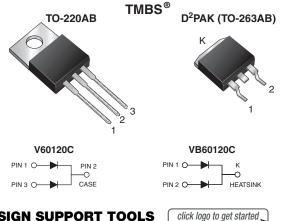
V60120C, VB60120C

Vishay General Semiconductor

Dual High Voltage Trench MOS Barrier Schottky Rectifier

Ultra Low $V_F = 0.41$ V at $I_F = 5$ A



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PRIMARY CHARACTERISTICS					
I _{F(AV)}	2 x 30 A				
V _{RRM}	120 V				
I _{FSM}	300 A				
V_F at $I_F = 30$ A	0.71 V				
T _J max.	150 °C				
Package	TO-220AB, D ² PAK (TO-263AB)				
Circuit configuration	Common cathode				

FEATURES

- Trench MOS Schottky technology
- · Low forward voltage drop, low power losses
- · High efficiency operation
- Low thermal resistance

RoHS

- Meets MSL level 1, per J-STD-020, COMPLIANT 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

TYPICAL APPLICATIONS

For use in high frequency converters, switching power supplies, freewheeling diodes, OR-ing diode, DC/DC converters and reverse battery protection.

MECHANICAL DATA

Case: TO-220AB and D²PAK (TO-263AB) Molding compound meets UL 94 V-0 flammability rating Base P/N-E3 - RoHS-compliant, commercial grade

Terminals: matte tin plated leads, solderable per J-STD-002 and JESD 22-B102

E3 suffix meets JESD 201 class 1A whisker test

Polarity: as marked

Mounting Torque: 10 in-lbs maximum

MAXIMUM RATINGS ($T_A = 25 \text{ °C}$ unless otherwise noted)							
PARAMETER		SYMBOL	V60120C	VB60120C	UNIT		
Maximum repetitive peak reverse voltage		V _{RRM}	120		V		
Maximum average forward rectified current (fig. 1)	per device	I	60		A		
	per diode	I _{F(AV)}	30				
Peak forward surge current 8.3 ms single half sine-wave superimposed on rated load per diode		I _{FSM}	300		А		
Non-repetitive avalanche energy at T_J = 25 °C, L = 100 mH per diode		E _{AS}	260		mJ		
Peak repetitive reverse current at $t_p = 2 \mu s$, 1 kHz, T _J = 38 °C ± 2 °C per diode		I _{RRM}	0.5		А		
Voltage rate of change (rated V _R)		dV/dt	10 000		V/µs		
Operating junction and storage temperature range		T _J , T _{STG}	-40 to +150		°C		



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ELECTRICAL CHARACTERISTICS ($T_A = 25 \text{ °C}$ unless otherwise noted)								
PARAMETER	TEST CO	NDITIONS	SYMBOL	TYP.	MAX.	UNIT		
Breakdown voltage	I _R = 1.0 mA	T _A = 25 °C	V _{BR}	120 (minimum)	-	V		
Instantaneous forward voltage per diode	I _F = 5 A	T _A = 25 °C	— V _F (1)	0.48	-	V		
	I _F = 15 A			0.66	-			
	I _F = 30 A			0.88	0.95			
	I _F = 5 A	T _A = 125 °C		0.41	-			
	I _F = 15 A			0.58	-			
	I _F = 30 A			0.71	0.75			
Reverse current at rated V_R per diode	V _R = 90 V	T _A = 25 °C	I _R ⁽²⁾	14	-	μA		
		T _A = 125 °C		11	-	mA		
	V _R = 120 V	T _A = 25 °C		40	500	μA		
	$v_{\rm R} = 120$ V	T _A = 125 °C		15	45	mA		

Notes

 $^{(1)}\,$ Pulse test: 300 μs pulse width, 1 % duty cycle

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

THERMAL CHARACTERISTICS ($T_A = 25 \text{ °C}$ unless otherwise noted)						
PARAMETER	SYMBOL	V60120C	VB60120C	UNIT		
Typical thermal resistance per diode	$R_{ ext{ heta}JC}$	2.2	2.2	°C/W		

