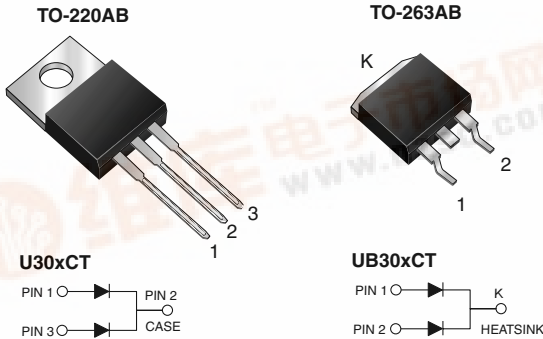




U(B)30BCT thru U(B)30DCT

Vishay General Semiconductor

Dual Common-Cathode Ultrafast Plastic Rectifier



FEATURES

- Oxide planar chip junction
- Ultrafast recovery time
- 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 dip 260 °C, 40 s (for TO-220AB package)
- Component in accordance to RoHS 2002/95/EC and WEEE 2002/96/EC



RoHS
COMPLIANT

TYPICAL APPLICATIONS

For use in low voltage, high frequency rectifier of switching power supplies, freewheeling diodes, dc-to-dc converters or polarity protection specifically for CCM application.

PRIMARY CHARACTERISTICS

$I_{F(AV)}$	2 x 15 A
V_{RRM}	100 V, 150 V, 200 V
I_{FSM}	160 A
t_{tr}	17 ns
V_F at $I_F = 15 A$	0.892 V
T_J max.	150 °C

MECHANICAL DATA

Case: TO-220AB and TO-263AB

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

MAXIMUM RATINGS ($T_C = 25 °C$ unless otherwise noted)

PARAMETER	SYMBOL	U(B)30BCT	U(B)30CCT	U(B)30DCT	UNIT
Maximum repetitive peak reverse voltage	V_{RRM}	100	150	200	V
Max. average forward rectified current (Fig. 1)	$I_{F(AV)}$	30 15			A
Peak forward surge current single half sine-wave superimposed on rated load per diode	I_{FSM}	8.3 ms 10 ms		160 150	A
Electrostatic discharge capacitor voltage, human body model: C = 150 pF, R = 1.5 kΩ (contact mode)	V_C			8	kV
Operating junction and storage temperature range	T_J, T_{STG}			- 55 to + 150	°C



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ELECTRICAL CHARACTERISTICS ($T_C = 25\text{ }^\circ\text{C}$ unless otherwise noted)						
PARAMETER	TEST CONDITIONS		SYMBOL	TYP.	MAX.	UNIT
Instantaneous forward voltage per diode ⁽¹⁾	$I_F = 7.5\text{ A}$ $I_F = 15\text{ A}$	$T_J = 25\text{ }^\circ\text{C}$	V_F	0.875 0.964	- 1.05	V
	$I_F = 7.5\text{ A}$ $I_F = 15\text{ A}$	$T_J = 100\text{ }^\circ\text{C}$		0.800 0.892	- 0.95	
Reverse current per diode ⁽²⁾	rated V_R	$T_J = 25\text{ }^\circ\text{C}$ $T_J = 100\text{ }^\circ\text{C}$	I_R	1.3 200	20 600	μA
Reverse recovery time per diode	$I_F = 0.5\text{ A}$, $I_R = 1.0\text{ A}$, $I_{rr} = 0.25\text{ A}$		t_{rr}	17	25	ns
Reverse recovery time per diode	$I_F = 15\text{ A}$, $dI/dt = 200\text{ A}/\mu\text{s}$, $V_R = 200\text{ V}$, $I_{rr} = 0.1\text{ }I_{RM}$		t_{rr}	36	45	ns
Stored charge per diode			Q_{rr}	110	-	nC
Forward recovery time per diode	$I_F = 15\text{ A}$, $dI/dt = 120\text{ A}/\mu\text{s}$,		t_{fr}	175	-	ns
Peak forward voltage per diode	$V_F = 1.1 \times V_{F\text{ max.}}$		V_{FP}	3.1	-	V

Notes:

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

THERMAL CHARACTERISTICS ($T_A = 25\text{ }^\circ\text{C}$ unless otherwise noted)				
PARAMETER	SYMBOL	U30xCT	UB30xCT	UNIT
Typical thermal resistance per diode	$R_{\theta JC}$	2.4		$^\circ\text{C}/\text{W}$

