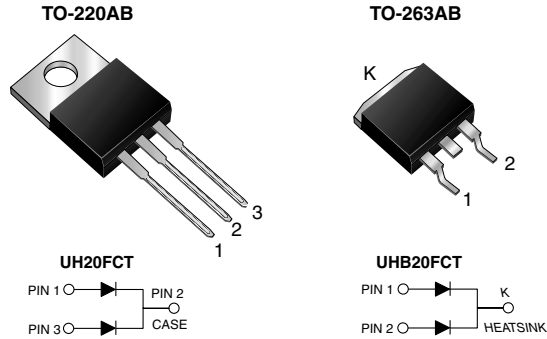


## Dual Common Cathode Ultrafast Recovery Rectifier



PRIMARY CHARACTERISTICS	
$I_{F(AV)}$	2 x 10 A
$V_{RRM}$	300 V
$I_{FSM}$	180 A
$t_{rr}$	25 ns
$V_F$ at $I_F$	0.83 V
$T_J$ max.	175 °C
Package	TO-220AB, TO-263AB
Diode variations	Common cathode

### FEATURES

- Power pack
- Oxide planar chip junction
- Ultrafast recovery times
- Soft recovery characteristics
- Low switching losses, high efficiency
- High forward surge capability
- Meets MSL level 1, per J-STD-020, LF maximum peak of 245 °C (for TO-263AB package)
- Solder bath temperature 275 °C maximum, 10 s per JESD 22-B106 (for TO-220AB package)
- Material categorization: For definitions of compliance please see [www.vishay.com/doc?99912](http://www.vishay.com/doc?99912)


**RoHS**  
COMPLIANT

### TYPICAL APPLICATIONS

For use in high frequency power factor correctors, switching mode power supplies, freewheeling diodes and secondary DC/DC rectification application.

### MECHANICAL DATA

**Case:** TO-220AB and TO-263AB

Molding compound meets UL 94V-0 flammability rating Base P/N-E3 - RoHS-compliant, commercial grade

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

E3 suffix meets JESD 201 class 1A whisker test

**Polarity:** As marked

**Mounting Torque:** 10 in-lbs max.

MAXIMUM RATINGS ( $T_A = 25$ °C unless otherwise noted)				
PARAMETER	SYMBOL	UH20FCT	UHB20FCT	UNIT
Max. repetitive peak reverse voltage	$V_{RRM}$	300		V
Max. average forward rectified current (see Fig.1)		per device	20	A
		per diode	10	
Peak forward surge current 8.3 ms single half sine-wave superimposed on rated load	$I_{FSM}$	180		A
Operating junction and storage temperature range	$T_J, T_{STG}$	- 55 to + 175		°C



ELECTRICAL CHARACTERISTICS (T <sub>A</sub> = 25 °C unless otherwise noted)						
PARAMETER	TEST CONDITIONS		SYMBOL	TYP.	MAX.	UNIT
Max. instantaneous forward voltage per diode <sup>(1)</sup>	I <sub>F</sub> = 5.0 A	T <sub>J</sub> = 25 °C	V <sub>F</sub>	0.96	-	V
	I <sub>F</sub> = 5.0 A	T <sub>J</sub> = 125 °C		0.77	-	
	I <sub>F</sub> = 10 A	T <sub>J</sub> = 25 °C		1.0	1.2	
	I <sub>F</sub> = 10 A	T <sub>J</sub> = 125 °C		0.83	0.90	
Max. reverse current per diode <sup>(2)</sup>	V <sub>R</sub> = 300 V	T <sub>J</sub> = 25 °C	I <sub>R</sub>	0.5	5	μA
		T <sub>J</sub> = 125 °C		25	150	
Max. reverse recovery time	I <sub>F</sub> = 0.5 A, I <sub>R</sub> = 1.0 A, I <sub>rr</sub> = 0.25 A		t <sub>rr</sub>	20	25	ns
Max. reverse recovery time per diode	I <sub>F</sub> = 1.0 A, dI/dt = 50 A/μs, V <sub>R</sub> = 30 V, I <sub>rr</sub> = 0.1 I <sub>RM</sub>		t <sub>rr</sub>	28	35	ns
Typical softness factor (t <sub>b</sub> /t <sub>a</sub> )	I <sub>F</sub> = 10 A, dI/dt = 200 A/μs, V <sub>R</sub> = 200 V, T <sub>J</sub> = 125 °C per diode		S	0.36	-	-
Typical reverse recovery current			I <sub>RM</sub>	7.0	-	A
Typical stored charge			Q <sub>rr</sub>	160	-	nC
Typical forward recovery time per diode	I <sub>F</sub> = 10 A, dI/dt = 80 A/μs, V <sub>FR</sub> = 1.1 x V <sub>Fmax</sub>		t <sub>fr</sub>	150	-	ns

