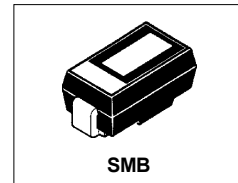


International
IR Rectifier

STPS1L30U

SCHOTTKY RECTIFIER

1 Amp



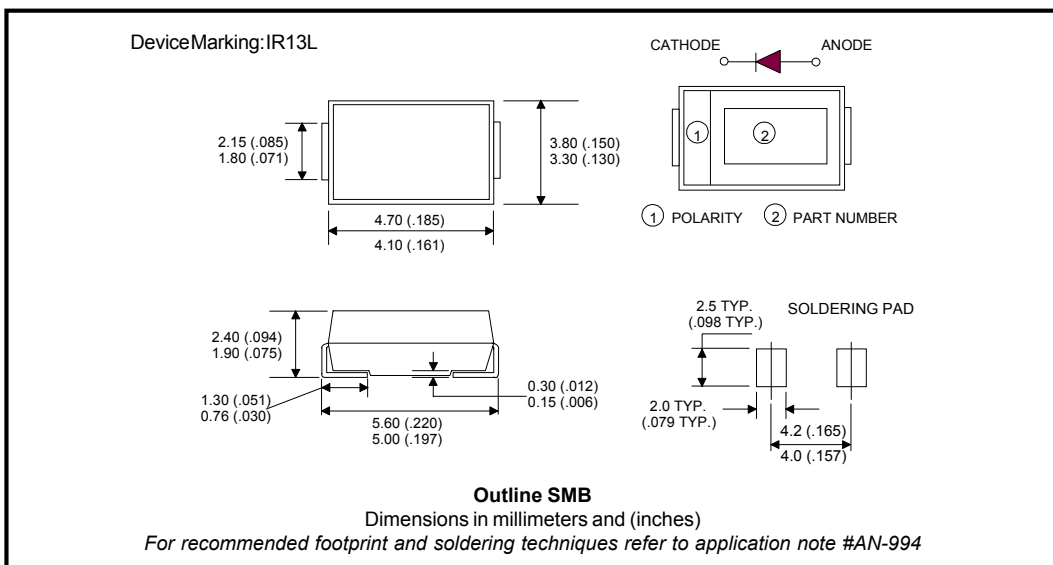
Major Ratings and Characteristics

Characteristics	STPS1L30U	Units
$I_{F(AV)}$ Rectangular waveform	1.0	A
V_{RRM}	30	V
I_{FSM} @ $t_p = 5$ ms sine	360	A
V_F @ $1.0A_{pk}, T_J = 125^\circ C$	0.30	V
T_J range	- 55 to 150	$^\circ C$

Description/Features

The STPS1L30U surface-mount Schottky rectifier has been designed for applications requiring low forward drop and small foot prints on PC boards. Typical applications are in disk drives, switching power supplies, converters, free-wheeling diodes, battery charging, and reverse battery protection.

- Small foot print, surface mountable
- Very low forward voltage drop
- High frequency operation
- Guard ring for enhanced ruggedness and long term reliability



STPS1L30U

Bulletin PD-20583 rev. A 02/02

International
IR Rectifier

Voltage Ratings

Part number	STPS1L30U
V_R Max. DC Reverse Voltage (V)	30
V_{RWM} Max. Working Peak Reverse Voltage (V)	

Absolute Maximum Ratings

Parameters		Value	Units	Conditions		
I _{F(AV)}	Max. Average Forward Current	1.0	A	50% duty cycle @ T _L = 106°C, rectangular waveform		
I _{FSM}	Max. Peak One Cycle Non-Repetitive	360	A	5µs Sine or 3µs Rect. pulse	Following any rated load condition and with rated V _{RRM} applied	
	Surge Current	75		10ms Sine or 6ms Rect. pulse		
E _{AS}	Non-Repetitive Avalanche Energy	9.0	mJ	T _J = 25°C, I _{AS} = 0.8A, L = 10mH		
I _{AR}	Repetitive Avalanche Current	1.0	A			

Electrical Specifications

Parameters			Value	Units	Conditions	
V _{FM}	Max. Forward Voltage Drop (1)		0.420	V	@ 1A	T _J = 25 °C
			0.470	V	@ 2A	
			0.300	V	@ 1A	T _J = 125 °C
			0.375	V	@ 2A	
I _{RM}	Max. Reverse Leakage Current (1)		0.2	mA	T _J = 25 °C	V _R = rated V _R
			5.0	mA	T _J = 100 °C	
			15	mA	T _J = 125 °C	
C _T	Max. Junction Capacitance		200	pF	V _R = 5V _{DC} , (test signal range 100KHz to 1Mhz) 25°C	
L _S	Typical Series Inductance		2.0	nH	Measured lead to lead 5mm from package body	
dv/dt	Max. Voltage Rate of Change (Rated V _R)		10000	V/μs		

