

## POWER SCHOTTKY RECTIFIER

### MAIN PRODUCT CHARACTERISTICS

$I_{F(AV)}$	3 A
$V_{RRM}$	60 V
$T_j(max)$	150°C
$V_F(max)$	0.61 V

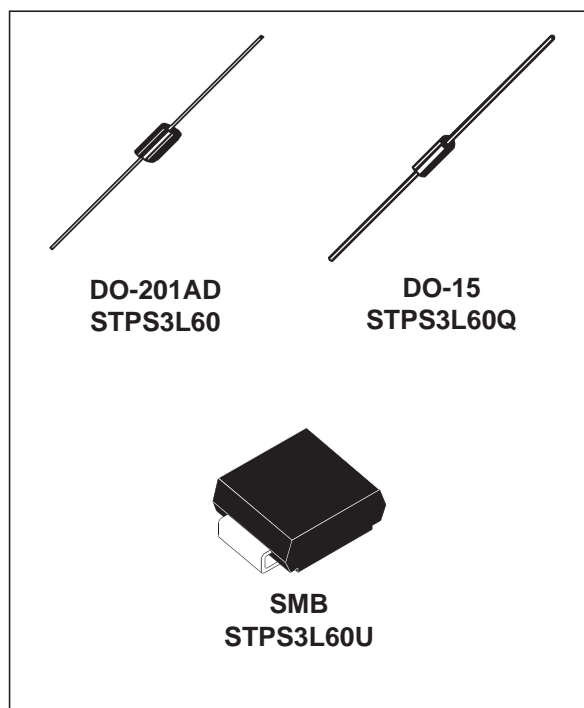
### FEATURES AND BENEFITS

- NEGLIGIBLE SWITCHING LOSSES
- LOW THERMAL RESISTANCE
- AVALANCHE CAPABILITY SPECIFIED

### DESCRIPTION

Axial and Surface Mount Power Schottky rectifier suited for Switch Mode Power Supplies and high frequency DC to DC converters. Packaged in DO-201AD, DO-15 and SMB, this device is intended for use in low voltage, high frequency inverters and small battery chargers.

For applications where there are space constraints, e.g Telecom battery charger.



### ABSOLUTE RATINGS (limiting values)

Symbol	Parameter		Value	Unit
$V_{RRM}$	Repetitive peak reverse voltage		60	V
$I_{F(RMS)}$	RMS forward current		10	A
$I_{F(AV)}$	Average forward current	$T_L = 105^\circ\text{C} \delta = 0.5$ (DO-201AD, SMB)	3	A
		$T_L = 75^\circ\text{C} \delta = 0.5$ (DO-15)		
$I_{FSM}$	Surge non repetitive forward current	$t_p = 10 \text{ ms}$ Sinusoidal	100	A
$P_{ARM}$	Repetitive peak avalanche power	$t_p = 1 \mu\text{s}$ $T_j = 25^\circ\text{C}$	2000	W
$T_{stg}$	Storage temperature range		- 65 to + 150	°C
$T_j$	Maximum operating junction temperature *		150	°C
$dV/dt$	Critical rate of rise of reverse voltage		10000	V/ $\mu\text{s}$

\* :  $\frac{dP_{tot}}{dT_j} < \frac{1}{R_{th(j-a)}}$  thermal runaway condition for a diode on its own heatsink

## STPS3L60/Q/U

### THERMAL RESISTANCES

Symbol	Parameter			Value	Unit
$R_{th(j-l)}$	Junction to leads	Lead length = 10 mm	DO-201AD	20	$^{\circ}\text{C}/\text{W}$
			SMB	20	
			DO-15	35	

