FAIRCHILD SEMICONDUCTOR®

January 2007

1N/FDLL 914/A/B / 916/A/B / 4148 / 4448
Small Signal Diode

DO-35
Cathode is denoted with a black band

LL-34
THE PLACEMENT OF THE EXPANSION GAP HAS NO RELATIONSHIP TO THE LOCATION OF THE CATHODE TERMINAL

LL-34 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

-1st band denotes cathode terminal and has wider width

Absolute Maximum Ratings* T_a=25°C unless otherwise noted

Symbol	Parameter	Value	Units
V_{RRM}	Maximum Repetitive Reverse Voltage	100	V
I_O	Average Rectified Forward Current	200	mA
I_F	DC Forward Current	300	mA
i_f	Recurrent Peak Forward Current	400	mA
I_{FSM}	Non-repetitive Peak Forward Surge Current Pulse Width = 1.0 second Pulse Width = 1.0 microsecond	 1.0 4.0	 A A
T_{STG}	Storage Temperature Range	-65 to + 175	°C
T_J	Operating Junction Tempera	-65 to + 175	°C

* These ratings are limiting values above which the serviceability of the diode 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	Parameter	Max.	Units
		1N/FDLL 914/A/B / 4148 / 4448	
P_D	Power Dissipation	500	mW
$R_{\theta JA}$	Thermal Resistance, Junction to Ambient	300	°C/W

Electrical Characteristics* T_A=25°C unless otherwise noted

Symbol	Parameter		Test Conditions	Min.	Max.	Units
V_R	Breakdown Voltage		I_R = 100µA I_R = 5.0µA	100 75		V V
V_F	Forward Voltage	1N914B/4448 1N916B 1N914/916/4148 1N914A/916A 1N916B 1N914B/4448	I_F = 5.0mA I_F = 5.0mA I_F = 10mA I_F = 20mA I_F = 20mA I_F = 100mA	620 630	720 730 1.0 1.0 1.0 1.0	mV mV V V V V
I_R	Reverse Leakage		V_R = 20V V_R = 20V, T_A = 150°C V_R = 75V		25 50 5.0	nA µA µA
C_T	Total Capacitance 1N916A/B/4448 1N914A/B/4148		 V_R = 0, f = 1.0MHz V_R = 0, f = 1.0MHz		 2.0 4.0	 pF pF
t_{rr}	Reverse Recovery Time		I_F = 10mA, V_R = 6.0V (600mA) I_{rr} = 1.0mA, R_L = 100Ω		4.0	ns

* Non-recurrent square wave PW = 8.3ms

Typical Characteristics

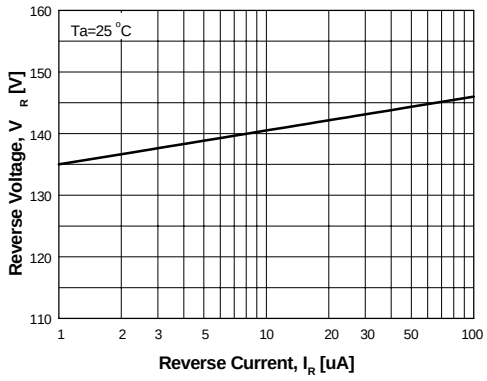
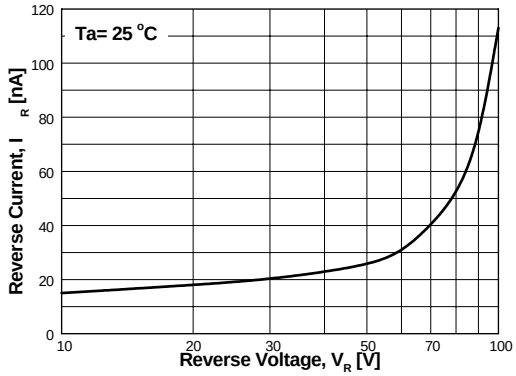


