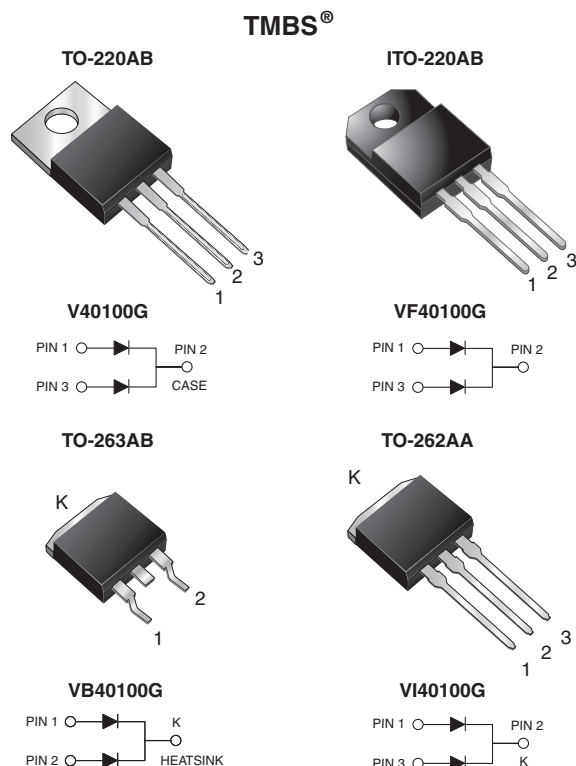


**Dual High-Voltage Trench MOS Barrier Schottky Rectifier**Ultra Low  $V_F = 0.42\text{ V}$  at  $I_F = 5\text{ A}$ **FEATURES**

- Trench MOS Schottky technology
- Low forward voltage drop, low power losses
- High efficiency operation
- Low thermal resistance
- 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)
- Material categorization: For definitions of compliance please see [www.vishay.com/doc?99912](http://www.vishay.com/doc?99912)

**RoHS**  
COMPLIANT**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, 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 20 A
$V_{RRM}$	100 V
$I_{FSM}$	200 A
$V_F$ at $I_F = 20\text{ A}$	0.67 V
$T_J$ max.	150 °C

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

PARAMETER	SYMBOL	V40100G	VF40100G	VB40100G	VI40100G	UNIT
Maximum repetitive peak reverse voltage	V <sub>RRM</sub>	100				V
Maximum average forward rectified current <div>per device (fig. 1)per diode</div>	I <sub>F(AV)</sub>	40				A
		20				
Peak forward surge current 8.3 ms single half sine-wave superimposed on rated load per diode	I <sub>FSM</sub>	200				A
Non-repetitive avalanche energy at T <sub>J</sub> = 25 °C, L = 90 mH per diode	E <sub>AS</sub>	230				mJ
Peak repetitive reverse current at t <sub>p</sub> = 2 μs, 1 kHz, T <sub>J</sub> = 38 °C ± 2 °C per diode	I <sub>RRM</sub>	1.0				A
Voltage rate of change (rated V <sub>R</sub> )	dV/dt	10 000				V/μs
Isolation voltage (ITO-220AB only) from terminal to heatsink t = 1 min	V <sub>AC</sub>	1500				V
Operating junction and storage temperature range	T <sub>J</sub> , T <sub>STG</sub>	- 40 to + 150				°C

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

PARAMETER	TEST CONDITIONS	SYMBOL	TYP.	MAX.	UNIT
Breakdown voltage	$I_R = 1.0\text{ mA}$ $T_A = 25\text{ }^{\circ}\text{C}$	$V_{BR}$	100 min.	-	
Instantaneous forward voltage per diode <sup>(1)</sup>	$I_F = 5\text{ A}$ $T_A = 25\text{ }^{\circ}\text{C}$	$V_F$	0.49	-	V
	$I_F = 10\text{ A}$		0.59	-	
	$I_F = 20\text{ A}$		0.75	0.81	
	$I_F = 5\text{ A}$ $T_A = 125\text{ }^{\circ}\text{C}$		0.42	-	
	$I_F = 10\text{ A}$		0.54	-	
	$I_F = 20\text{ A}$		0.67	0.73	
Reverse current per diode <sup>(2)</sup>	$V_R = 70\text{ V}$ $T_A = 25\text{ }^{\circ}\text{C}$	$I_R$	12	-	$\mu\text{A}$
	$T_A = 125\text{ }^{\circ}\text{C}$		8	-	$\text{mA}$
	$V_R = 100\text{ V}$ $T_A = 25\text{ }^{\circ}\text{C}$		55	500	$\mu\text{A}$
	$T_A = 125\text{ }^{\circ}\text{C}$		21	35	$\text{mA}$

