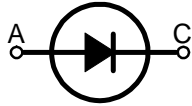
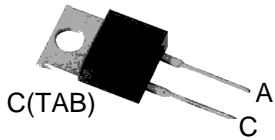


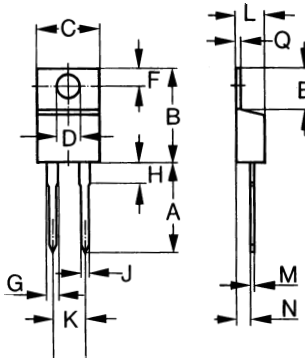
HUR15100, HUR15120

High-Performance Wide Temperature Range Ultra Fast Recovery Epitaxial Diode



A=Anode, C=Cathode, TAB=Cathode

Dimensions TO-220AC



| Dim. | Inches | | Milimeter | |
|------|--------|-------|-----------|-------|
| | Min. | Max. | Min. | Max. |
| A | 0.500 | 0.580 | 12.70 | 14.73 |
| B | 0.560 | 0.650 | 14.23 | 16.51 |
| C | 0.380 | 0.420 | 9.66 | 10.66 |
| D | 0.139 | 0.161 | 3.54 | 4.08 |
| E | 2.300 | 0.420 | 5.85 | 6.85 |
| F | 0.100 | 0.135 | 2.54 | 3.42 |
| G | 0.045 | 0.070 | 1.15 | 1.77 |
| H | - | 0.250 | - | 6.35 |
| J | 0.025 | 0.035 | 0.64 | 0.89 |
| K | 0.190 | 0.210 | 4.83 | 5.33 |
| L | 0.140 | 0.190 | 3.56 | 4.82 |
| M | 0.015 | 0.022 | 0.38 | 0.56 |
| N | 0.080 | 0.115 | 2.04 | 2.91 |
| Q | 0.025 | 0.055 | 0.64 | 1.39 |

| | V_{RSM} V | V_{RRM} V |
|-----------------|----------------|----------------|
| HUR15100 | 1000 | 1000 |
| HUR15120 | 1200 | 1200 |

| Symbol | Test Conditions | Maximum Ratings | Unit |
|---------------|-------------------------------------------------------------------------------------|-----------------|------------------|
| I_{FRMS} | $T_C=125^\circ\text{C}$; rectangular, $d=0.5$ | 35 | A |
| I_{FAVM} | | 15 | |
| I_{FSM} | $T_{VJ}=45^\circ\text{C}$; $t_p=10\text{ms}$ (50Hz), sine | 90 | A |
| E_{AS} | $T_{VJ}=25^\circ\text{C}$; non-repetitive; $I_{AS}=9\text{A}$; $L=180\mu\text{H}$ | 8.7 | mJ |
| I_{AR} | $V_A=1.25 \cdot V_R$ typ.; $f=10\text{kHz}$; repetitive | 0.9 | A |
| T_{VJ} | | -55...+175 | $^\circ\text{C}$ |
| T_{VJM} | | 175 | |
| T_{stg} | | -55...+150 | |
| P_{tot} | $T_C=25^\circ\text{C}$ | 95 | W |
| M_d | mounting torque | 0.4...0.6 | Nm |
| Weight | typical | 2 | g |

HUR15100, HUR15120

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} | | 100 | uA |
| | | | 0.5 | mA |
| V_F | I _F =15A; T _{VJ} =150°C T _{VJ} =25°C | | 1.79 | V |
| | | | 2.75 | |
| R_{thJC} R_{thCH} | | 0.5 | 1.6 | K/W |
| t_{rr} | I _F =1A; -di/dt=100A/us; V _R =30V; T _{VJ} =25°C | 40 | | ns |
| I_{RM} | V _R =100V; I _F =25A; -di _F /dt=100A/us; T _{VJ} =100°C | 4.5 | | 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®