Notes

- (1) Pulse test: 300 μs pulse width, 1 % duty cycle
- (2) Pulse test: Pulse width ≤ 40 ms

THERMAL CHARACTERISTICS (T <sub>A</sub> = 25 °C unless otherwise noted)				
PARAMETER	SYMBOL	UH20FCT	UHB20FCT	UNIT
Typical thermal resistance per diode	R <sub>θJC</sub>	2.0	2.0	°C/W

ORDERING INFORMATION (Example)					
PACKAGE	PREFERRED P/N	UNIT WEIGHT (g)	PACKAGE CODE	BASE QUANTITY	DELIVERY MODE
TO-220AB	UH20FCT-E3/4W	1.88	4W	50/tube	Tube
TO-263AB	UHB20FCT-E3/4W	1.38	4W	50/tube	Tube
TO-263AB	UHB20FCT-E3/8W	1.38	8W	800/reel	Tape and reel

**RATINGS AND CHARACTERISTICS CURVES** ( $T_A = 25\text{ }^\circ\text{C}$  unless otherwise noted)

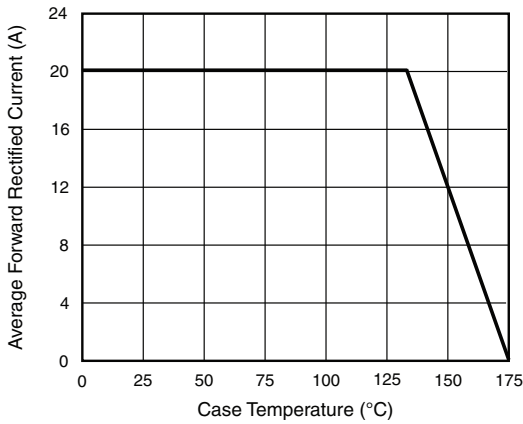


Fig. 1 - Max. Forward Current Derating Curve

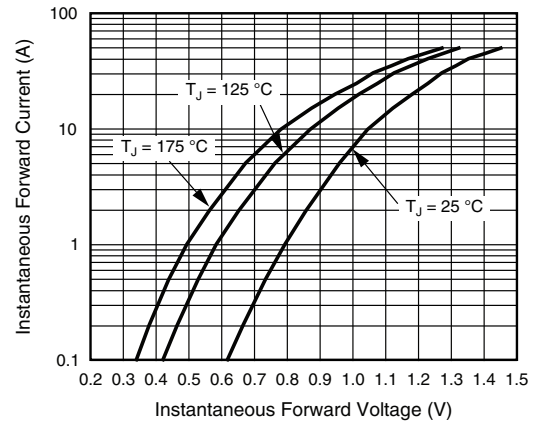


