



# 1N/FDLL 914/A/B / 916/A/B / 4148 / 4448



DO-35



LL-34

THE PLACEMENT OF THE EXPANSION GAP HAS NO RELATIONSHIP TO THE LOCATION OF THE CATHODE TERMINAL

### COLOR BAND MARKING

DEVICE	1ST BAND	2ND BAND
FDLL914	BLACK	BROWN
FDLL914A	BLACK	GRAY
FDLL914B	BROWN	BLACK
FDLL916	BLACK	RED
FDLL916A	BLACK	WHITE
FDLL916B	BROWN	BROWN
FDLL4148	BLACK	BROWN
FDLL4448	BROWN	BLACK

## Small Signal Diode

### Absolute Maximum Ratings\*

T<sub>A</sub> = 25°C unless otherwise noted

Symbol	Parameter	Value	Units
V <sub>RRM</sub>	Maximum Repetitive Reverse Voltage	100	V
I <sub>F(AV)</sub>	Average Rectified Forward Current	200	mA
I <sub>FSM</sub>	Non-repetitive Peak Forward Surge Current	1.0	A
	Pulse Width = 1.0 second	4.0	A
T <sub>stg</sub>	Storage Temperature Range	-65 to +200	°C
T <sub>J</sub>	Operating Junction Temperature	175	°C

\* These ratings are limiting values above which the serviceability of any semiconductor device may be impaired.

#### NOTES:

- 1) These ratings are based on a maximum junction temperature of 200 degrees C.
- 2) These are steady state limits. The factory should be consulted on applications involving pulsed or low duty cycle operations.

## Thermal Characteristics

Symbol	Characteristic	Max	Units
		1N/FDLL 914/A/B / 4148 / 4448	
P <sub>D</sub>	Power Dissipation	500	mW
R <sub>θJA</sub>	Thermal Resistance, Junction to Ambient	300	°C/W

1N/FDLL 914/A/B / 916/A/B / 4148 / 4448

# Small Signal Diode

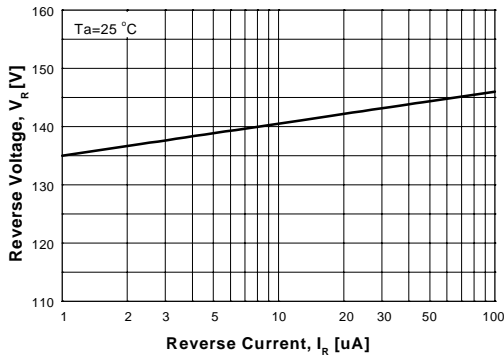
(continued)

## Electrical Characteristics T<sub>A</sub> = 25°C unless otherwise noted

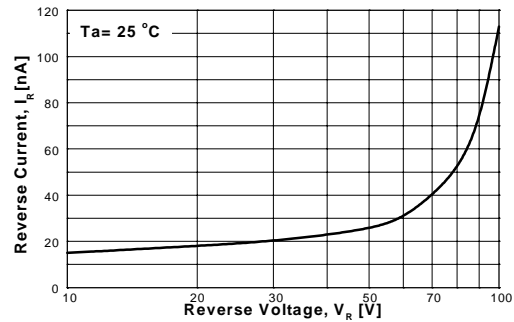
Symbol	Parameter	Test Conditions	Min	Max	Units	
V <sub>R</sub>	Breakdown Voltage	I <sub>R</sub> = 100 μA I <sub>R</sub> = 5.0 μA	100 75		V V	
V <sub>F</sub>	Forward Voltage	1N914B/4448 1N916B 1N914/916/4148 1N914A/916A 1N916B 1N914B/4448	I <sub>F</sub> = 5.0 mA I <sub>F</sub> = 5.0 mA I <sub>F</sub> = 10 mA I <sub>F</sub> = 20 mA I <sub>F</sub> = 20 mA I <sub>F</sub> = 100 mA	620 630 720 730 1.0 1.0 1.0 1.0	mV mV V V V V	
I <sub>R</sub>	Reverse Current	V <sub>R</sub> = 20 V V <sub>R</sub> = 20 V, T <sub>A</sub> = 150°C V <sub>R</sub> = 75 V		25 50 5.0	nA μA μA	
C <sub>T</sub>	Total Capacitance	1N916A/B/4448 1N914A/B/4148	V <sub>R</sub> = 0, f = 1.0 MHz V <sub>R</sub> = 0, f = 1.0 MHz		2.0 4.0	pF pF
t <sub>rr</sub>	Reverse Recovery Time	I <sub>F</sub> = 10 mA, V <sub>R</sub> = 6.0 V (60mA), I <sub>rr</sub> = 1.0 mA, R <sub>L</sub> = 100Ω		4.0	ns	

