New Product Vishay General Semiconductor

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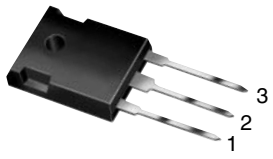
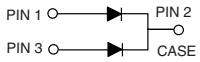
Dual High-Voltage Trench MOS Barrier Schottky Rectifier

Ultra Low V_F = 0.420 V at I_F = 5 A



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
- Component in accordance to RoHS 2002/95/EC and WEEE 2002/96/EC

TYPICAL APPLICATIONS

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

MAJOR RATINGS AND CHARACTERISTICS	
$I_{F(AV)}$	2 x 20 A
V_{RRM}	100 V
I_{FSM}	250 A
V_F at I_F = 20 A	0.67 V
T_j max.	150 °C

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 noted)				
PARAMETER		**SYMBOL**	**V40100PG**	**UNIT**
Maximum repetitive peak reverse voltage		V_{RRM}	100	V
Maximum average forward rectified (see Fig. 1)	per device per diode	$I_{F(AV)}$	40 20	A
Peak forward surge current 10 ms single half sine-wave superimposed on rated load per diode		I_{FSM}	250	A
Peak repetitive reverse current per diode at t_p = 2 µs, 1 kHz		I_{RRM}	1.0	A
Voltage rate of change (rated V_R)		dv/dt	10000	V/µs
Operating junction and storage temperature range		T_J, T_{STG}	- 40 to + 150	°C

ELECTRICAL CHARACTERISTICS (T_A = 25 °C unless otherwise noted)					
PARAMETER	**TEST CONDITIONS**	**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 diode	at I_F = 5 A I_F = 10 A T_J = 25 °C I_F = 20 A	V_F	0.490 0.572 0.731	- - 0.81	V
	at I_F = 5 A I_F = 10 A T_J = 125 °C I_F = 20 A		0.42 0.50 0.67	- - 0.73	

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ELECTRICAL CHARACTERISTICS (T_A = 25 °C unless otherwise noted)					
PARAMETER	**TEST CONDITIONS**	**SYMBOL**	**TYP.**	**MAX.**	**UNIT**
Reverse current at rated V_R (1) per diode	at V_R = 70 V, T_J = 25 °C	I_R	8.4	300	µA
	at V_R = 70 V, T_J = 125 °C		7.4	15	mA
	at V_R = 100 V, T_J = 25 °C		40.5	500	µA
	at V_R = 100 V, T_J = 125 °C		18.2	35	mA

Note:

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

THERMAL CHARACTERISTICS (T_A = 25 °C unless otherwise noted)			
PARAMETER	**SYMBOL**	**V40100PG**	**UNIT**
Typical thermal resistance per diode	$R_{\theta JC}$	2.0	°C/W

ORDERING INFORMATION				
PREFERRED P/N	**UNIT WEIGHT (g)**	**PREFERRED PACKAGE CODE**	**BASE QUANTITY**	**DELIVERY MODE**
V40100PG-E3/45	6.109	45	30/Tube	Tube

RATINGS AND CHARACTERISTICS CURVES

(T_A = 25 °C unless otherwise noted)

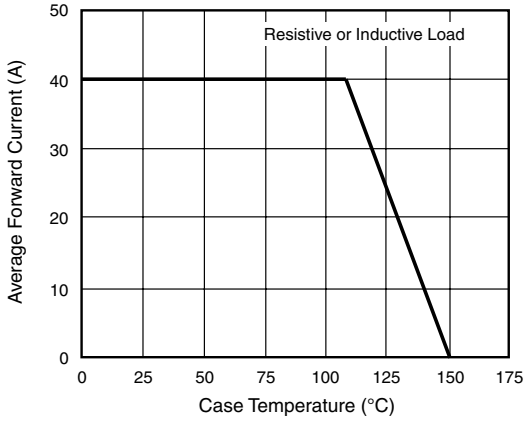

Figure 1. Forward Current Derating Curve

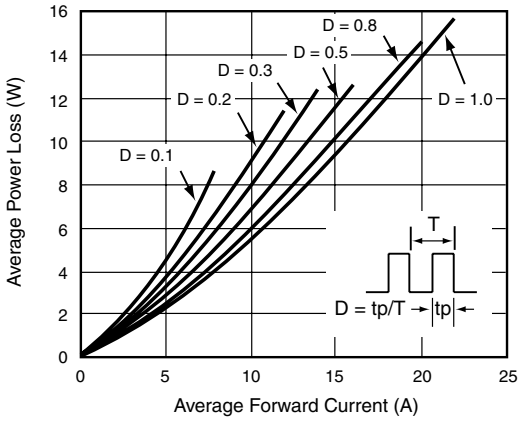

Figure 2. Forward Power Loss Characteristics Per Diode

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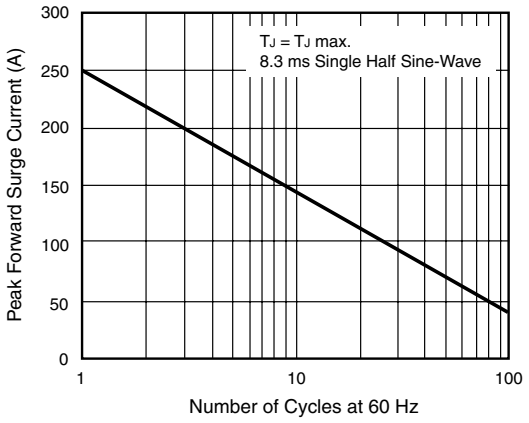

