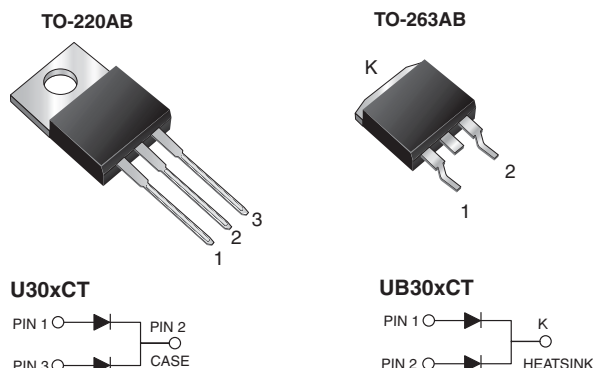


## Dual Common Cathode Ultrafast Plastic Rectifier



### FEATURES

- Power pack
- 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 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 low voltage, high frequency rectifier of switching power supplies, freewheeling diodes, DC/DC converters or polarity protection specifically for CCM 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.

PRIMARY CHARACTERISTICS	
$I_{F(AV)}$	2 x 15 A
$V_{RRM}$	100 V to 200 V
$I_{FSM}$	160 A
$t_{rr}$	17 ns
$V_F$ at $I_F = 15$ A	0.892 V
$T_J$ max.	150 °C
Package	TO-220AB, TO-263AB
Diode variations	Dual Common Cathode

MAXIMUM RATINGS (T <sub>C</sub> = 25 °C unless otherwise noted)						
PARAMETER		SYMBOL	U(B)30BCT	U(B)30CCT	U(B)30DCT	UNIT
Max. repetitive peak reverse voltage		V <sub>RRM</sub>	100	150	200	V
Max. average forward rectified current (fig. 1)	total device	I <sub>F(AV)</sub>	30			A
	per diode		15			
Peak forward surge current single half sine-wave superimposed on rated load per diode	8.3 ms	I <sub>FSM</sub>	160			A
	10 ms		150			
Electrostatic discharge capacitor voltage, human body model: C = 150 pF, R = 1.5 kΩ (contact mode)		V <sub>C</sub>	8			kV
Operating junction and storage temperature range		T <sub>J</sub> , T <sub>STG</sub>	-55 to +150			°C

ELECTRICAL CHARACTERISTICS (T <sub>C</sub> = 25 °C unless otherwise noted)						
PARAMETER	TEST CONDITIONS		SYMBOL	TYP.	MAX.	UNIT
Instantaneous forward voltage per diode <sup>(1)</sup>	I <sub>F</sub> = 7.5 A	T <sub>J</sub> = 25 °C	V <sub>F</sub>	0.875	-	V
	I <sub>F</sub> = 15 A			0.964	1.05	
	I <sub>F</sub> = 7.5 A	T <sub>J</sub> = 100 °C		0.800	-	
	I <sub>F</sub> = 15 A			0.892	0.95	
Reverse current per diode <sup>(2)</sup>	rated V <sub>R</sub>	T <sub>J</sub> = 25 °C	I <sub>R</sub>	1.3	20	μA
		T <sub>J</sub> = 100 °C		200	600	
Reverse recovery time per diode	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>	17	25	ns
Reverse recovery time per diode	I <sub>F</sub> = 15 A, dI/dt = 200 A/μs, V <sub>R</sub> = 200 V, I <sub>rr</sub> = 0.1 I <sub>RM</sub>		t <sub>rr</sub>	36	45	ns
Stored charge per diode			Q <sub>rr</sub>	110	-	nC
Forward recovery time per diode	I <sub>F</sub> = 15 A, dI/dt = 120 A/μs, V <sub>F</sub> = 1.1 x V <sub>F</sub> max.		t <sub>fr</sub>	175	-	ns
Peak forward voltage per diode			V <sub>FP</sub>	3.1	-	V

**Notes**
<sup>(1)</sup> Pulse test: 300  $\mu\text{s}$  pulse width, 1 % duty cycle

<sup>(2)</sup> Pulse test: Pulse width  $\leq 40\text{ ms}$ 

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

<b>ORDERING INFORMATION</b> (Example)					
PACKAGE	PREFERRED P/N	UNIT WEIGHT (g)	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