Fig. 4 - Typical Instantaneous Forward Characteristics Per Diode

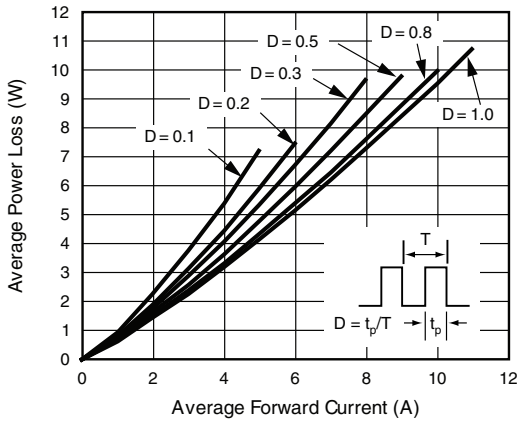


Fig. 2 - Forward Power Loss Characteristics Per Diode

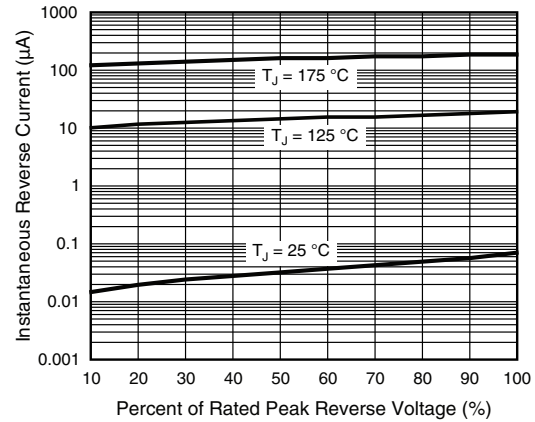


Fig. 5 - Typical Reverse Leakage Characteristics Per Diode

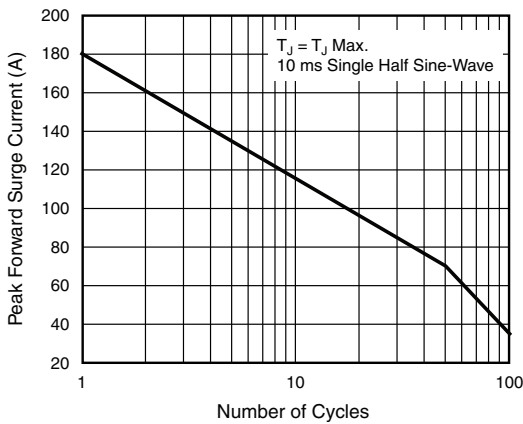


Fig. 3 - Max. Non-Repetitive Peak Forward Surge Current Per Diode

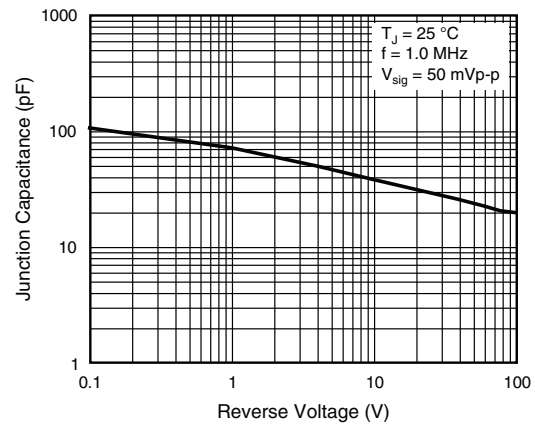
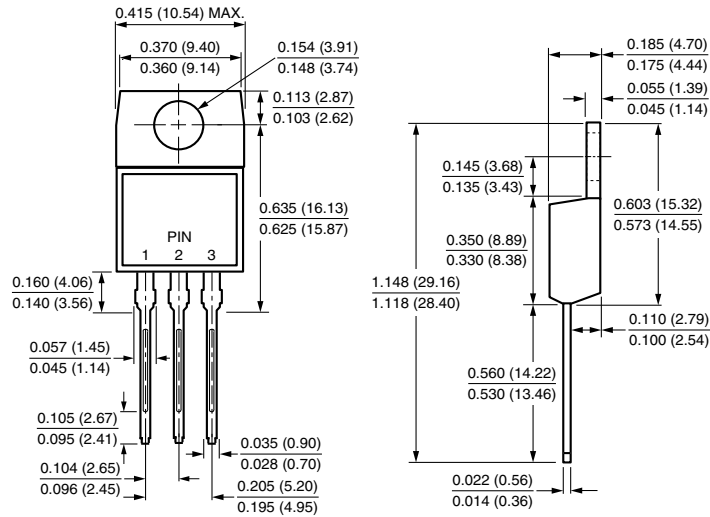


Fig. 6 - Typical Junction Capacitance Per Diode

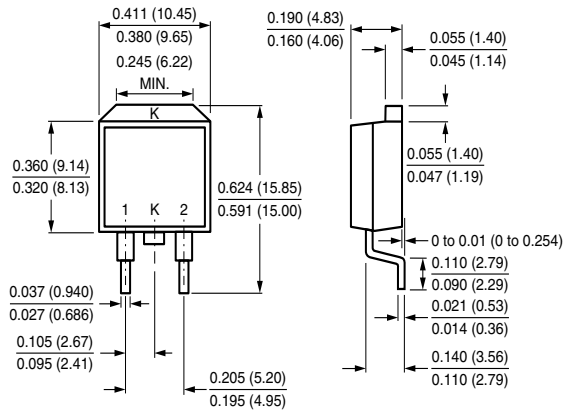


### PACKAGE OUTLINE DIMENSIONS in inches (millimeters)

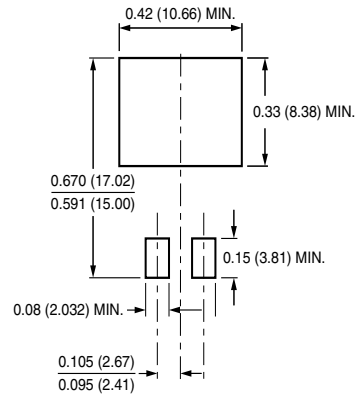
#### TO-220AB



#### TO-263AB



#### Mounting Pad Layout





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