V50100P

New Product **Vishay General Semiconductor**

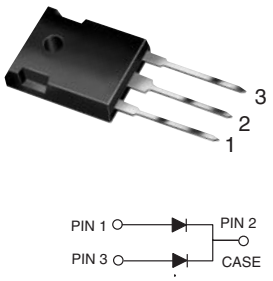
Dual High-Voltage Trench MOS Barrier Schottky Rectifier

Ultra Low V_F = 0.372 V at I_F = 5 A

Major Ratings and Characteristics

$I_{F(AV)}$	2 x 25 A
V_{RRM}	100 V
I_{FSM}	250 A
V_F at I_F = 20 A	0.64 V
T_J max.	150 °C

TO-247AD (TO-3P)



Features

- Trench MOS Schottky Technology
- Low forward voltage drop, low power losses
- High efficiency operation
- Low thermal resistance
- Solder Dip 260 °C, 40 seconds

Typical Applications

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

Mechanical Data

Case: TO-247AD (TO-3P)

Epoxy meets UL 94V-0 flammability rating

Terminals: Matte tin plated leads, solderable per J-STD-002B and JESD22-B102D

E3 suffix for commercial grade

Polarity: As marked

Mounting Torque: 10 in-lbs Maximum

Maximum Ratings

(T_A = 25 °C unless otherwise specified)

Parameter		Symbol	V50100P	Unit
Maximum repetitive peak reverse voltage		V_{RRM}	100	V
RMS reverse voltage for sine wave		V_{RMS}	70	V
DC blocking voltage		V_R	100	V
Maximum average forward rectified current (see Fig. 1)	per device per leg	$I_{F(AV)}$	50 25	A
Peak forward surge current 8.3 ms single half sine-wave superimposed on rated load	per leg	I_{FSM}	250	A
Peak repetitive reverse current per leg at t_p = 2 µs, 1 kHz		I_{RRM}	1.0	A
Operating junction and storage temperature range		T_J, T_{STG}	- 20 to + 150	°C

Electrical Characteristics

(T_A = 25 °C unless otherwise specified)

Parameter	Test condition		Symbol	Typ.	Max.	Unit
Breakdown voltage	at I_R = 1.0 mA	T_J = 25 °C	$V_{(BR)}$	100 (minimum)	-	V
Instantaneous forward voltage (1) per leg	at I_F = 5 A	T_J = 25 °C	V_F	0.463	-	V
	I_F = 10 A			0.535	-	
	I_F = 20 A			0.664	-	
	I_F = 25 A			0.700	0.78	
	I_F = 5 A	T_J = 125 °C		0.375	-	
	I_F = 10 A			0.445	-	
	I_F = 20 A			0.605	-	
	I_F = 25 A			0.635	0.70	
Reverse current at rated V_{RM} (1) per leg	at V_R = 70 V	T_J = 25 °C	I_R	13.7	500	µA
		T_J = 125 °C		8.4	15	mA
	at V_R = 100 V	T_J = 25 °C		69.6	1000	µA
		T_J = 125 °C		22.5	45	mA

Thermal Characteristics

(T_A = 25 °C unless otherwise specified)

Parameter	Symbol	V50100P	Unit
Typical thermal resistance per leg	$R_{\theta JC}$	1.5	°C/W

Notes:

(1) Pulse test: 300 µs pulse width, 1 % duty cycle

Ratings and Characteristics Curves

(T_A = 25 °C unless otherwise noted)

