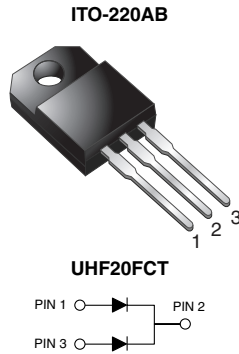




**THE DATASHEET OF  
UHF20FCT-E3/4W**



## Dual Common-Cathode Ultrafast Recovery Rectifier



### FEATURES

- Oxide planar chip junction
- Ultrafast recovery times
- Soft recovery characteristics
- Low switching losses, high efficiency
- High forward surge capability
- Solder dip 260 °C, 40 s
- Component in accordance to RoHS 2002/95/EC and WEEE 2002/96/EC



**RoHS**  
COMPLIANT

### TYPICAL APPLICATIONS

For use in high frequency power factor correctors, switching mode power supplies, freewheeling diodes and secondary dc-to-dc rectification application.

### MECHANICAL DATA

**Case:** ITO-220AB

Epoxy meets UL 94V-0 flammability rating

**Terminals:** Matte tin plated leads, solderable per J-STD-002 and JESD22-B102

E3 suffix for consumer grade, meets JESD 201 class 1A whisker test

**Polarity:** As marked

**Mounting Torque:** 10 in-lbs maximum

PRIMARY CHARACTERISTICS	
$I_{F(peak)}$	10 A x 2
$V_{RRM}$	300 V
$I_{FSM}$	180 A
$t_{rr}$	25 ns
$V_F$ at $I_F = 10$ A	0.85 V
$T_J$ max.	175 °C

MAXIMUM RATINGS ( $T_A = 25$ °C unless otherwise noted)			
PARAMETER	SYMBOL	UHF20FCT	UNIT
Maximum repetitive peak reverse voltage	$V_{RRM}$	300	V
Maximum DC working forward current at $T_C = 125$ °C	$I_{F(peak)}$	20 10	A
Peak forward surge current 8.3 ms single half sine-wave superimposed on rated load	$I_{FSM}$	180	A
Isolation voltage (ITO-220AB only) from terminal to heatsink $t = 1$ min	$V_{AC}$	1500	V
Operating junction and storage temperature range	$T_J, T_{STG}$	- 55 to + 175	°C

ELECTRICAL CHARACTERISTICS ( $T_A = 25$ °C unless otherwise noted)						
PARAMETER	TEST CONDITIONS		SYMBOL	TYP.	MAX.	UNIT
Maximum instantaneous forward voltage per diode <sup>(1)</sup>	$I_F = 5.0$ A	$T_A = 25$ °C	$V_F$	0.96	-	V
	$I_F = 10.0$ A			1.02	1.20	
Maximum reverse current per diode <sup>(2)</sup>	$V_R = 300$ V	$T_A = 25$ °C	$I_R$	0.06	5	$\mu$ A
		$T_A = 125$ °C		25	150	



<b>ELECTRICAL CHARACTERISTICS</b> ( $T_A = 25\text{ }^\circ\text{C}$ unless otherwise noted)					
PARAMETER	TEST CONDITIONS	SYMBOL	TYP.	MAX.	UNIT
Maximum reverse recovery time	$I_F = 0.5\text{ A}$ , $I_R = 1.0\text{ A}$ , $I_{rr} = 0.25\text{ A}$	$t_{rr}$	20	25	ns
Maximum reverse recovery time per diode	$I_F = 1.0\text{ A}$ , $di/dt = 50\text{ A}/\mu\text{s}$ , $V_R = 30\text{ V}$ , $I_{rr} = 0.1 I_{RM}$	$t_{rr}$	28	35	ns
Typical softness factor (tb/ta)	$I_F = 10\text{ A}$ , $di/dt = 200\text{ A}/\mu\text{s}$ , $V_R = 200\text{ V}$ , $T_J = 125\text{ }^\circ\text{C}$ per diode	S	0.36	-	-
Typical reverse recovery current		$I_{RM}$	7.0	-	A
Typical stored charge		$Q_{rr}$	160	-	nC
Typical forward recovery time per diode	$I_F = 10\text{ A}$ , $di/dt = 80\text{ A}/\mu\text{s}$ , $V_{FR} = 1.1 \times V_{Fmax}$	$t_{fr}$	150	-	ns

**Notes:**

- (1) Pulse test: 300  $\mu\text{s}$  pulse width, 1 % duty cycle
- (2) Pulse test: Pulse width  $\leq 40\text{ ms}$

<b>THERMAL CHARACTERISTICS</b> ( $T_A = 25\text{ }^\circ\text{C}$ unless otherwise noted)			
PARAMETER	SYMBOL	UHF20FCT	UNIT
Typical thermal resistance per diode	$R_{\theta JA}^{(1)}$	50	$^\circ\text{C}/\text{W}$
	$R_{\theta JC}^{(2)}$	4.6	

**Notes:**

- (1) Without heatsink, free air
- (2) With infinite heatsink

<b>ORDERING INFORMATION</b> (Example)					
PACKAGE	PREFERRED P/N	UNIT WEIGHT (g)	PACKAGE CODE	BASE QUANTITY	DELIVERY MODE
ITO-220AB	UHF20FCT-E3/4W	1.74	4W	50/tube	Tube

**RATINGS AND CHARACTERISTICS CURVES**

( $T_A = 25\text{ }^\circ\text{C}$  unless otherwise noted)