### STATIC ELECTRICAL CHARACTERISTICS

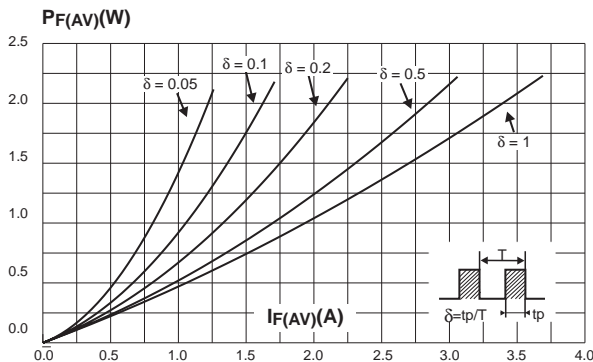
Symbol	Parameter	Tests conditions		Min.	Typ.	Max.	Unit
$I_R^*$	Reverse leakage current	$T_j = 25^{\circ}\text{C}$	$V_R = V_{RRM}$			150	$\mu\text{A}$
		$T_j = 100^{\circ}\text{C}$		4	15	mA	
		$T_j = 125^{\circ}\text{C}$		14	30		
$V_F^*$	Forward voltage drop	$T_j = 25^{\circ}\text{C}$	$I_F = 3\text{ A}$			0.62	V
		$T_j = 100^{\circ}\text{C}$		0.53	0.61		
		$T_j = 125^{\circ}\text{C}$		0.51	0.59		
		$T_j = 25^{\circ}\text{C}$	$I_F = 6\text{ A}$			0.79	
		$T_j = 100^{\circ}\text{C}$		0.62	0.71		
		$T_j = 125^{\circ}\text{C}$		0.6	0.69		

Pulse test : \*  $t_p = 380\ \mu\text{s}$ ,  $\delta < 2\%$

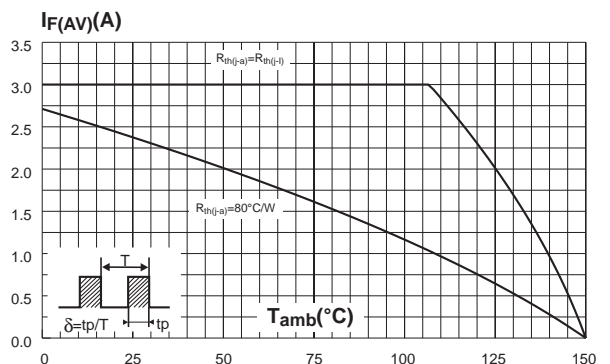
To evaluate the maximum conduction losses use the following equation:

$$P = 0.44 \times I_{F(AV)} + 0.05 \times I_F^2(RMS)$$

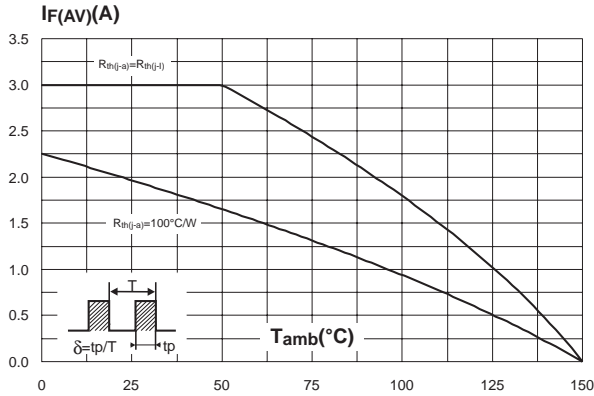
**Fig. 1:** Average forward power dissipation versus average forward current.



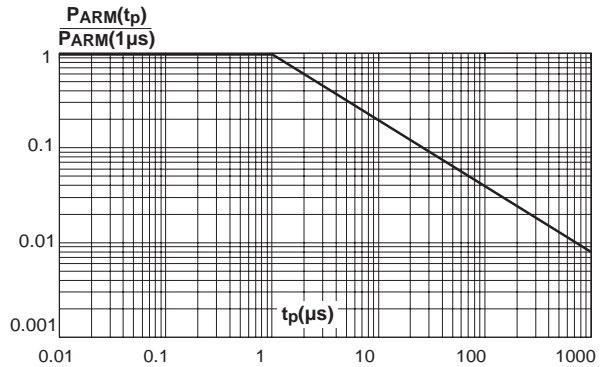
**Fig. 2-1:** Average forward current versus ambient temperature ( $\delta = 0.5$ ) (DO-201AD, SMB).



