



## UFR30120

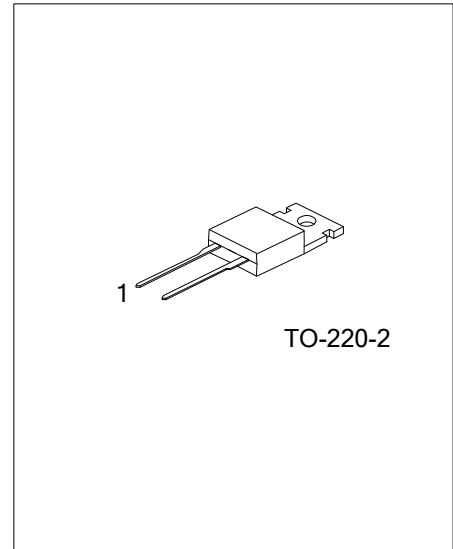
Preliminary

FAST RECOVERY EPITAXIAL DIODE

### SUPERFAST RECOVERY RECTIFIER

#### DESCRIPTION

The UTC **UFR30120** is a superfast recovery rectifier, it uses UTC's advanced technology to provide customers with low forward voltage drop, low leakage, high current capability and high surge capability etc. These characteristics make it ideal for heavy duty applications that demand long term reliability. also fit into auxiliary functions such as snubber, bootstrap, and demagnetization applications.



#### FEATURES

- \* Ultrafast, soft recovery
- \* Very low conduction and switching losses
- \* High frequency and or high pulsed current operation
- \* High reverse voltage capability
- \* High junction temperature

#### SYMBOL



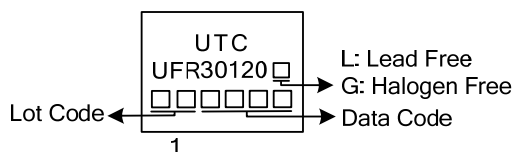
#### ORDERING INFORMATION

Ordering Number		Package	Pin Assignment		Packing
Lead Free	Halogen Free		1	2	
UFR30120L-TA2-T	UFR30120G-TA2-T	TO-220-2	K	A	Tube

Note: Pin Assignment: A: Anode K: Cathode

<p>UFR30120L-TA2-T</p> <ul style="list-style-type: none"> <li>(1) Packing Type</li> <li>(2) Package Type</li> <li>(3) Green Package</li> </ul>	<ul style="list-style-type: none"> <li>(1) T: Tube</li> <li>(2) TA2: TO-220-2</li> <li>(3) L: Lead Free, G: Halogen Free and Lead Free</li> </ul>
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#### MARKING



■ ABSOLUTE MAXIMUM RATINGS ( $T_A=25^\circ\text{C}$ , unless otherwise specified)

Ratings at  $25^\circ\text{C}$  ambient temperature unless otherwise specified. Resistive or inductive load, 60Hz.

PARAMETER	SYMBOL	RATINGS	UNIT
Repetitive Peak Reverse Voltage	$V_{RRM}$	1200	V
Average forward current, $\delta=0.5\%$	$I_{F(AV)}$	30	A
Repetitive peak forward current	$I_{FRM}$	300	A
Surge non repetitive forward current	$I_{FSM}$	210	A
Operating Junction Temperature	$T_J$	+150	$^\circ\text{C}$
Storage Temperature Range	$T_{STG}$	-65 ~ +150	$^\circ\text{C}$

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 DATA

PARAMETER	SYMBOL	RATINGS	UNIT
Junction to Case	$\theta_{JC}$	30	$^\circ\text{C/W}$

■ ELECTRICAL CHARACTERISTICS

Ratings at  $25^\circ\text{C}$  ambient temperature unless otherwise specified. Resistive or inductive load, 60Hz

PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
Forward voltage drop (Note 1)	$V_F$	$I_F=25\text{A}$	$T_J=25^\circ\text{C}$		2.1	V
			$T_J=125^\circ\text{C}$		1.9	V
			$T_J=150^\circ\text{C}$		1.8	V
	$I_F=30\text{A}$	$T_J=25^\circ\text{C}$			2.25	V
		$T_J=125^\circ\text{C}$			2.05	V
		$T_J=150^\circ\text{C}$			1.95	V
Junction to Case (Note 2)	$I_R$	$V_R=V_{RRM}$	$T_J=25^\circ\text{C}$		20	$\mu\text{A}$
			$T_J=125^\circ\text{C}$	50	150	$\mu\text{A}$
Reverse recovery time	$t_{rr}$	$I_F=1.0\text{A}, V_R=30\text{V}, dI_F/dt=-50\text{A}/\mu\text{s}, T_J=25^\circ\text{C}$			115	ns
			$I_F=1.0\text{A}, V_R=30\text{V}, dI_F/dt=-100\text{A}/\mu\text{s}, T_J=25^\circ\text{C}$		57	80
Reverse recovery current	$I_{RM}$	$I_F=30\text{A}, V_R=600\text{V}, dI_F/dt=-200\text{A}/\mu\text{s}, T_J=125^\circ\text{C}$		25	35	A
Softness factor	S	$I_F=30\text{A}, V_R=600\text{V}, dI_F/dt=-200\text{A}/\mu\text{s}, T_J=125^\circ\text{C}$		1.5		
Forward recovery time	$t_{fr}$	$I_F=30\text{A}, V_R=100\text{V}, V_{FR}=1.5 \times V_{F\_MAX}, T_J=25^\circ\text{C}$			550	ns
Forward recovery voltage	$V_{FP}$	$I_F=30\text{A}, dI_F/dt=100\text{A}/\mu\text{s}, T_J=25^\circ\text{C}$		6		V

Notes: 1. Pulse test:  $t_P = 380\text{ms}, \delta = 2\%$ .

2. Pulse test:  $t_P = 5\text{ms}, \delta = 2\%$ .

3. To evaluate the conduction losses use the following equation:  $P=1.6 \times I_{F(AV)} + 0.012 I_F^2$  (RMS).

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