

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

$$V_R = 15\text{V}$$

Major Ratings and Characteristics

Characteristics	Values	Units
$I_{F(AV)}$ Rectangular waveform	40	A
V_{RRM}	15	V
I_{FSM} @tp = 5 μ s sine	700	A
V_F @ 19 Apk, $T_J = 125^\circ\text{C}$ (per leg, Typical)	0.25	V
T_J	-55 to 125	$^\circ\text{C}$

Description/ Features

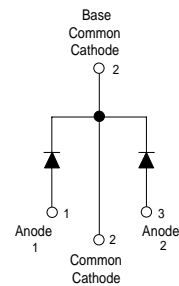
The 40L15CWPbF center tap Schottky rectifier module has been optimized for ultra low forward voltage drop specifically for the OR-ing of parallel power supplies. The proprietary barrier technology allows for reliable operation up to 125 $^\circ\text{C}$ junction temperature. Typical applications are in parallel switching power supplies, converters, reverse battery protection, and redundant power subsystems.

- 125 $^\circ\text{C}$ T_J operation ($V_R < 5\text{V}$)
- Center tap module
- Optimized for OR-ing applications
- Ultra low forward voltage drop
- High frequency operation
- Guard ring for enhanced ruggedness and long term reliability
- High purity, high temperature epoxy encapsulation for enhanced mechanical strength and moisture resistance
- Lead-Free ("PbF" suffix)

Case Styles



TO-247AC



40L15CWPbF

Bulletin PD-20793 rev. A 11/06

International
IR Rectifier

Voltage Ratings

Part number	40L15CWPbF
V_R Max. DC Reverse Voltage (V) @ $T_J = 100^\circ\text{C}$	15
V_{RWM} Max. Working Peak Reverse Voltage (V) @ $T_J = 100^\circ\text{C}$	

Absolute Maximum Ratings

Parameters	40L15CW	Units	Conditions
$I_{F(AV)}$ Max. Average Forward (Per Leg) Current * See Fig. 5 (Per Device)	20	A	50% duty cycle @ $T_C = 86^\circ\text{C}$, rectangular wave form
	40		
I_{FSM} Max. Peak One Cycle Non-Repetitive Surge Current (Per Leg) * See Fig. 7	700	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
	330		
E_{AS} Non-Repetitive Avalanche Energy (Per Leg)	10	mJ	$T_J = 25^\circ\text{C}$, $I_{AS} = 2$ Amps, $L = 5$ mH
I_{AR} Repetitive Avalanche Current (Per Leg)	2	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	40L15CW		Units	Conditions	
	Typ.	Max.			
V_{FM} Forward Voltage Drop (Per Leg) * See Fig. 1 (1)	-	0.41	V	@ 19A	$T_J = 25^\circ\text{C}$
	-	0.52	V	@ 40A	
	0.25	0.33	V	@ 19A	$T_J = 125^\circ\text{C}$
	0.37	0.50	V	@ 40A	
I_{RM} Reverse Leakage Current (Per Leg) * See Fig. 2 (1)	-	10	mA	$T_J = 25^\circ\text{C}$	$V_R = \text{rated } V_R$
	-	600	mA	$T_J = 100^\circ\text{C}$	
$V_{F(TO)}$ Threshold Voltage	0.182		V	$T_J = T_J \text{ max.}$	
r_t Forward Slope Resistance	7.6		m Ω		
C_T Max. Junction Capacitance (Per Leg)	-	2000	pF	$V_R = 5V_{DC}$ (test signal range 100Khz to 1Mhz) 25°C	
L_S Typical Series Inductance (Per Leg)	8	-	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	40L15CW	Units	Conditions
T_J Max. Junction Temperature Range	-55 to 125	$^\circ\text{C}$	
T_{stg} Max. Storage Temperature Range	-55 to 150	$^\circ\text{C}$	
R_{thJC} Max. Thermal Resistance Junction to Case (Per Leg)	1.4	$^\circ\text{C/W}$	DC operation * See Fig. 4
R_{thJC} Max. Thermal Resistance Junction to Case (Per Package)	0.7	$^\circ\text{C/W}$	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	
Marking Device	40L15CW		

