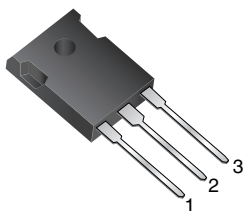


# Dual Common Cathode Schottky Rectifier


**TO-3P (TO-247AD)**


## FEATURES

- Power pack
- Guardring for overvoltage protection
- Lower power losses, high efficiency
- Low forward voltage drop
- High forward surge capability
- High frequency operation
- Solder dip 275 °C max. 10 s, per JESD 22-B106
- Material categorization: for definitions of compliance please see [www.vishay.com/doc?99912](http://www.vishay.com/doc?99912)



## TYPICAL APPLICATIONS

For use in low voltage, high frequency rectifier of switching mode power supplies, freewheeling diodes, DC/DC converters, or polarity protection application.

## MECHANICAL DATA

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

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

$I_{F(AV)}$	30 A
$V_{RRM}$	45 V
$I_{FSM}$	400 A
$V_F$	0.47 V
$T_J$ max.	150 °C
Package	TO-3P (TO-247AD)
Circuit configuration	Common cathode

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

PARAMETER	SYMBOL	SD241P	UNIT
Maximum repetitive peak reverse voltage $T_C = 25\text{ °C}$	$V_{RRM}$	45	V
Maximum blocking voltage $T_C = 25\text{ °C}$	$V_{DC}$	45	V
Maximum working peak reverse voltage	$V_{RWM}$	35	V
Maximum average forward rectified current at $T_C = 105\text{ °C}$	$I_{F(AV)}$	30	A
Peak forward surge current 8.3 ms single half sine-wave superimposed on rated load per diode	$I_{FSM}$	400	A
Peak repetitive reverse surge current per diode	$I_{RSM}^{(1)}$	2.0	A
Voltage rate of change $V_R = 35\text{ V}$	$dV/dt$	10 000	V/ $\mu$ s
Operating junction temperature range	$T_J$	-65 to +150	°C
Storage temperature range	$T_{STG}$	-65 to +175	°C

### Note

<sup>(1)</sup> 2.0  $\mu$ s pulse width,  $f = 1.0\text{ kHz}$

## ELECTRICAL CHARACTERISTICS ( $T_A = 25\text{ °C}$ unless otherwise noted)

PARAMETER	SYMBOL	TEST CONDITIONS	SD241P	UNIT
Maximum instantaneous forward voltage	$V_F^{(1)}$	$I_F = 10\text{ A}$ $T_C = 25\text{ °C}$	0.47	V
		$I_F = 20\text{ A}$ $T_C = 125\text{ °C}$	0.60	
Maximum reverse current at rated $V_R$	$I_R^{(1)}$	$V_R = 35\text{ V}$	$T_C = 25\text{ °C}$	1.0
			$T_C = 125\text{ °C}$	100

### Note

<sup>(1)</sup> Pulse test: 300  $\mu$ s pulse width, 1 % duty cycle

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

PARAMETER	SYMBOL	SD241P	UNIT
Maximum thermal resistance, junction of case per diode	$R_{\theta JC}$	1.4	$^{\circ}\text{C/W}$

**ORDERING INFORMATION** (Example)

PACKAGE	PREFERRED P/N	UNIT WEIGHT (g)	PACKAGE CODE	BASE QUANTITY	DELIVERY MODE
TO-247AD	SD241P-E3/45	6.13	45	30/tube	Tube

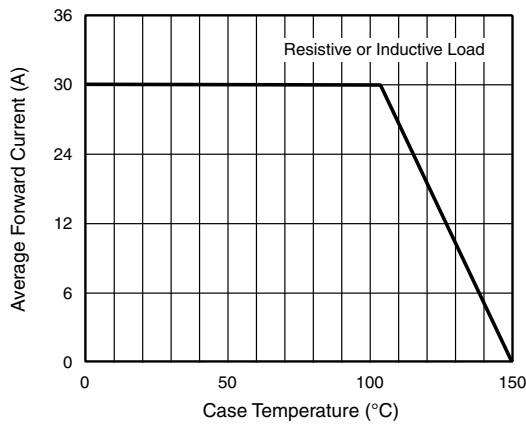
**RATINGS AND CHARACTERISTICS CURVES** ( $T_A = 25\text{ }^{\circ}\text{C}$  unless otherwise noted)


