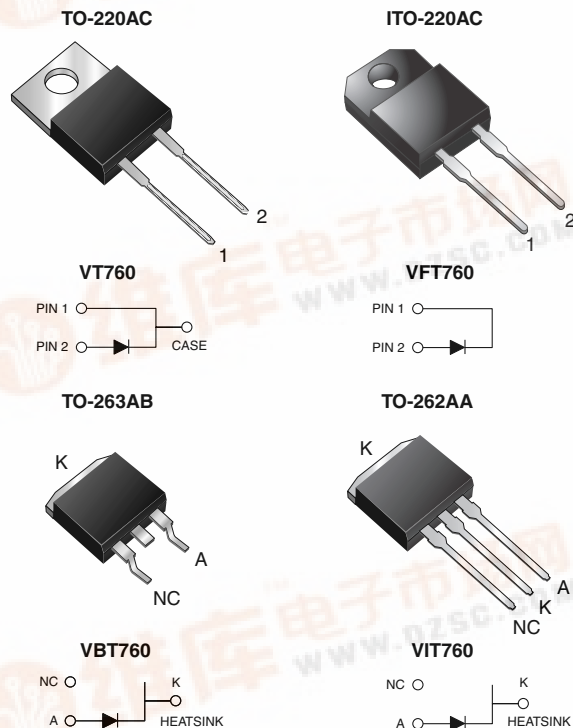


Trench MOS Barrier Schottky Rectifier

Ultra Low $V_F = 0.50\text{ V}$ at $I_F = 5\text{ A}$

TMBS®



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 bath temperature 275 °C maximum, 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 inverters, 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

$I_{F(AV)}$	7.5 A
V_{RRM}	60 V
I_{FSM}	100 A
V_F at $I_F = 7.5\text{ A}$	0.60 V
T_J max.	150 °C

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

PARAMETER	SYMBOL	VT760	VFT760	VBT760	VIT760	UNIT
Maximum repetitive peak reverse voltage	V_{RRM}		60			V
Maximum average forward rectified current (fig. 1)	$I_{F(AV)}$		7.5			A
Peak forward surge current 8.3 ms single half sine-wave superimposed on rated load	I_{FSM}		100			A
Non-repetitive avalanche energy at $T_J = 25\text{ °C}$, $L = 60\text{ mH}$	E_{AS}		65			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}		1.0			A
Isolation voltage (ITO-220AB only) from terminal to heatsink $t = 1\text{ min}$	V_{AC}		1500			V
Operating junction and storage temperature range	T_J, T_{STG}		- 55 to + 150			°C

VT760, VFT760, VBT760 & VIT760

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

PARAMETER	TEST CONDITIONS		SYMBOL	TYP.	MAX.	UNIT
Breakdown voltage	$I_R = 1.0\text{ mA}$	$T_A = 25\text{ }^{\circ}\text{C}$	V_{BR}	60 (minimum)	-	V
Instantaneous forward voltage ⁽¹⁾	$I_F = 5\text{ A}$	$T_A = 25\text{ }^{\circ}\text{C}$	V_F	0.58	-	V
	$I_F = 7.5\text{ A}$	$T_A = 25\text{ }^{\circ}\text{C}$		0.67	0.80	
	$I_F = 5\text{ A}$	$T_A = 125\text{ }^{\circ}\text{C}$		0.50	-	
	$I_F = 7.5\text{ A}$	$T_A = 125\text{ }^{\circ}\text{C}$		0.60	0.72	
Reverse current ⁽²⁾	$V_R = 60\text{ V}$	$T_A = 25\text{ }^{\circ}\text{C}$ $T_A = 125\text{ }^{\circ}\text{C}$	I_R	- 6.6	700 25	μA mA

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	VT760	VFT760	VBT760	VIT760	UNIT
Typical thermal resistance	$R_{\theta JC}$	3.5	6.5	3.5	3.5	$^{\circ}\text{C/W}$

ORDERING INFORMATION (Example)

PACKAGE	PREFERRED P/N	UNIT WEIGHT (g)	PACKAGE CODE	BASE QUANTITY	DELIVERY MODE
TO-220AC	VT760-E3/4W	1.87	4W	50/tube	Tube
ITO-220AC	VFT760-E3/4W	1.68	4W	50/tube	Tube
TO-263AB	VBT760-E3/4W	1.39	4W	50/tube	Tube
TO-263AB	VBT760-E3/8W	1.39	8W	800/reel	Tape and reel
TO-262AA	VIT760-E3/4W	1.45	4W	50/tube	Tube

