

# AUTOMOTIVE LOW VF SCHOTTKY BARRIER RECTIFIER

Reverse Voltage - 60 Volts

Forward Current - 1.0Amperes

## FEATURES

- Very low profile package
- Ideal for automated placement
- Metal silicon junction ,majority carrier conduction
- Guard ring for overvoltage protection
- Low power loss ,high efficiency
- High current capability ,low forward voltage drop
- High surge capability
- Per J-STD-020,LF maximum peak of 260°C
- Component in accordance to RoHS 2015/65/EU
- AEC-Q101 qualified and PPAP capable



**AEC-Q101 Qualified**

## MECHANICAL DATA

- Case: Flat lead SOD-123FL small outline plastic package
- Molding compound meets UL 94 V-0 flammability rating
- Terminals: solderable per J-STD-002 and JESD22-B102
- Polarity: color band denotes cathode end
- Mounting Position: Any
- Weight: 8.85 mg(approximately)



## TYPICAL APPLICATIONS

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

Primary Characteristics	
$I_F(AV)$	1.0A
$V_{RRM}$	60V
$I_{FSM}$	40A
$V_F$ at $I_F=1.0A(125^\circ C)$	0.41V
$I_R(Max)$	30 $\mu$ A
$T_J(Max)$	150°C
Package	SOD-123FL

## MAXIMUM RATINGS

(Ratings at 25°C ambient temperature unless otherwise specified )

Parameter	Symbol	Value	Unit
Maximum repetitive peak reverse voltage	$V_{RRM}$	60	V
Maximum average forward rectified current (see fig.1)	$I_F(AV)$	1.0	A
Peak forward surge current 8.3ms single half sine-wave superimposed on rated load (JEDEC method at rated TL)	$I_{FSM}$	40	A
Operating junction temperature range	$T_J$	-55 to+150	°C
Storage temperature range	$T_{stg}$	-55 to+150	°C

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

Parameter	Test Conditions		Symbol	Typ.	Max.	Unit
Instaneous forward voltage	$I_F=1.0\text{A}$	$T_J=25^{\circ}\text{C}$	$V_F$ <sup>1)</sup>	0.47	0.52	V
		$T_J=100^{\circ}\text{C}$		0.43	0.48	
		$T_J=125^{\circ}\text{C}$		0.41	0.46	
Reverse current	$V_R=60\text{V}$	$T_J=25^{\circ}\text{C}$	$I_R$ <sup>2)</sup>	8.0	30	$\mu\text{A}$
		$T_J=100^{\circ}\text{C}$		-	5.0	mA
		$T_J=125^{\circ}\text{C}$		-	23	
Typical junction capacitance	4V,1MHz		$C_J$	78		pF

Notes: 1.Pulse test: 300  $\mu\text{s}$  pulse width,1% duty cycle

2. Pulse test: pulse width $\leq$ 40ms

**THERMAL CHARACTERISTICS**

Parameter	Symbol	KL16-V	Unit
Typical thermal resistance <sup>3)</sup>	Junction to Ambient $R_{\theta JA}$	82	$^{\circ}\text{C}/\text{W}$
	Junction to Lead $R_{\theta JL}$	26	

3. Mounted on 1 inch square pad size (1 x 0.5 inch for each lead) on FR4 board. The heat generated must be less than the thermal conductivity from junction-to-ambient:  $dP_{D}/dT_J < 1/R_{\theta JA}$

**AVAILABLE PACK INFORMATION**

Product code	Pack	Reel Size (mm)	Quantity (pcs/reel)	Box Size LxWxH (mm)	Quantity (reel/box)	Carton Size LxWxH (mm)	Quantity (box/carton)
KL16-V-SOD-123FL	T/R	$\Phi 330$	7500	330x35x333	2	364x364x360	8