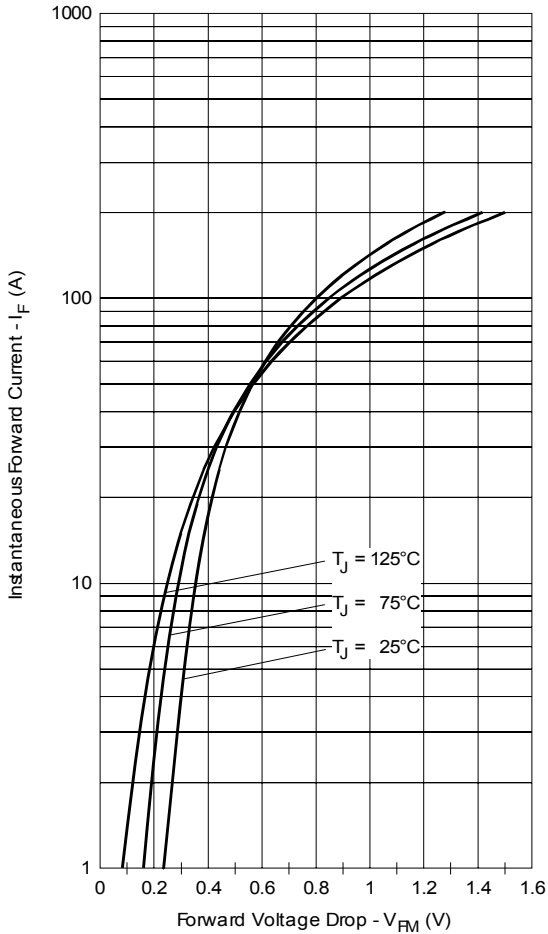


Fig. 1 - Maximum Forward Voltage Drop Characteristics

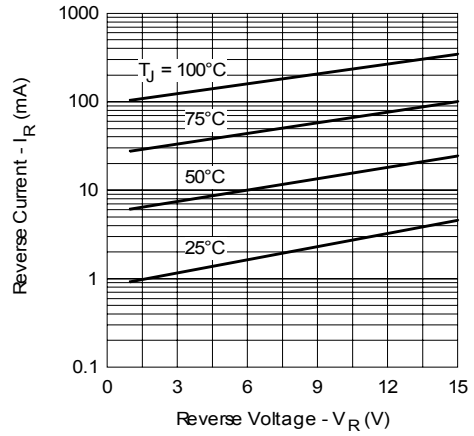


Fig. 2 - Typical Values of Reverse Current Vs. Reverse Voltage

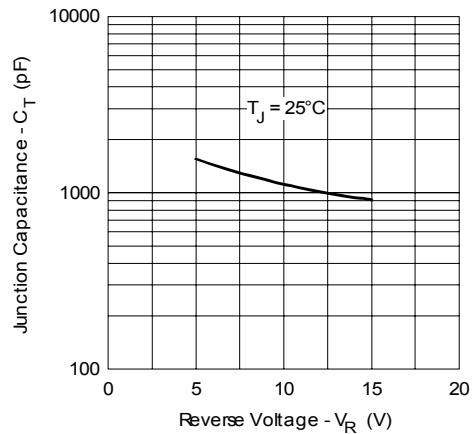


Fig. 3 - Typical Junction Capacitance Vs. Reverse Voltage

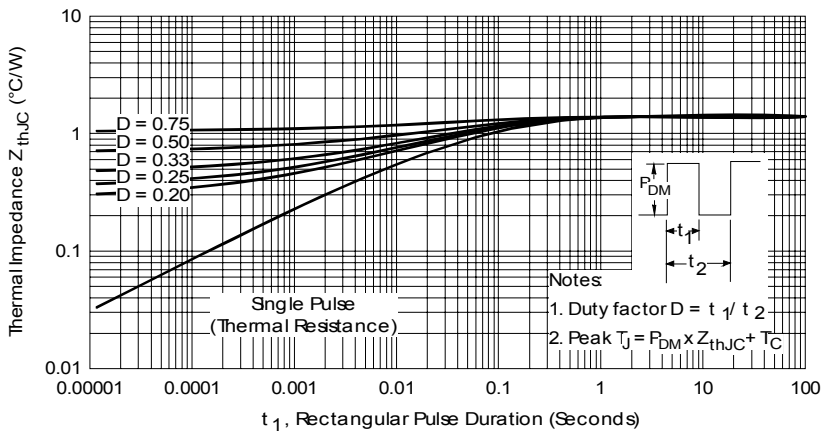


Fig. 4 - Maximum Thermal Impedance Z_{thJC} Characteristics

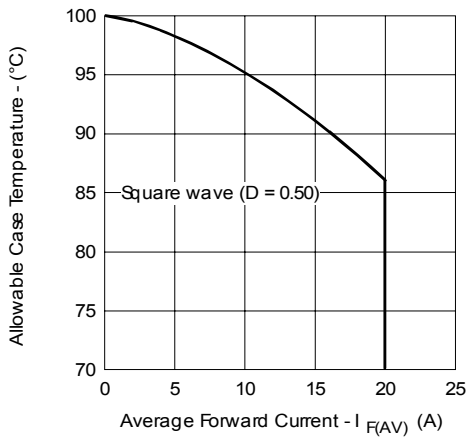


Fig. 5 - Maximum Allowable Case Temperature Vs. Average Forward Current

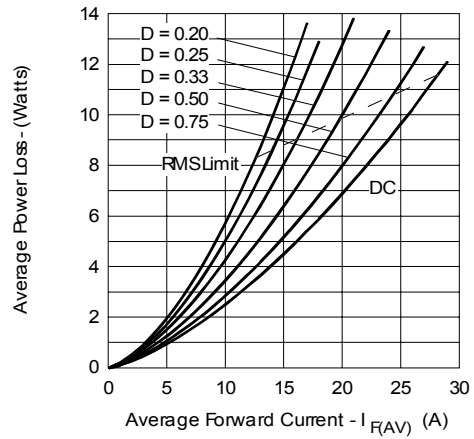


Fig. 6 - Forward Power Loss Characteristics

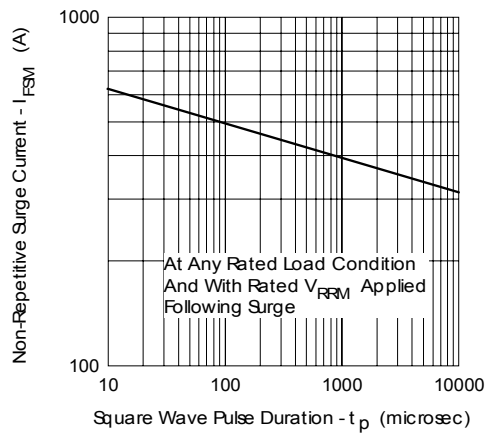


Fig. 7 - Maximum Non-Repetitive Surge Current

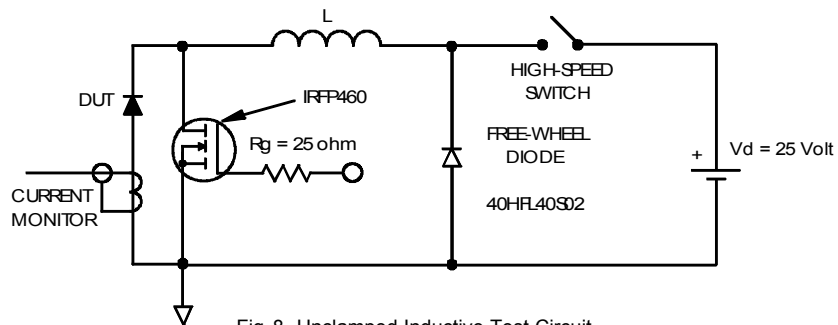


Fig. 8 - Unclamped Inductive Test Circuit

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 IS E IS 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 BY L1.
7. RP TO HAVE A MAXIMUM DRAST 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	.056	.068	1.50	1.73	
b	.039	.050	0.99	1.40	
b1	.030	.055	0.99	1.30	
b2	.065	.094	1.65	2.39	
b3	.065	.087	1.65	2.24	
b4	.102	.135	2.59	3.43	
b5	.102	.133	2.59	3.38	
c	.075	.030	0.38	0.99	
c1	.075	.035	0.38	0.84	4
d	.776	.875	19.71	22.13	
D1	.215	-	13.08	-	5
D2	.020	.055	0.51	1.35	
E	.602	.625	15.29	15.87	4
E1	.530	-	13.46	-	
E2	.178	.216	4.52	5.49	
e	.215 BSC		5.45 BSC		
h	.070		1.78		
L	.559	.634	14.20	16.10	
L1	.146	.159	3.71	4.29	
l1	.140	.144	3.56	3.66	
l2	-	.291	-	7.39	
