

International
IR Rectifier

STPS30L60CW

SCHOTTKY RECTIFIER

30 Amp

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

$$V_R = 60\text{V}$$

Major Ratings and Characteristics

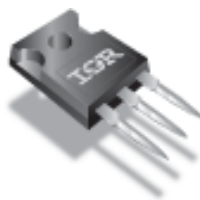
Characteristics	Value	Units
$I_{F(AV)}$ Rectangular waveform	30	A
V_{RRM}	60	V
I_{FSM} @tp = 5 μ s sine	1020	A
V_F @ 15 Apk, $T_J=125^\circ\text{C}$ (per leg)	0.56	V
T_J	-55 to 150	$^\circ\text{C}$

Description/ Features

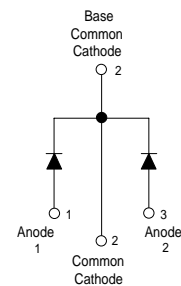
The STPS30L60CW center tap Schottky rectifier has been optimized for very low forward voltage drop, with moderate leakage. The proprietary barrier technology allows for reliable operation up to 150° C junction temperature. Typical applications are in switching power supplies, converters, free-wheeling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

- 150° 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



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 μsec 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°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/ μs	(Rated V_R)

(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_{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)	Non-lubricated threads
	Max.	12 (10)	
Case Style	TO-247AC(TO-3P)	JEDEC	

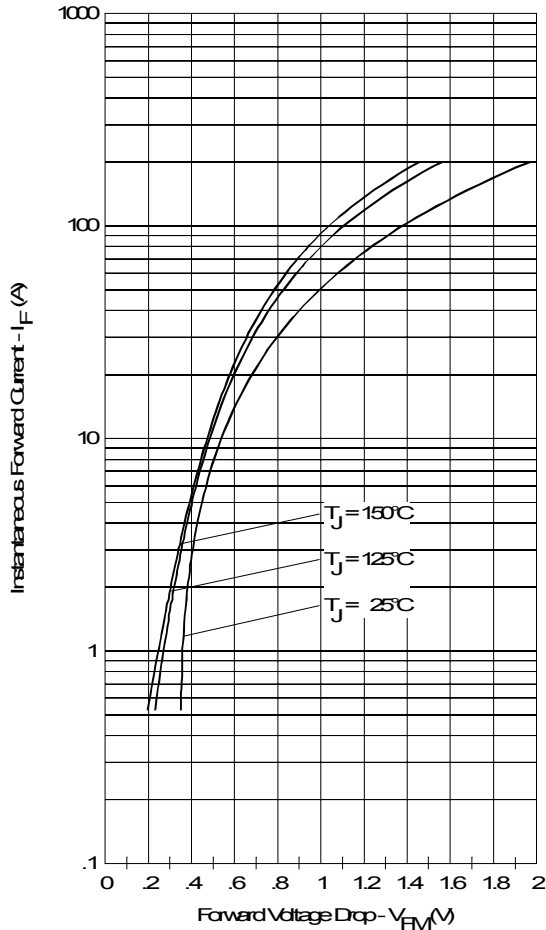


Fig. 1 - Max. Forward Voltage Drop Characteristics (Per Leg)

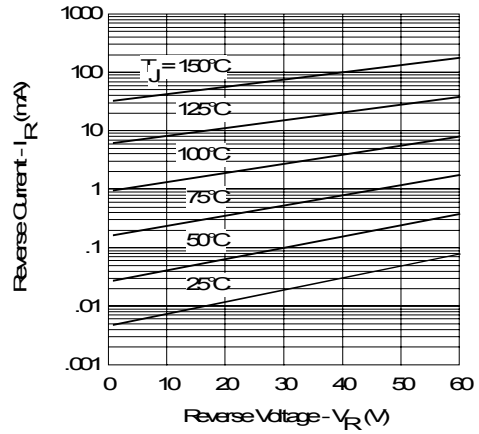


Fig. 2 - Typical Values Of Reverse Current Vs. Reverse Voltage (Per Leg)

