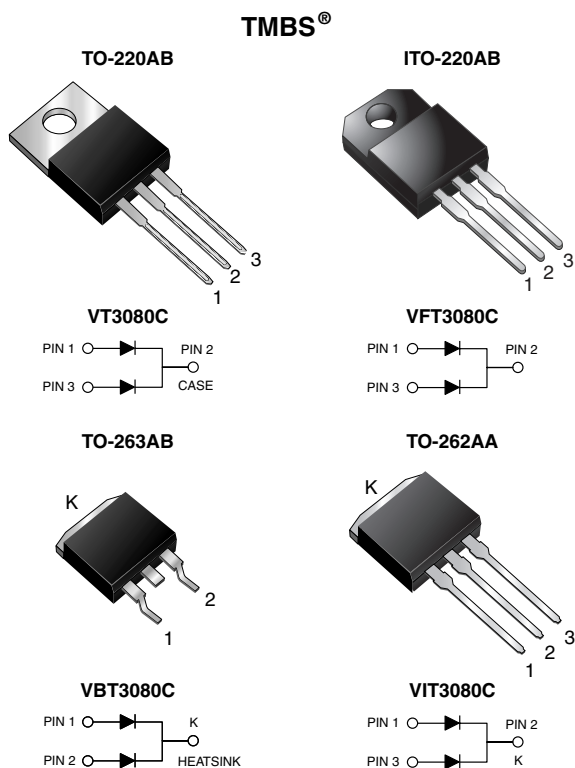




Dual Trench MOS Barrier Schottky Rectifier

Ultra Low $V_F = 0.46\text{ V}$ at $I_F = 5\text{ A}$ 

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 bath temperature 275 °C maximum, 10 s, per JESD 22-B106 (for TO-220AB, ITO-220AB, 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-220AB, ITO-220AB, 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

$I_{F(AV)}$	2 x 15 A
V_{RRM}	80 V
I_{FSM}	150 A
V_F at $I_F = 15\text{ A}$	0.65 V
T_J max.	150 °C

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

PARAMETER		SYMBOL	VT3080C	VFT3080C	VBT3080C	VIT3080C	UNIT
Maximum repetitive peak reverse voltage		V _{RRM}	80				V
Maximum average forward rectified current (fig. 1)	per device	I _{F(AV)}	30				A
	per diode		15				
Peak forward surge current 8.3 ms single half sine-wave superimposed on rated load		I _{FSM}	150				A
Non-repetitive avalanche energy at T _J = 25 °C, L = 60 mH		E _{AS}	160				mJ
Peak repetitive reverse current at t _p = 2 μs, 1 kHz, T _J = 38 °C ± 2 °C per diode		I _{RRM}	1.0				A
Isolation voltage (ITO-220AB only) from terminal to heatsink t = 1 min		V _{AC}	1500				V
Operating junction and storage temperature range		T _J , T _{STG}	- 55 to + 150				°C

VT3080C, VFT3080C, VBT3080C, VIT3080C

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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 mA	T _A = 25 °C	V _{BR}	80 (minimum)	-	V
Instantaneous forward voltage per diode	I _F = 5 A	T _A = 25 °C	V _F ⁽¹⁾	0.52	-	V
	I _F = 7.5 A			0.58	-	
	I _F = 15 A			0.75	0.82	
	I _F = 5 A	T _A = 125 °C		0.46	-	
	I _F = 7.5 A			0.52	-	
	I _F = 15 A			0.65	0.70	
Reverse current per diode	V _R = 80 V	T _A = 25 °C	I _R ⁽²⁾	30	700	μA
		T _A = 125 °C		20	35	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	VT3080C	VFT3080C	VBT3080C	VIT3080C	UNIT
Typical thermal resistance	per diode	$R_{\theta JC}$	2.5	6.0	2.5	2.5	$^{\circ}\text{C/W}$
	per device		2.0	5.0	2.0	2.0	

ORDERING INFORMATION (Example)

PACKAGE	PREFERRED P/N	UNIT WEIGHT (g)	PACKAGE CODE	BASE QUANTITY	DELIVERY MODE
TO-220AB	VT3080C-E3/4W	1.89	4W	50/tube	Tube
ITO-220AB	VFT3080C-E3/4W	1.76	4W	50/tube	Tube
TO-263AB	VBT3080C-E3/4W	1.39	4W	50/tube	Tube
TO-263AB	VBT3080C-E3/8W	1.39	8W	800/reel	Tape and reel
TO-262AA	VIT3080C-E3/4W	1.46	4W	50/tube	Tube

