



Chipsmall Limited consists of a professional team with an average of over 10 year of expertise in the distribution of electronic components. Based in Hongkong, we have already established firm and mutual-benefit business relationships with customers from,Europe,America and south Asia,supplying obsolete and hard-to-find components to meet their specific needs.

With the principle of “Quality Parts,Customers Priority,Honest Operation,and Considerate Service”,our business mainly focus on the distribution of electronic components. Line cards we deal with include Microchip,ALPS,ROHM,Xilinx,Pulse,ON,Everlight and Freescale. Main products comprise IC,Modules,Potentiometer,IC Socket,Relay,Connector.Our parts cover such applications as commercial,industrial, and automotives areas.

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International
IOR Rectifier

STPS40L40CW

SCHOTTKY RECTIFIER

40 Amp

$$I_{F(AV)} = 40\text{Amp}$$

$$V_R = 40\text{V}$$

Major Ratings and Characteristics

| Characteristics | Value | Units |
|---|------------|------------------|
| $I_{F(AV)}$ Rectangular waveform | 40 | A |
| V_{RRM} | 40 | V |
| I_{FSM} @ $t_p = 5 \mu\text{s}$ sine | 3500 | A |
| V_F @ 20 Apk, $T_J = 125^\circ\text{C}$ (per leg) | 0.43 | V |
| T_J | -55 to 150 | $^\circ\text{C}$ |

Description/ Features

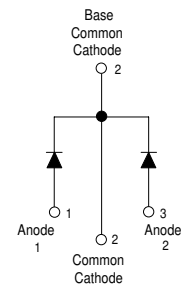
The STPS40L40CW center tap Schottky rectifier has been optimized for very low forward voltage drop, with moderate leakage. The proprietary barrier technology allows for reliable operation up to 150°C junction temperature. Typical applications are in switching power supplies, converters, free-wheeling 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 | STPS40L40CW |
|---|-------------|
| V_R Max. DC Reverse Voltage (V) | 40 |
| 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 | 40 | A | 50% duty cycle @ $T_C = 120^\circ\text{C}$, rectangular wave form |
| I_{FSM} Max. Peak One Cycle Non-Repetitive Surge Current (Per Leg) * See Fig. 7 | 3500 | A | 5 μs Sine or 3 μs Rect. pulse 10ms Sine or 6ms Rect. pulse Following any rated load condition and with rated V_{RRM} applied |
| | 430 | | |
| E_{AS} Non-Repetitive Avalanche Energy (Per Leg) | 27 | mJ | $T_J = 25^\circ\text{C}$, $I_{AS} = 4\text{ Amps}$, $L = 3.4\text{ mH}$ |
| I_{AR} Repetitive Avalanche Current (Per Leg) | 4 | 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) | 0.49 | V | @ 20A |
| | 0.59 | V | @ 40A |
| | 0.43 | V | @ 20A |
| | 0.56 | V | @ 40A |
| I_{RM} Max. Reverse Leakage Current (Per Leg) * See Fig. 2 (1) | 0.8 | mA | $T_J = 25^\circ\text{C}$ |
| | 60 | mA | $T_J = 100^\circ\text{C}$ |
| C_T Max. Junction Capacitance(Per Leg) | 1850 | 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 (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_{thJC} Max. Thermal Resistance Junction to Case (Per Leg) | 1.25 | $^\circ\text{C/W}$ | DC operation * See Fig. 4 |
| R_{thJC} Max. Thermal Resistance Junction to Case (Per Package) | 0.63 | $^\circ\text{C/W}$ | DC operation |
| R_{thCS} Typical Thermal Resistance, Case to Heatsink | 0.24 | $^\circ\text{C/W}$ | Mounting surface, smooth and greased |
| wt Approximate Weight | 6 (0.21) | g (oz.) | |
| T Mounting Torque | Min. 6 (5) | Kg-cm (lbf-in) | Non-lubricated threads |
| | Max. 12 (10) | | |
| Case Style | TO-247AC(TO-3P) | JEDEC | |