HUR15100, HUR15120

High-Performance Wide Temperature Range Ultra Fast Recovery Epitaxial Diode

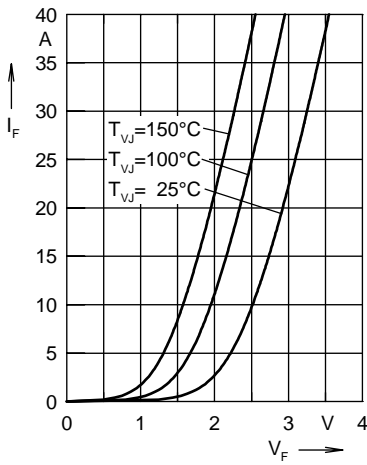


Fig. 1 Forward current I_F versus V_F

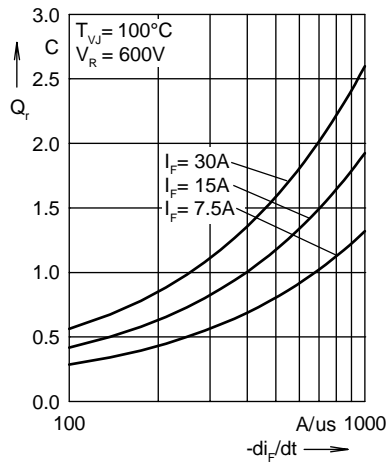


Fig. 2 Reverse recovery charge Q_r versus $-di_F/dt$

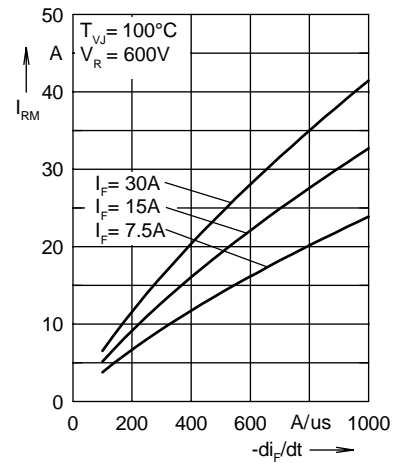


Fig. 3 Peak reverse current I_{RM} versus $-di_F/dt$

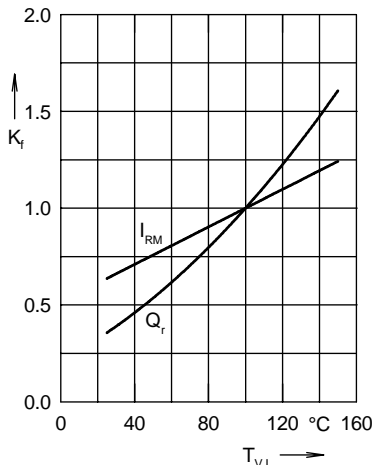


Fig. 4 Dynamic parameters Q_r , I_{RM} versus T_{VJ}

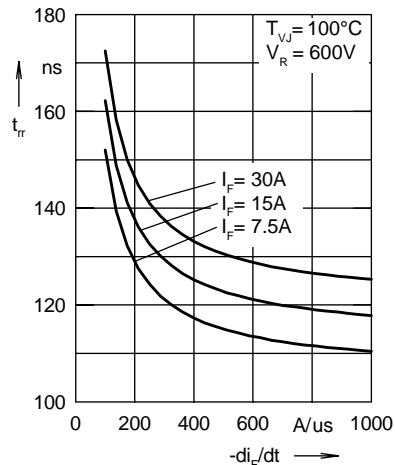


Fig. 5 Recovery time t_{tr} versus $-di_F/dt$

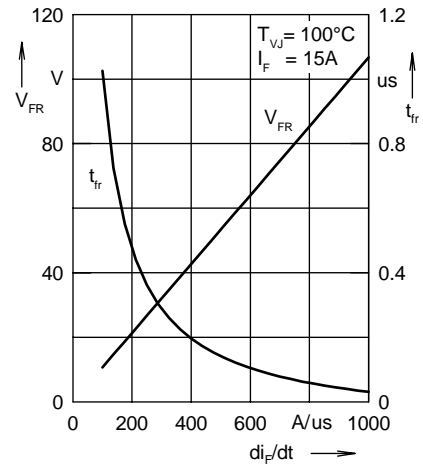


Fig. 6 Peak forward voltage V_{FR} and t_{tr} versus di_F/dt

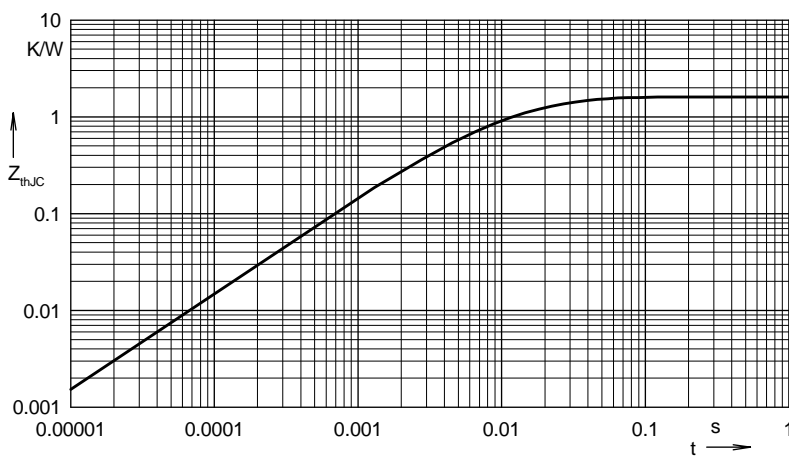


Fig. 7 Transient thermal resistance junction to case

Constants for Z_{thJC} calculation:

| i | R_{thi} (K/W) | t_i (s) |
|---|-----------------|-----------|
| 1 | 0.9084 | 0.0052 |
| 2 | 0.3497 | 0.0003 |
| 3 | 0.3419 | 0.0165 |