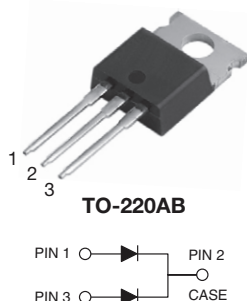


Dual High Voltage TMBS® (Trench MOS Barrier Schottky) Rectifier

Ultra Low $V_F = 0.58 \text{ V}$ at $I_F = 5.0 \text{ A}$



FEATURES

- Trench MOS Schottky technology
- Low forward voltage drop, low power losses
- High efficiency operation
- Solder bath temperature 275 °C maximum, 10 s per JESD 22-B106
- AEC-Q101 qualified available:
- Automotive ordering code: base P/NHM3
- Material categorization: for definitions of compliance please see www.vishay.com/doc?99912



RoHS
COMPLIANT
HALOGEN
FREE

PRIMARY CHARACTERISTICS

$I_{F(AV)}$	2 x 10 A
V_{RRM}	200 V
I_{FSM}	150 A
V_F at $I_F = 10 \text{ A}$ ($T_J = 125 \text{ °C}$)	0.65 V
T_J max.	175 °C
Package	TO-220AB
Circuit configuration	Common cathode

TYPICAL APPLICATIONS

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

MECHANICAL DATA

Case: TO-220AB

Molding compound meets UL 94 V-0 flammability rating
Base P/N-M3 - halogen-free, RoHS-compliant
Base P/NHM3 - halogen-free, RoHS-compliant, and AEC-Q101 qualified

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

Mounting torque: 10 in-lbs maximum

MAXIMUM RATINGS ($T_A = 25 \text{ °C}$ unless otherwise noted)

PARAMETER	SYMBOL	VX20202C	UNIT
Maximum repetitive peak reverse voltage	V_{RRM}	200	V
Maximum average forward rectified current (fig. 1)	$I_{F(AV)}$	20	A
		10	
Peak forward surge current 8.3 ms single half sine-wave superimposed on rated load	I_{FSM}	150	A
Operating junction temperature range	T_J ⁽¹⁾	-40 to +175	°C
Storage temperature range	T_{STG}	-40 to +175	

Note

⁽¹⁾ The heat generated must be less than the thermal conductivity from junction-to-ambient: $dP_D/dT_J < 1/R_{\theta JA}$

**ELECTRICAL CHARACTERISTICS** ($T_J = 25\text{ }^{\circ}\text{C}$ unless otherwise noted)

PARAMETER	TEST CONDITIONS		SYMBOL	TYP.	MAX.	UNIT
Instantaneous forward voltage per diode	I _F = 2.5 A	T _J = 25 °C	V _F ⁽¹⁾	0.68	-	V
	I _F = 5 A			0.73	-	
	I _F = 10 A			0.79	0.84	
	I _F = 2.5 A	T _J = 125 °C		0.52	-	
	I _F = 5 A			0.58	-	
	I _F = 10 A			0.65	0.70	
Reverse current at rated V _R per diode	V _R = 160 V	T _J = 25 °C	I _R ⁽²⁾	0.0006	-	mA
		T _J = 125 °C		0.9	-	
	V _R = 200 V	T _J = 25 °C		-	0.05	
		T _J = 125 °C		2.2	8	
Typical junction capacitance	4.0 V, 1 MHz		C _J	650	-	pF

Notes(1) Pulse test: 300 μs pulse width, 1 % duty cycle(2) Pulse test: Pulse width $\leq 5\text{ ms}$ **THERMAL CHARACTERISTICS** ($T_A = 25\text{ }^{\circ}\text{C}$ unless otherwise noted)

PARAMETER	SYMBOL	VX20202C	UNIT
Typical thermal resistance per device	$R_{\theta JC}^{(1)}$	1	$^{\circ}\text{C/W}$

Note

(1) Thermal resistance junction-to-case to follow JEDEC® 51-14 transient dual interface test method (TDIM)

ORDERING INFORMATION (Example)

PREFERRED P/N	UNIT WEIGHT (g)	PACKAGE CODE	BASE QUANTITY	DELIVERY MODE
VX20202C-M3/P	2.03	P	50/tube	Tube
VX20202CHM3/P ⁽¹⁾	2.03	P	50/tube	Tube