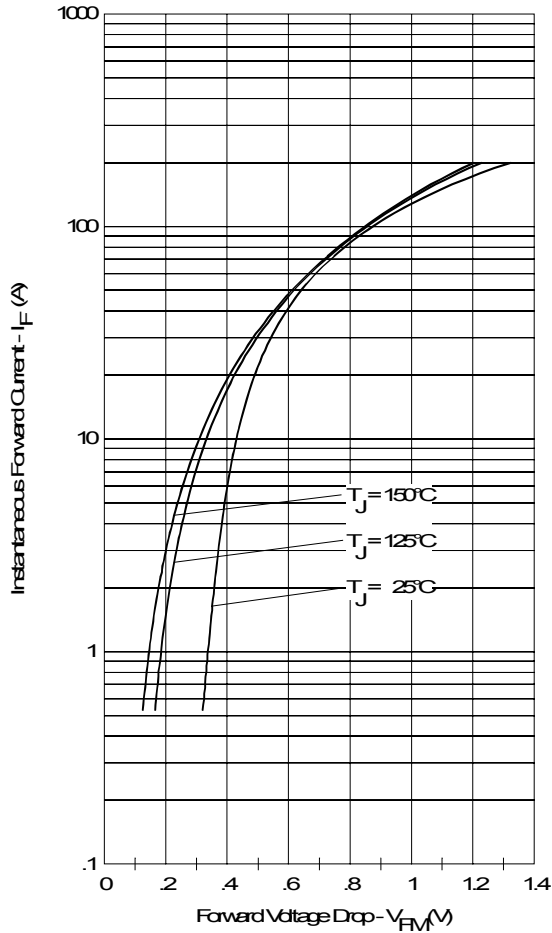


Fig. 1 - Max. Forward Voltage Drop Characteristics (Per Leg)

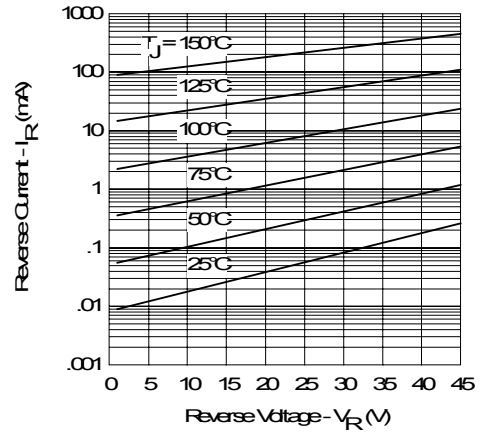


Fig. 2 - Typical Values Of Reverse Current Vs. Reverse Voltage (Per Leg)

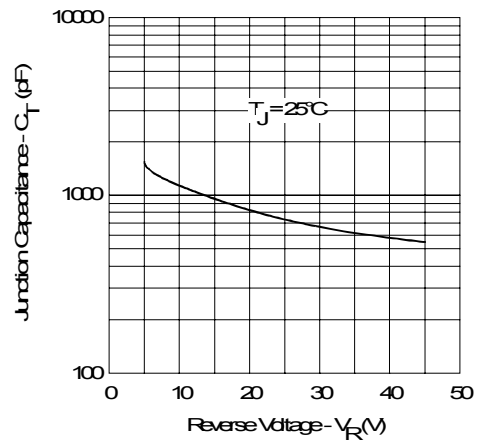


Fig. 3 - Typical Junction Capacitance Vs. Reverse Voltage (Per Leg)

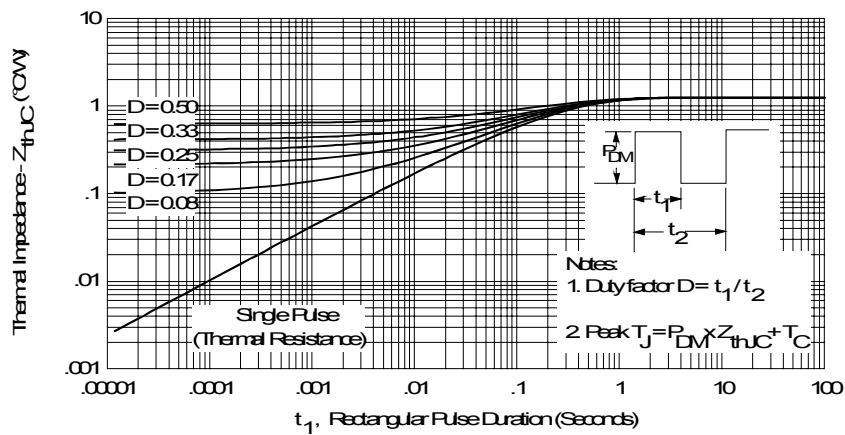


Fig. 4 - Max. Thermal Impedance Z_{thJC} Characteristics (Per Leg)

