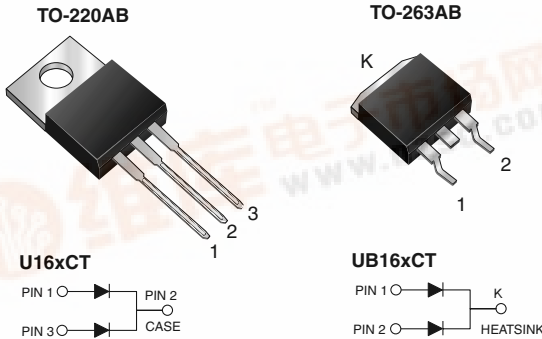




U(B)16BCT thru U(B)16DCT

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 DCM application.

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

PRIMARY CHARACTERISTICS

$I_{F(AV)}$	8 A x 2
V_{RRM}	100 V, 150 V, 200 V
I_{FSM}	80 A
t_{rr}	35 ns
V_F at $I_F = 8$ A	0.87 V
T_J max.	150 °C

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

PARAMETER	SYMBOL	U(B)16BCT	U(B)16CCT	U(B)16DCT	UNIT
Maximum repetitive peak reverse voltage	V_{RRM}	100	150	200	V
Max. average forward rectified current (Fig. 1) total device per diode	$I_{F(AV)}$	16 8			A
Peak forward surge current 8.3 ms single half sine-wave superimposed on rated load per diode	I_{FSM}	80			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⁾	$I_F = 4\text{ A}$ $I_F = 8\text{ A}$	$T_J = 25\text{ }^{\circ}\text{C}$	V_F	0.90 0.99	- 1.10	V
	$I_F = 4\text{ A}$ $I_F = 8\text{ A}$	$T_J = 125\text{ }^{\circ}\text{C}$		0.77 0.87	- 0.95	
Reverse current per diode ⁽²⁾	rated V_R	$T_J = 25\text{ }^{\circ}\text{C}$ $T_J = 125\text{ }^{\circ}\text{C}$	I_R	0.5 155	10 600	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}	28	35	ns
Reverse recovery time per diode	$I_F = 8\text{ A}$, $dI/dt = 20\text{ A}/\mu\text{s}$, $V_R = 200\text{ V}$, $I_{rr} = 0.1\text{ }I_{RM}$		t_{rr}	67	80	ns
Stored charge per diode			Q_{rr}	33	-	nC
Forward recovery time per diode	$I_F = 8\text{ A}$, $dI/dt = 64\text{ A}/\mu\text{s}$,		t_{fr}	160	-	ns
Peak forward voltage per diode	$V_F = 1.1 \times V_F\text{ max.}$		V_{FP}	3.3	-	V

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

THERMAL CHARACTERISTICS ($T_C = 25\text{ }^{\circ}\text{C}$ unless otherwise noted)				
PARAMETER	SYMBOL	U16xCT	UB16xCT	UNIT
Typical thermal resistance per diode	$R_{\theta JC}$	3.5		$^{\circ}\text{C}/\text{W}$

ORDERING INFORMATION (Example)					
PACKAGE	PREFERRED P/N	UNIT WEIGHT	PACKAGE CODE	BASE QUANTITY	DELIVERY MODE
TO-220AB	U16DCT-E3/4W	1.87	4W	50/tube	Tube
TO-263AB	UB16DCT-E3/4W	1.31	4W	50/tube	Tube
TO-263AB	UB16DCT-E3/8W	1.31	8W	800/reel	Tape and reel

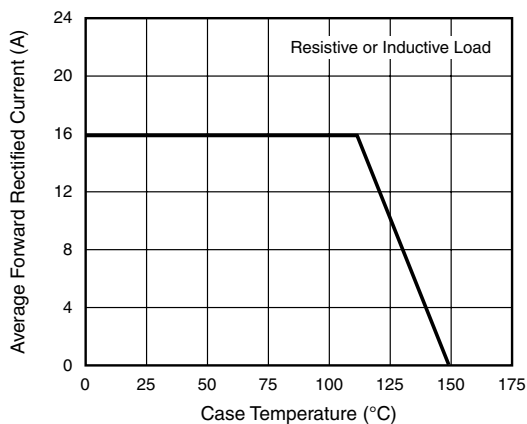
RATINGS AND CHARACTERISTICS CURVES($T_A = 25\text{ }^{\circ}\text{C}$ unless otherwise noted)

Figure 1. Maximum Forward Current Derating Curve

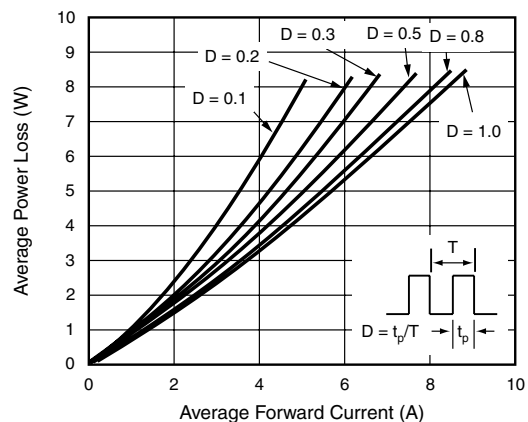


Figure 2. Forward Power Loss Characteristics Per Diode



New Product

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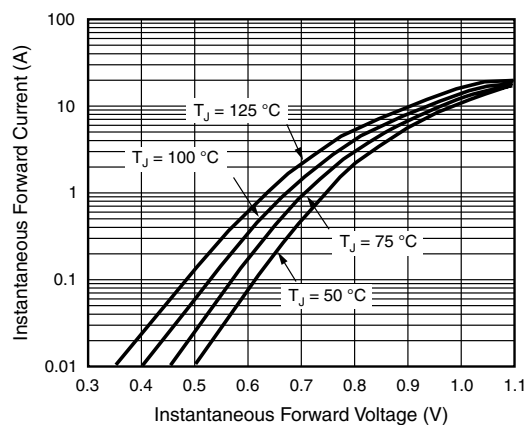


