

$I_{F(AV)} = 30\text{Amp}$   
 $V_R = 60\text{V}$

**Major Ratings and Characteristics**

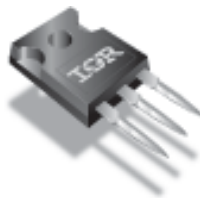
Characteristics	Value	Units
$I_{F(AV)}$ Rectangular waveform	30	A
$V_{RRM}$	60	V
$I_{FSM}$ @tp = 5 $\mu$ s sine	1020	A
$V_F$ @ 15 Apk, $T_J=125^\circ\text{C}$ (per leg)	0.56	V
$T_J$	-55 to 150	$^\circ\text{C}$

**Description/ Features**

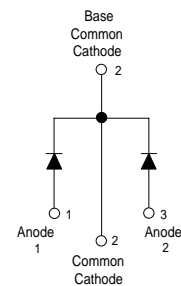
The STPS30L60CW center tap Schottky rectifier has been optimized for very low forward voltage drop, with moderate leakage. The proprietary barrier technology allows for reliable operation up to 150 $^\circ\text{C}$  junction temperature. Typical applications are in switching power supplies, converters, free-wheeling diodes, and reverse battery protection.

- 150 $^\circ\text{C}$   $T_J$  operation
- Center tap TO-247 package
- High purity, high temperature epoxy encapsulation for enhanced mechanical strength and moisture resistance
- Very low forward voltage drop
- High frequency operation
- Guard ring for enhanced ruggedness and long term reliability

**Case Styles**



TO-247AC



# STPS30L60CW

Bulletin PD-20625 rev. A 10/06



## Voltage Ratings

Part number	STPS30L60CW
$V_R$ Max. DC Reverse Voltage (V)	60
$V_{RWM}$ Max. Working Peak Reverse Voltage (V)	

## Absolute Maximum Ratings

Parameters	Value	Units	Conditions
$I_{F(AV)}$ Max. Average Forward Current * See Fig. 5	30	A	50% duty cycle @ $T_C = 112^\circ\text{C}$ , rectangular wave form
$I_{FSM}$ Max. Peak One Cycle Non-Repetitive Surge Current (Per Leg) * See Fig. 7	1020	A	Following any rated load condition and with rated $V_{RWM}$ applied
	265		
$E_{AS}$ Non-Repetitive Avalanche Energy (Per Leg)	13	mJ	$T_J = 25^\circ\text{C}$ , $I_{AS} = 1.50$ Amps, $L = 11.5$ mH
$I_{AR}$ Repetitive Avalanche Current (Per Leg)	1.50	A	Current decaying linearly to zero in 1 $\mu\text{sec}$ Frequency limited by $T_J$ max. $V_A = 1.5 \times V_R$ typical

## Electrical Specifications

Parameters	Value	Units	Conditions
$V_{FM}$ Max. Forward Voltage Drop (Per Leg) * See Fig. 1 (1)		0.60	V @ 15A, $T_J = 25^\circ\text{C}$
		0.80	V @ 30A
		0.56	V @ 15A
		0.70	V @ 30A
$I_{RM}$ Max. Reverse Leakage Current (Per Leg) * See Fig. 2 (1)		0.48	mA, $T_J = 25^\circ\text{C}$
		50 (typ)	mA, $T_J = 125^\circ\text{C}$
		100	mA, $T_J = 125^\circ\text{C}$
$C_T$ Max. Junction Capacitance(Per Leg)	720	pF	$V_R = 5V_{DC}$ , (test signal range 100Khz to 1Mhz) $25^\circ\text{C}$
$L_S$ Typical Series Inductance (Per Leg)	7.5	nH	Measured lead to lead 5mm from package body
dv/dt Max. Voltage Rate of Change	10000	V/ $\mu\text{s}$	(Rated $V_R$ )

(1) Pulse Width < 300 $\mu\text{s}$ , 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	$^\circ\text{C}$	
$R_{thJC}$ Max. Thermal Resistance Junction to Case (Per Leg)	2.20	$^\circ\text{C}/\text{W}$	DC operation * See Fig. 4
$R_{thJC}$ Max. Thermal Resistance Junction to Case (Per Package)	1.10	$^\circ\text{C}/\text{W}$	DC operation
$R_{thCS}$ Typical Thermal Resistance, Case to Heatsink	0.24	$^\circ\text{C}/\text{W}$	Mounting surface, smooth and greased
wt Approximate Weight	6 (0.21)	g (oz.)	
T Mounting Torque	Min.	6 (5)	Kg-cm (lbf-in)
	Max.	12 (10)	
Case Style	TO-247AC (TO-3P)	JEDEC	