Figure 1. Reverse Voltage vs Reverse Current BV - 1.0 to 100µA



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

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

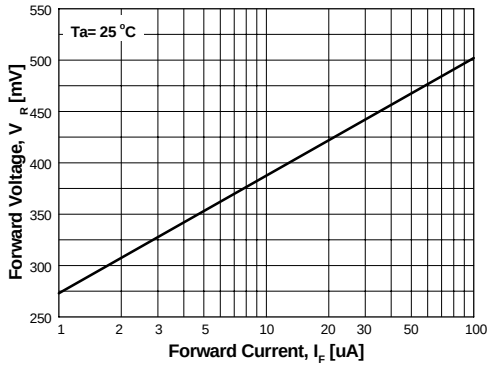


Figure 3. Forward Voltage vs Forward Current VF - 1 to 100µA

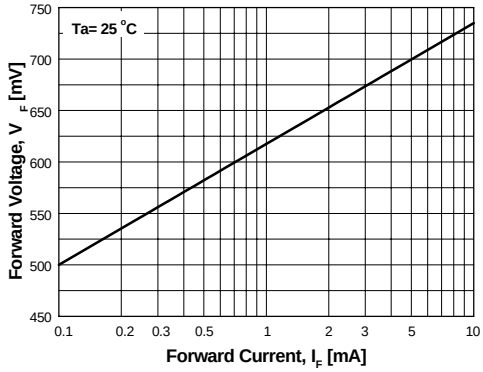


Figure 4. Forward Voltage vs Forward Current VF - 0.1 to 10mA

Typical Characteristics (Continued)

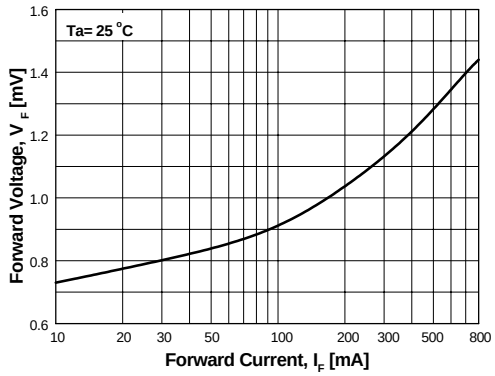


Figure 5. Forward Voltage vs Forward Current VF - 10 to 800mA

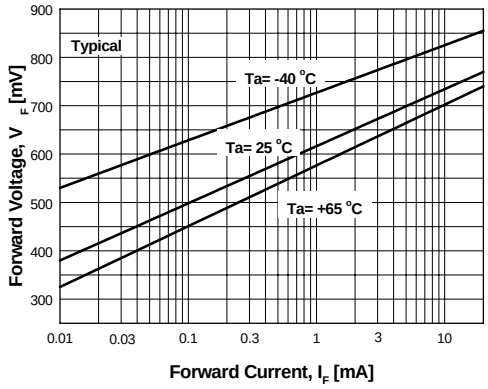


Figure 6. Forward Voltage vs Ambient Temperature VF - 0.01 - 20 mA (- 40 to +65°C)

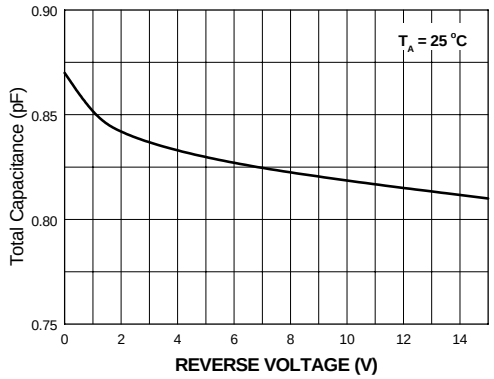
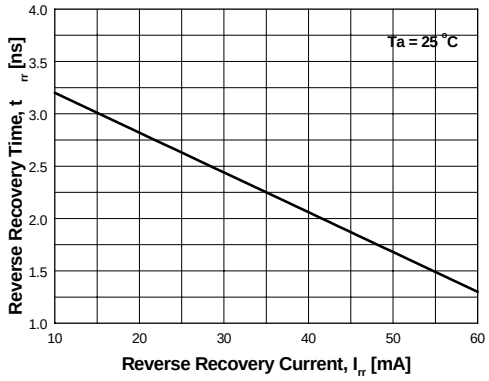