1N/FD/L 914/A/B / 916/A/B / 4148 / 4448

## Typical Characteristics

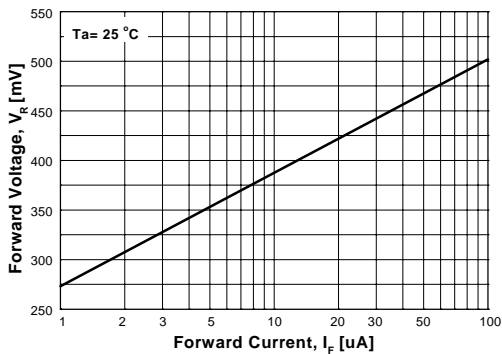


**Figure 1. Reverse Voltage vs Reverse Current**  
BV - 1.0 to 100 uA

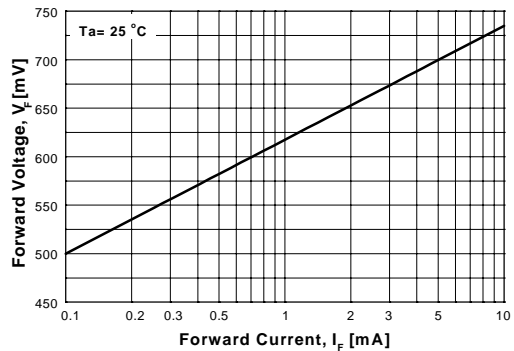


**Figure 2. Reverse Current vs Reverse Voltage**  
IR - 10 to 100 V

GENERAL RULE: The Reverse Current of a diode will approximately double for every ten (10) Degree C increase in Temperature



**Figure 3. Forward Voltage vs Forward Current**  
VF - 1 to 100 uA



**Figure 4. Forward Voltage vs Forward Current**  
VF - 0.1 to 10 mA

Typical Characteristics (continued)



Figure 5. Forward Voltage vs Forward Current  
VF - 10 to 800 mA

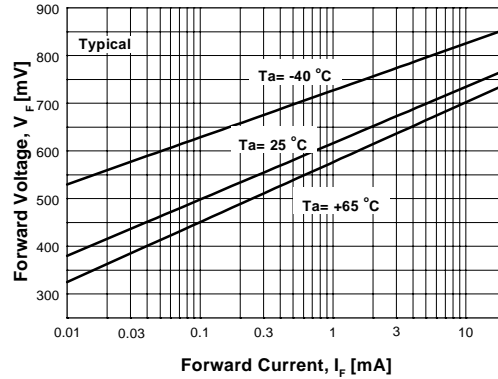


Figure 6. Forward Voltage  
vs Ambient Temperature  
VF - 0.01 - 20 mA (-40 to +65 Deg C)



Figure 7. Total Capacitance

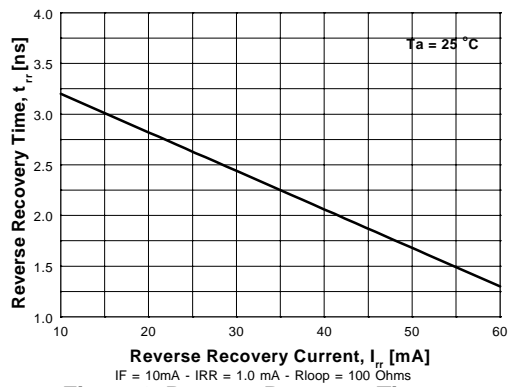


Figure 8. Reverse Recovery Time vs  
Reverse Recovery Current

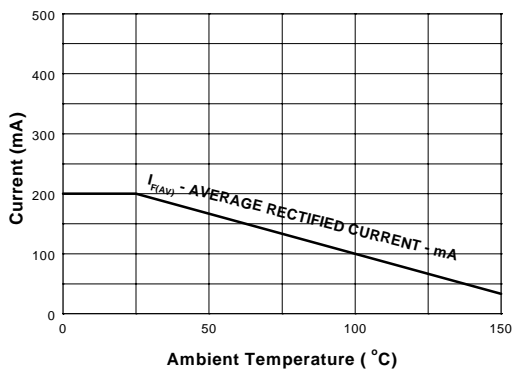


Figure 9. Average Rectified Current ( $I_{F(AV)}$ )  
versus Ambient Temperature ( $T_A$ )

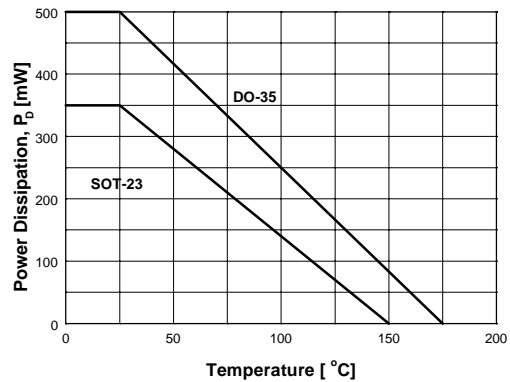


Figure 10. Power Derating Curve

## TRADEMARKS

The following are registered and unregistered trademarks Fairchild Semiconductor owns or is authorized to use and is not intended to be an exhaustive list of all such trademarks.