(1) Pulse Width < 300 μs , Duty Cycle < 2%

Thermal-Mechanical Specifications

Parameters	Value	Units	Conditions
T_J Max. Junction Temperature Range (*)	-55 to 150	$^\circ\text{C}$	
T_{stg} Max. Storage Temperature Range	-55 to 150	$^\circ\text{C}$	
R_{thJL} Max. Thermal Resistance Junction to Lead (**)	25	$^\circ\text{C/W}$	DC operation
R_{thJA} Max. Thermal Resistance Junction to Ambient	80	$^\circ\text{C/W}$	DC operation
wt Approximate Weight	0.10(0.003)	g(oz.)	
Case Style	SMB		Similar to DO-214AA
Device Marking	IR13L		

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

(**) Mounted 1 inch square PCB

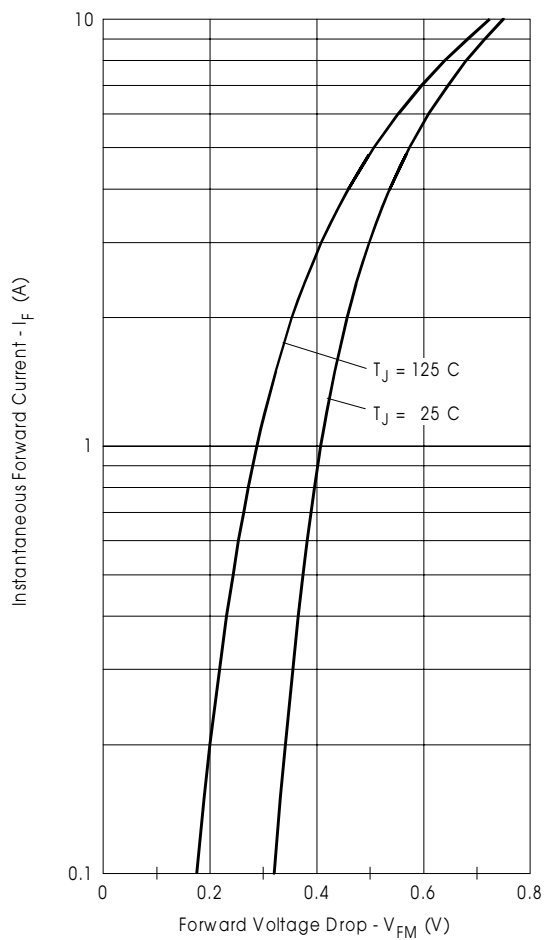


Fig. 1 - Maximum Forward Voltage Drop Characteristics

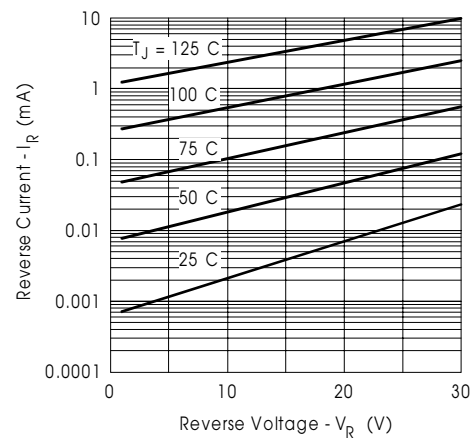


Fig. 2 - Typical Peak Reverse Current Vs. Reverse Voltage

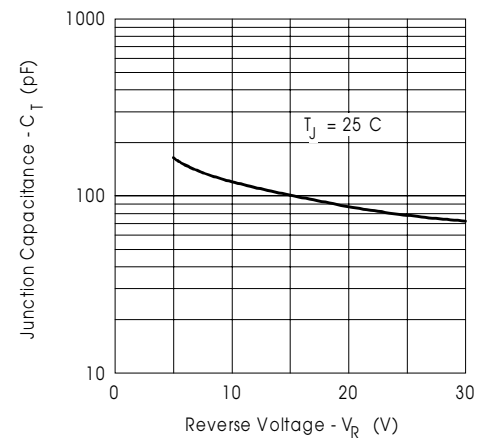


Fig. 3 - Typical Junction Capacitance Vs. Reverse Voltage

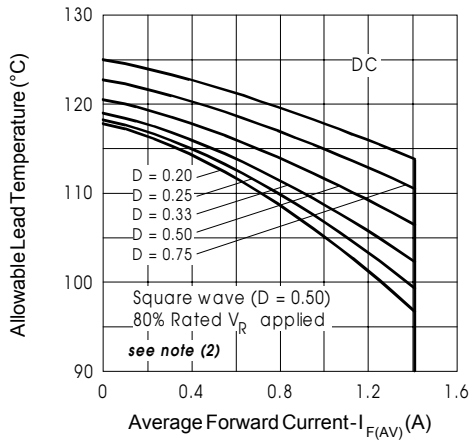


Fig. 4 - Maximum Average Forward Current
Vs. Allowable Lead Temperature

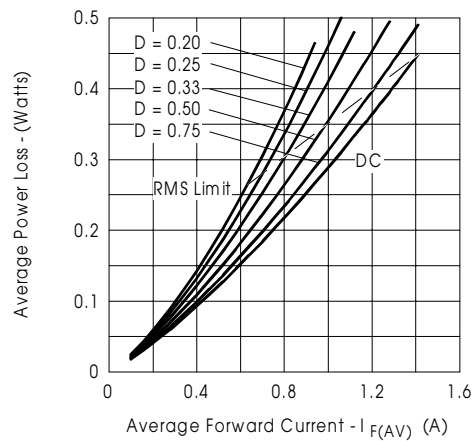


Fig. 5 - Maximum Average Forward Dissipation
Vs. Average Forward Current

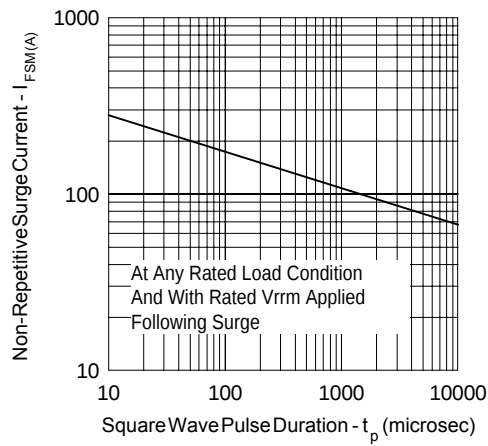


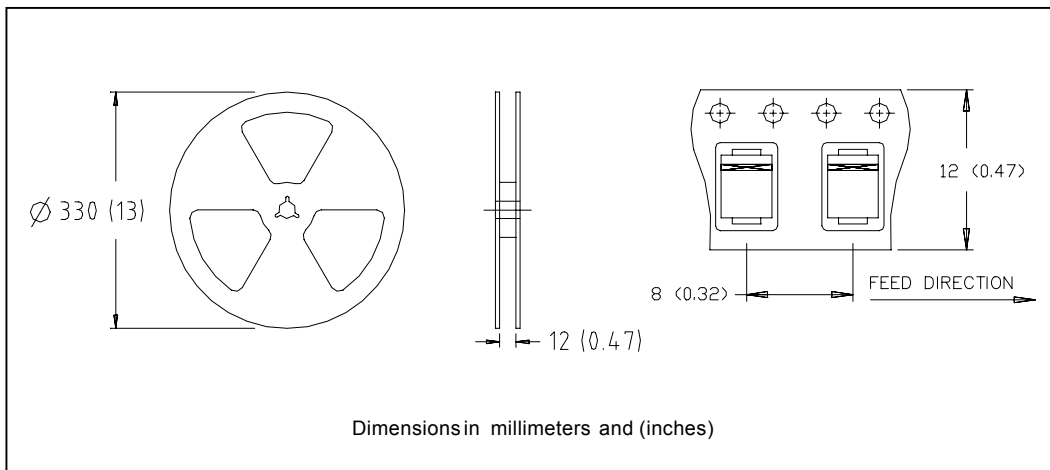