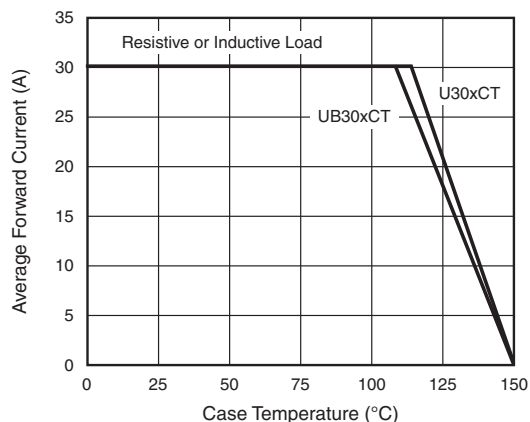
**RATINGS AND CHARACTERISTICS CURVES** ( $T_A = 25\text{ }^{\circ}\text{C}$  unless otherwise noted)


Fig. 1 - Max. Forward Current Derating Curve

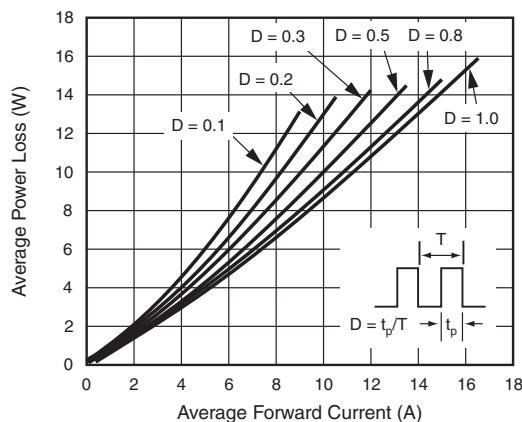


Fig. 2 - Forward Power Loss Characteristics Per Diode

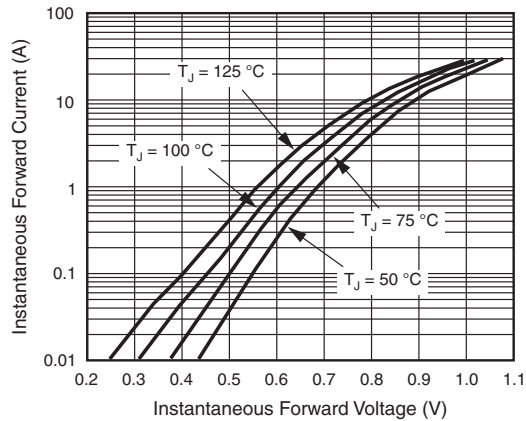


Fig. 3 - Typical Instantaneous Forward Characteristics Per Diode

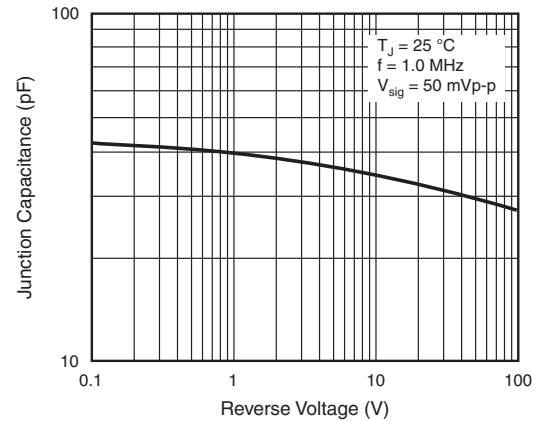


Fig. 5 - Typical Junction Capacitance Per Diode