ORDERING INFORMATION (Example)							
PACKAGE	PREFERRED P/N	UNIT WEIGHT (g)	PACKAGE CODE	BASE QUANTITY	DELIVERY MODE		
TO-220AB	V60120C-E3/4W	1.89	4W	50/tube	Tube		
TO-263AB	VB60120C-E3/4W	1.38	4W	50/tube	Tube		
TO-263AB	VB60120C-E3/8W	1.38	8W	800/reel	Tape and reel		

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

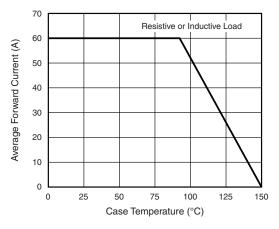


Fig. 1 - Forward Current Derating Curve

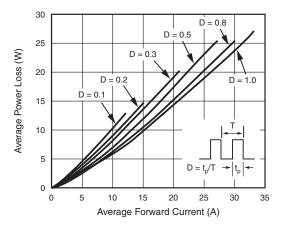


Fig. 2 - Forward Power Loss Characteristics Per Diode



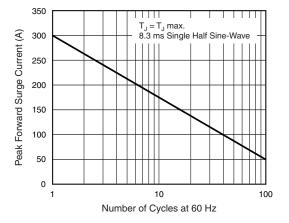


Fig. 3 - Maximum Non-Repetitive Peak Forward Surge Current Per Diode

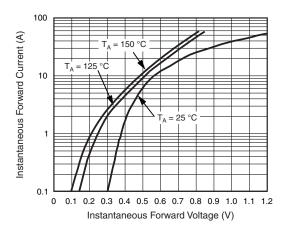


Fig. 4 - Typical Instantaneous Forward Characteristics Per Diode

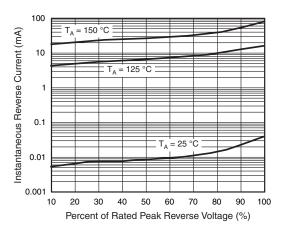


Fig. 5 - Typical Reverse Characteristics Per Diode

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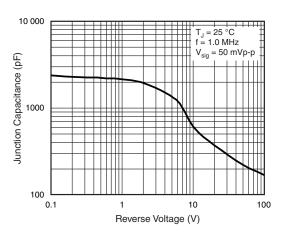


Fig. 6 - Typical Junction Capacitance Per Diode

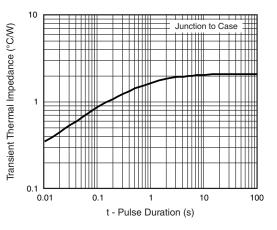


Fig. 7 - Typical Transient Thermal Impedance Per Diode

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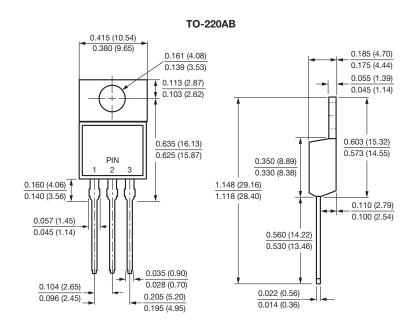
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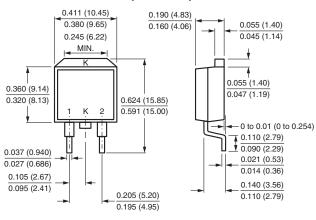




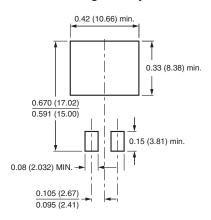
PACKAGE OUTLINE DIMENSIONS in inches (millimeters)



D²PAK (TO-263AB)



Mounting Pad Layout





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