**Notes**(1) Pulse test: 300  $\mu\text{s}$  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	V40100G	VF40100G	VB40100G	VI40100G	UNIT
Typical thermal resistance per diode	$R_{\theta JC}$	2.0	5.0	2.0	2.0	$^{\circ}\text{C/W}$

**ORDERING INFORMATION** (Example)

PACKAGE	PREFERRED P/N	UNIT WEIGHT (g)	PACKAGE CODE	BASE QUANTITY	DELIVERY MODE
TO-220AB	V40100G-E3/4W	1.88	4W	50/tube	Tube
ITO-220AB	VF40100G-E3/4W	1.75	4W	50/tube	Tube
TO-263AB	VB40100G-E3/4W	1.39	4W	50/tube	Tube
TO-263AB	VB40100G-E3/8W	1.39	8W	800/reel	Tape and reel
TO-262AA	VI40100G-E3/4W	1.46	4W	50/tube	Tube

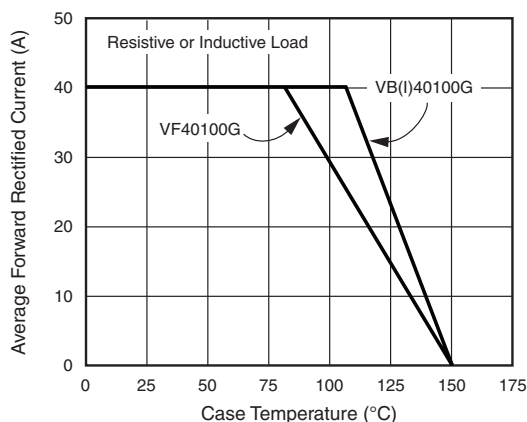
**RATINGS AND CHARACTERISTICS CURVES** ( $T_A = 25\text{ }^{\circ}\text{C}$  unless otherwise noted)

