National Semiconductor™

Discrete POWER & Signal Technologies

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

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

High Conductance Fast Diode

Sourced from Process D3.

Absolute Maximum Ratings*

TA = 25°C unless otherwise noted

Symbol	Parameter	Value	Units
W_{IV}	Working Inverse Voltage	75	V
I_O	Average Rectified Current	200	mA
I_F	DC Forward Current	300	mA
i_f	Recurrent Peak Forward Current	400	mA
$i_{f(surge)}$	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 +200	°C
T_J	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

TA = 25°C unless otherwise noted

Symbol	Characteristic	Max	Units
		1N/FDLL 914/A/B / 4148 / 4448	
P_D	Total Device Dissipation Derate above 25°C	500 3.33	mW mW/°C
$R_{\theta JA}$	Thermal Resistance, Junction to Ambient	300	°C/W

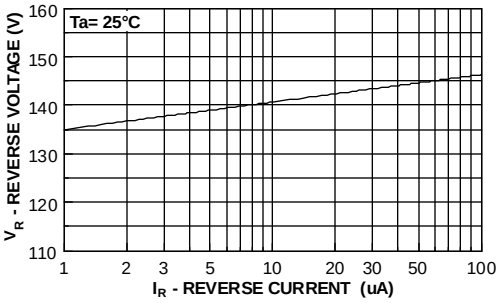
High Conductance Fast Diode
(continued)

Electrical Characteristics
TA = 25°C unless otherwise noted

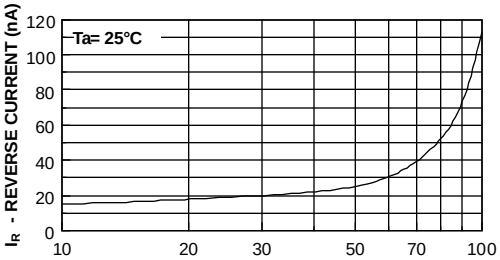
Symbol	Parameter	Test Conditions	Min	Max	Units
B_V	Breakdown Voltage	I_R = 100 µA	100		V
		I_R = 5.0 µA	75		V
I_R	Reverse Current	V_R = 20 V		25	nA
		V_R = 20 V, T_A = 150°C		50	µA
		V_R = 75 V		5.0	µA
V_F	Forward Voltage **1N914B / 4448**	I_F = 5.0 mA	620	720	mV
	1N916B	I_F = 5.0 mA	630	730	mV
	1N914 / 916 / 4148	I_F = 10 mA		1.0	V
	1N914A / 916A	I_F = 20 mA		1.0	V
	1N916B	I_F = 30 mA		1.0	V
	1N914B / 4448	I_F = 100 mA		1.0	V
C_O	Diode Capacitance				
	1N916/A/B / 4448	V_R = 0, f = 1.0 MHz		2.0	pF
	1N914/A/B / 4148	V_R = 0, f = 1.0 MHz		4.0	pF
T_{RR}	Reverse Recovery Time	I_F = 10 mA, V_R = 6.0 V (60 mA), I_{rr} = 1.0 mA, R_L = 100 Ω		4.0	nS

Typical Characteristics

REVERSE VOLTAGE vs REVERSE CURRENT
BV - 1.0 to 100 uA

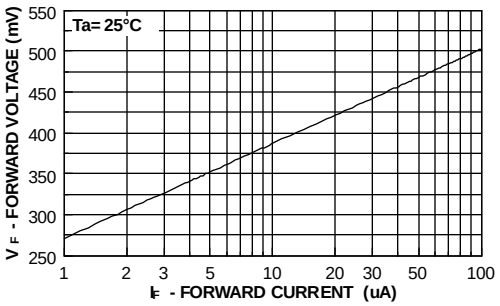


REVERSE CURRENT vs REVERSE VOLTAGE
IR - 10 to 100 V

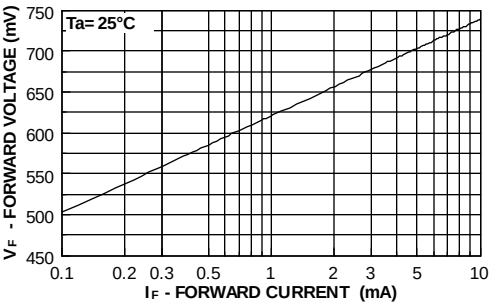


GENERAL RULE: The Reverse Current of a diode will approximately double for every ten (10) Degree C increase in Temperature