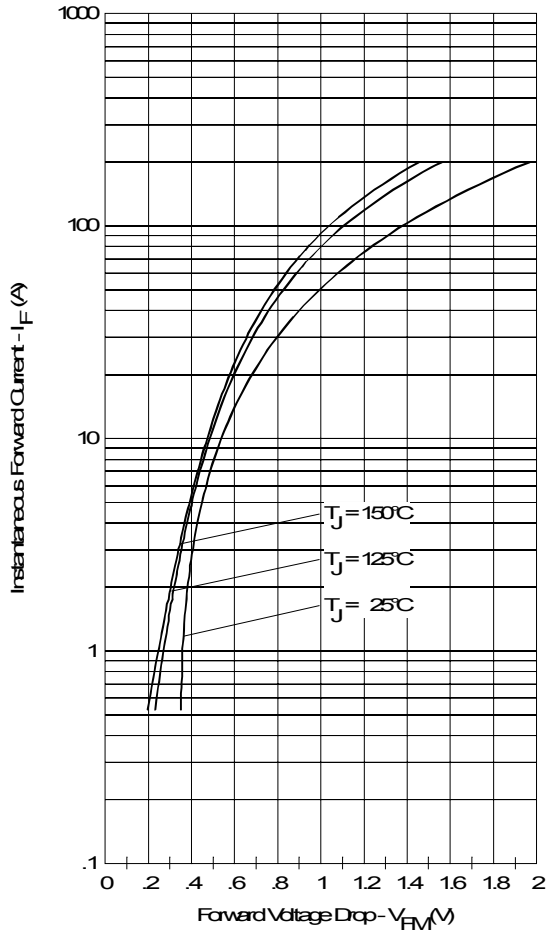


Fig. 1 - Max. Forward Voltage Drop Characteristics (Per Leg)

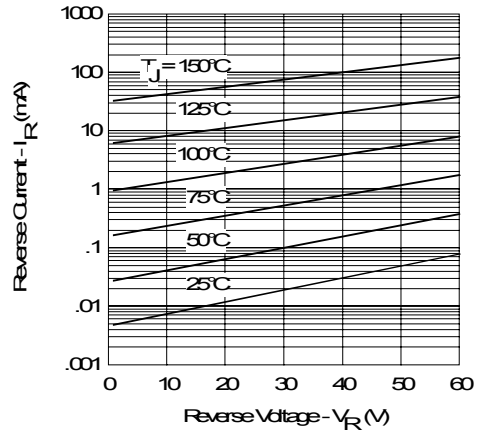


Fig. 2 - Typical Values Of Reverse Current Vs. Reverse Voltage (Per Leg)

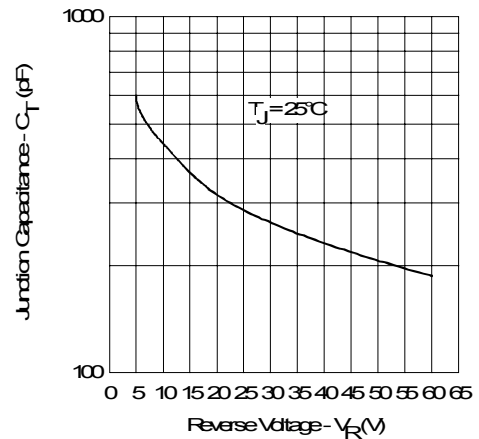


Fig. 3 - Typical Junction Capacitance Vs. Reverse Voltage (Per Leg)