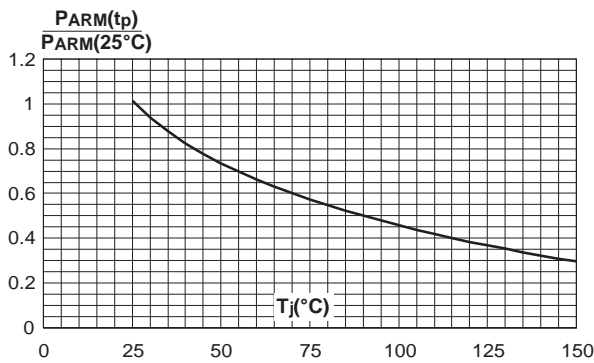
**Fig. 2-2:** Average forward current versus ambient temperature ( $\delta = 0.5$ ) (DO-15).



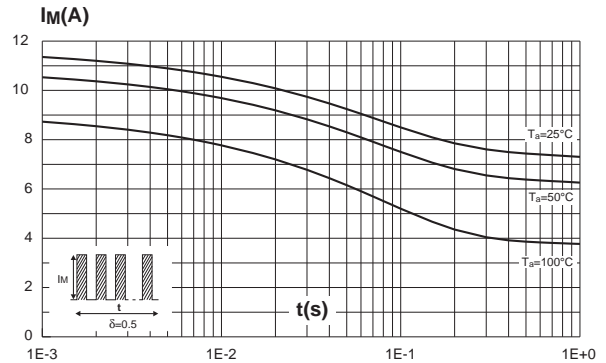
**Fig. 3:** Normalized avalanche power derating versus pulse duration.



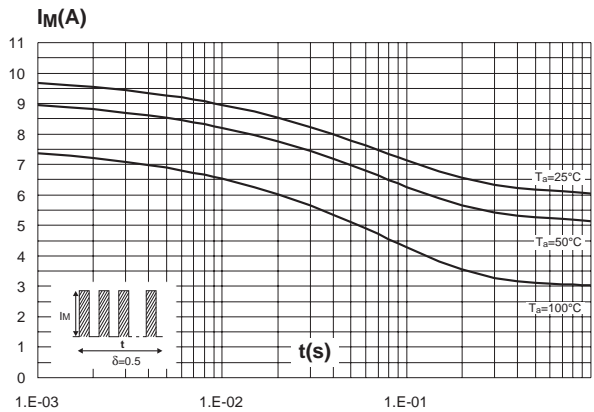
**Fig. 4:** Normalized avalanche power derating versus junction temperature.



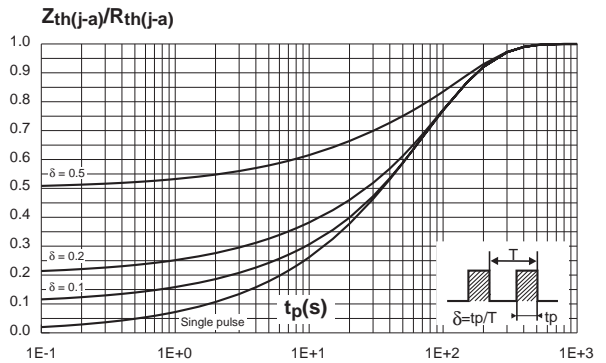
**Fig. 5-1:** Non repetitive surge peak forward current versus overload duration (maximum values) (DO-201AD, SMB).