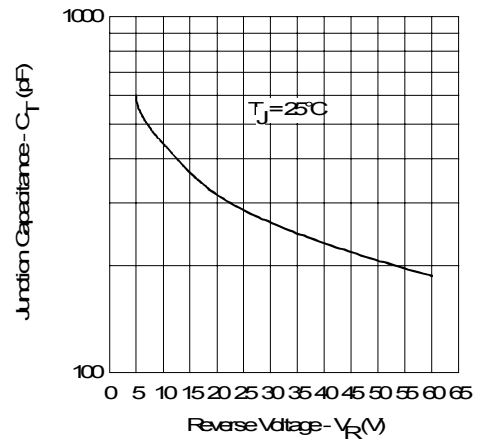


Fig. 3 - Typical Junction Capacitance Vs. Reverse Voltage (Per Leg)

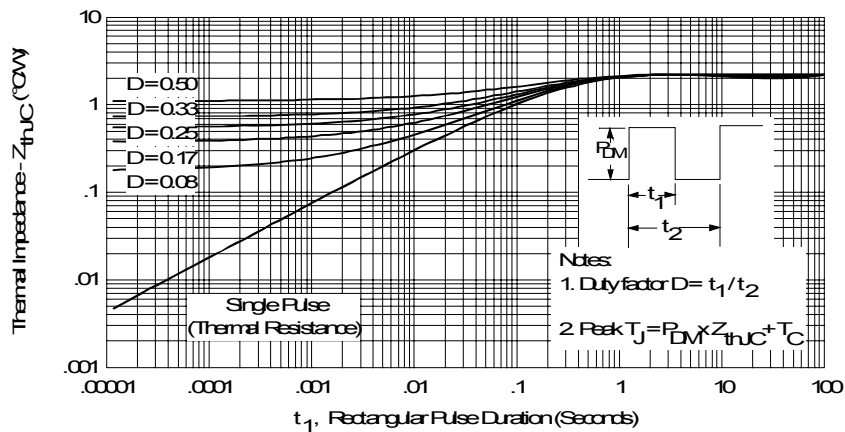


Fig. 4 - Max. Thermal Impedance Z_{thJC} Characteristics (Per Leg)

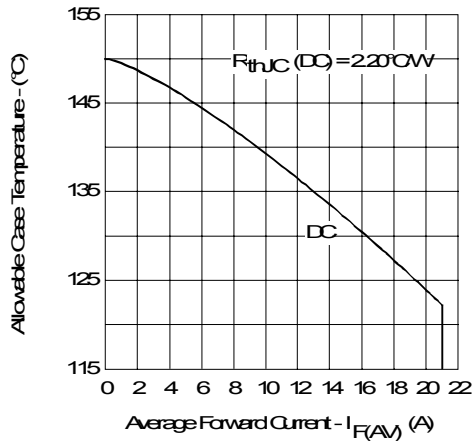


Fig. 5 - Max. Allowable Case Temperature Vs. Average Forward Current (Per Leg)

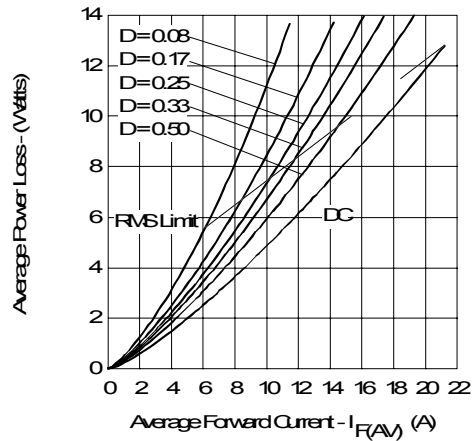


Fig. 6 - Forward Power Loss Characteristics (Per Leg)

