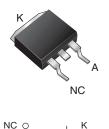


Ultrafast Recovery Rectifier

D²PAK (TO-263AB)

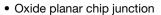


A 0—	N	Heatsink

PRIMARY CHARACTERISTICS			
I _{F(AV)}	10 A		
V _{RRM}	300 V		
I _{FSM}	180 A		
t _{rr}	25 ns		
V _F at I _F	0.83 V		
T _J max.	175 °C		
Package	D ² PAK (TO-263AB)		
Circuit configurations	Single		

FEATURES

Power pack



- Ultrafast recovery times
- · 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
- Material categorization: for definitions of compliance please see <u>www.vishay.com/doc?99912</u>

TYPICAL APPLICATIONS

For use in high frequency rectification and freewheeling application in switching mode converter and inverter for consumer.

MECHANICAL DATA

Case: D²PAK (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.

MAXIMUM RATINGS (T _A = 25 °C unless otherwise noted)					
PARAMETER	SYMBOL	UHB10FT	UNIT		
Max. repetitive peak reverse voltage	V_{RRM}	300	V		
Max. average forward rectified current (Fig. 1)	I _{F(AV)}	10	Α		
Peak forward surge current 10 ms single half sine-wave superimposed on rated load	I _{FSM}	180	А		
Operating junction and storage temperature range	T _J , T _{STG}	-55 to +175	°C		



ELECTRICAL CHARACTERISTICS (T _A = 25 °C unless otherwise noted)							
PARAMETER	TEST CONDITIONS		SYMBOL	TYP.	MAX.	UNIT	
	I _F = 5.0 A	T _J = 25 °C	V _F	0.96	1	V	
Max. instantaneous forward voltage (1)	$I_F = 5.0 \text{ A}$	T _J = 125 °C		0.77	-		
iviax. Instantaneous forward voltage (*)	I _F = 10 A	T _J = 25 °C		1.0	1.2		
	I _F = 10 A	T _J = 125 °C		0.83	0.90		
Max. reverse current (2)	V 000 V	T _J = 25 °C	I _R	0.5	5	μΑ	
iviax. reverse current (-)	$V_{R} = 300 \text{ V}$	T _J = 125 °C		25	150		
Max. reverse recovery time	I _F = 0.5 A, I _R = 1.0 A, I _{rr} = 0.25 A		t _{rr}	20	25	ns	
Max. reverse recovery time	$I_F = 1.0 \text{ A}, \text{ dI/dt} = 50 \text{ A/}\mu\text{s}, \\ V_R = 30 \text{ V}, I_{rr} = 0.1 I_{RM}$		t _{rr}	28	35	ns	
Typical softness factor (t _b /t _a)	ent		S	0.36	-	-	
Typical reverse recovery current			I _{RM}	7.0	-	ns	
Typical stored charge		Q _{rr}	160	-	Α		
Typical forward recovery time	$I_F = 10 \text{ A}, \text{ dI/dt} = 80 \text{ A/}\mu\text{s}, \ V_{FR} = 1.1 \text{ x V}_{F \text{ max}}.$		t _{fr}	150	-	ns	

Notes

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

(2) Pulse test: Pulse width \leq 40 ms

THERMAL CHARACTERISTICS (T _A = 25 °C unless otherwise noted)					
PARAMETER	SYMBOL UHB10FT		UNIT		
Typical thermal resistance	$R_{ heta JC}$	2.0	°C/W		

ORDERING INFORMATIONS (Example)						
PACKAGE	PREFERRED P/N	UNIT WEIGHT (g)	PACKAGE CODE	BASE QUANTITY	DELIVERY MODE	
TO-263AB	UHB10FT-E3/4W	1.32	4W	50/tube	Tube	
TO-263AB	UHB10FT-E3/8W	1.32	8W	800/reel	Tape and reel	



RATINGS AND CHARACTERISTICS CURVES (T_A = 25 °C unless otherwise noted)

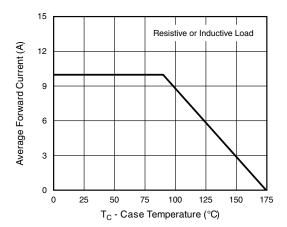


Fig. 1 - Max. Forward Current Derating Curve

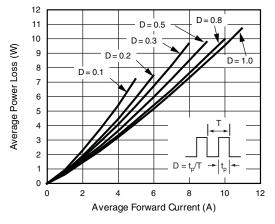


Fig. 2 - Forward Power Loss Characteristics

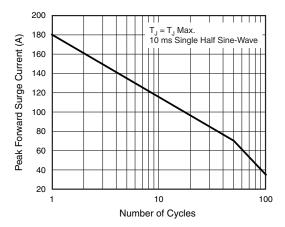


Fig. 3 - Max. Non-Repetitive Peak Forward Surge Current

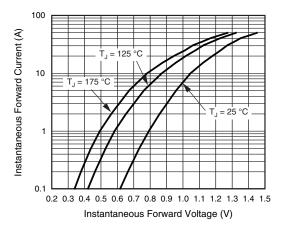


Fig. 4 - Typical Instantaneous Forward Characteristics

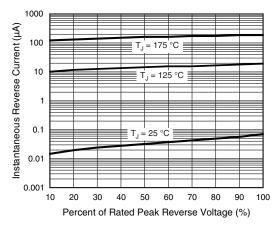


Fig. 5 - Typical Reverse Leakage Charactersitics

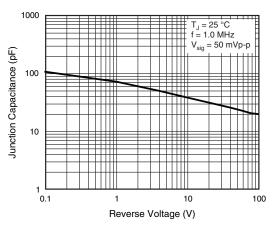
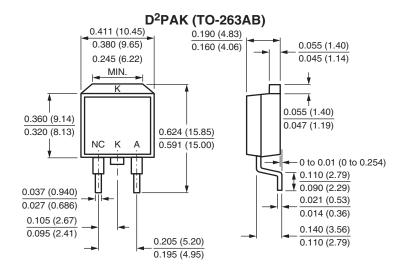
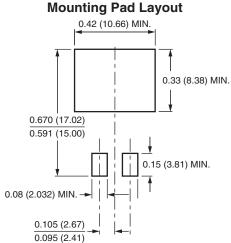


Fig. 6 - Typical Junction Capacitance



PACKAGE OUTLINE DIMENSIONS in inches (millimeters)







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Vishay

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