

AUTOMOTIVE

Available

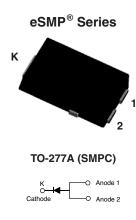
RoHS

HALOGEN



### Vishay General Semiconductor

# Low V<sub>F</sub> High Current Density Surface Mount **Schottky Barrier Rectifiers**



PRIMARY CHARACTERISTICS					
I <sub>F(AV)</sub>	3.0 A				
V <sub>RRM</sub>	50 V, 60 V				
I <sub>FSM</sub>	150 A				
E <sub>AS</sub>	20 mJ				
V <sub>F</sub> at I <sub>F</sub> = 3.0 A	0.478 V				
T <sub>J</sub> max.	150 °C				

#### TYPICAL APPLICATIONS

For use in low voltage high frequency inverters, freewheeling, DC/DC converters, and polarity protection applications.

#### **FEATURES**

- Very low profile typical height of 1.1 mm
- · Ideal for automated placement
- Low forward voltage drop, low power losses
- High efficiency
- Low thermal resistance
- Meets MSL level 1, per J-STD-020, LF maximum peak of 260 °C
- AEC-Q101 qualified
- Compliant to RoHS Directive 2002/95/EC and in accordance to WEEE 2002/96/EC
- Halogen-free according to IEC 61249-2-21 definition

#### **MECHANICAL DATA**

Case: TO-277A (SMPC)

Molding compound meets UL 94 V-0 flammability rating Base P/N-M3 - halogen-free, RoHS compliant, and

commercial grade

Base P/NHM3 - halogen-free, RoHS compliant, and

automotive grade

Terminals: Matte tin plated leads, solderable

J-STD-002 and JESD 22-B102

M3 suffix meets JESD 201 class 1A whisker test, HM3 suffix

meets JESD 201 class 2 whisker test

<b>MAXIMUM RATINGS</b> (T <sub>A</sub> = 25 °C unless otherwise noted)					
PARAMETER	SYMBOL	SS3P5L	SS3P6L	UNIT	
Device marking code		S35	S36		
Maximum repetitive peak reverse voltage	V <sub>RRM</sub>	50	60	V	
Maximum average forward rectified current (fig. 1)	I <sub>F(AV)</sub>	3.0		А	
Peak forward surge current 10 ms single half sine-wave superimposed on rated load	I <sub>FSM</sub>	150		А	
Non-repetitive avalanche energy at $I_{AS} = 2.0 \text{ A}$ , $T_J = 25 ^{\circ}\text{C}$	E <sub>AS</sub>	20		mJ	
Operating junction and storage temperature range	T <sub>J</sub> , T <sub>STG</sub>	- 55 to + 150		°C	

# SS3P5L, SS3P6L

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<b>ELECTRICAL CHARACTERISTICS</b> (T <sub>A</sub> = 25 °C unless otherwise noted)							
PARAMETER	TEST CONDITIONS		SYMBOL	TYP.	MAX.	UNIT	
Maximum instantaneous forward voltage	I <sub>F</sub> = 1.5 A	- T <sub>A</sub> = 25 °C	V <sub>F</sub> <sup>(1)</sup>	0.464	-	. V	
	I <sub>F</sub> = 3.0 A			0.542	0.60		
	I <sub>F</sub> = 1.5 A	- T <sub>A</sub> = 125 °C		0.379	-		
	I <sub>F</sub> = 3.0 A			0.478	0.54		
Maximum reverse current	Potod V	T <sub>A</sub> = 25 °C	I <sub>R</sub> <sup>(2)</sup>	8.4	150	μΑ	
	Rated V <sub>R</sub>	T <sub>A</sub> = 125 °C		3.4	15	mA	
Typical junction capacitance	4.0 V, 1 MHz		CJ	200	-	μΑ	