ACE <sub>x</sub> <sup>™</sup>	FAST <sup>®</sup>	MICROWIRE <sup>™</sup>	SILENT SWITCHER <sup>®</sup>	UHC <sup>™</sup>
Bottomless <sup>™</sup>	FAST <sub>r</sub> <sup>™</sup>	OPTOLOGIC <sup>®</sup>	SMART START <sup>™</sup>	UltraFET <sup>®</sup>
CoolFET <sup>™</sup>	FRFET <sup>™</sup>	OPTOPLANAR <sup>™</sup>	SPM <sup>™</sup>	VCX <sup>™</sup>
CROSSVOLT <sup>™</sup>	GlobalOptoisolator <sup>™</sup>	PACMAN <sup>™</sup>	STAR*POWER <sup>™</sup>	
DenseTrench <sup>™</sup>	GTO <sup>™</sup>	POP <sup>™</sup>	Stealth <sup>™</sup>	
DOME <sup>™</sup>	HiSeC <sup>™</sup>	Power247 <sup>™</sup>	SuperSOT <sup>™</sup> -3	
EcoSPARK <sup>™</sup>	I <sup>2</sup> C <sup>™</sup>	PowerTrench <sup>®</sup>	SuperSOT <sup>™</sup> -6	
E <sup>2</sup> CMOS <sup>™</sup>	ISOPLANAR <sup>™</sup>	QFET <sup>™</sup>	SuperSOT <sup>™</sup> -8	
EnSigna <sup>™</sup>	LittleFET <sup>™</sup>	QS <sup>™</sup>	SyncFET <sup>™</sup>	
FACT <sup>™</sup>	MicroFET <sup>™</sup>	QT Optoelectronics <sup>™</sup>	TinyLogic <sup>™</sup>	
FACT Quiet Series <sup>™</sup>	MicroPak <sup>™</sup>	Quiet Series <sup>™</sup>	TruTranslation <sup>™</sup>	

STAR\*POWER is used under license

## DISCLAIMER

FAIRCHILD SEMICONDUCTOR RESERVES THE RIGHT TO MAKE CHANGES WITHOUT FURTHER NOTICE TO ANY PRODUCTS HEREIN TO IMPROVE RELIABILITY, FUNCTION OR DESIGN. FAIRCHILD DOES NOT ASSUME ANY LIABILITY ARISING OUT OF THE APPLICATION OR USE OF ANY PRODUCT OR CIRCUIT DESCRIBED HEREIN; NEITHER DOES IT CONVEY ANY LICENSE UNDER ITS PATENT RIGHTS, NOR THE RIGHTS OF OTHERS.

## LIFE SUPPORT POLICY

FAIRCHILD'S PRODUCTS ARE NOT AUTHORIZED FOR USE AS CRITICAL COMPONENTS IN LIFE SUPPORT DEVICES OR SYSTEMS WITHOUT THE EXPRESS WRITTEN APPROVAL OF FAIRCHILD SEMICONDUCTOR CORPORATION. As used herein:

1. Life support devices or systems are devices or systems which, (a) are intended for surgical implant into the body, or (b) support or sustain life, or (c) whose failure to perform when properly used in accordance with instructions for use provided in the labeling, can be reasonably expected to result in significant injury to the user.
2. A critical component is any component of a life support device or system whose failure to perform can be reasonably expected to cause the failure of the life support device or system, or to affect its safety or effectiveness.

## PRODUCT STATUS DEFINITIONS

### Definition of Terms

Datasheet Identification	Product Status	Definition
Advance Information	Formative or In Design	This datasheet contains the design specifications for product development. Specifications may change in any manner without notice.
Preliminary	First Production	This datasheet contains preliminary data, and supplementary data will be published at a later date. Fairchild Semiconductor reserves the right to make changes at any time without notice in order to improve design.
No Identification Needed	Full Production	This datasheet contains final specifications. Fairchild Semiconductor reserves the right to make changes at any time without notice in order to improve design.
Obsolete	Not In Production	This datasheet contains specifications on a product that has been discontinued by Fairchild semiconductor. The datasheet is printed for reference information only.