ORDERING INFORMATION (Example)					
PACKAGE	PREFERRED P/N	UNIT WEIGHT	PACKAGE CODE	BASE QUANTITY	DELIVERY MODE
TO-220AB	U30DCT-E3/4W	1.87	4W	50/tube	Tube
TO-263AB	UB30DCT-E3/4W	1.37	4W	50/tube	Tube
TO-263AB	UB30DCT-E3/8W	1.37	8W	800/reel	Tape and reel

RATINGS AND CHARACTERISTICS CURVES

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

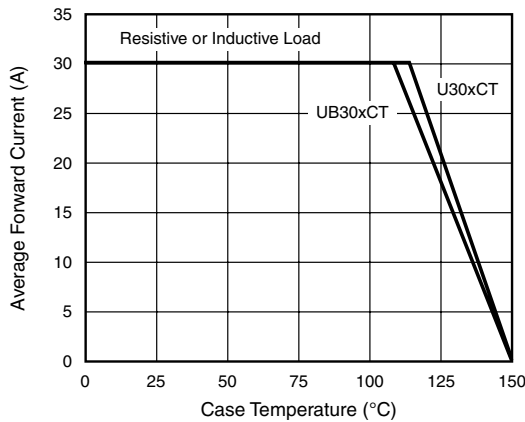


Figure 1. Maximum Forward Current Derating Curve

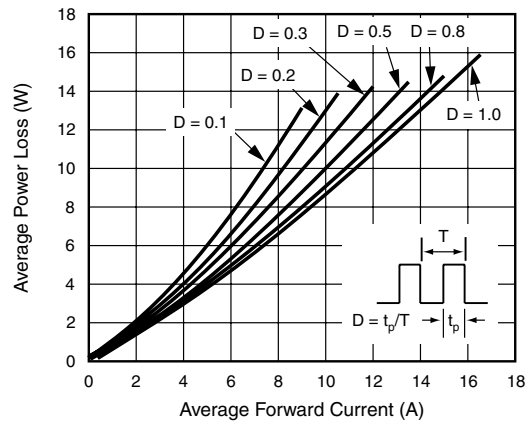


Figure 2. Forward Power Loss Characteristics Per Diode



New Product

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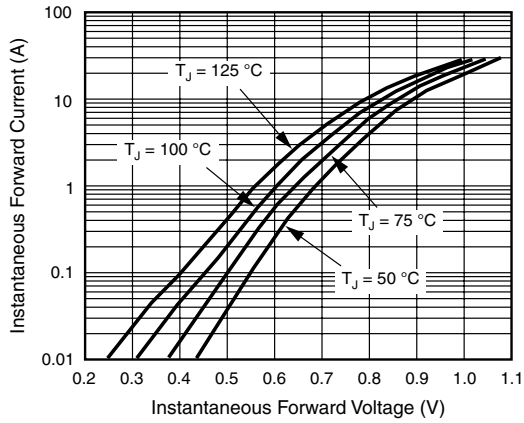