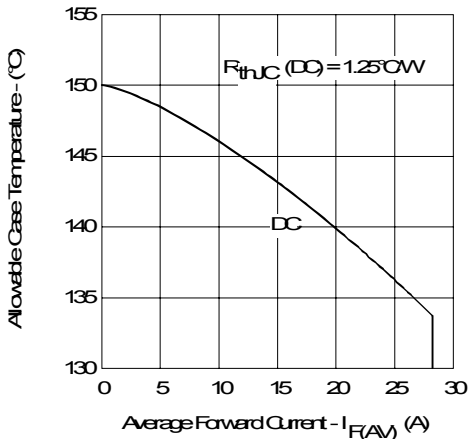


Fig. 5 - Max. Allowable Case Temperature Vs. Average Forward Current (Per Leg)

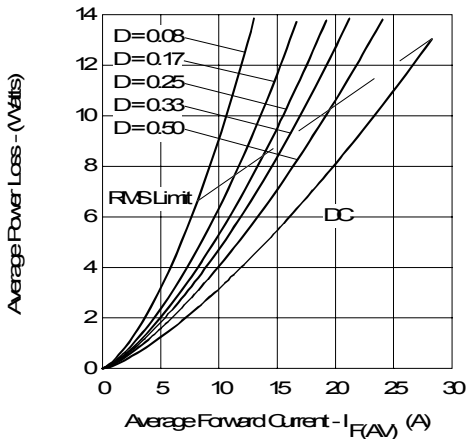


Fig. 6 - Forward Power Loss Characteristics (Per Leg)

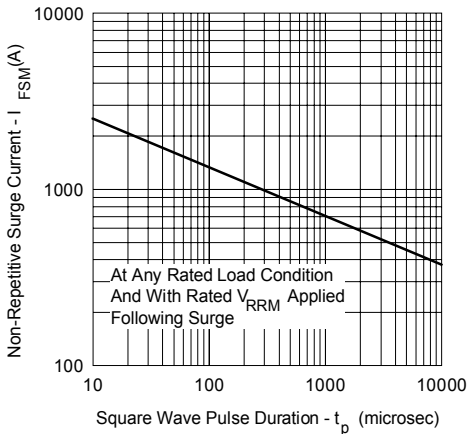


Fig. 7 - Max. Non-Repetitive Surge Current (Per Leg)