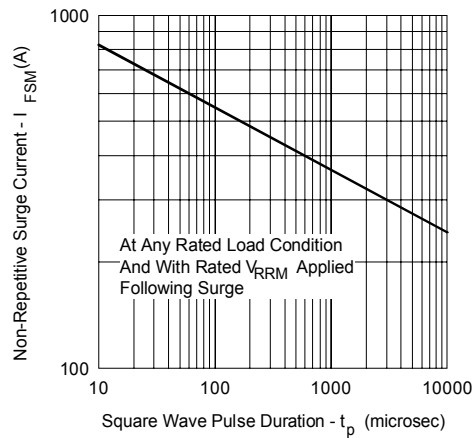


Fig. 7 - Max. Non-Repetitive Surge Current (Per Leg)

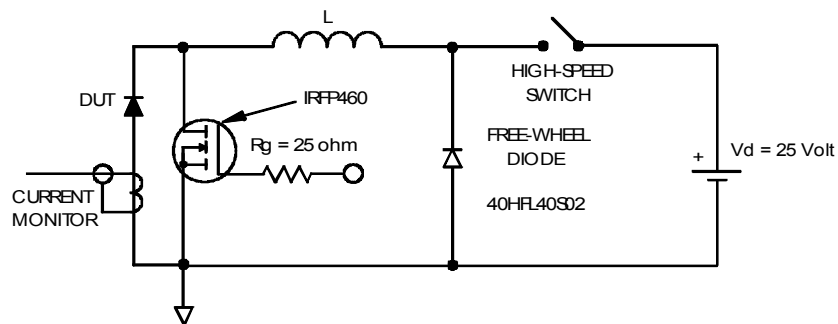


Fig. 8 - Unclamped Inductive Test Circuit

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. MP 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	DIMENSIONS		DIMENSIONS		NOTES
	MIN	MAX	MIN	MAX	
A	.183	.209	4.65	5.31	
A1	.087	.102	2.21	2.59	
A2	.059	.096	1.50	2.49	
D	.038	.055	0.95	1.40	
D1	.038	.053	0.95	1.35	
D2	.063	.084	1.63	2.13	
D3	.063	.092	1.63	2.34	
D4	.102	.130	2.59	3.43	
D5	.102	.133	2.59	3.38	
E	.015	.035	0.38	0.89	
E1	.015	.035	0.38	0.86	
D	.778	.815	19.71	20.70	4
D1	.515	-	13.08	-	5
D2	.020	.035	0.51	1.30	
E	.602	.625	15.28	15.87	4
E1	.362	-	9.26	-	
E2	.178	.216	4.52	5.49	
a	.215	REQ	5.46	REQ	
a1	.075	REQ	1.91	REQ	
L1	.559	.634	14.20	16.10	
L2	.146	.189	3.71	4.79	
MP	.142	.184	3.56	4.68	
MP1	-	.281	-	7.13	
D	.308	.224	7.81	5.68	
S	.217	REQ	5.51	REQ	

LEAD ASSIGNMENTS

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

SPECIAL CAPACITY

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

DOCKS

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

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

PART NUMBER

DATE CODE
 YEAR 0 = 2000
 WEEK 35
 LINE H

Ordering Information Table

Device Code													
	<table border="1" style="margin: auto;"> <tr> <td style="padding: 5px;">STPS</td> <td style="padding: 5px;">30</td> <td style="padding: 5px;">L</td> <td style="padding: 5px;">60</td> <td style="padding: 5px;">CW</td> <td style="padding: 5px;">-</td> </tr> <tr> <td style="text-align: center;">①</td> <td style="text-align: center;">②</td> <td style="text-align: center;">③</td> <td style="text-align: center;">④</td> <td style="text-align: center;">⑤</td> <td style="text-align: center;">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								
1	- Schottky STPS Series												
2	- Current Ratings (30 = 30A)												
3	- L = Low Forward Voltage												
4	- Voltage Code (60 = 60V)												
5	- Package CW = TO-247												
6	- <ul style="list-style-type: none"> • none = Standard Production • PbF = Lead-Free 												
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

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