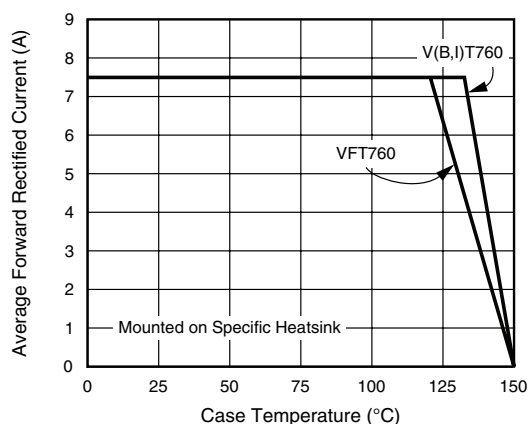
RATINGS AND CHARACTERISTICS CURVES($T_A = 25\text{ }^{\circ}\text{C}$ unless otherwise noted)

Figure 1. Maximum Forward Current Derating Curve

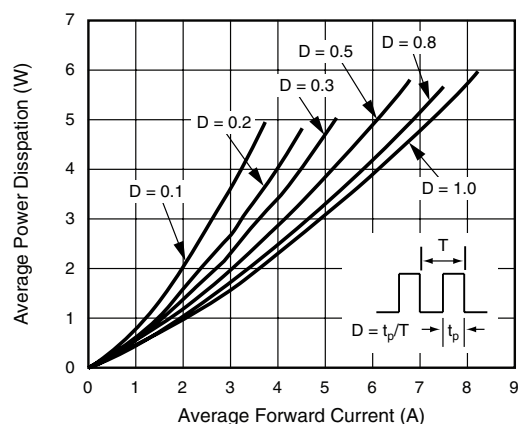


Figure 2. Forward Power Dissipation Characteristics

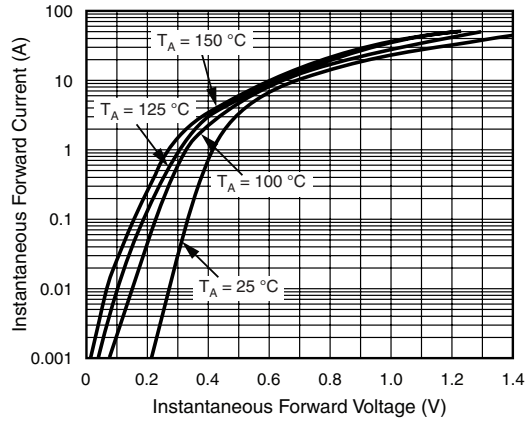


Figure 3. Typical Instantaneous Forward Characteristics

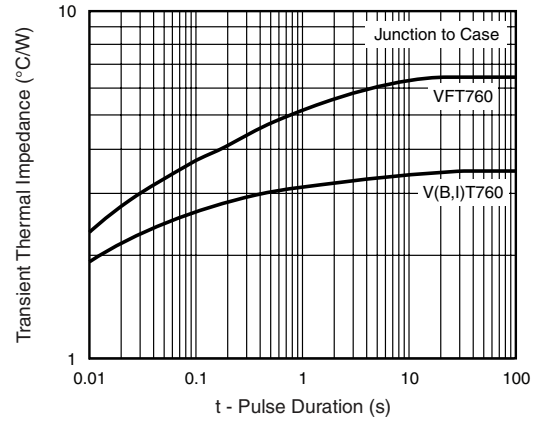


