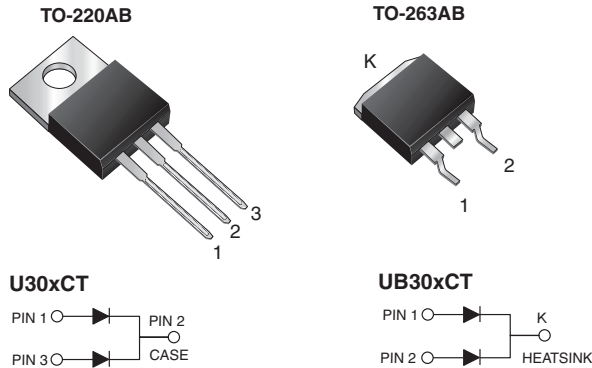


Dual Common Cathode Ultrafast Plastic Rectifier



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


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

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⁾	$I_F = 7.5\text{ A}$	$T_J = 25\text{ }^\circ\text{C}$	V_F	0.875	-	V
	$I_F = 15\text{ A}$			0.964	1.05	
	$I_F = 7.5\text{ A}$	$T_J = 100\text{ }^\circ\text{C}$		0.800	-	
	$I_F = 15\text{ A}$			0.892	0.95	
Reverse current per diode ⁽²⁾	rated V_R	$T_J = 25\text{ }^\circ\text{C}$	I_R	1.3	20	μA
		$T_J = 100\text{ }^\circ\text{C}$		200	600	
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	$I_F = 15\text{ A}, dI/dt = 200\text{ A}/\mu\text{s}, V_R = 200\text{ V}, I_{rr} = 0.1 I_{RM}$		t_{rr}	36	45	ns
Stored charge per diode			Q_{rr}	110	-	nC
Forward recovery time per diode	$I_F = 15\text{ A}, dI/dt = 120\text{ A}/\mu\text{s}, V_F = 1.1 \times V_F\text{ max.}$		t_{fr}	175	-	ns
Peak forward voltage per diode			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 (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

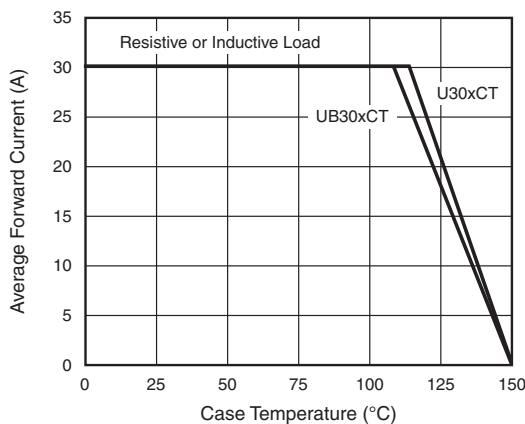
RATINGS AND CHARACTERISTICS CURVES ($T_A = 25\text{ }^\circ\text{C}$ unless otherwise noted)