Figure 3. Typical Instantaneous Forward Characteristics Per Diode

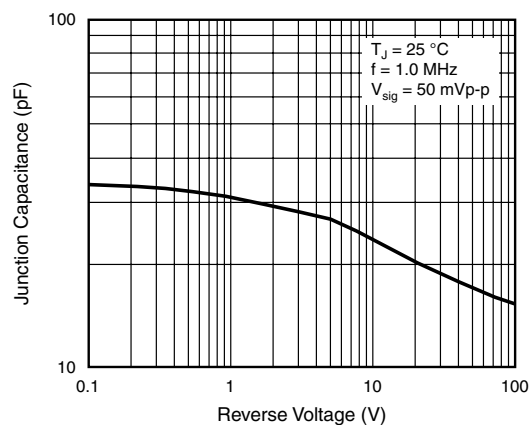


Figure 5. Typical Junction Capacitance Per Diode

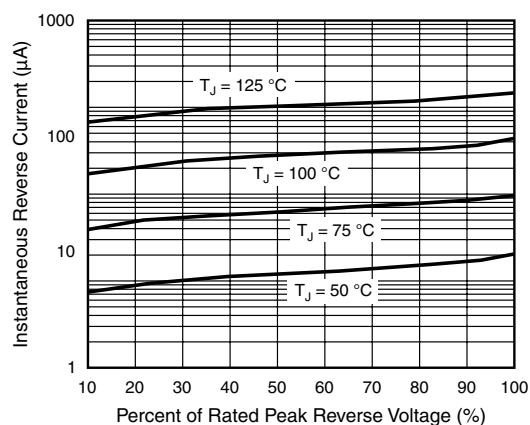


Figure 4. Typical Reverse Characteristics Per Diode

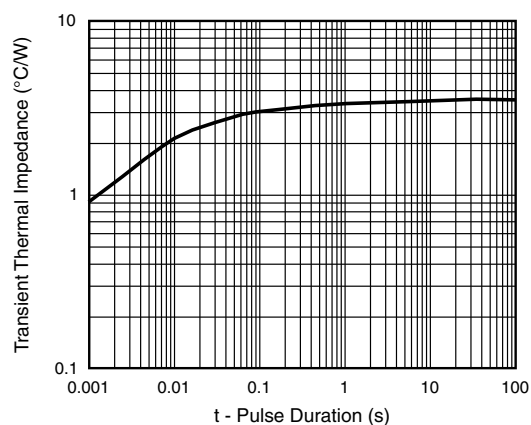


Figure 6. Typical Junction Capacitance Per Diode

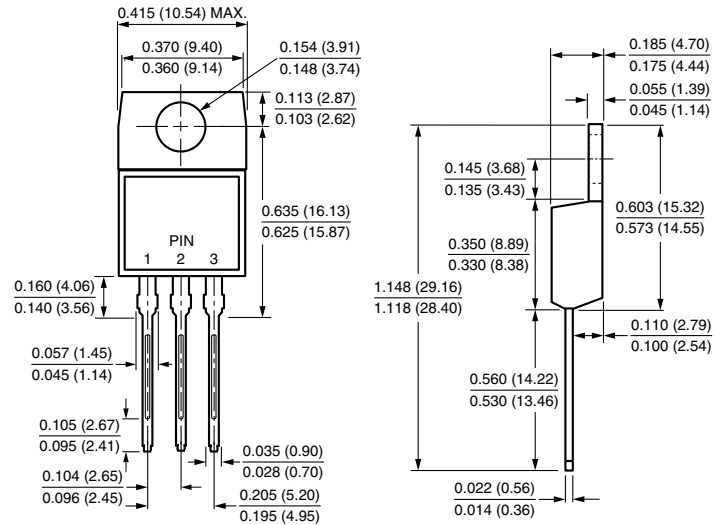
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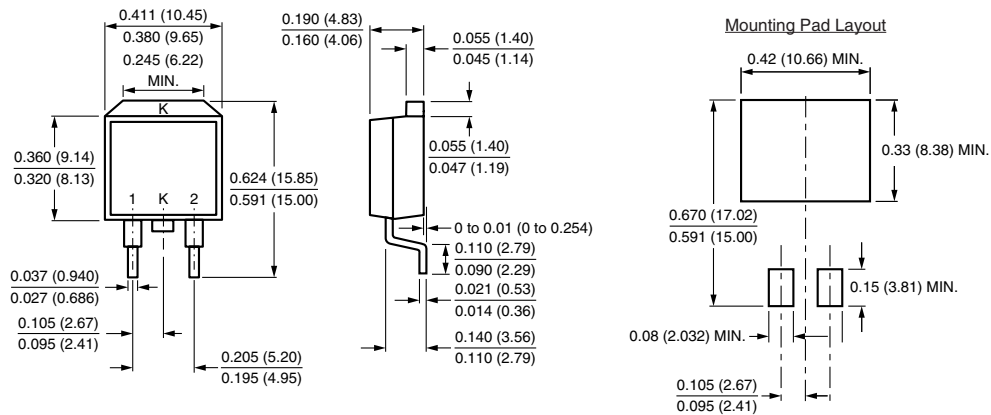


PACKAGE OUTLINE DIMENSIONS in inches (millimeters)

TO-220AB



TO-263AB





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All product specifications and data are subject to change without notice.

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