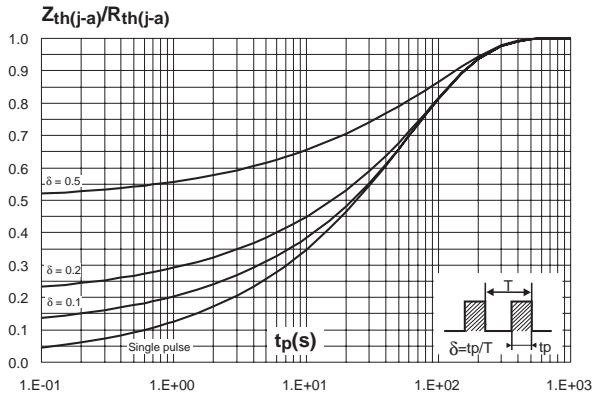
**Fig. 5-2:** Non repetitive surge peak forward current versus overload duration (maximum values) (DO-15).



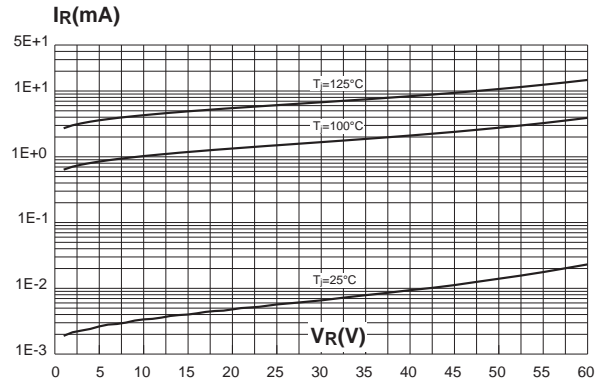
**Fig. 6-1:** Relative variation of thermal impedance junction to ambient versus pulse duration (DO-201AD, SMB).



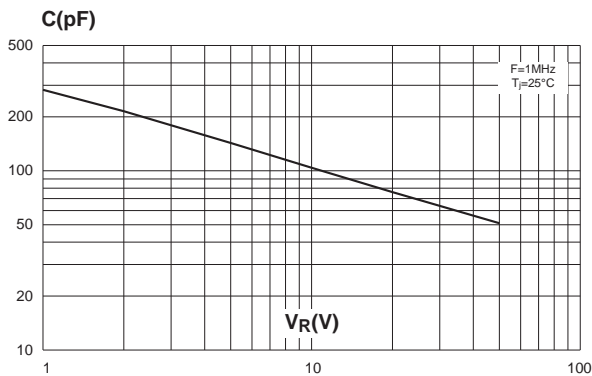
**Fig. 6-2:** Relative variation of thermal impedance junction to ambient versus pulse duration (DO-15).



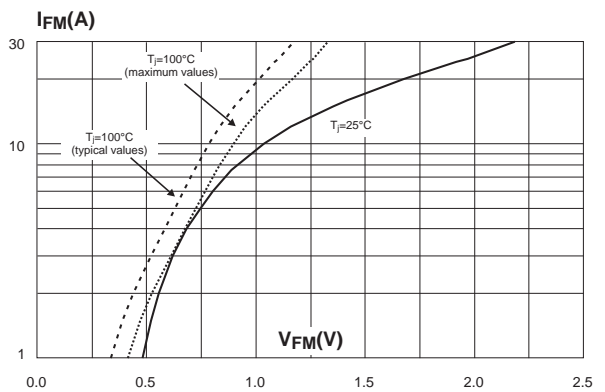
**Fig. 7:** Reverse leakage current versus reverse voltage applied (typical values).



