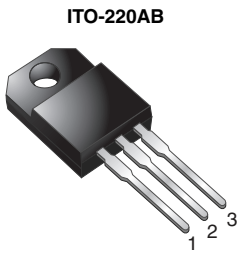
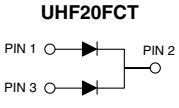
Dual Common-Cathode Ultrafast Recovery Rectifier





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	per device per diode	$I_{F(peak)}$	20 10	A
Peak forward surge current 8.3 ms single half sine-wave superimposed on rated load	per diode	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 (1)	I_F = 5.0 A I_F = 10.0 A	T_A = 25 °C	V_F	0.96 1.02	- 1.20	V
	I_F = 5.0 A I_F = 10.0 A	T_A = 125 °C		0.77 0.85	- -	
Maximum reverse current per diode (2)	V_R = 300 V	T_A = 25 °C T_A = 125 °C	I_R	0.06 25	5 150	µA

ELECTRICAL CHARACTERISTICS (T_A = 25 °C unless otherwise noted)					
PARAMETER	**TEST CONDITIONS**	**SYMBOL**	**TYP.**	**MAX.**	**UNIT**
Maximum reverse recovery time	I_F = 0.5 A, I_R = 1.0 A, I_{rr} = 0.25 A	t_{rr}	20	25	ns
Maximum reverse recovery time per diode	I_F = 1.0 A, dI/dt = 50 A/µs, V_R = 30 V, I_{rr} = 0.1 I_{RM}	t_{rr}	28	35	ns
Typical softness factor (tb/ta)	I_F = 10 A, dI/dt = 200 A/µs, V_R = 200 V, T_J = 125 °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 A, dI/dt = 80 A/µs, V_{FR} = 1.1 x V_{Fmax}	t_{fr}	150	-	ns

Notes:

(1) Pulse test: 300 µs pulse width, 1 % duty cycle

(2) Pulse test: Pulse width ≤ 40 ms

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

Notes:

(1) Without heatsink, free air

(2) With infinite heatsink

ORDERING INFORMATION (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 °C unless otherwise noted)

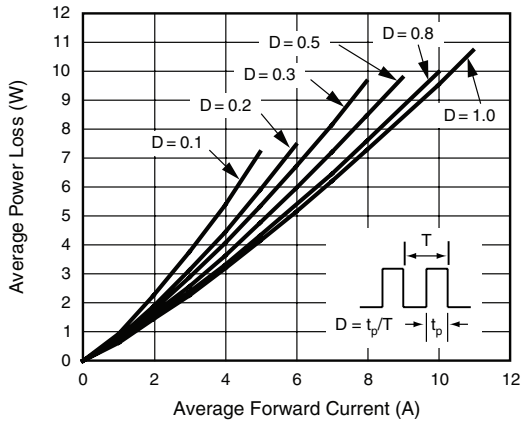


Figure 1. Forward Power Loss Characteristics Per Diode

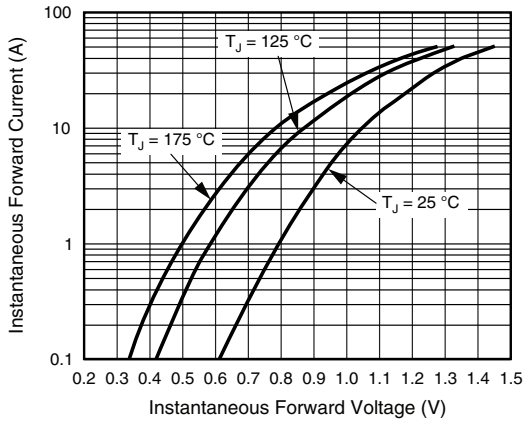


Figure 2. Typical Instantaneous Forward Characteristics Per Diode

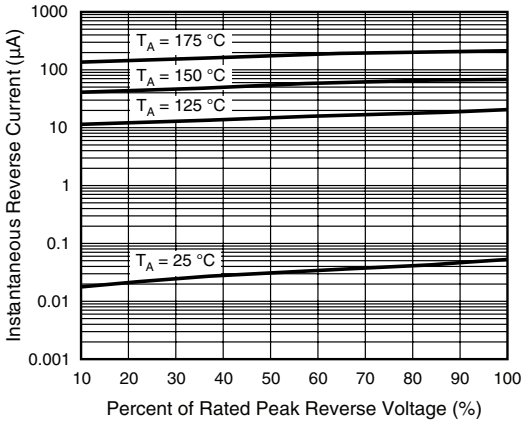


Figure 3. Typical Reverse Leakage Characteristics Per Diode

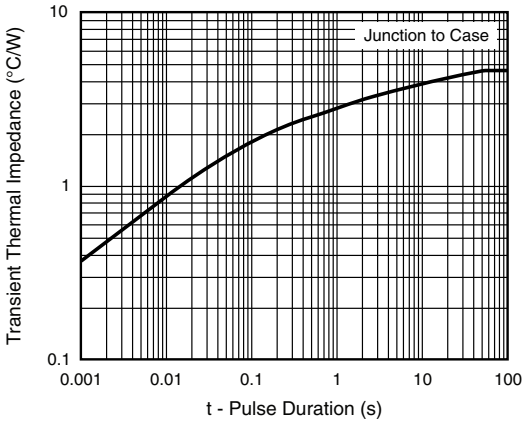


Figure 5. Typical Transient Thermal Impedance Per Diode

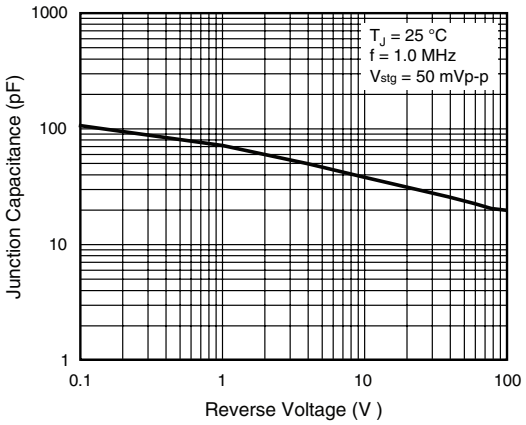
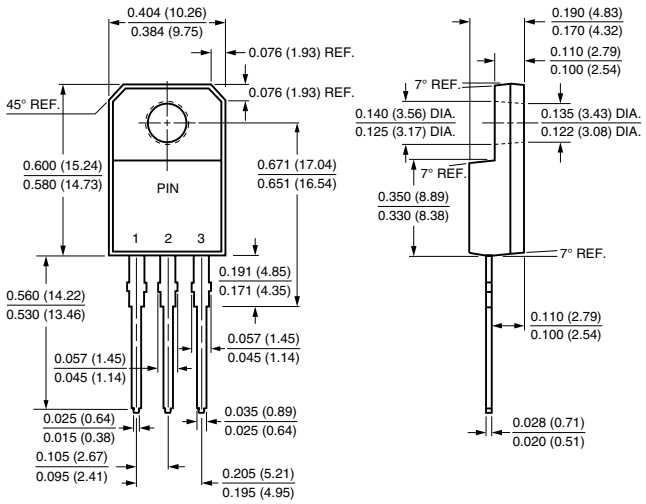


Figure 4. Typical Junction Capacitance Per Diode

PACKAGE OUTLINE DIMENSIONS in inches (millimeters)

ITO-220AB



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