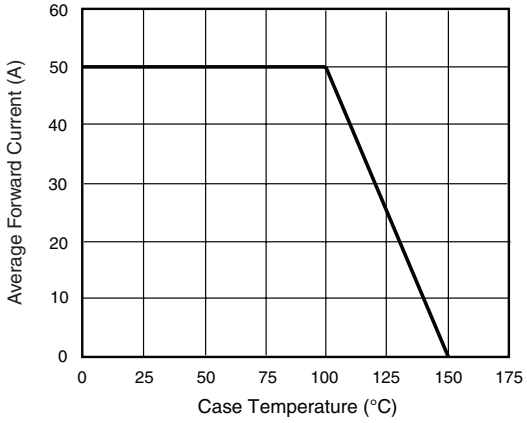


Figure 1. Forward Current Derating Curve

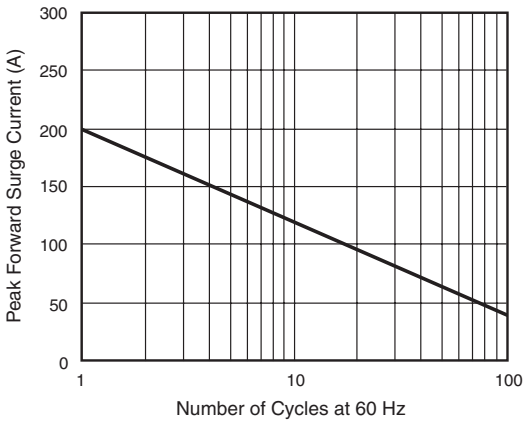


Figure 2. Maximum Non-Repetitive Peak Forward Surge Current

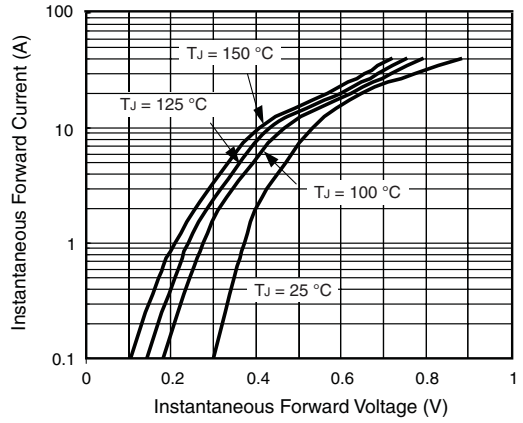


Figure 3. Typical Instantaneous Forward Characteristics Per Leg

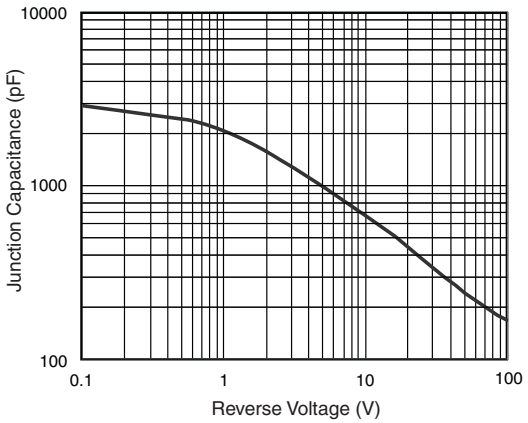


Figure 5. Typical Junction Capacitance

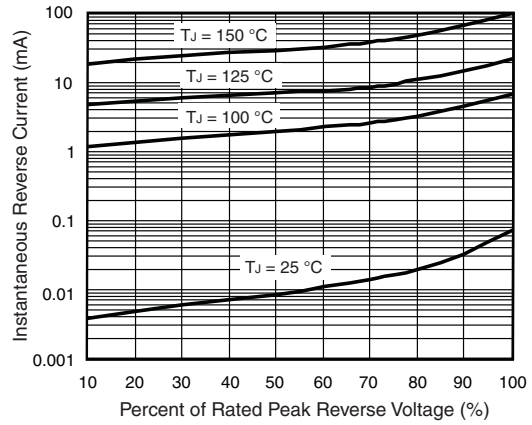


Figure 4. Typical Reverse Characteristics

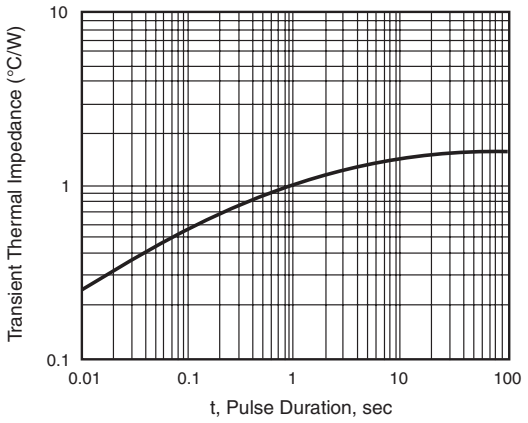
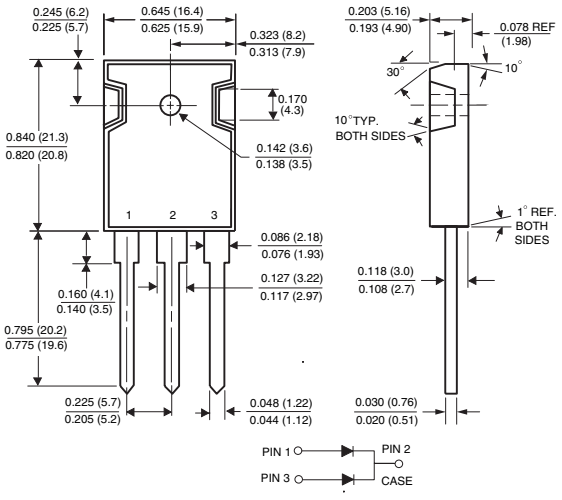


Figure 6. Typical Transient Thermal Impedance

Package outline dimensions in inches (millimeters)

TO-247AD (TO-3P)



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