

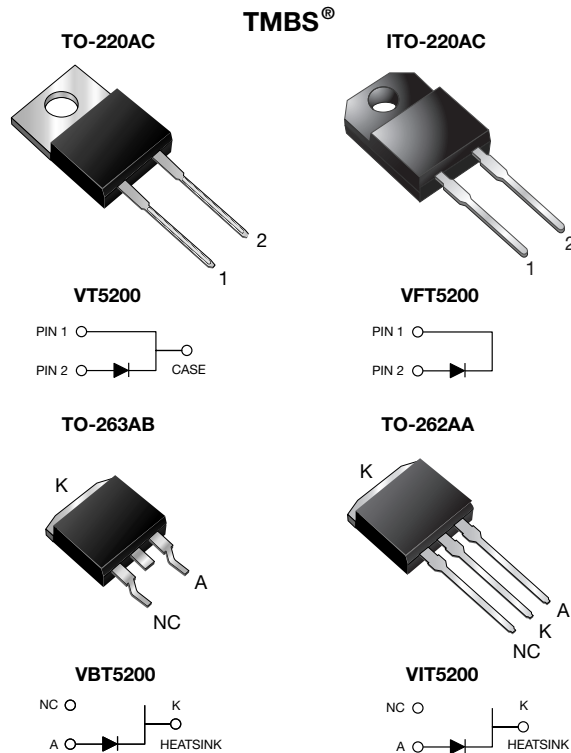


VT5200, VFT5200, VBT5200, VIT5200

Vishay General Semiconductor

Trench MOS Barrier Schottky Rectifier

Ultra Low $V_F = 0.58\text{ V}$ at $I_F = 2.5\text{ A}$



FEATURES

- Trench MOS Schottky technology
- Low forward voltage drop, low power losses
- High efficiency operation
- Meets MSL level 1, per J-STD-020, LF maximum peak of 245 °C (for TO-263AB package)
- Solder dip 275 °C max. 10 s, per JESD 22-B106 (for TO-220AC, ITO-220AC and TO-262AA package)
- Compliant to RoHS directive 2002/95/EC and in accordance to WEEE 2002/96/EC



RoHS
COMPLIANT

TYPICAL APPLICATIONS

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

MECHANICAL DATA

Case: TO-220AC, ITO-220AC, TO-263AB and TO-262AA
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

PRIMARY CHARACTERISTICS

$I_{F(AV)}$	5.0 A
V_{RRM}	200 V
I_{FSM}	80 A
V_F at $I_F = 5.0\text{ A}$	0.65 V
T_J max.	150 °C

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

PARAMETER	SYMBOL	VT5200	VFT5200	VBT5200	VIT5200	UNIT
Maximum repetitive peak reverse voltage	V_{RRM}	200				V
Maximum average forward rectified current (fig. 1)	$I_{F(AV)}$	5.0				A
Peak forward surge current 8.3 ms single half sine-wave superimposed on rated load	I_{FSM}	80				A
Non-repetitive avalanche energy at $T_J = 25\text{ °C}$, $L = 60\text{ mH}$	E_{AS}	30				mJ
Peak repetitive reverse current at $t_p = 2\text{ }\mu\text{s}$, 1 kHz, $T_J = 38\text{ °C} \pm 2\text{ °C}$	I_{RRM}	0.5				A
Voltage rate of change (rated V_R)	dV/dt	10 000				V/ μs
Isolation voltage (ITO-220AC only) from terminal to heatsink $t = 1\text{ min}$	V_{AC}	1500				V
Operating junction and storage temperature range	T_J, T_{STG}	- 40 to + 150				°C