Figure 3. Typical Instantaneous Forward Characteristics Per Diode

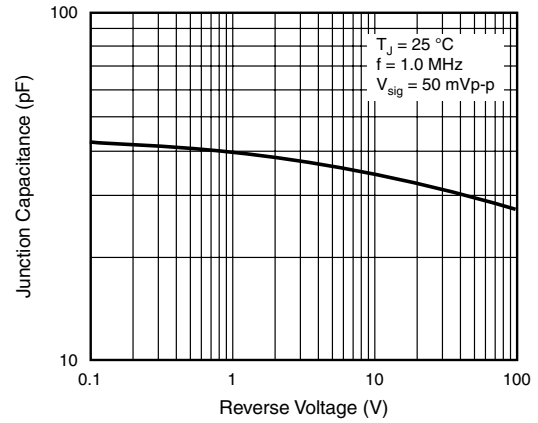


Figure 5. Typical Junction Capacitance Per Diode

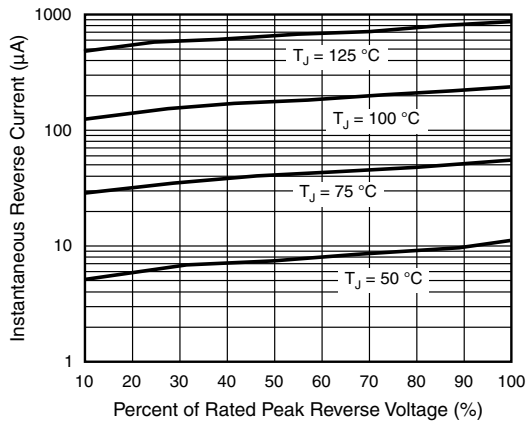


Figure 4. Typical Reverse Characteristics Per Diode

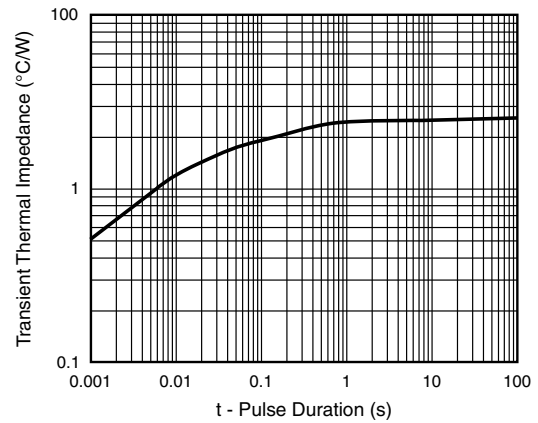


Figure 6. Typical Junction Capacitance Per Diode

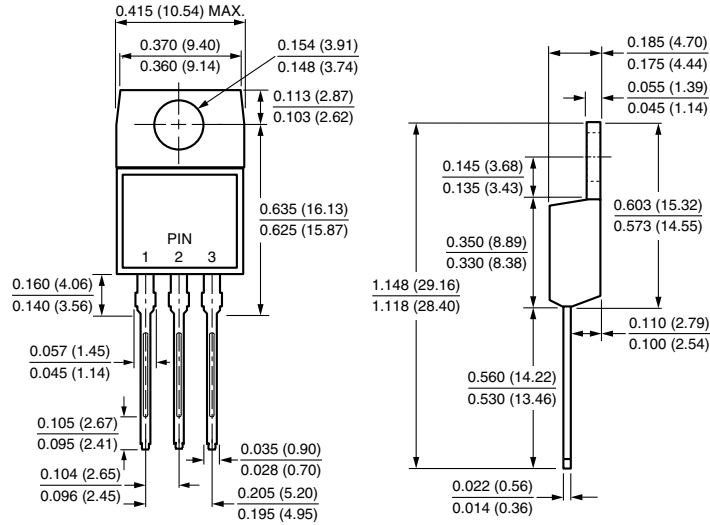
U(B)30BCT thru U(B)30DCT

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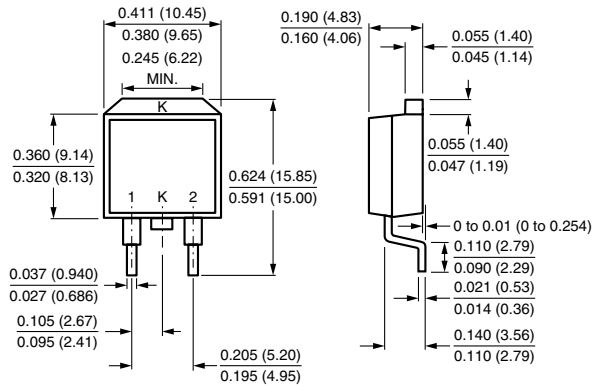


PACKAGE OUTLINE DIMENSIONS in inches (millimeters)

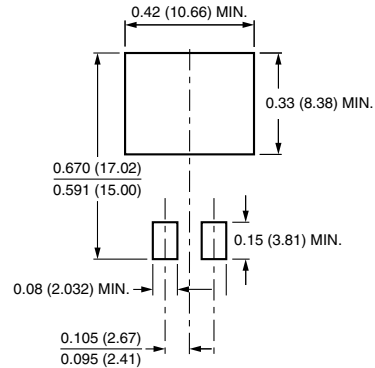
TO-220AB



TO-263AB



Mounting Pad Layout





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