FIG.1-FORWARD CURRENT DERATING CURVE

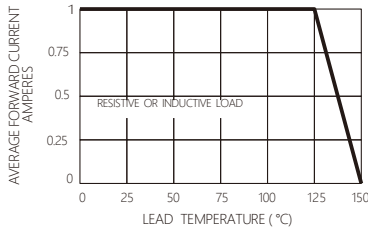


FIG.2-MAXIMUM NON-REPETITIVE PEAK FORWARD SURGE CURRENT

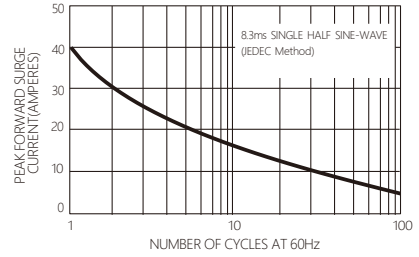


FIG.3-TYPICAL INSTANTANEOUS FORWARD CHARACTERISTICS

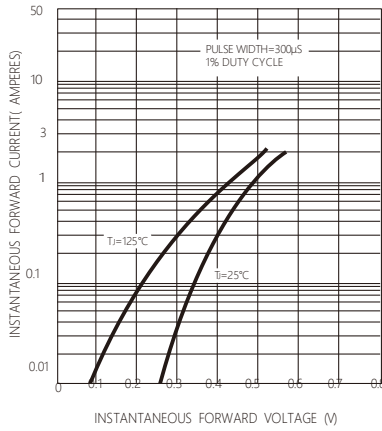


FIG.4-TYPICAL REVERSE CHARACTERISTICS

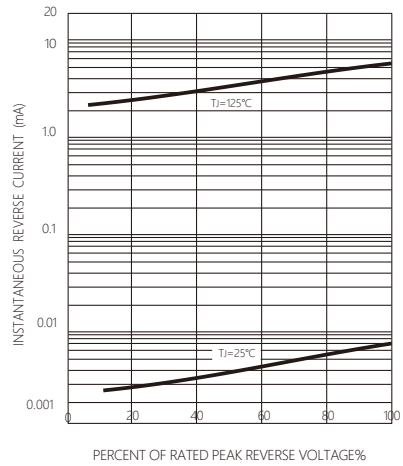
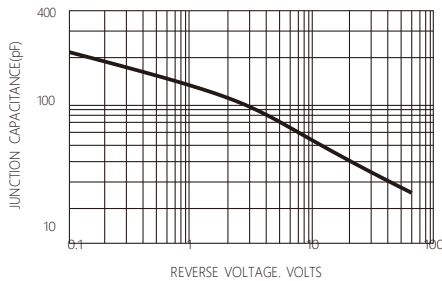
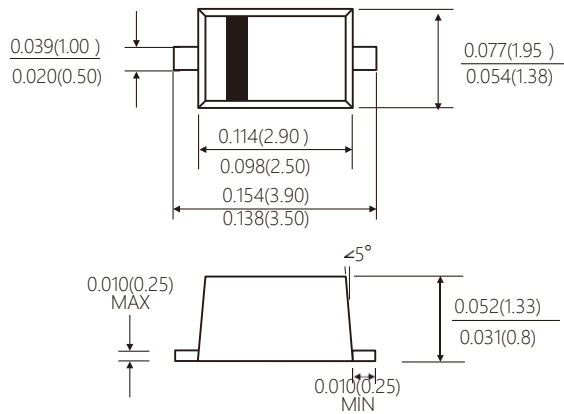


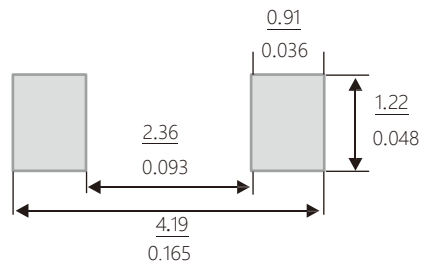
FIG.5-TYPICAL JUNCTION CAPACITANCE



### SOD-123FL



### Suggested PAD Layout



Dimensions in millimeters/inches