Note

(1) AEC-Q101 qualified

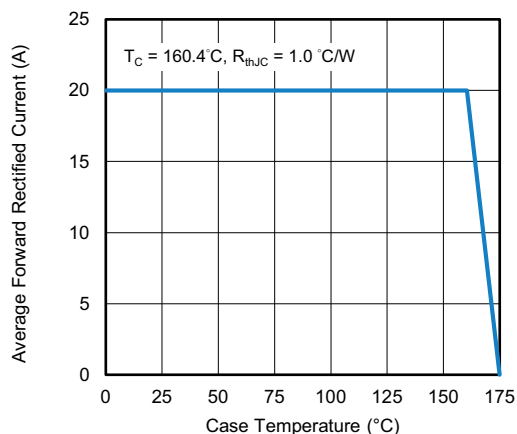
RATINGS AND CHARACTERISTICS CURVES ($T_A = 25\text{ }^{\circ}\text{C}$ unless otherwise noted)


Fig. 1 - Maximum Forward Current Derating Curve

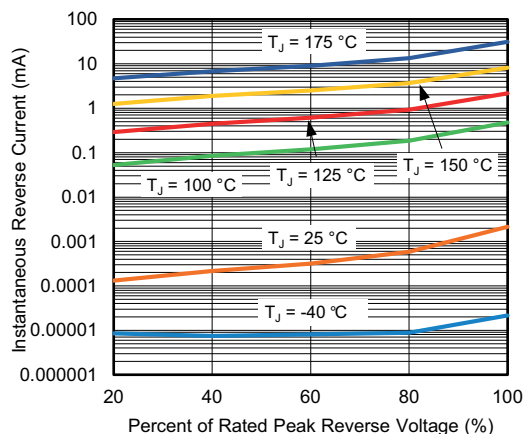


Fig. 4 - Typical Reverse Leakage Characteristics

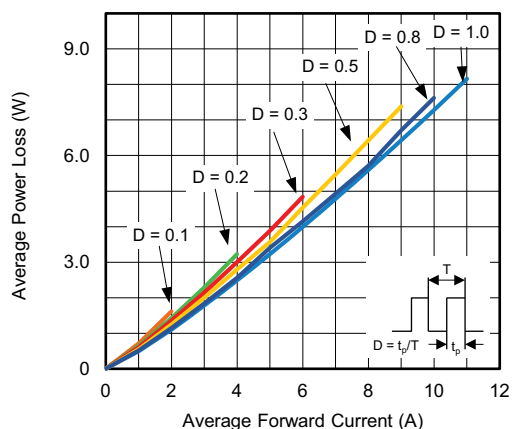


Fig. 2 - Average Power Loss Characteristics

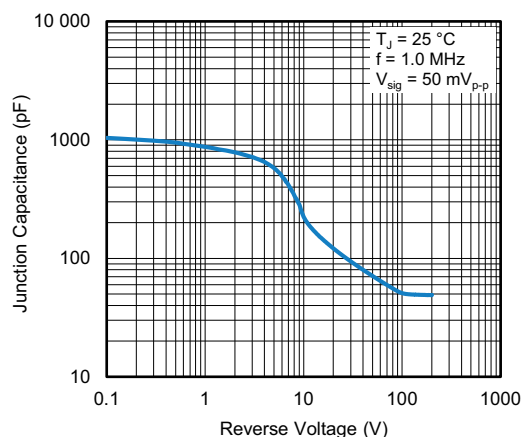


Fig. 5 - Typical Junction Capacitance

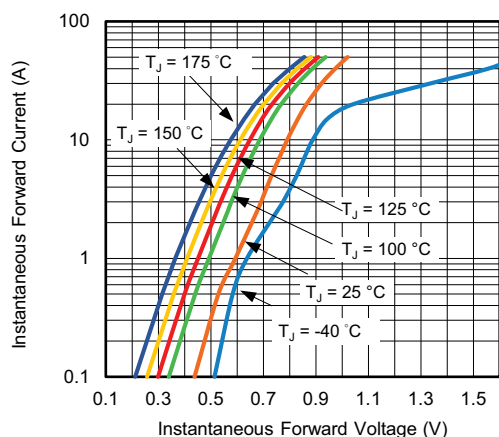


Fig. 3 - Typical Instantaneous Forward Characteristics

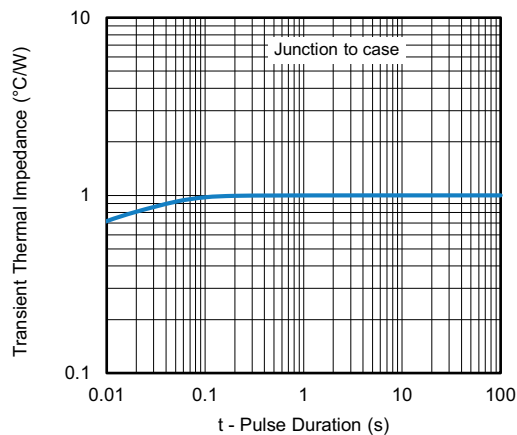


Fig. 6 - Typical Transient Thermal Impedance



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