

Dual High-Voltage Trench MOS Barrier Schottky Rectifier

Ultra Low $V_F = 0.372\text{ V}$ at $I_F = 5\text{ A}$

Major Ratings and Characteristics

$I_{F(AV)}$	2 x 25 A
V_{RRM}	100 V
I_{FSM}	250 A
V_F at $I_F = 20\text{ A}$	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



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

Typical Applications

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

Maximum Ratings

($T_A = 25\text{ °C}$ 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)	$I_{F(AV)}$	50 25	A
Peak forward surge current 8.3 ms single half sine-wave superimposed on rated load	I_{FSM}	250	A
Peak repetitive reverse current per leg at $t_p = 2\text{ }\mu\text{s}$, 1 kHz	I_{RRM}	1.0	A
Operating junction and storage temperature range	T_J, T_{STG}	- 20 to + 150	°C

Electrical Characteristics

($T_A = 25\text{ }^{\circ}\text{C}$ unless otherwise specified)

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

Thermal Characteristics

($T_A = 25\text{ }^{\circ}\text{C}$ unless otherwise specified)

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

Notes:

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

Ratings and Characteristics Curves

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

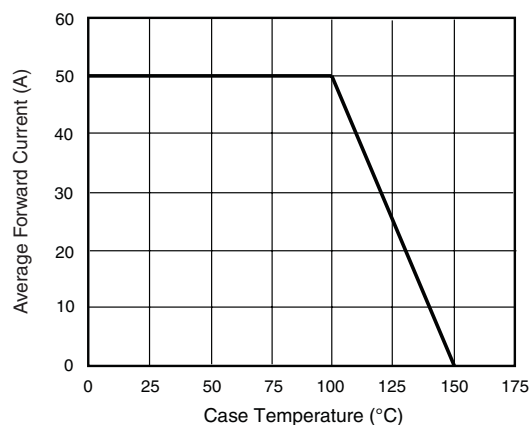


Figure 1. Forward Current Derating Curve

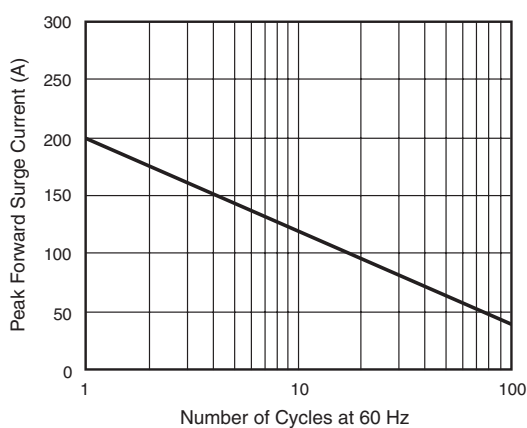


Figure 2. Maximum Non-Repetitive Peak Forward Surge Current

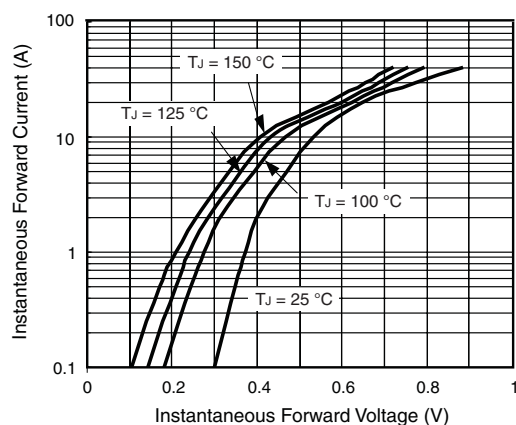


Figure 3. Typical Instantaneous Forward Characteristics Per Leg

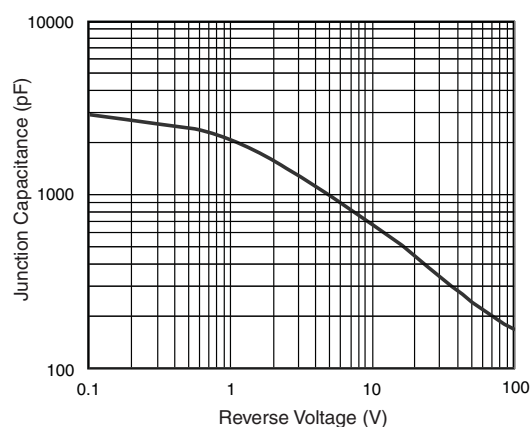


Figure 5. Typical Junction Capacitance

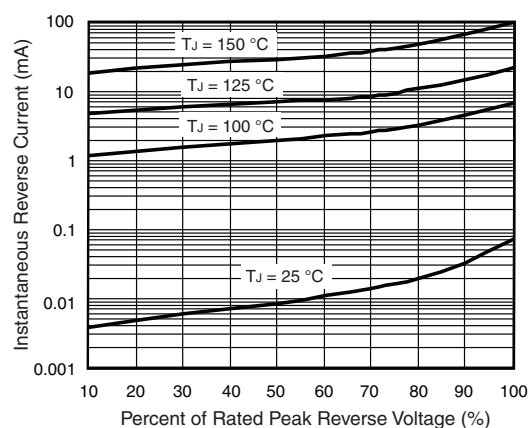


Figure 4. Typical Reverse Characteristics

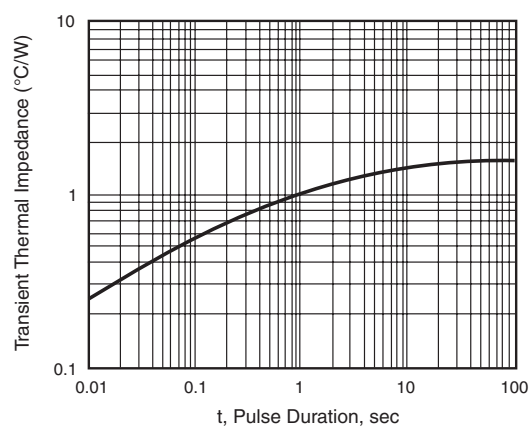
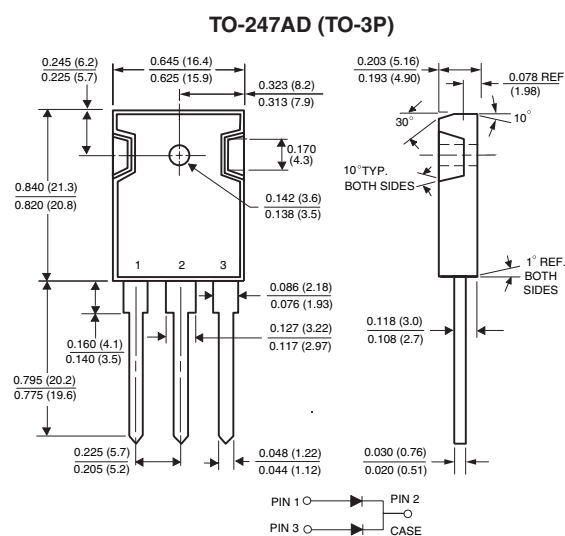


Figure 6. Typical Transient Thermal Impedance

Package outline dimensions in inches (millimeters)





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