VT5200, VFT5200, VBT5200, VIT5200

Vishay General Semiconductor



ELECTRICAL CHARACTERISTICS (T _A = 25 °C unless otherwise noted)						
PARAMETER	TEST CONDITIONS		SYMBOL	TYP.	MAX.	UNIT
Breakdown voltage	I _R = 1.0 mA	T _A = 25 °C	V _{BR}	200 (minimum)	-	V
Instantaneous forward voltage	I _F = 2.5 A	T _A = 25 °C	V _F ⁽¹⁾	0.81	-	V
	I _F = 5.0 A			1.10	1.60	
	I _F = 2.5 A	T _A = 125 °C		0.58	-	
	I _F = 5.0 A			0.65	0.73	
Reverse current	V _R = 180 V	T _A = 25 °C	I _R ⁽²⁾	1.7	-	μA
		T _A = 125 °C		1.8	-	mA
	V _R = 200 V	T _A = 25 °C		-	150	μA
		T _A = 125 °C		2.5	10	mA

Notes

- (1) Pulse test: 300 μs pulse width, 1 % duty cycle
- (2) Pulse test: Pulse width ≤ 40 ms

THERMAL CHARACTERISTICS (T _A = 25 °C unless otherwise noted)						
PARAMETER	SYMBOL	VT5200	VFT5200	VBT5200	VIT5200	UNIT
Typical thermal resistance	R _{θJC}	3.5	7.0	3.5	3.5	°C/W

ORDERING INFORMATION (Example)					
PACKAGE	PREFERRED P/N	UNIT WEIGHT (g)	PACKAGE CODE	BASE QUANTITY	DELIVERY MODE
TO-220AC	VT5200-E3/4W	1.82	4W	50/tube	Tube
ITO-220AC	VFT5200-E3/4W	1.65	4W	50/tube	Tube
TO-263AB	VBT5200-E3/4W	1.36	4W	50/tube	Tube
TO-263AB	VBT5200-E3/8W	1.36	8W	800/reel	Tape and reel
TO-262AA	VIT5200-E3/4W	1.44	4W	50/tube	Tube

RATINGS AND CHARACTERISTICS CURVES

(T_A = 25 °C unless otherwise noted)