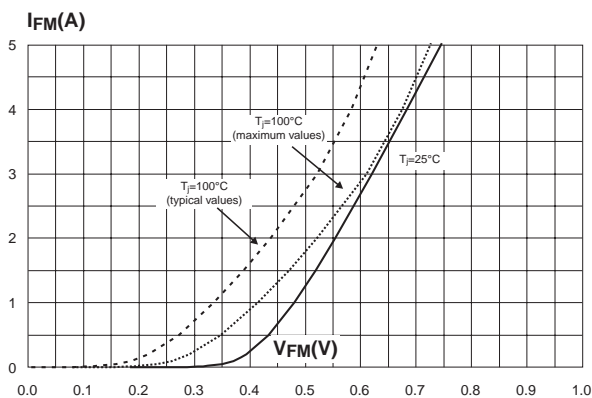
**Fig. 8:** Junction capacitance versus reverse voltage applied (typical values).



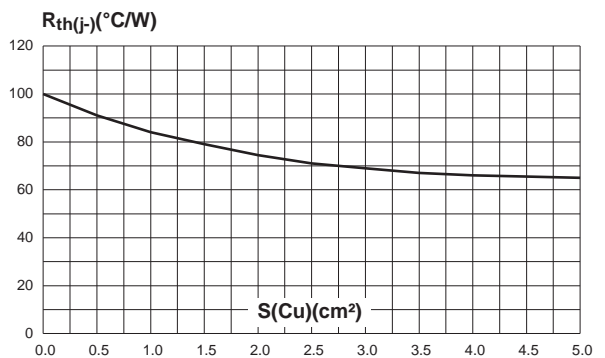
**Fig. 9-1:** Forward voltage drop versus forward current (high level, maximum values).



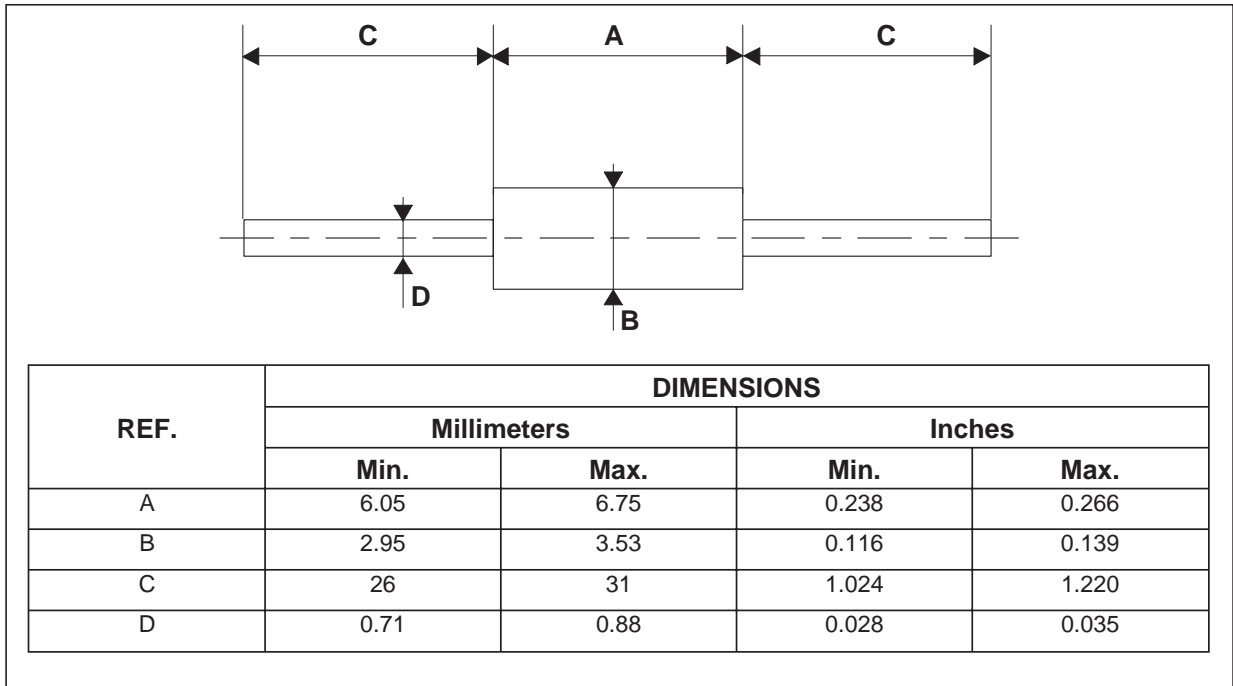
**Fig. 9-2:** Forward voltage drop versus forward current (low level, maximum values).



