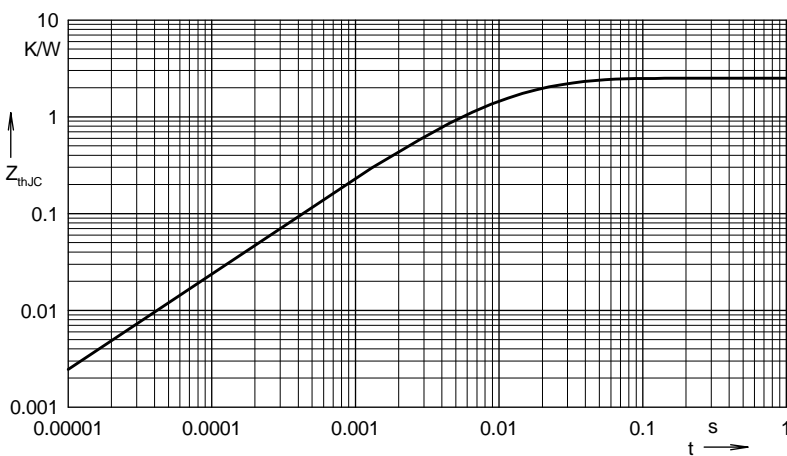


Fig. 7 Transient thermal resistance junction to case

Constants for Z_{thJC} calculation:

| i | R_{thi} (K/W) | t_i (s) |
|---|-----------------|-----------|
| 1 | 1.449 | 0.0052 |
| 2 | 0.558 | 0.0003 |
| 3 | 0.493 | 0.017 |