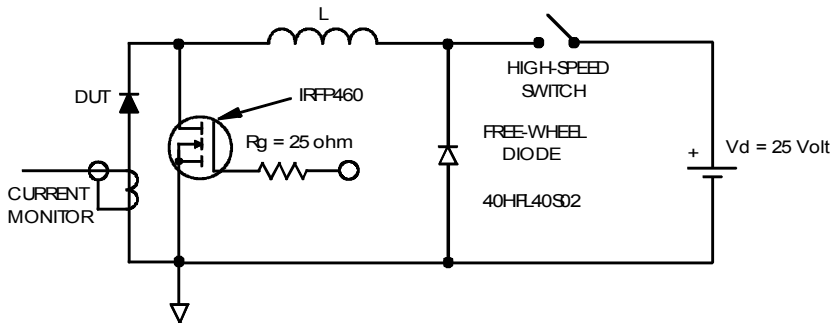
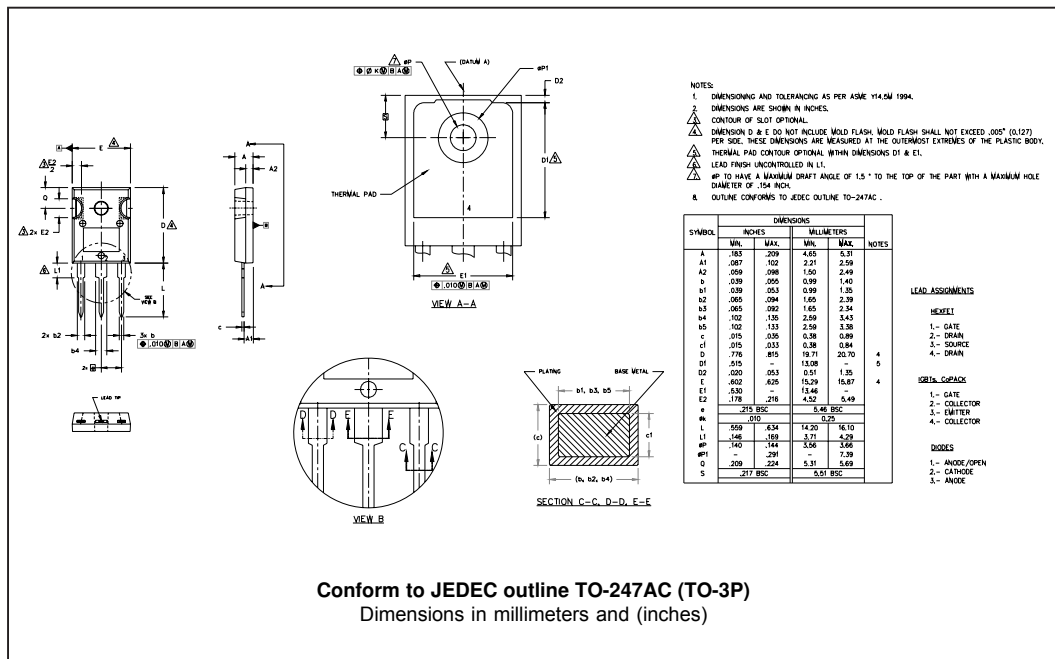
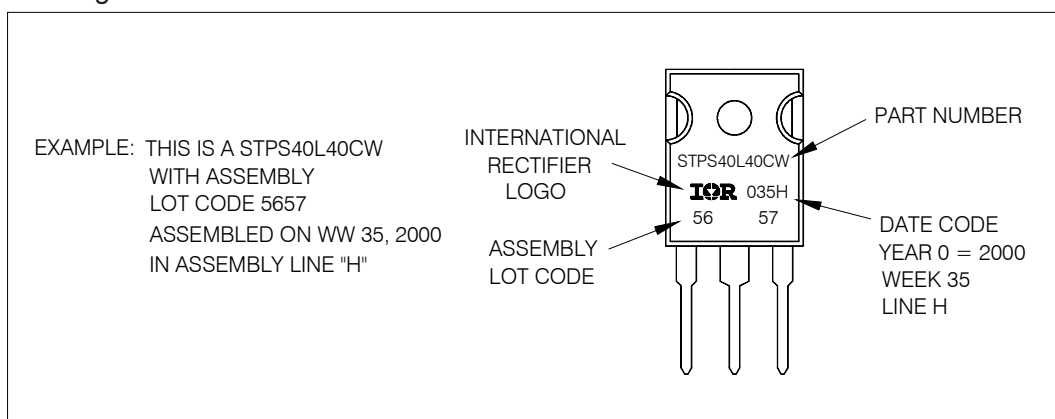


Fig. 8 - Unclamped Inductive Test Circuit

Outline Table



Marking Information



STPS40L40CW

Bulletin PD-20624 rev. A 11/06

Ordering Information Table

Device Code

| | | | | | |
|------|----|---|----|----|---|
| STPS | 40 | L | 40 | CW | - |
|------|----|---|----|----|---|

Diagram illustrating the Device Code structure with positions 1 through 6:

- 1: STPS
- 2: 40
- 3: L
- 4: 40
- 5: CW
- 6: -

- 1** - Schottky STPS Series
- 2** - Current Ratings (40 = 40A)
- 3** - L = Low Forward Voltage
- 4** - Voltage Code (40 = 40V)
- 5** - Package
CW = TO-247
- 6** -
 - 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.



Notice

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