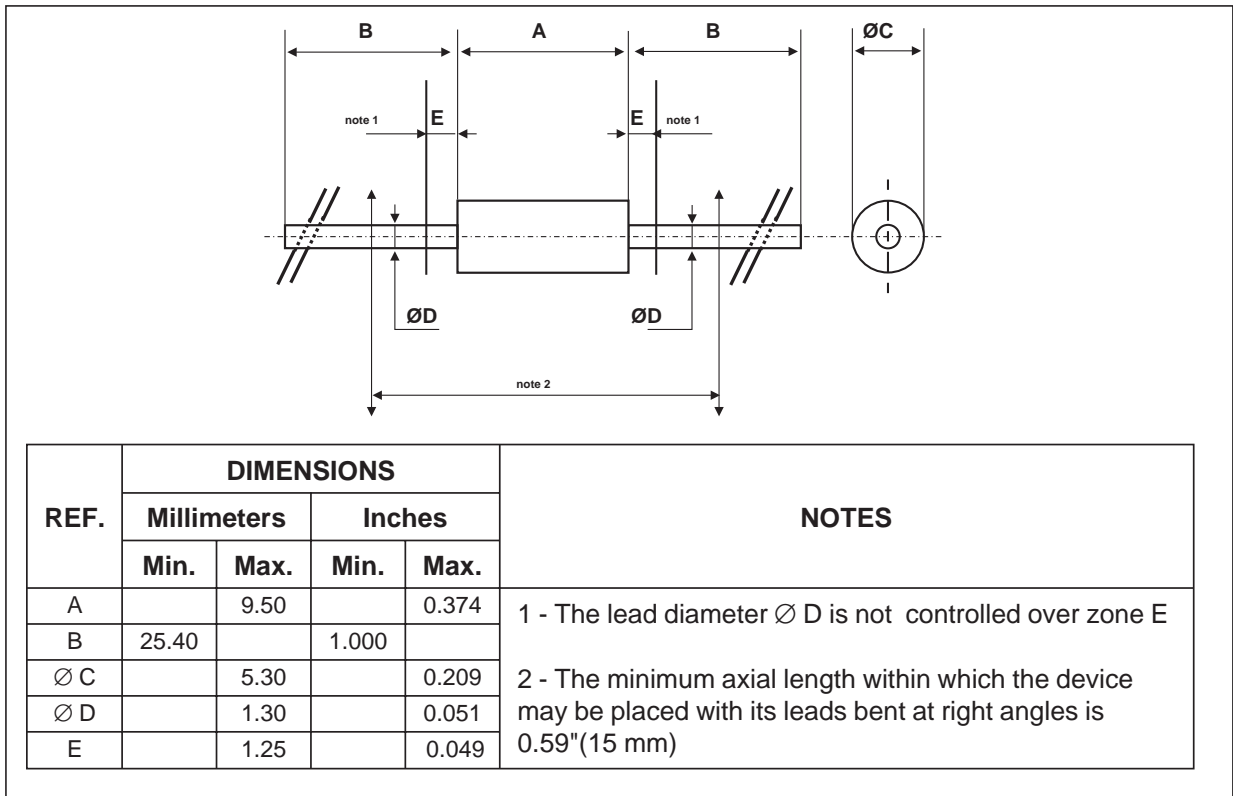
**Fig. 10:** Thermal resistance junction to ambient versus copper surface under each lead (Epoxy printed circuit board FR4, Cu: 35 $\mu\text{m}$ ) (SMB).