Fig. 1 - Maximum Forward Current Derating Curve

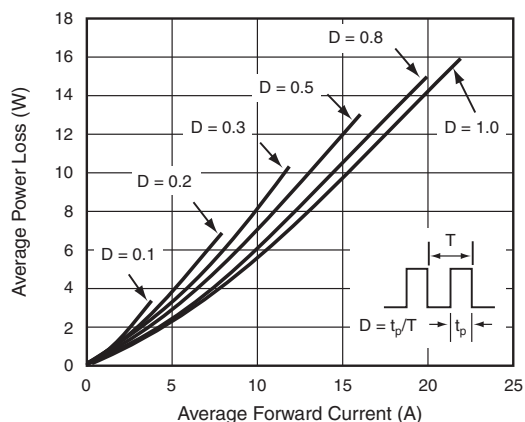


Fig. 2 - Forward Power Loss Characteristics

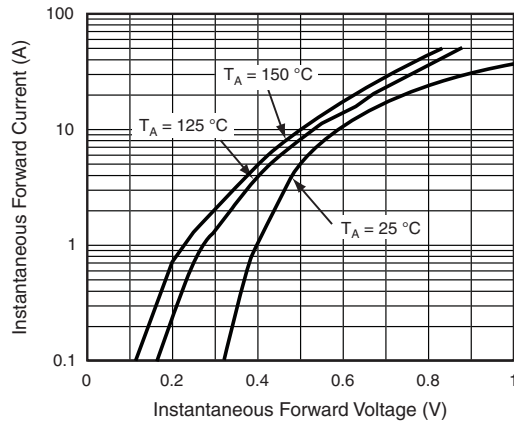


Fig. 3 - Typical Instantaneous Forward Characteristics

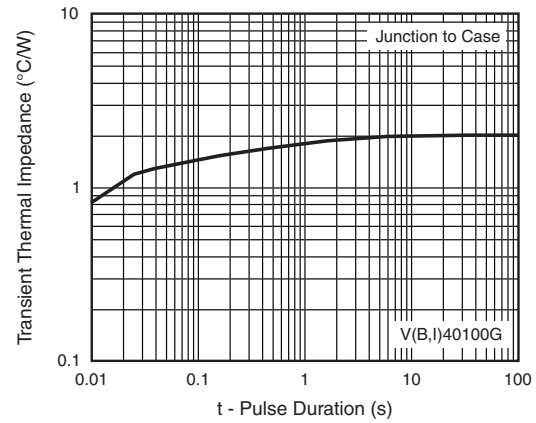


Fig. 6 - Typical Transient Thermal Impedance

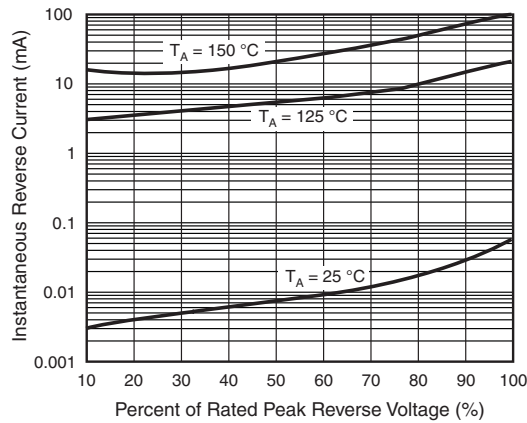


Fig. 4 - Typical Reverse Characteristics

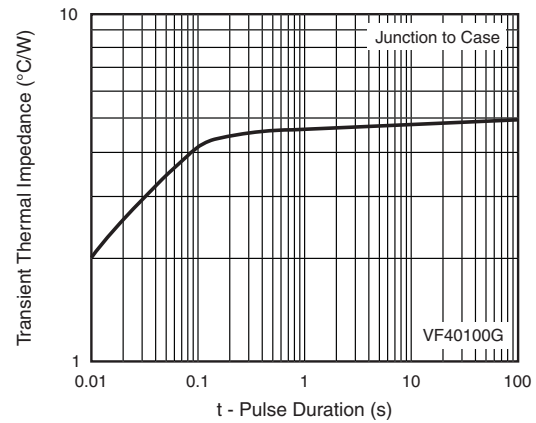


Fig. 7 - Typical Transient Thermal Impedance

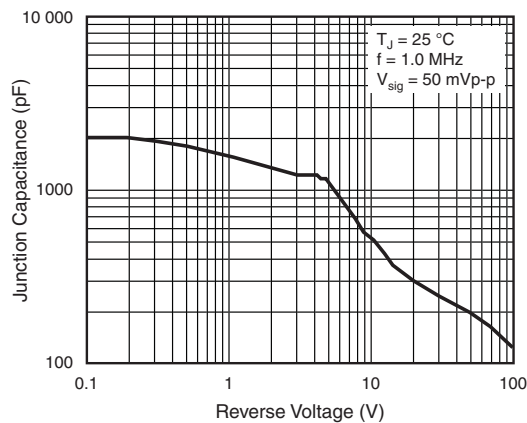
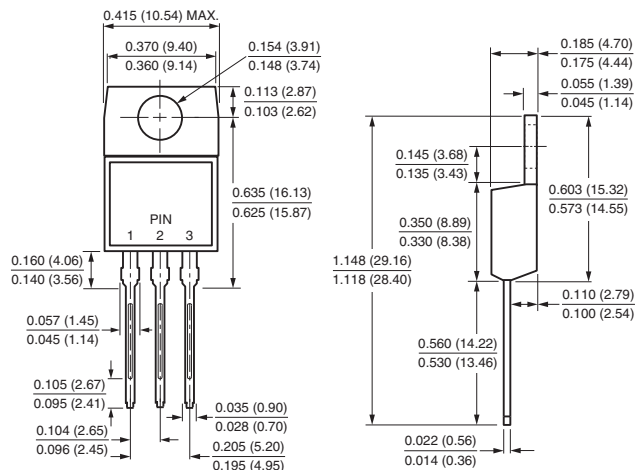