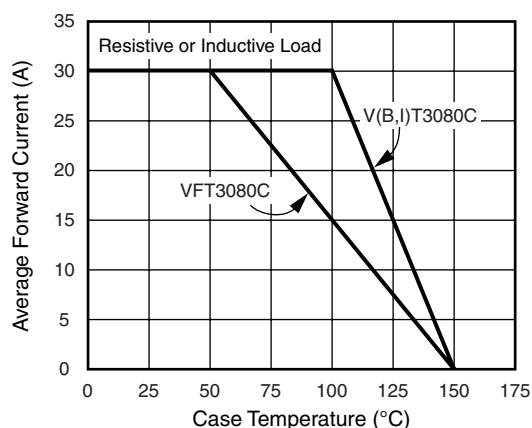
RATINGS AND CHARACTERISTICS CURVES($T_A = 25\text{ }^{\circ}\text{C}$ unless otherwise noted)

Fig. 1 - Maximum Forward Current Derating Curve

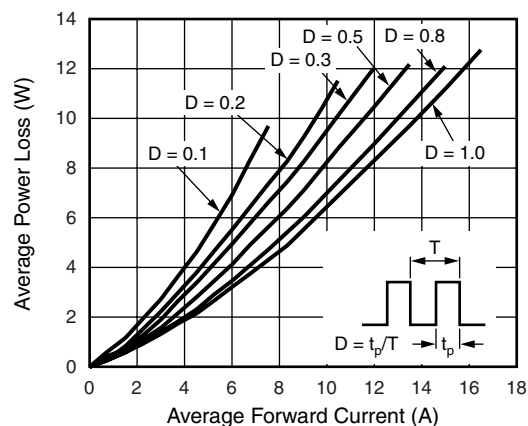


Fig. 2 - Forward Power Loss Characteristics Per Diode

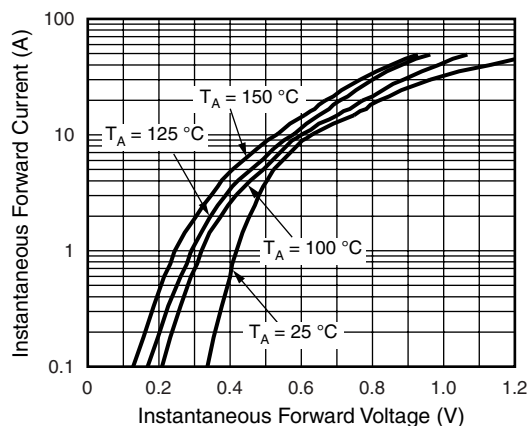


Fig. 3 - Typical Instantaneous Forward Characteristics Per Diode

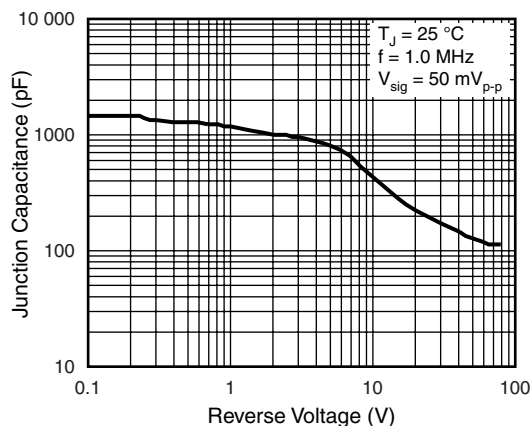


Fig. 5 - Typical Junction Capacitance Per Diode

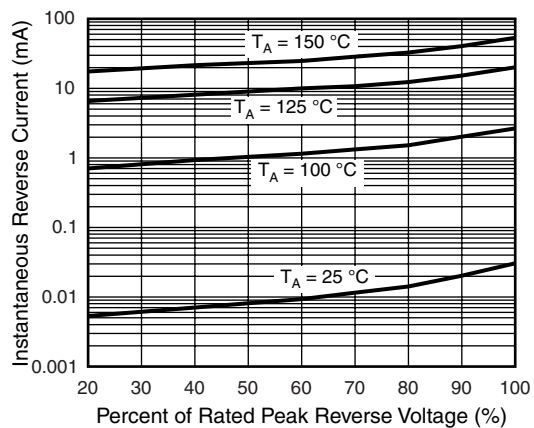


Fig. 4 - Typical Reverse Characteristics Per Diode

