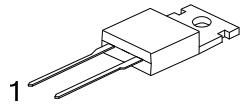
# UHRP15120

**Preliminary** ***DIODE***

## 15A, 1200V HYPERFAST DIODE



TO-220-2

### ■ DESCRIPTION

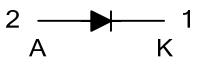
The UTC **UHRP15120** is a hyperfast diodes with soft recovery characteristics, it uses UTC's advanced technology to provide customers with high reverse voltage, etc.

The UTC **UHRP15120** is suitable for various applications such as switching power supplies, and power switching circuits, etc.

### ■ FEATURES

* Hyperfast with soft recovery characteristic
* High reverse voltage
* Avalanche energy rated

### ■ SYMBOL




### ■ ORDERING INFORMATION

| Ordering Number | | Package | Pin Assignment | | Packing |
|---|---|---|---|---|---|
| Lead Free | Halogen Free | | 1 | 2 | |
| UHRP15120L-TA2-T | UHRP15120G-TA2-T | TO-220-2 | K | A | Tube |

Note: Pin Assignment: A: Anode K: Cathode

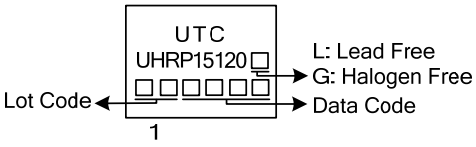
UHRP15120L-TA2-T

(1)Packing Type — (1) T: Tube

(2)Package Type — (2) TA2: TO-220-2

(3)Green Package — (3) L: Lead Free, G: Halogen Free and Lead Free

### ■ MARKING





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## ■ ABSOLUTE MAXIMUM RATINGS ($T_C$=25°C, unless otherwise specified)

| PARAMETER | SYMBOL | RATINGS | UNIT |
|---|---|---|---|
| DC Blocking Voltage | $V_R$ | 1200 | V |
| Working Peak Reverse Voltage | $V_{RWM}$ | 1200 | V |
| Peak Repetitive Reverse Voltage | $V_{RRM}$ | 1200 | V |
| Average Rectified Forward Current ($T_C$=140°C) | $I_{F(AV)}$ | 15 | A |
| Repetitive Peak Surge Current (Square Wave, 20kHz)) | $I_{FRM}$ | 30 | A |
| Non-Repetitive Peak Surge Current (Halfwave, 1 Phase, 60Hz) | $I_{FSM}$ | 200 | A |
| Power Dissipation | $P_D$ | 100 | W |
| Avalanche Energy (See Figures 3 and 4) | $E_{AVL}$ | 20 | mJ |
| Operating Junction Temperature | $T_J$ | -65 ~ +175 | °C |
| Storage Temperature | $T_{STG}$ | -65 ~ +175 | °C |

Note: Absolute maximum ratings are those values beyond which the device could be permanently damaged. Absolute maximum ratings are stress ratings only and functional device operation is not implied.

## ■ THERMAL RESISTANCES CHARACTERISTICS

| PARAMETER | SYMBOL | RATINGS | UNIT |
|---|---|---|---|
| Junction to Case | $\theta_{JC}$ | 1.5 | °C/W |

## ■ ELECTRICAL CHARACTERISTICS ($T_C$=25°C, unless otherwise specified)

| PARAMETER | SYMBOL | TEST CONDITIONS | MIN | TYP | MAX | UNIT |
|---|---|---|---|---|---|---|
| Instantaneous Forward Voltage (Note 1) | $V_F$ | $I_F$=15A | | | 3.2 | V |
| | | $I_F$=15A, $T_C$=150°C | | | 2.6 | V |
| Instantaneous Reverse Current | $I_R$ | $V_R$=1200V | | | 100 | μA |
| | | $V_R$=1200V, $T_C$=150°C | | | 500 | μA |
| Reverse Recovery Time | $t_{rr}$ | $I_F$=1A, $dI_F/dt$=100A/μs | | | 65 | ns |
| | | $I_F$=15A, $dI_F/dt$=100A/μs | | | 75 | ns |
| Time to Reach Peak Reverse Current | $t_a$ | $I_F$=15A, $dI_F/dt$=100A/μs | | 36 | | ns |
| Time from Peak $I_{RM}$ to Projected Zero Crossing | $t_b$ | $I_F$=15A, $dI_F/dt$=100A/μs | | 28 | | ns |
| Reverse Recovery Charge | $Q_{rr}$ | $I_F$=15A, $dI_F/dt$=100A/μs | | 150 | | nC |
| Junction Capacitance | $C_J$ | $V_R$=10V, $I_F$=0A | | 55 | | pF |

Note: Pulse Width=300μs, Duty Cycle=2%

## ■ TEST CIRCUITS AND WAVEFORMS

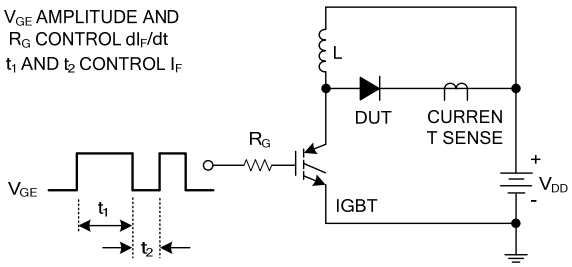


Figure 1. $t_{rr}$ Test Circuit

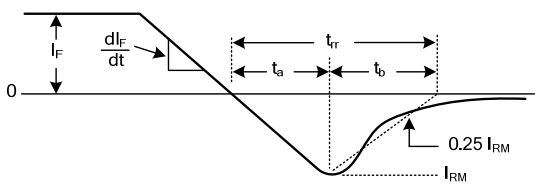


Figure 2. $t_{rr}$ Waveforms and Definitions

$I_{MAX}$=1A
L=40mH
R<0.1Ω
$E_{AVL}$=1/2LI$^2$[$V_{R(AVL)}$/$V_{R(AVL)}$-$V_{DD}$)]
$Q_1$=IGBT($BV_{CES}$>DUT$V_{R(AVL)}$)

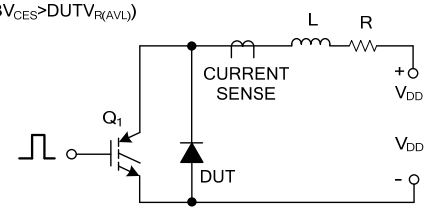


Figure 3. Avalanche Energy Test Circuit

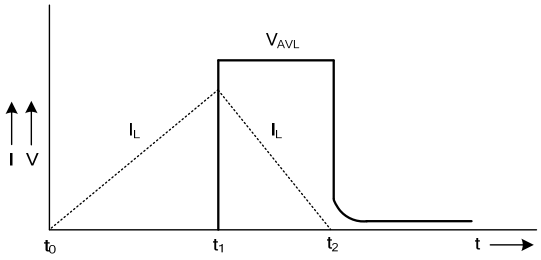


Figure 4. Avalanche Current and Voltage Waveforms

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