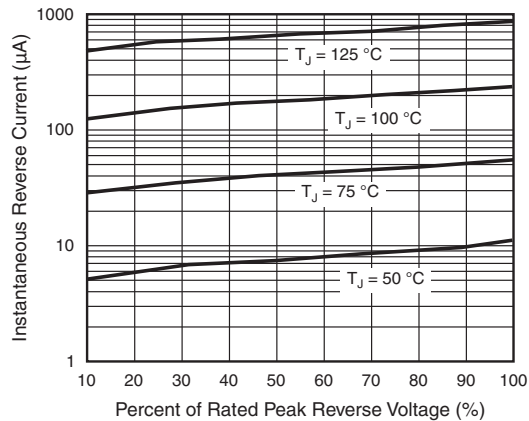


Fig. 4 - Typical Reverse Characteristics Per Diode

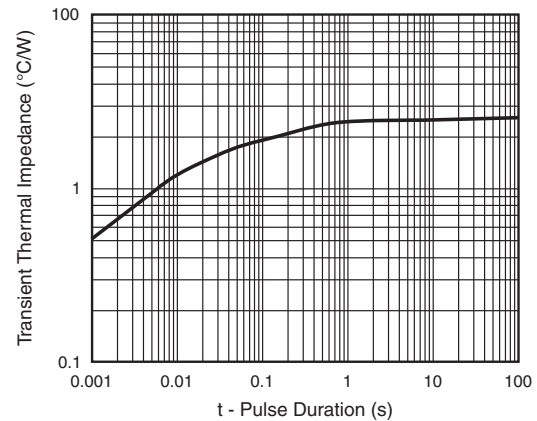
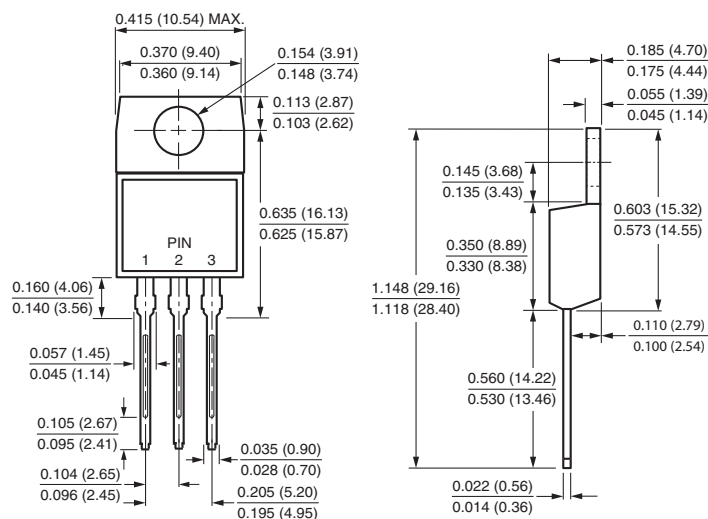


Fig. 6 - Typical Junction Capacitance Per Diode

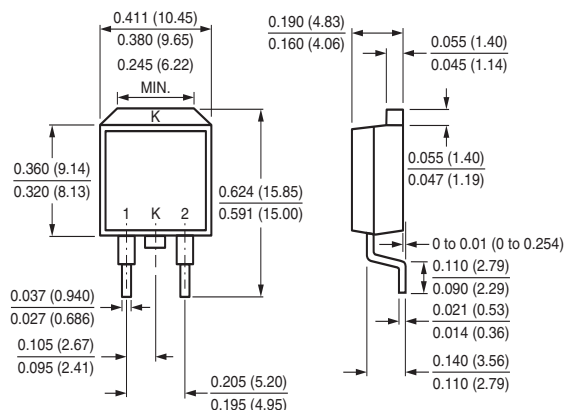


## PACKAGE OUTLINE DIMENSIONS in inches (millimeters)

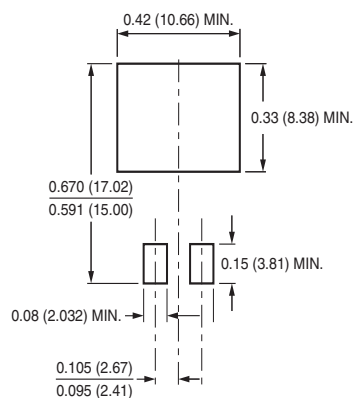
### TO-220AB



### TO-263AB



### Mounting Pad Layout





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