FORWARD VOLTAGE vs FORWARD CURRENT
VF - 1 to 100 uA



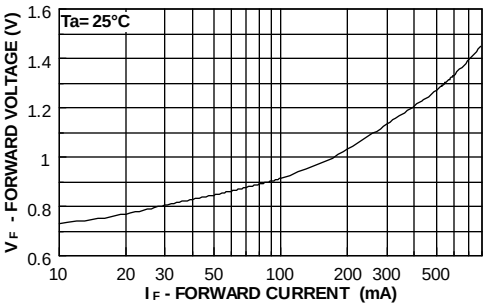
FORWARD VOLTAGE vs FORWARD CURRENT
VF - 0.1 to 100 mA



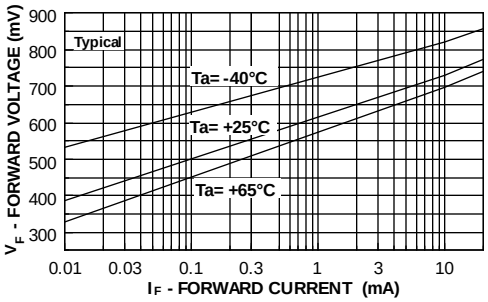
High Conductance Fast Diode
(continued)

Typical Characteristics (continued)

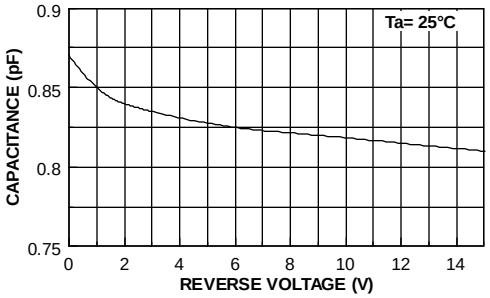
FORWARD VOLTAGE vs FORWARD CURRENT
VF - 10 to 800 mA



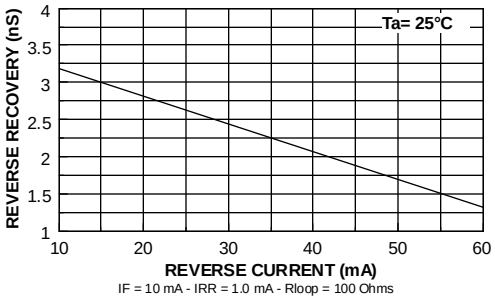
VF - 0.01 - 20 mA (-40 to +65 Deg C)
FORWARD VOLTAGE vs
AMBIENT TEMPERATURE



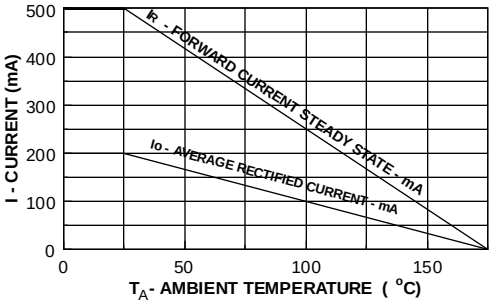
CAPACITANCE vs REVERSE VOLTAGE
VR = 0.0 to 15 V



REVERSE RECOVERY TIME vs
REVERSE CURRENT



Average Rectified Current (Io) &
Forward Current (I_F) versus
Ambient Temperature (T_A)



POWER DERATING CURVE