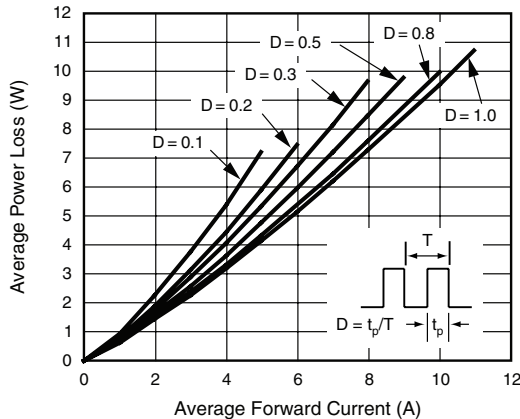


Figure 1. Forward Power Loss Characteristics Per Diode

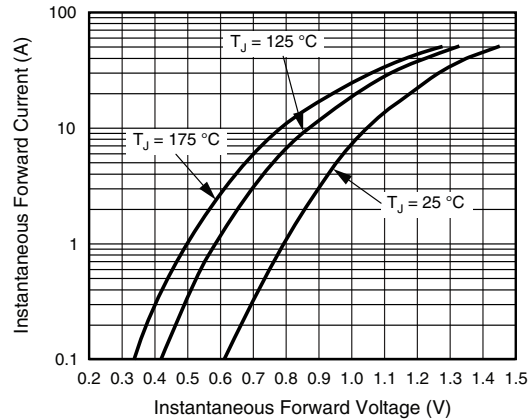


Figure 2. Typical Instantaneous Forward Characteristics Per Diode

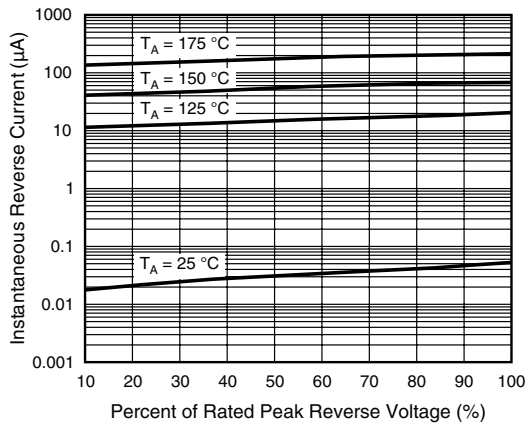


Figure 3. Typical Reverse Leakage Characteristics Per Diode

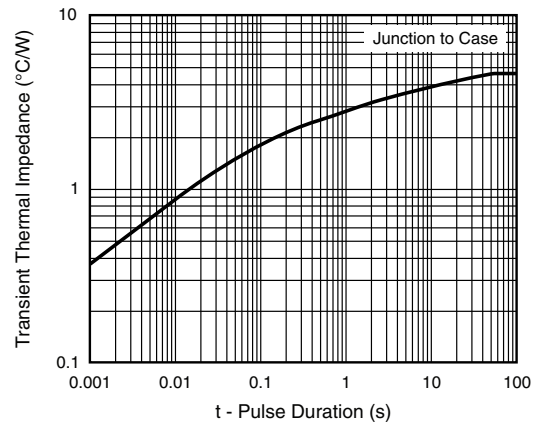


Figure 5. Typical Transient Thermal Impedance Per Diode

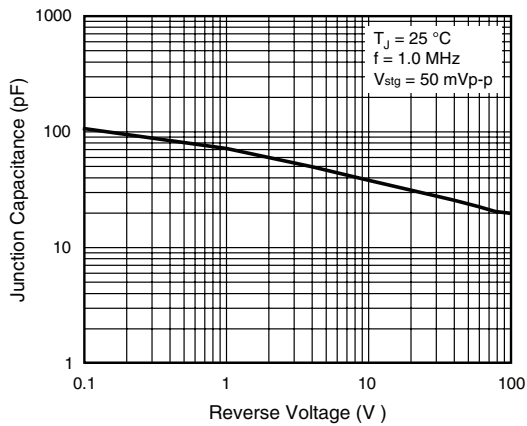
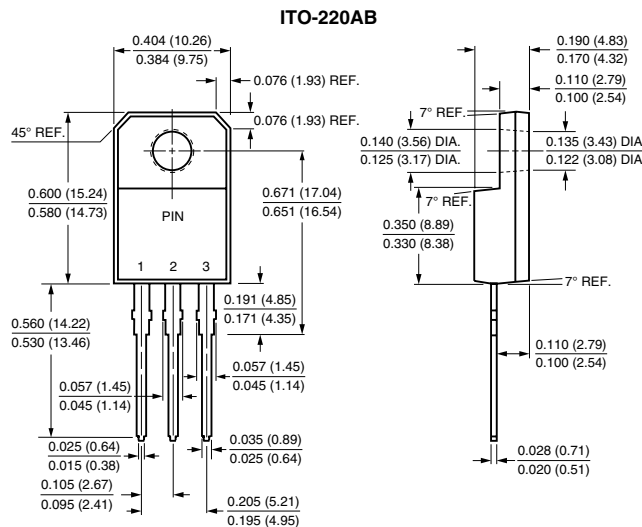


Figure 4. Typical Junction Capacitance Per Diode

**PACKAGE OUTLINE DIMENSIONS** in inches (millimeters)





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