Figure 7. Total Capacitance



IF = 10mA , IRR = 1.0 mA , Rloop = 100 Ohms

Figure 8. Reverse Recovery Time vs Reverse Recovery Current

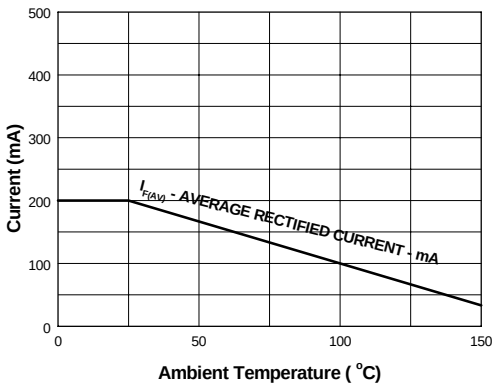


Figure 9. Average Rectified Current ($I_{F(AV)}$) vs Ambient Temperature (T_A)

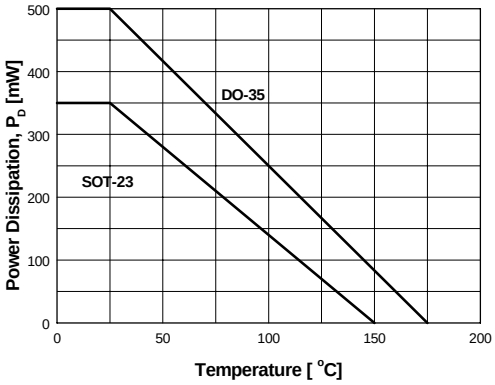


Figure 10. Power Derating Curve

FAIRCHILD SEMICONDUCTOR 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.

ACEx™
ActiveArray™
Bottomless™
Build it Now™
CoolFET™
CROSSVOLT™
DOME™
EcoSPARK™
E^2CMOS™
EnSigna™
FACT®
FAST®
FASTr™
FPS™
FRFET™
FACT Quiet Series™
GlobalOptoisolator™
GTO™
HiSeC™
I^2C™
i-Lo™
ImpliedDisconnect™
IntelliMAX™
ISOPLANAR™
LittleFET™
MICROCOUPLER™
MicroFET™
MicroPak™
MICROWIRE™
MSX™
MSXPro™
OCX™
OCXPro™
OPTOLOGIC®
OPTOPLANAR™
PACMAN™
POP™
Power247™
PowerEdge™
PowerSaver™
PowerTrench®
QFET®
QS™
QT Optoelectronics™
Quiet Series™
RapidConfigure™
RapidConnect™
µSerDes™
ScalarPump™
SILENT SWITCHER®
SMART START™
SPM™
Stealth™
SuperFET™
SuperSOT™-3
SuperSOT™-6
SuperSOT™-8
SyncFET™
TCM™
TinyBoost™
TinyBuck™
TinyPWM™
TinyPower™
TinyLogic®
TINYOPTO™
TruTranslation™
UHC®
UniFET™
VCX™
Wire™
Across the board. Around the world.™
The Power Franchise®
Programmable Active Droop™

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. THESE SPECIFICATIONS DO NOT EXPAND THE TERMS OF FAIRCHILD'S WORLDWIDE TERMS AND CONDITIONS, SPECIFICALLY THE WARRANTY THEREIN, WHICH COVERS THESE PRODUCTS.

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.

Rev. I22