Fig. 1 - Max. Forward Current Derating Curve

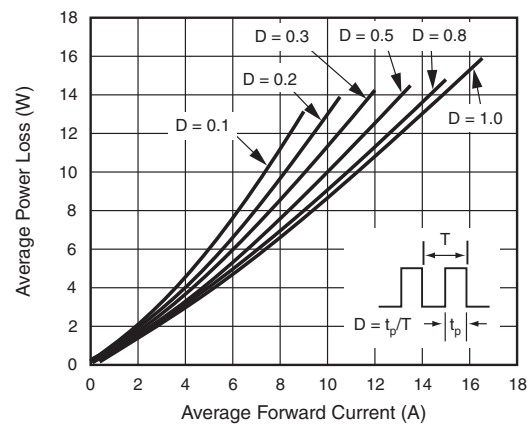


Fig. 2 - Forward Power Loss Characteristics Per Diode

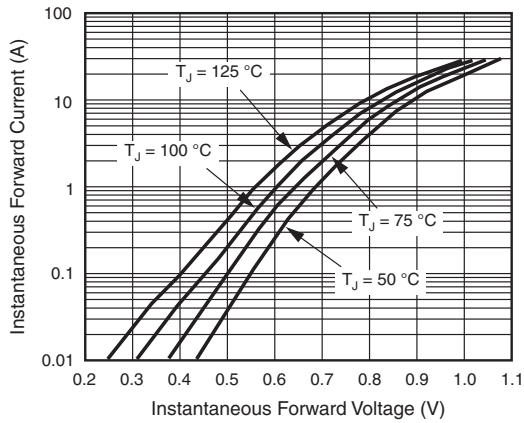


Fig. 3 - Typical Instantaneous Forward Characteristics Per Diode

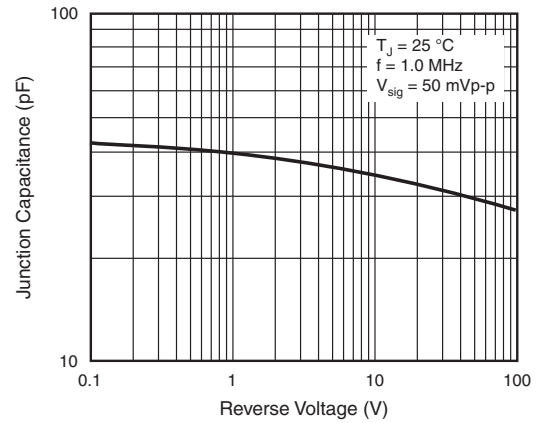


Fig. 5 - Typical Junction Capacitance Per Diode

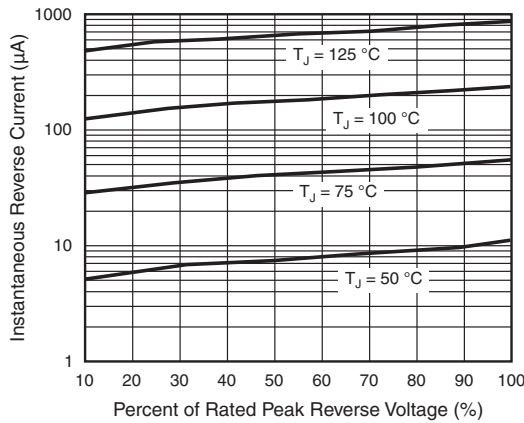


Fig. 4 - Typical Reverse Characteristics Per Diode

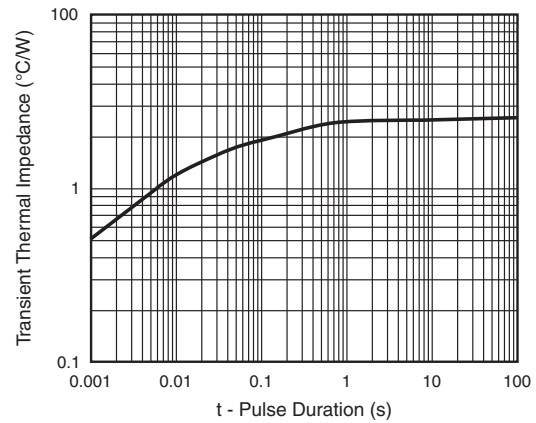
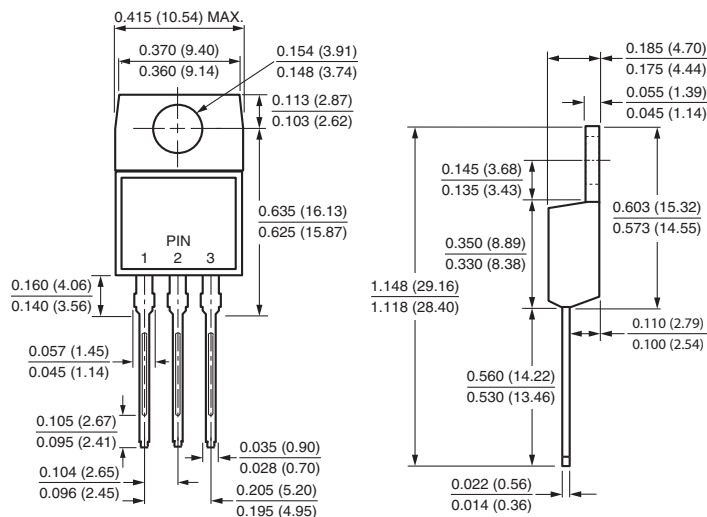


Fig. 6 - Typical Junction Capacitance Per Diode

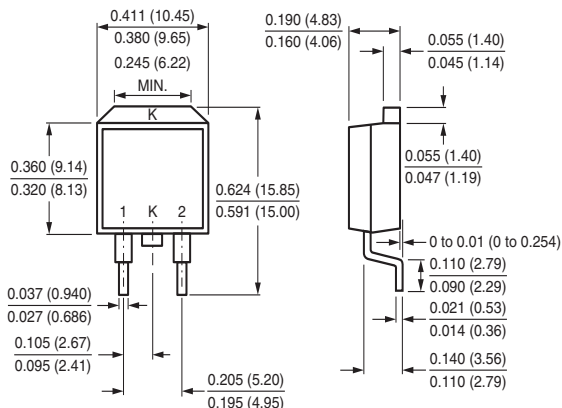


PACKAGE OUTLINE DIMENSIONS in inches (millimeters)

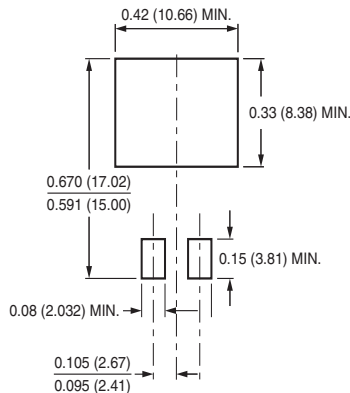
TO-220AB



TO-263AB



Mounting Pad Layout





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