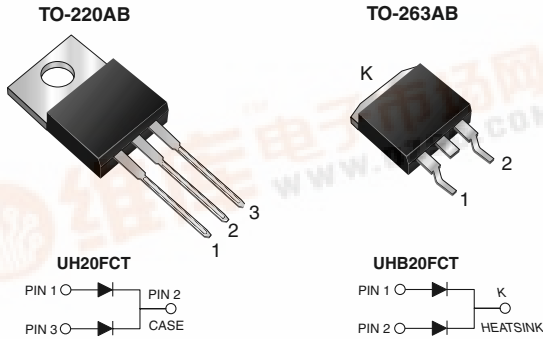




UH20FCT & UHB20FCT

New Product Vishay General Semiconductor

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
- Meets MSL level 1, per J-STD-020C, LF max peak of 245 °C (for TO-263AB package)
- Solder Dip 260 °C, 40 seconds (for TO-220AB package)
- Component in accordance to RoHS 2002/95/EC and WEEE 2002/96/EC



TYPICAL APPLICATIONS

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

MECHANICAL DATA

Case: TO-220AB & TO-263AB

Epoxy meets UL 94V-0 flammability rating

Terminals: Matte tin plated leads, solderable per J-STD-002B and JESD22-B102D
E3 suffix for commercial grade

Polarity: As marked

Mounting Torque: 10 in-lbs maximum

MAJOR RATINGS AND CHARACTERISTICS	
$I_{F(AV)}$	10 A x 2
V_{RRM}	300 V
I_{FSM}	180 A
t_{rr}	25 ns
V_F	0.83 V
$T_j \text{ max}$	175 °C

MAXIMUM RATINGS ($T_A = 25 \text{ °C}$ unless otherwise noted)				
PARAMETER	SYMBOL	UH20FCT	UHB20FCT	UNIT
Maximum repetitive peak reverse voltage	V_{RRM}	300		V
Maximum average forward rectified current (see Fig.1)	$I_{F(AV)}$	20	10	A
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 ($T_A = 25 \text{ °C}$ unless otherwise noted)					
PARAMETER	TEST CONDITIONS	SYMBOL	TYP.	MAX.	UNIT
Maximum instantaneous forward voltage per diode ⁽¹⁾	at $I_F = 5.0 \text{ A}, T_J = 25 \text{ °C}$	V_F	0.96	-	V
	$I_F = 5.0 \text{ A}, T_J = 125 \text{ °C}$		0.77	-	
	at $I_F = 10 \text{ A}, T_J = 25 \text{ °C}$		1.0	1.2	
	$I_F = 10 \text{ A}, T_J = 125 \text{ °C}$		0.83	0.90	
Maximum reverse current per diode ⁽¹⁾	at $V_R = 300 \text{ V}, T_J = 25 \text{ °C}$	I_R	0.5	5	μA
	$T_J = 125 \text{ °C}$		25	150	



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ELECTRICAL CHARACTERISTICS (T _A = 25 °C unless otherwise noted)					
PARAMETER	TEST CONDITIONS	SYMBOL	TYP.	MAX.	UNIT
Maximum reverse recovery time	at 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	at 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)	at 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	at I _F = 10 A, di/dt = 80 A/μs, V _{FR} = 1.1 x V _{Fmax}	t _{fr}	150	-	ns

Note:

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

THERMAL CHARACTERISTICS (T _A = 25 °C unless otherwise noted)				
PARAMETER	SYMBOL	UH20FCT	UHB20FCT	UNIT
Typical thermal resistance per diode	R _{θJC}	2.0	2.0	°C/W

ORDERING INFORMATION					
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 & Reel

RATINGS AND CHARACTERISTICS CURVES

(T_A = 25 °C unless otherwise noted)

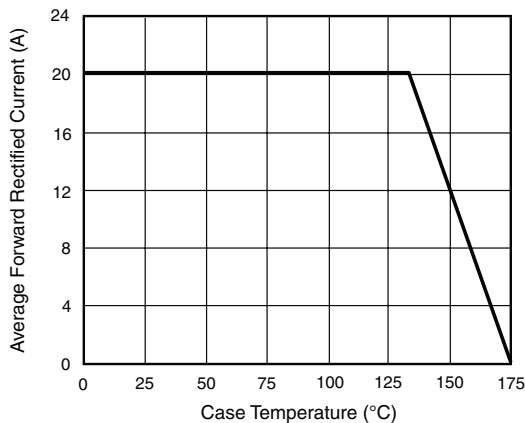


Figure 1. Maximum Forward Current Derating Curve

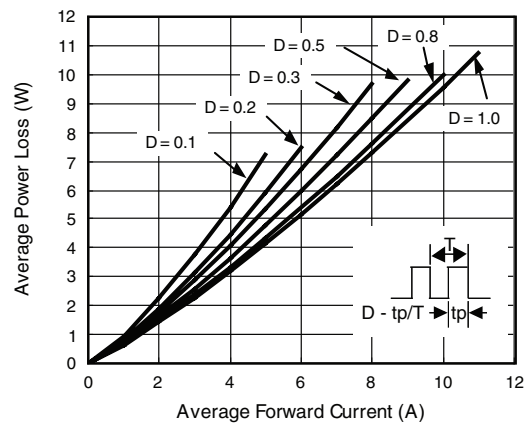


Figure 2. Forward Power Loss Characteristics Per Diode



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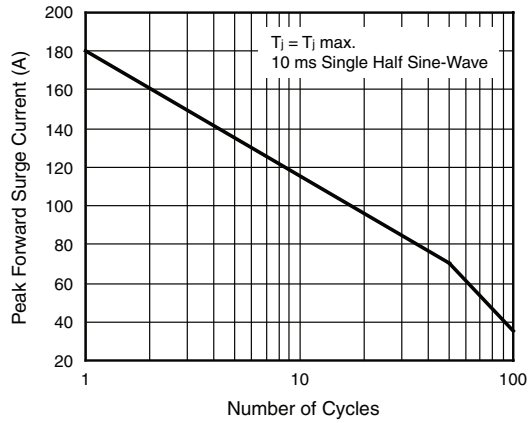