 $^{(1)}$  Pulse test: 300  $\mu s$  pulse width, 1 % duty cycle

(2) Pulse test: Pulse width ≤ 40 ms

THERMAL CHARACTERISTICS (T <sub>A</sub> = 25 °C unless otherwise specified)						
PARAMETER	SYMBOL	SS3P5L SS3P6L		UNIT		
Typical the grad vaciation as	R <sub>0</sub> JA <sup>(1)</sup>	65		°C/W		
Typical thermal resistance	$R_{ heta JL}$	3				

#### Note

<sup>(1)</sup> Units mounted on recommended PCB 1 oz. pad layout

ORDERING INFORMATION (Example)						
PREFERRED P/N	UNIT WEIGHT (g)	PACKAGE CODE	BASE QUANTITY	DELIVERY MODE		
SS3P5L-M3/86A	0.10	86A	1500	7" diameter plastic tape and reel		
SS3P5L-M3/87A	0.10	87A	6500	13" diameter plastic tape and reel		
SS3P5LHM3/86A <sup>(1)</sup>	0.10	86A	1500	7" diameter plastic tape and reel		
SS3P5LHM3/87A (1)	0.10	87A	6500	13" diameter plastic tape and reel		

#### Note

(1) Automotive grade



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### **RATINGS AND CHARACTERISTICS CURVES**

(T<sub>A</sub> = 25 °C unless otherwise noted)

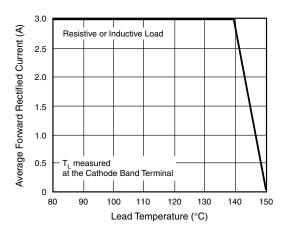


Fig. 1 - Maximum Forward Current Derating Curve

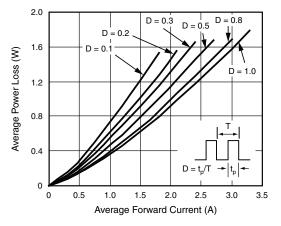


Fig. 2 - Forward Power Loss Characteristics

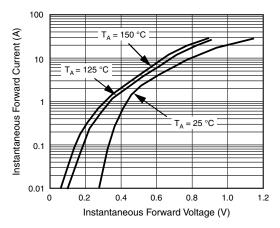


Fig. 3 - Typical Instantaneous Forward Characteristics

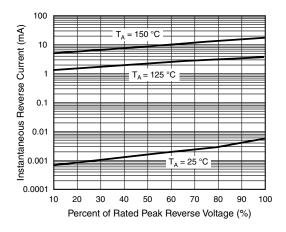


Fig. 4 - Typical Reverse Characteristics

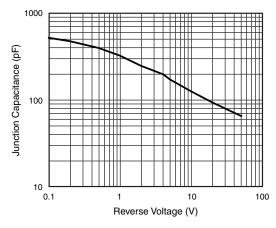


Fig. 5 - Typical Junction Capacitance

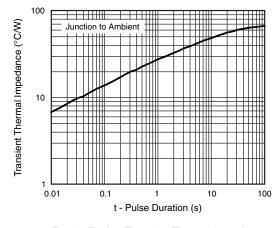


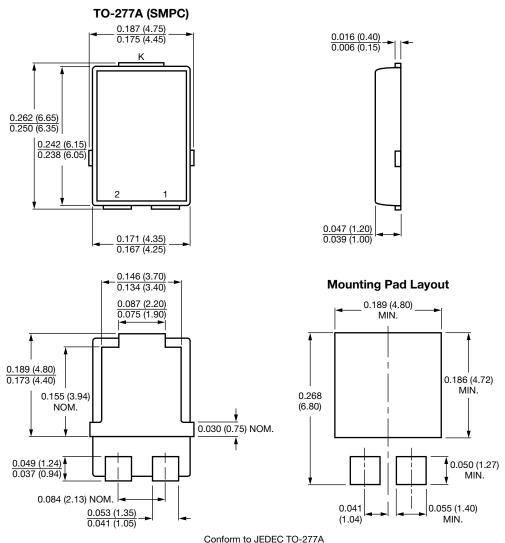
Fig. 6 - Typical Transient Thermal Impedance

# SS3P5L, SS3P6L

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







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