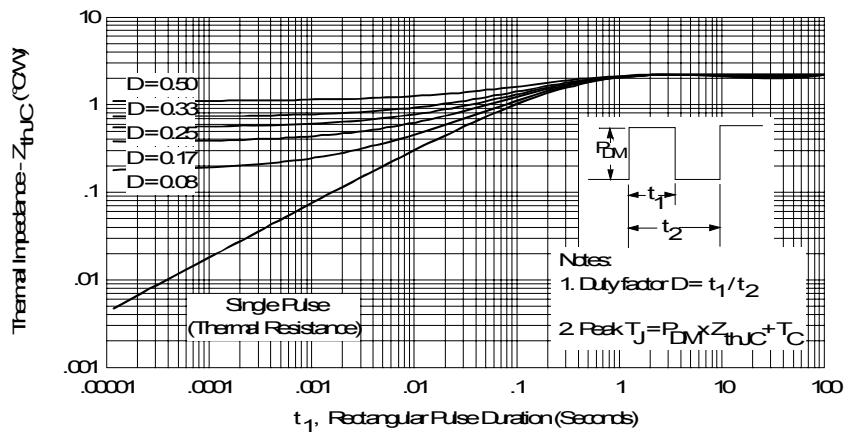


Fig. 4 - Max. Thermal Impedance  $Z_{thJC}$  Characteristics (Per Leg)

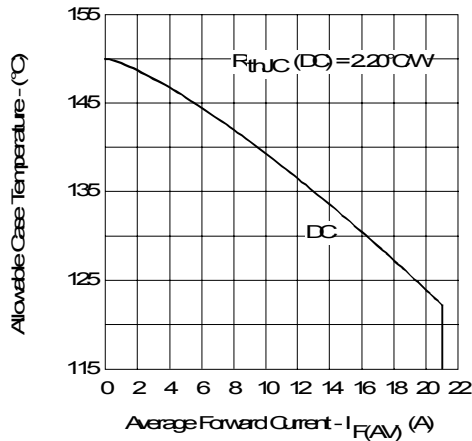


Fig. 5 - Max. Allowable Case Temperature Vs. Average Forward Current (Per Leg)

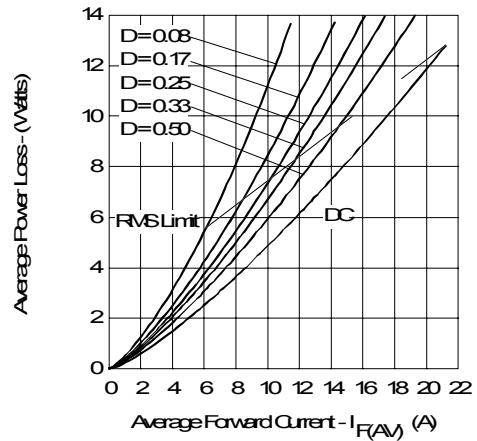


Fig. 6 - Forward Power Loss Characteristics (Per Leg)

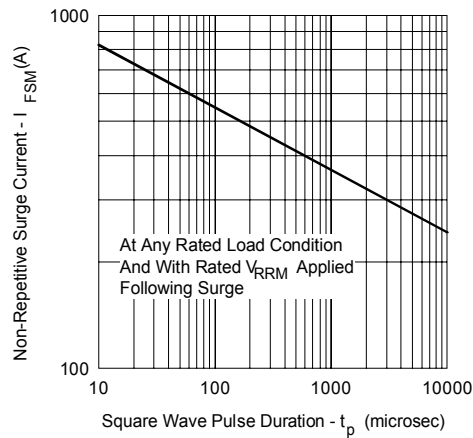


Fig. 7 - Max. Non-Repetitive Surge Current (Per Leg)