Fig. 1 - Forward Current Derating Curve

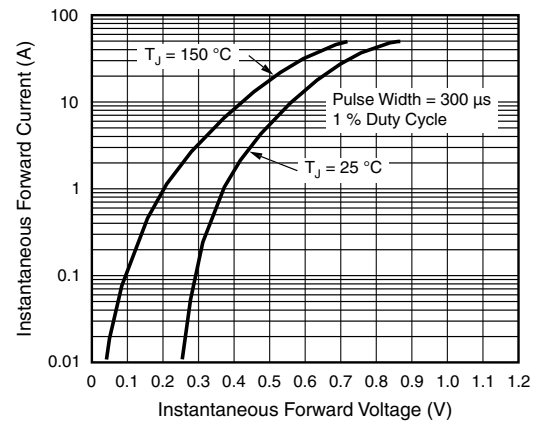


Fig. 3 - Typical Instantaneous Forward Characteristics Per Diode

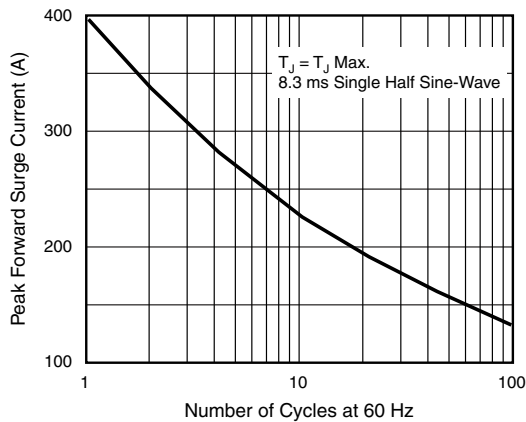


Fig. 2 - Maximum Non-Repetitive Peak Forward Surge Current Per Diode

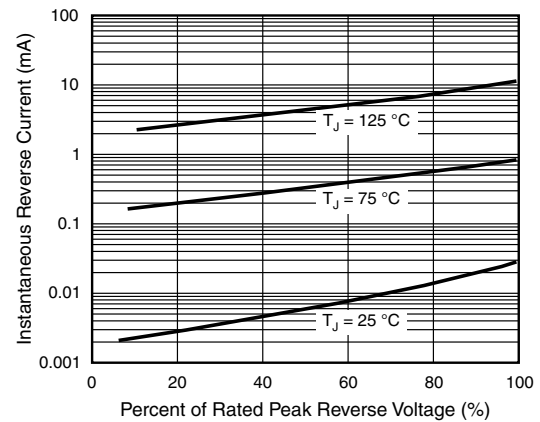


Fig. 4 - Typical Reverse Characteristics Per Diode

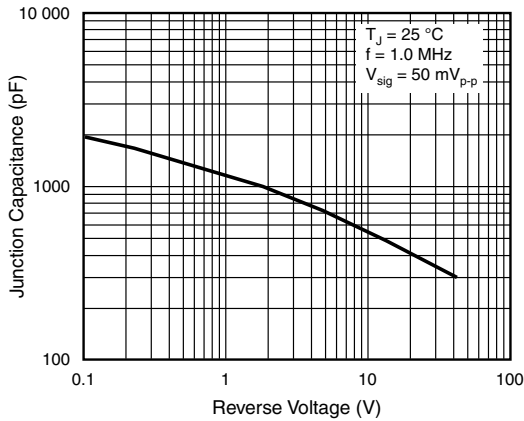


Fig. 5 - Typical Junction Capacitance Per Diode

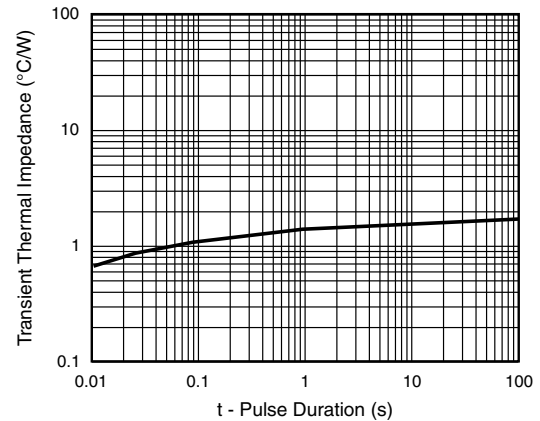
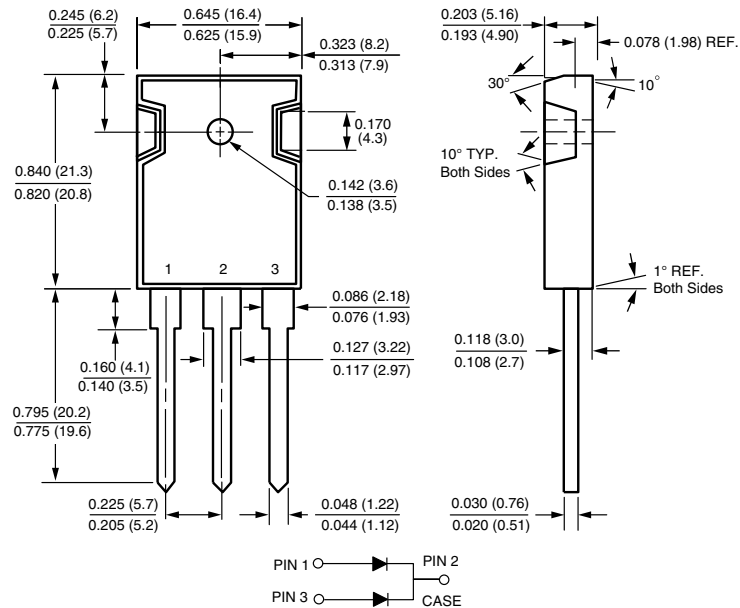


Fig. 6 - Typical Transient Thermal Impedance Per Diode

**PACKAGE OUTLINE DIMENSIONS** in inches (millimeters)

**TO-3P (TO-247AD)**




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