o	.209	.224	5.31	5.69	
s	.217 BSC		5.51 BSC		

LEAD ASSIGNMENTS

HEXFLI

1. GATE
2. COLLECTOR
3. EMITTER
4. COLLECTOR

GR1a COPAC

1. GATE
2. COLLECTOR
3. EMITTER
4. COLLECTOR

DIODES

1. ANODE/OPEN
2. CATHODE
3. ANODE

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

FLANG
 BASE METAL
 (b, b2, b4)

VIEW B

VIEW A-A

CONFORM TO JEDEC OUTLINE TO-247AC (TO-3P)
 Dimensions in millimeters and (inches)

Marking Information

EXAMPLE: THIS IS A 40L15CW
 WITH ASSEMBLY
 LOT CODE 5657
 ASSEMBLED ON WW 35, 2000
 IN ASSEMBLY LINE "H"

INTERNATIONAL RECTIFIER LOGO

ASSEMBLY LOT CODE

PART NUMBER

DATE CODE
 P = LEAD-FREE
 YEAR 0 = 2000
 WEEK 35
 LINE H

Ordering Information Table

Device Code													
	<table border="1" style="margin: auto;"> <tr> <td style="padding: 5px;">40</td> <td style="padding: 5px;">L</td> <td style="padding: 5px;">15</td> <td style="padding: 5px;">C</td> <td style="padding: 5px;">W</td> <td style="padding: 5px;">PbF</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>	40	L	15	C	W	PbF	①	②	③	④	⑤	⑥
40	L	15	C	W	PbF								
①	②	③	④	⑤	⑥								
1	- Current Rating (40 = 40A)												
2	- Schottky "L" Series												
3	- Voltage Code (15 = 15V)												
4	- Circuit Configuration C = Common Cathode												
5	- Package W = 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 and Lead-Free.
Qualification Standards can be found on IR's Web site.

International
IR Rectifier

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