Figure 3. Maximum Non-Repetitive Peak Forward Surge Current Per Diode

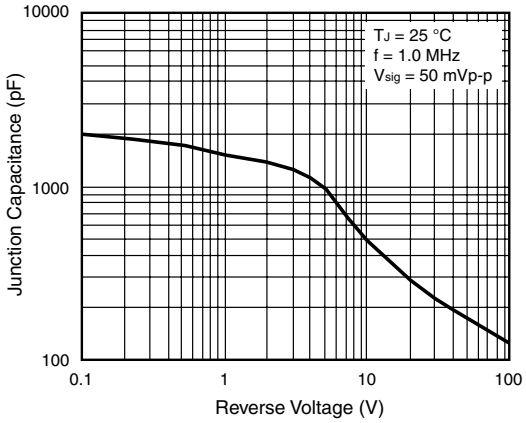

Figure 6. Typical Junction Capacitance Per Diode

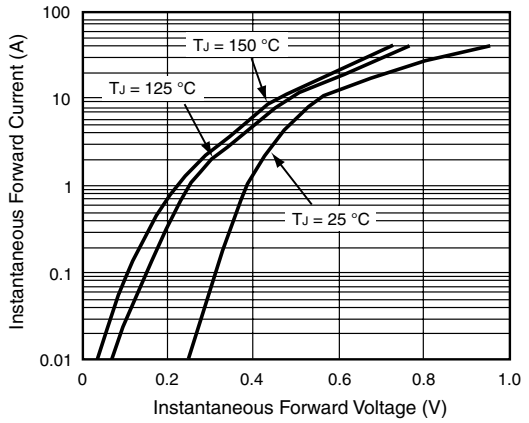

Figure 4. Typical Instantaneous Forward Characteristics Per Diode

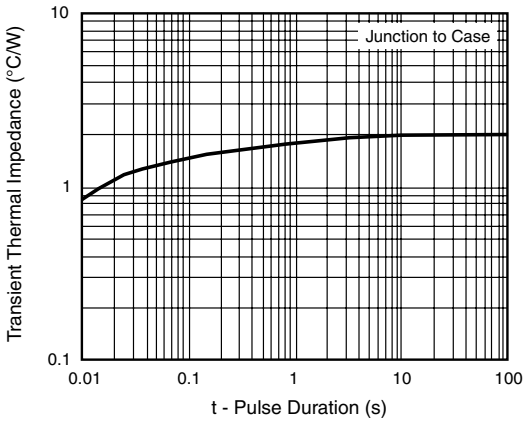

Figure 7. Typical Transient Thermal Impedance Per Diode

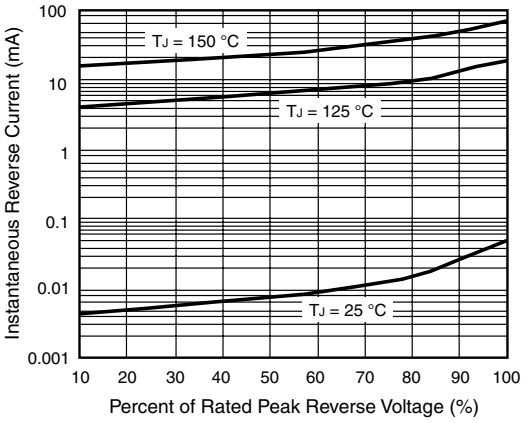

Figure 5. Typical Reverse Characteristics Per Diode

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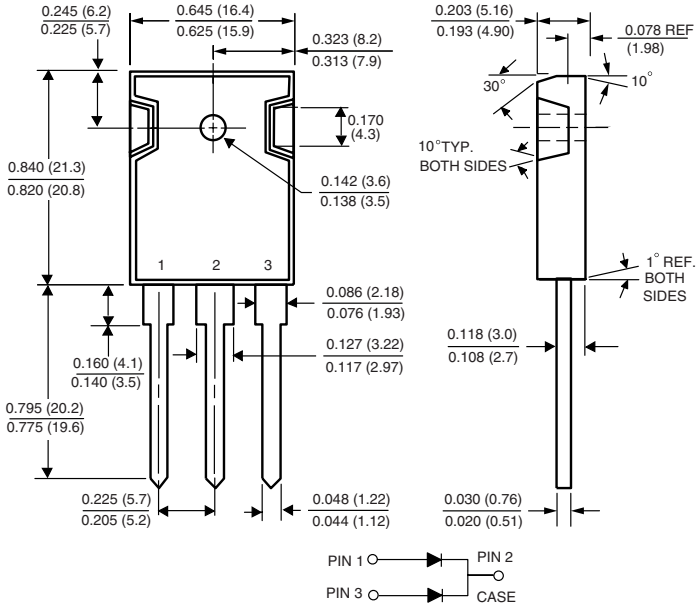
PACKAGE OUTLINE DIMENSIONS in inches (millimeters)

TO-247AD (TO-3P)



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