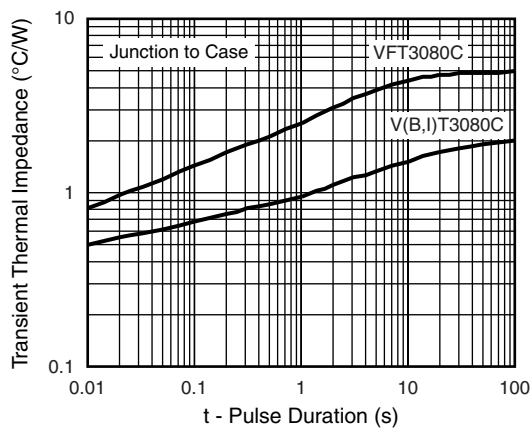


Fig. 6 - Typical Transient Thermal Impedance Per Device

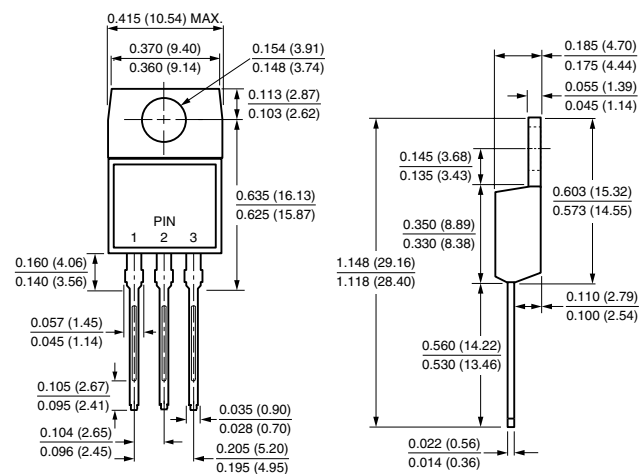
VT3080C, VFT3080C, VBT3080C, VIT3080C

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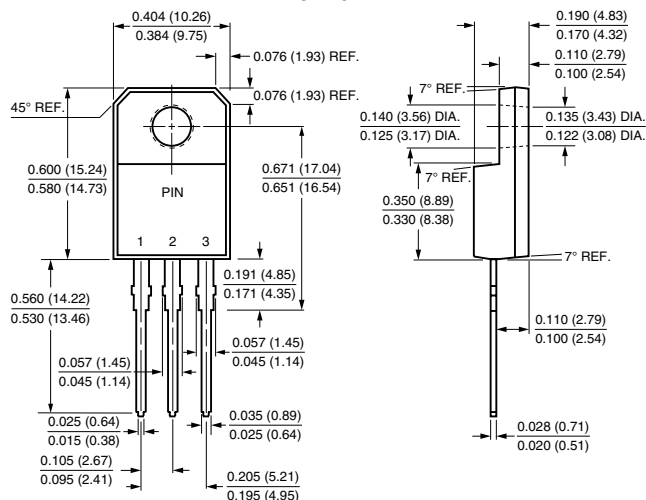


PACKAGE OUTLINE DIMENSIONS in inches (millimeters)

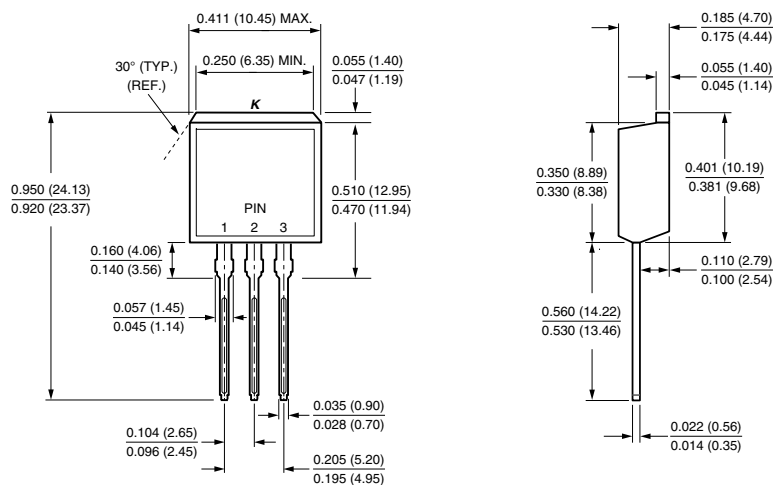
TO-220AB



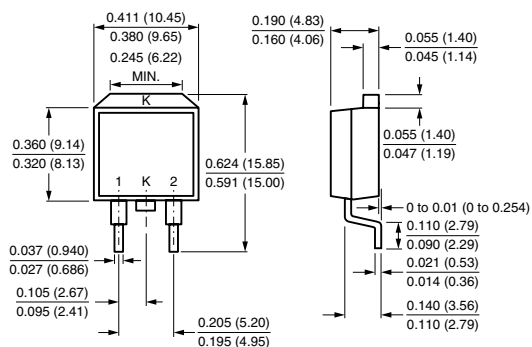
ITO-220AB



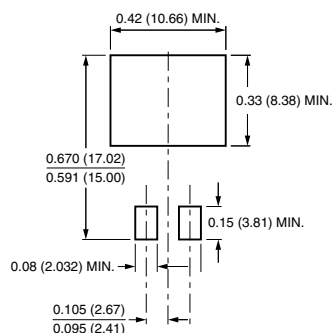
TO-262AA



TO-263AB



Mounting Pad Layout





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