NEC
ELECTRON DEVICE

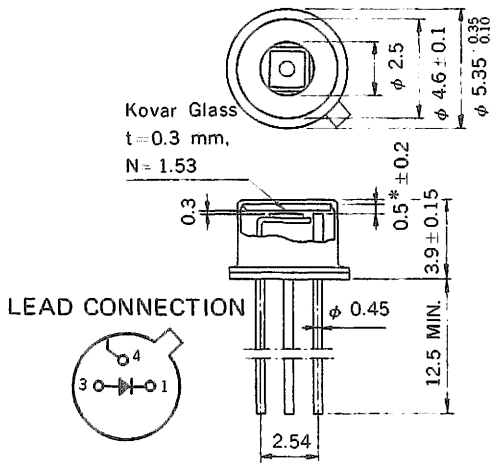
PHOTO DIODE
NDL1202

OPTICAL FIBER COMMUNICATION
SILICON AVALANCHE PHOTO DIODE

DESCRIPTION

NDL1202 is an Avalanche Photo Diode especially designed for a detector of large capacity and long distance optical fiber communication systems. It has a high speed response time and a wide spectral sensitivity between 500 and 1 000 nm.

PACKAGE DIMENSIONS
in millimeters



1. Cathode (Positive Bias)
3. Anode (Negative Bias)
4. Case

* Optical length

FEATURES

- High sensitivity. η = 70 % @ 850 nm
- Small dark current. I_D = 1.0 nA MAX.
- High speed response. t_r, t_f = 1.0 ns MAX.
- Short optical length. 0.5 mm
- Detecting area size. ϕ 240 μm

ABSOLUTE MAXIMUM RATINGS (T_a = 25 °C)

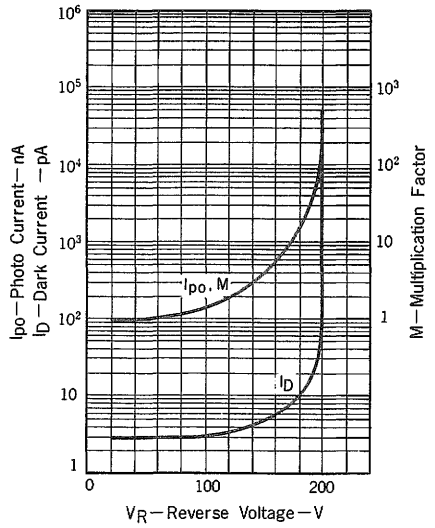
Power Dissipation	P	100	mW
Forward Current	I_F	100	mA
Storage Temperature	T_{stg}	−65 to +150	°C

ELECTRO-OPTICAL CHARACTERISTICS (T_a = 25 °C)

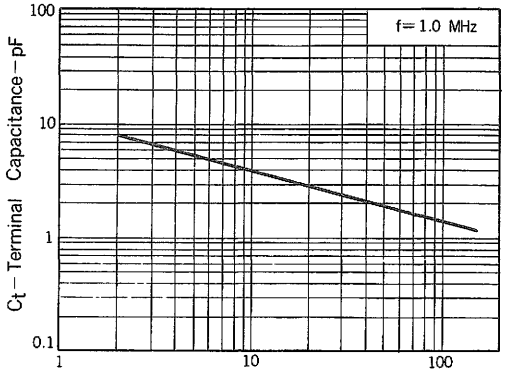
CHARACTERISTIC	SYMBOL	MIN.	TYP.	MAX.	UNIT	TEST CONDITIONS
Reverse Breakdown Voltage	$V_{(BR)R}$	180	200	220	V	I_D = 10 nA
Dark Current	I_D			1.0	nA	$V_R = V_{(BR)R}$−2.0 V
Terminal Capacitance	C_t		1.3	2.5	pF	V_R = 150 V, f = 1.0 MHz
Quantum Efficiency	η	60	70		%	λ = 850 nm
Current Multiplication Factor	M	100	150			$V_R = V_{(BR)R}$−2.0 V
Maximum Multiplication Factor	Mm		600			$V_R = V_{(BR)R}$
Rise Time	t_r			1.0	ns	λ=850 nm, M=100, 10–90 %, R_L=50 Ω
Fall Time	t_f			1.0	ns	λ=850 nm, M=100, 10–90 %, R_L=50 Ω
Excess Noise Factor	x		0.25	0.30		λ = 850 nm, M = 100

TYPICAL CHARACTERISTICS (T_a = 25 °C)

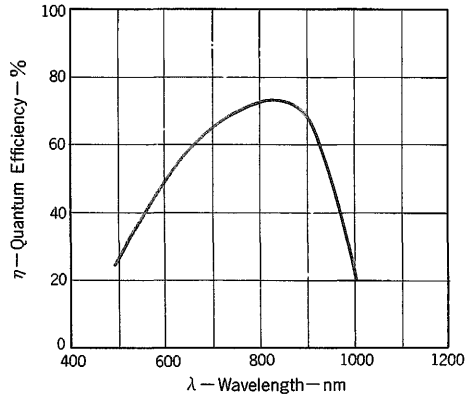
PHOTO CURRENT, DARK CURRENT, MULTIPLICATION FACTOR vs. REVERSE VOLTAGE



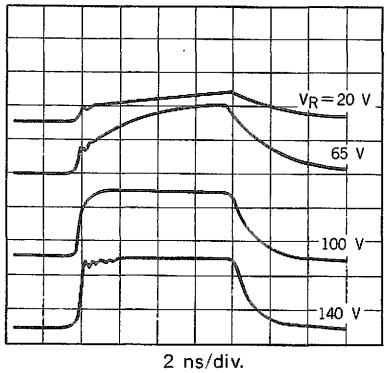
TERMINAL CAPACITANCE vs. REVERSE VOLTAGE



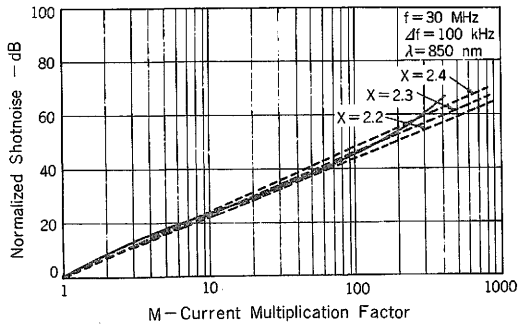
QUANTUM EFFICIENCY vs. WAVELENGTH



RESPONSE TIME CHARACTERISTICS



NORMALIZED SHOTNOISE vs. CURRENT MULTIPLICATION FACTOR



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