FAIRCHILD SEMICONDUCTOR®

March 2013

1N/FDLL 914A/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
FDLL914	BLACK
FDLL914A	BLACK
FDLL914B	BLACK
FDLL4148	BLACK
FDLL4448	BLACK

-1st band denotes cathode terminal and has wider width

Absolute Maximum Ratings(1)

Stresses exceeding the absolute maximum ratings may damage the device. The device may not function or be operable above the recommended operating conditions and stressing the parts to these levels is not recommended. In addition, extended exposure to stresses above the recommended operating conditions may affect device reliability. The absolute maximum ratings are stress ratings only. Values are at 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 s	1.0	A
		Pulse Width = 1.0 µs	4.0	A
T_{STG}	Storage Temperature Range		-65 to +200	°C
T_J	Operating Junction Temperature		175	°C

Note:
1. These ratings are limiting values above which the serviceability of the diode may be impaired.

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

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Electrical Characteristics(2)

Values are at T_A=25°C unless otherwise noted.

Symbol	Parameter		Test Conditions	Min.	Max.	Units
V_R	Breakdown Voltage		I_R= 100 µA	100		V
			I_R= 5.0 µA	75		V
V_F	Forward Voltage	1N914B/4448	I_F= 5.0 mA	0.62	0.72	V
		1N916B	I_F= 5.0 mA	0.63	0.73	V
		1N914 / 916 / 4148	I_F= 10 mA		1.0	V
		1N914A/916A	I_F= 20 mA		1.0	V
		1N916B	I_F= 20 mA		1.0	V
		1N914B / 4448	I_F= 100 mA		1.0	V
I_R	Reverse Leakage		V_R= 20 V		0.025	µA
			V_R= 20 V, T_A= 150°C		50	µA
			V_R= 75 V		5.0	µA
C_T	Total Capacitance	1N916A/B/4448	V_R = 0, f = 1.0 MHz		2.0	pF
		1N914A/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 (600 mA) I_{rr} = 1.0 mA, R_L = 100 Ω		4.0	ns

Note:

2. Non-recurrent square wave P_W= 8.3 ms.

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Typical Performance Characteristics

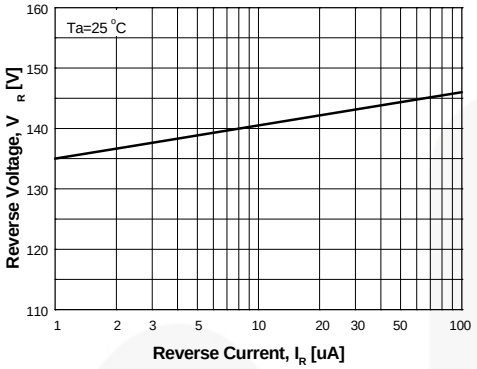
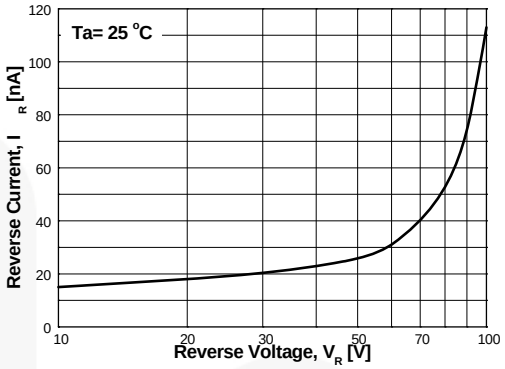


Figure 1. Reverse Voltage vs. Reverse Current
B_V - 1.0 to 100 μA



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
I_R - 10 to 100 V

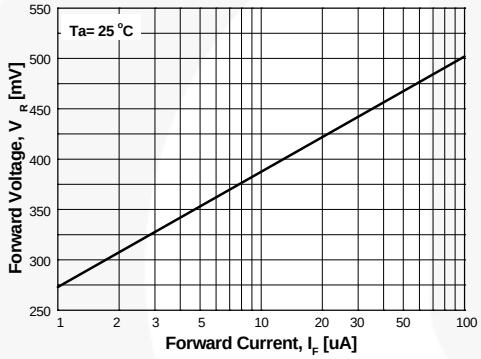


Figure 3. Forward Voltage vs. Forward Current
V_F - 1 to 100 μA

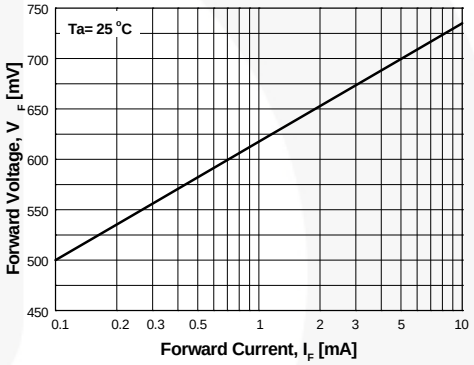


Figure 4. Forward Voltage vs. Forward Current
V_F - 0.1 to 10 mA

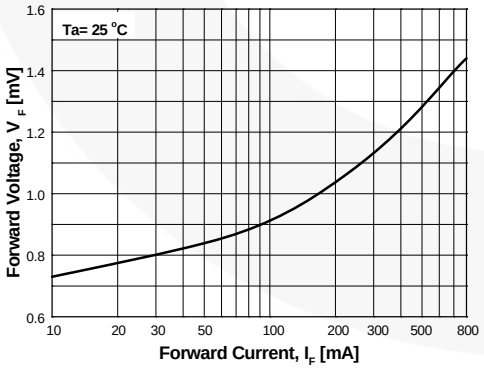


Figure 5. Forward Voltage vs. Forward Current
V_F - 10 to 800 mA

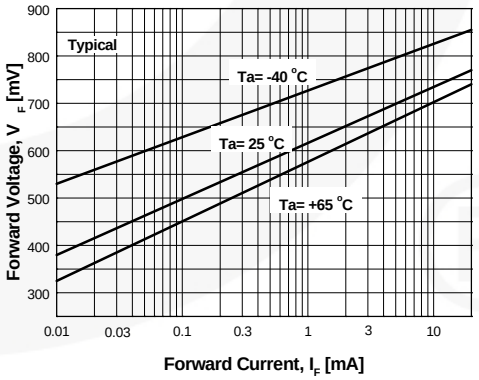


Figure 6. Forward Voltage vs. Ambient Temperature
V_F - 0.01 - 20 mA (- 40 to +65°C)

