National Semiconductor™

Discrete POWER & Signal Technologies

1N/FDLL 456/A - 1N/FDLL 459/A

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
FDLL456	BROWN	WHITE
FDLL456A	BROWN	WHITE
FDLL457	RED	BLACK
FDLL457A	RED	BLACK
FDLL458	RED	BROWN
FDLL458A	RED	BROWN
FDLL459	RED	RED
FDLL459A	RED	RED

High Conductance Low Leakage Diode

Sourced from Process 1M.

Absolute Maximum Ratings*

TA = 25°C unless otherwise noted

Symbol	Parameter		Value	Units
W_{IV}	Working Inverse Voltage	**456/A**	25	V
		457/A	60	V
		458/A	125	V
		459/A	175	V
I_O	Average Rectified Current		200	mA
I_F	DC Forward Current		500	mA
i_f	Recurrent Peak Forward Current		600	mA
$i_{f(surge)}$	Peak Forward Surge Current			
	Pulse width = 1.0 second		1.0	A
	Pulse width = 1.0 microsecond		4.0	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 456/A - 459/A	
P_D	Total Device Dissipation	500	mW
	Derate above 25°C	3.33	mW/°C
$R_{\theta JA}$	Thermal Resistance, Junction to Ambient	300	°C/W

High Conductance Low Leakage Diode

(continued)

Electrical Characteristics

TA = 25°C unless otherwise noted

Symbol	Parameter		Test Conditions	Min	Max	Units
B_V	Breakdown Voltage	**456/A**	I_R = 100 µA	30		V
		457/A	I_R = 100 µA	70		V
		458/A	I_R = 100 µA	150		V
		459/A	I_R = 100 µA	200		V
I_R	Reverse Current	**456/A**	V_R = 25 V		25	nA
			V_R = 25 V, T_A = 150°C		5.0	µA
		457/A	V_R = 60 V		25	nA
			V_R = 60 V, T_A = 150°C		5.0	µA
		458/A	V_R = 125 V		25	nA
			V_R = 125 V, T_A = 150°C		5.0	µA
		459/A	V_R = 175 V		25	nA
			V_R = 175 V, T_A = 150°C		5.0	µA
V_F	Forward Voltage	**456**	I_F = 40 mA		1.0	V
		457	I_F = 10 mA		1.0	V
		458	I_F = 7.0 mA		1.0	V
		459	I_F = 3.0 mA		1.0	V
		456/A-459/A	I_F = 100 mA		1.0	V
C_O	Diode Capacitance		V_R = 0, f = 1.0 MHz		6.0	pF