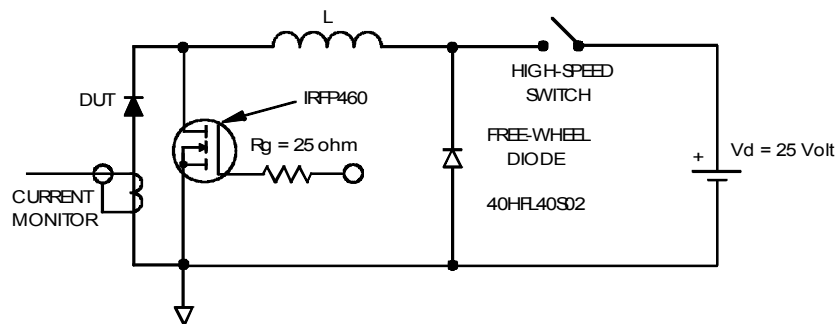


Fig. 8 - Unclamped Inductive Test Circuit

Outline Table

**NOTES:**

- 1. DIMENSIONING AND TOLERANCING AS PER ASME Y14.5M 1994.
- 2. DIMENSIONS ARE SHOWN IN INCHES.
- 3. CONTOUR OF SLOT OPTIONAL.
- 4. DIMENSION D & E DO NOT INCLUDE MOLD FLASH. MOLD FLASH SHALL NOT EXCEED .005" (0.127) PER SIDE. THESE DIMENSIONS ARE MEASURED AT THE OUTERMOST EXTREMES OF THE PLASTIC BODY.
- 5. THERMAL PAD CONTOUR OPTIONAL WITHIN DIMENSIONS D1 & E1.
- 6. LEAD FINISH UNCONTROLLED IN L1.
- 7. HP TO HAVE A MAXIMUM DRAFT ANGLE OF 1.5° TO THE TOP OF THE PART WITH A MAXIMUM HOLE DIAMETER OF .154 INCH.
- 8. OUTLINE CONFORMS TO JEDEC OUTLINE TO-247AC.

SYMBOL	INCHES		MILLIMETERS		NOTES
	MIN.	MAX.	MIN.	MAX.	
A	.183	.209	4.65	5.31	
A1	.087	.102	2.21	2.59	
A2	.059	.096	1.50	2.44	
D	.038	.055	0.95	1.40	
b1	.039	.053	0.99	1.35	
b2	.063	.084	1.63	2.13	
b3	.063	.092	1.63	2.34	
b4	.102	.130	2.59	3.43	
b5	.102	.133	2.59	3.38	
c	.015	.035	0.38	0.89	
c1	.015	.035	0.38	0.89	
D	.778	.815	19.71	20.70	4
D1	.515	-	13.08	-	5
D2	.020	.035	0.51	1.30	
E	.602	.625	15.29	15.87	4
E1	.362	-	9.19	-	
E2	.178	.216	4.52	5.49	
e	.215 BSC	-	5.46 BSC	-	
a	.075	-	1.91	0.25	
L	.559	.634	14.20	16.10	
L1	.146	.189	3.71	4.79	
HP	.142	.184	3.56	4.68	
HP	-	.281	-	7.13	
D	.208	.224	5.31	5.69	
s	.217 BSC	-	5.51 BSC	-	

**LEAD ASSIGNMENTS**

- 1- GATE
- 2- DRAIN
- 3- SOURCE
- 4- DRAIN

**SPECIAL CAPACITANCE**

- 1- GATE
- 2- COLLECTOR
- 3- BUFFER
- 4- COLLECTOR

**DOCKS**

- 1- ANODE/OPEN
- 2- CATHODE
- 3- ANODE

**SECTION C-C, D-D, E-E**

PLATING  
 h1, b3, b5  
 BASE METAL  
 c1  
 (h1, b2, b4)

**Conform to JEDEC outline TO-247AC (TO-3P)**  
 Dimensions in millimeters and (inches)

Marking Information

EXAMPLE: THIS IS A STPS30L60CW  
 WITH ASSEMBLY  
 LOT CODE 5657  
 ASSEMBLED ON WW 35, 2000  
 IN ASSEMBLY LINE "H"

INTERNATIONAL  
 RECTIFIER  
 LOGO

ASSEMBLY  
 LOT CODE

STPS30L60CW  
**IOR** 035H  
 56 57

PART NUMBER

DATE CODE  
 YEAR 0 = 2000  
 WEEK 35  
 LINE H

## Ordering Information Table

Device Code													
	<table border="1"> <tr> <td>STPS</td> <td>30</td> <td>L</td> <td>60</td> <td>CW</td> <td>-</td> </tr> <tr> <td>①</td> <td>②</td> <td>③</td> <td>④</td> <td>⑤</td> <td>⑥</td> </tr> </table>	STPS	30	L	60	CW	-	①	②	③	④	⑤	⑥
STPS	30	L	60	CW	-								
①	②	③	④	⑤	⑥								
<b>1</b>	- Schottky STPS Series												
<b>2</b>	- Current Ratings (30 = 30A)												
<b>3</b>	- L = Low Forward Voltage												
<b>4</b>	- Voltage Code (60 = 60V)												
<b>5</b>	- Package CW = TO-247												
<b>6</b>	- <ul style="list-style-type: none"> <li>• none = Standard Production</li> <li>• PbF = Lead-Free</li> </ul>												
Tube Standard Pack Quantity : 25 pieces													

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.

International  
**IR** Rectifier

**IR WORLD HEADQUARTERS:** 233 Kansas St., El Segundo, California 90245, USA Tel: (310) 252-7105  
TAC Fax: (310) 252-7309  
10/06



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