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Typical Performance Characteristics (Continued)

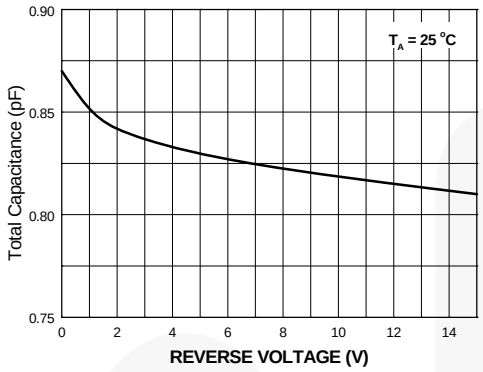
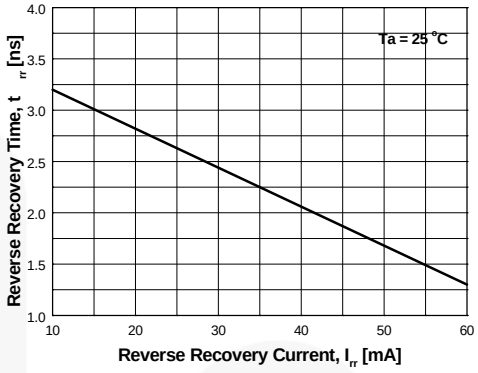


Figure 7. Total Capacitance



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

Figure 8. Reverse Recovery Time vs. Reverse Recovery Current

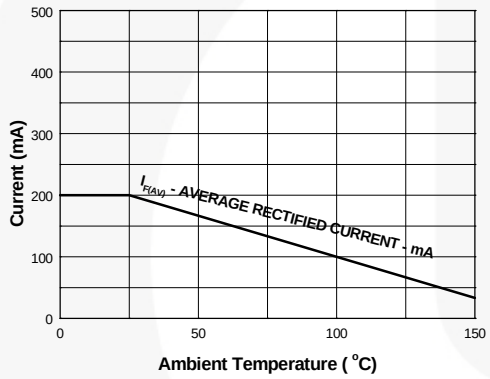


Figure 9. Average Rectified Current ($I_{F(AV)}$) vs. Ambient Temperature (T_A)

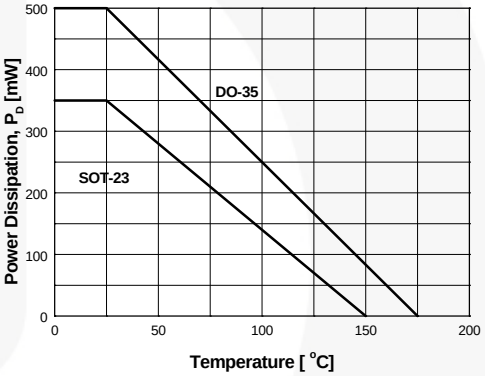


Figure 10. Power Derating Curve

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Physical Dimensions

SOD-80

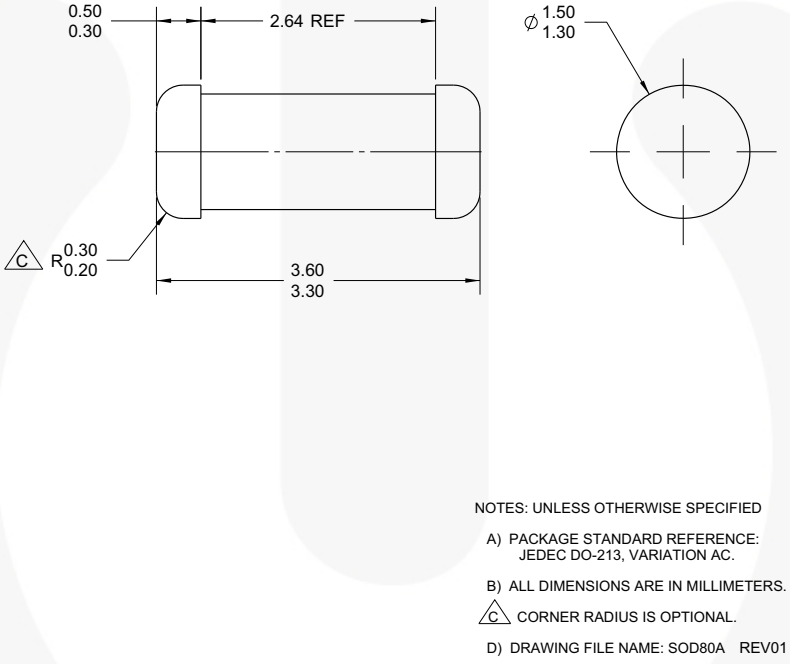


Figure 11. 2-TERMINAL, SOD-80, JEDEC DO-213AC, MINI-MELF

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Rev. I64

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