**PACKAGE MECHANICAL DATA**  
DO-15 plastic

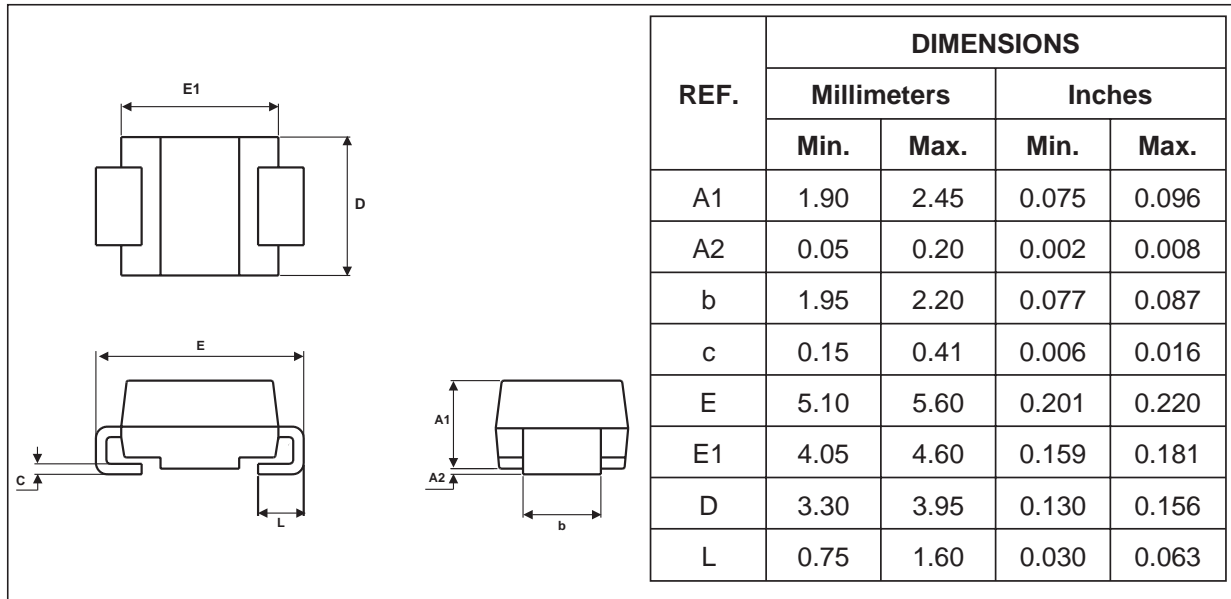


**PACKAGE MECHANICAL DATA**  
DO-201AD plastic

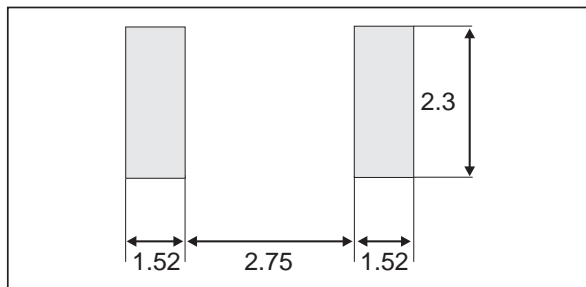


# STPS3L60/Q/U

## PACKAGE MECHANICAL DATA SMB (JEDEC DO-214AA)



### FOOT PRINT DIMENSIONS (in millimeters)



Ordering type	Marking	Package	Weight	Base qty	Delivery mode
STPS3L60	STPS3L60	DO-201AD	1.12g	600	Ammopack
STPS3L60RL	STPS3L60	DO-201AD	1.12g	1900	Tape & Reel
STPS3L60Q	STPS3L60	DO-15	0.4 g	1000	Ammopack
STPS3L60QRL	STPS3L60	DO-15	0.4 g	6000	Tape & Reel
STPS3L60U	G36	SMB	0.107 g	2500	Tape & Reel

- White band indicates cathode
- Epoxy meets UL94,V0

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