Figure 3. Maximum Non-Repetitive Peak Forward Surge Current Per Diode

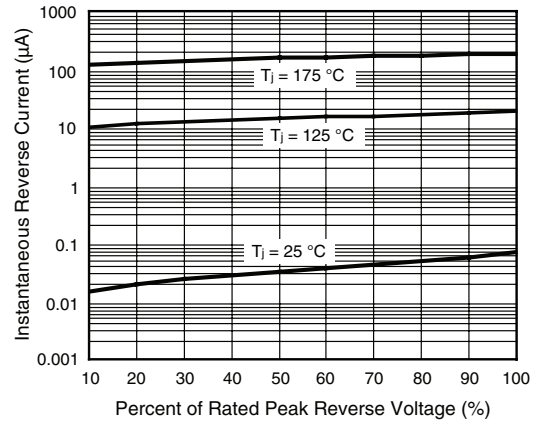


Figure 5. Typical Reverse Leakage Characteristics Per Diode

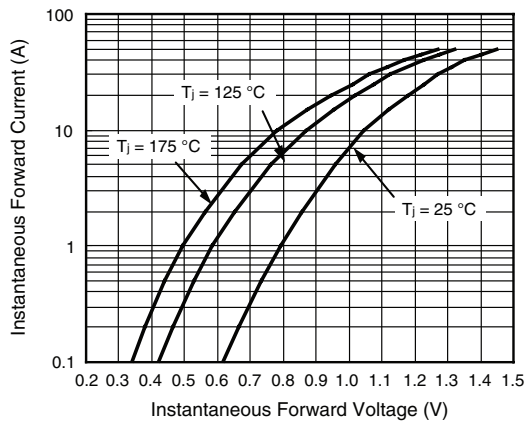


Figure 4. Typical Instantaneous Forward Characteristics Per Diode

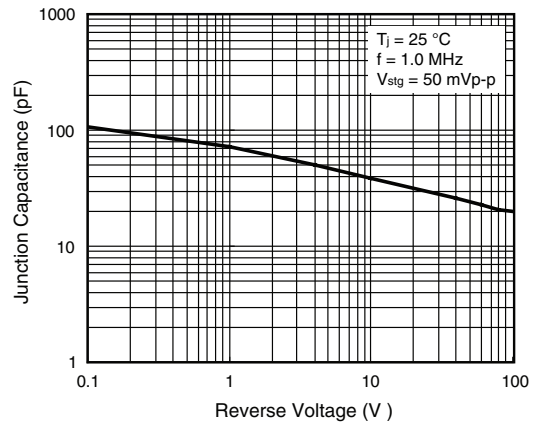


Figure 6. Typical Junction Capacitance Per Diode

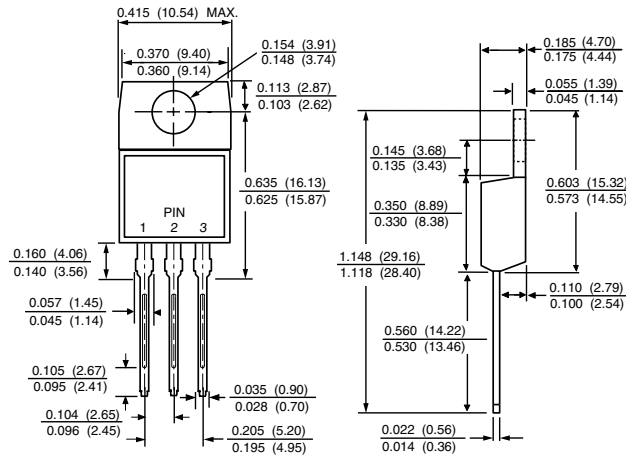
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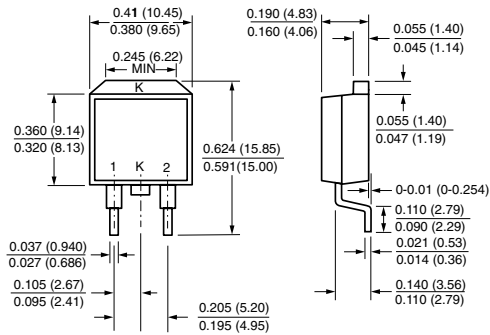


PACKAGE OUTLINE DIMENSIONS in inches (millimeters)

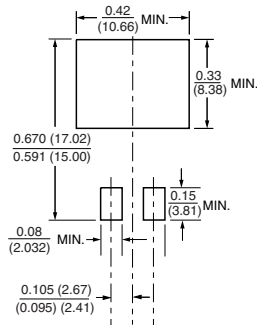
TO-220AB



TO-263AB



Mounting Pad Layout





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