Figure 5. Typical Transient Thermal Impedance

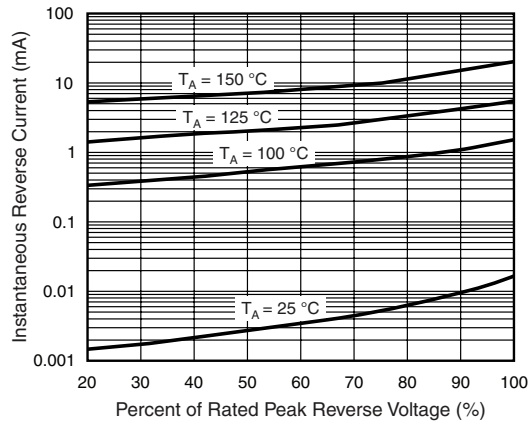


Figure 4. Typical Reverse Characteristics

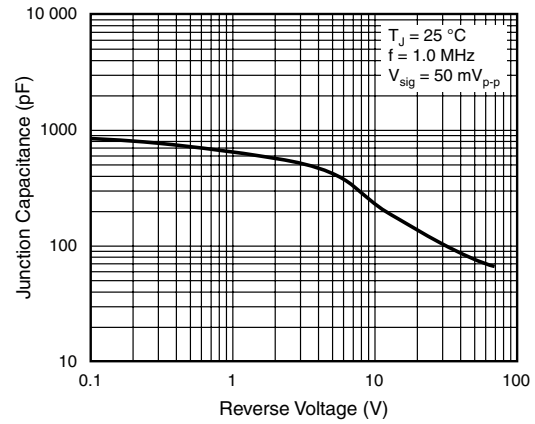


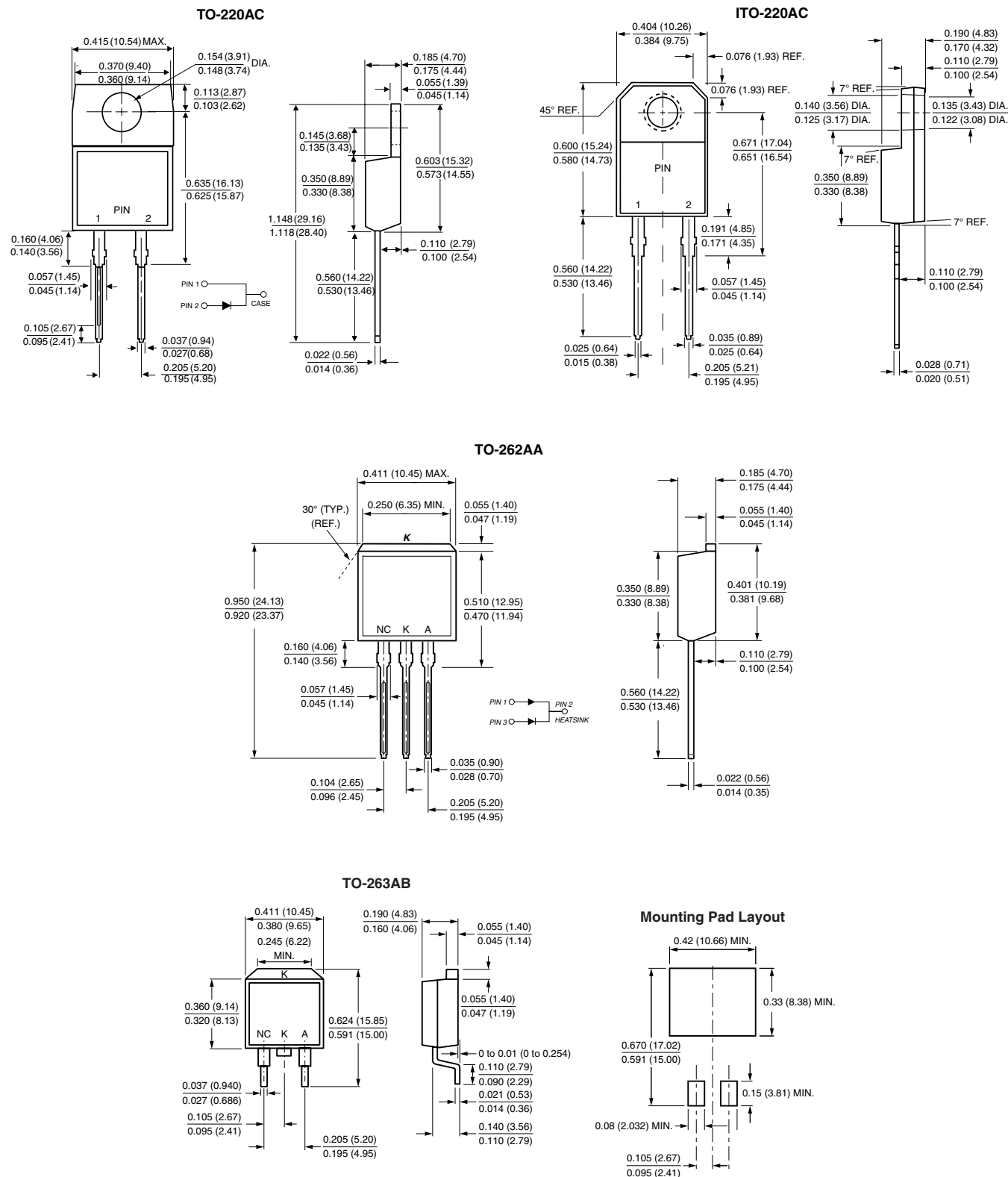
Figure 6. Typical Junction Capacitance

VT760, VFT760, VBT760 & VIT760

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PACKAGE OUTLINE DIMENSIONS in inches (millimeters)



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