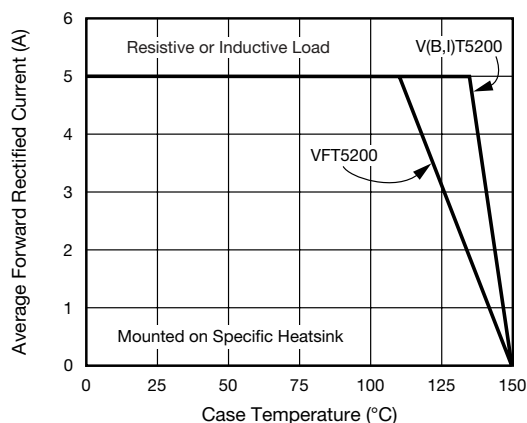


Fig. 1 - Maximum Forward Current Derating Curve

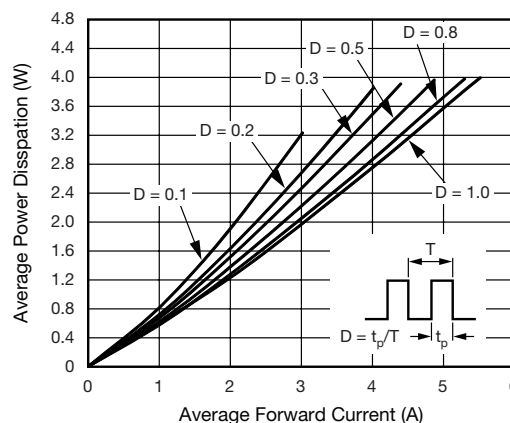


Fig. 2 - Forward Power Dissipation Characteristics

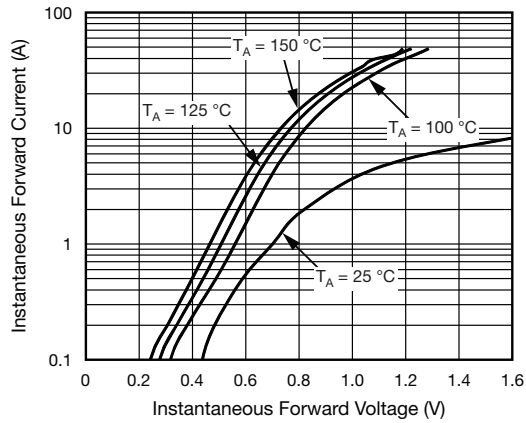


Fig. 3 - Typical Instantaneous Forward Characteristics

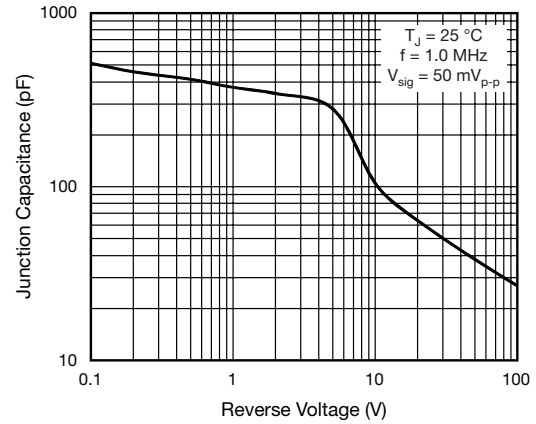


Fig. 5 - Typical Junction Capacitance

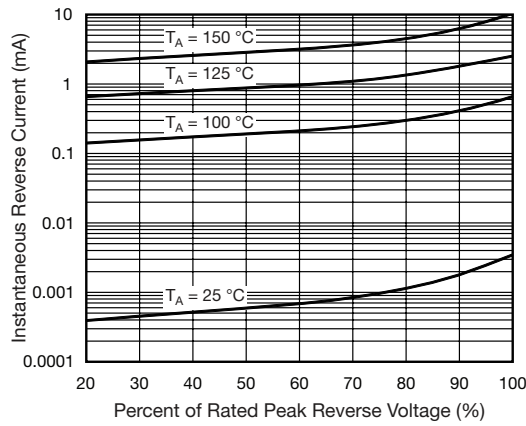


Fig. 4 - Typical Reverse Characteristics

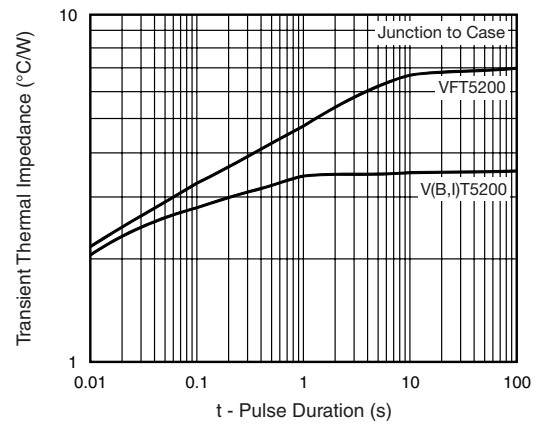


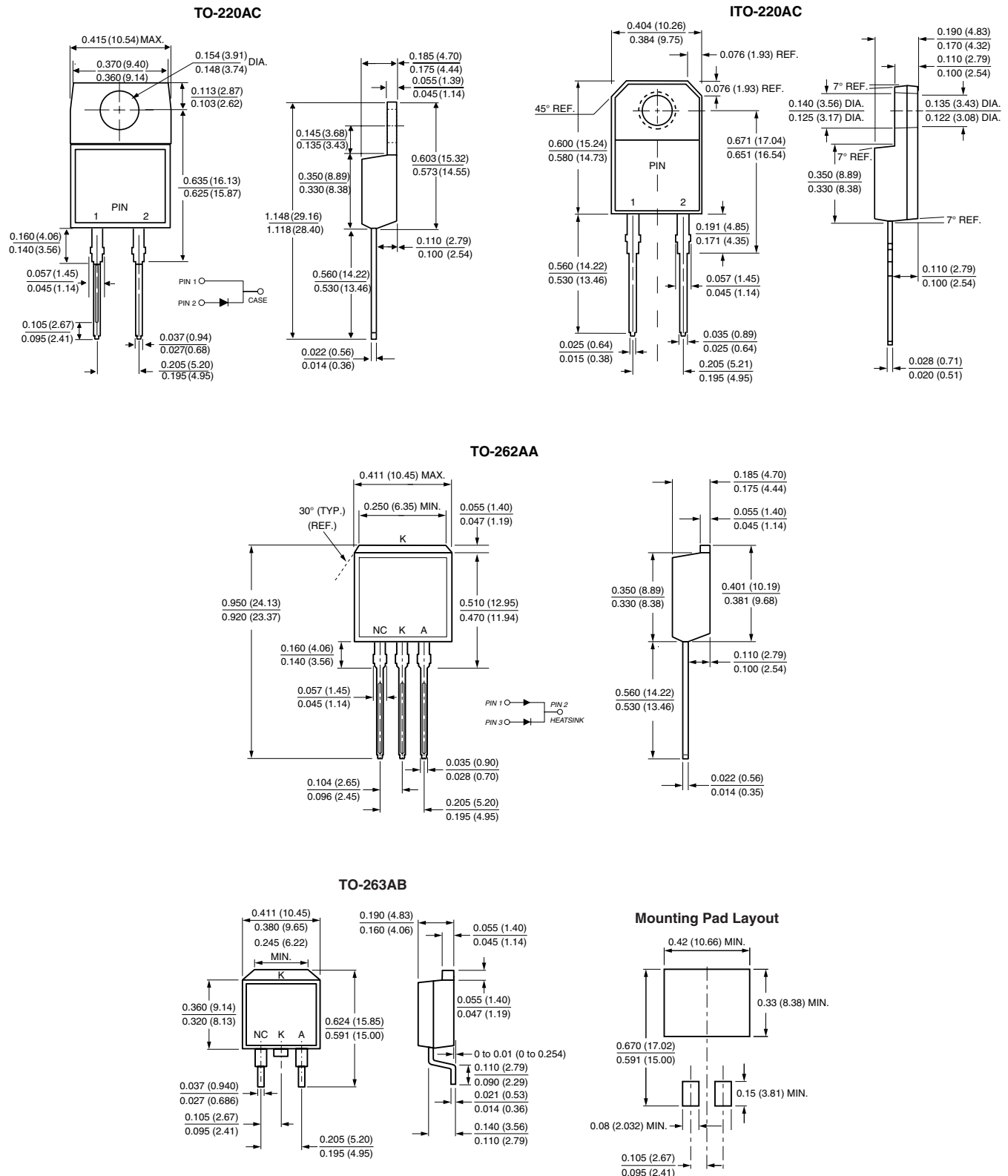
Fig. 6 - Typical Transient Thermal Impedance

VT5200, VFT5200, VBT5200, VIT5200



Vishay General Semiconductor

PACKAGE OUTLINE DIMENSIONS in inches (millimeters)





Disclaimer

All product specifications and data are subject to change without notice.

Vishay Intertechnology, Inc., its affiliates, agents, and employees, and all persons acting on its or their behalf (collectively, "Vishay"), disclaim any and all liability for any errors, inaccuracies or incompleteness contained herein or in any other disclosure relating to any product.

Vishay disclaims any and all liability arising out of the use or application of any product described herein or of any information provided herein to the maximum extent permitted by law. The product specifications do not expand or otherwise modify Vishay's terms and conditions of purchase, including but not limited to the warranty expressed therein, which apply to these products.

No license, express or implied, by estoppel or otherwise, to any intellectual property rights is granted by this document or by any conduct of Vishay.

The products shown herein are not designed for use in medical, life-saving, or life-sustaining applications unless otherwise expressly indicated. Customers using or selling Vishay products not expressly indicated for use in such applications do so entirely at their own risk and agree to fully indemnify Vishay for any damages arising or resulting from such use or sale. Please contact authorized Vishay personnel to obtain written terms and conditions regarding products designed for such applications.

Product names and markings noted herein may be trademarks of their respective owners.