Fig. 6 - Maximum Peak Surge Forward Current Vs. Pulse Duration

(2) Formula used: $T_C = T_J - (P_d + P_{d_{REV}}) \times R_{thJC}$;

P_d = Forward Power Loss = $I_{F(AV)} \times V_{FM} @ (I_{F(AV)} / D)$ (see Fig. 6);

$P_{d_{REV}}$ = Inverse Power Loss = $V_{R1} \times I_R (1 - D)$; $I_R @ V_{R1} = 80\%$ rated V_R

Tape & Reel Information



Marking & Identification

Each device has marking and identification on two rows.
- The first row designates the device as manufactured by International Rectifier as indicated by the letters "IR", then the package label i.e. "G", Current and Voltage.
- The second row shows the data code: Year and Week.

See below marking diagram.

FIRST ROW

IR 13 L

SECOND ROW

Date Code

YY WW

Ordering Information

STPS1L30U - TAPE AND REEL

WHEN ORDERING, INDICATE THE PART NUMBER AND THE QUANTITY (IN MULTIPLES OF 3000 PIECES).

EXAMPLE: STPS1L30U - 6000 PIECES

STPS1L30U

Bulletin PD-20583 rev. A 02/02

International
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Data and specifications subject to change without notice.
This product has been designed and qualified for Industrial Level.
Qualification Standards can be found on IR's Web site.

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