Fig. 5 - Typical Junction Capacitance

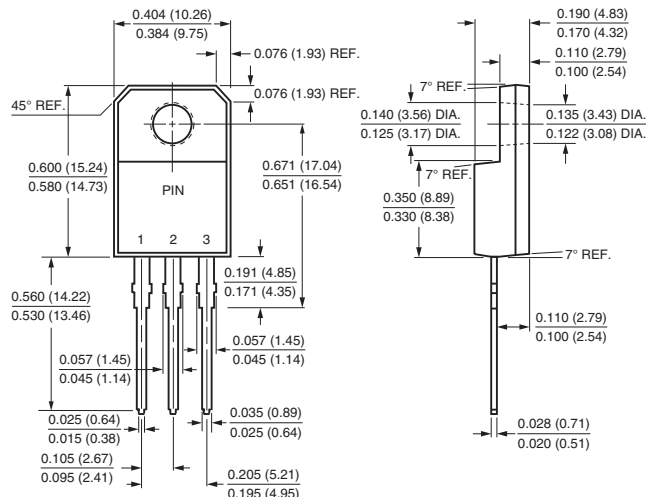


## PACKAGE OUTLINE DIMENSIONS in inches (millimeters)

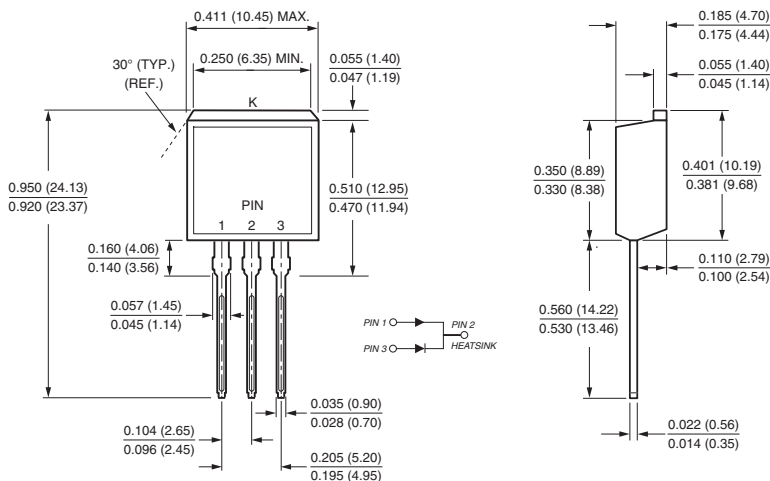
TO-220AB



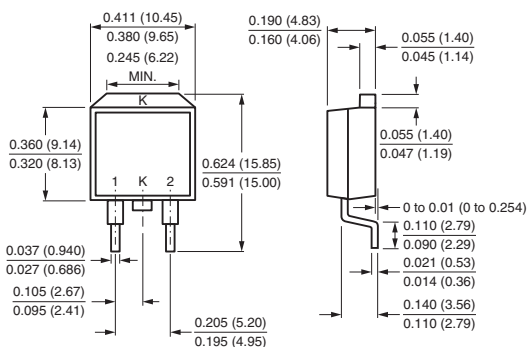
ITO-220AB



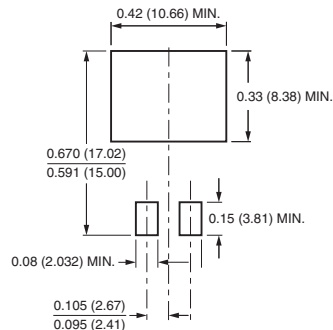
TO-262AA



TO-263AB



Mounting Pad Layout





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