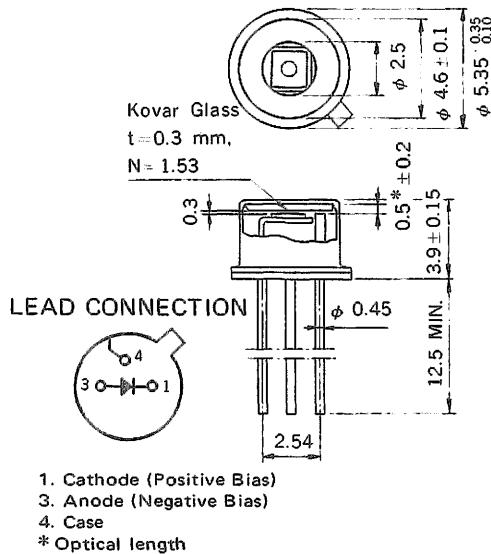


**OPTICAL FIBER COMMUNICATION**  
**SILICON AVALANCHE PHOTO DIODE**

**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



**FEATURES**

- High sensitivity.  $\eta = 70\% @ 850 \text{ nm}$
- Small dark current.  $I_D = 1.0 \text{ nA MAX.}$
- High speed response.  $t_r, t_f = 1.0 \text{ ns MAX.}$
- Short optical length.  $0.5 \text{ mm}$
- Detecting area size.  $\phi 240 \mu\text{m}$

**ABSOLUTE MAXIMUM RATINGS ( $T_a = 25^\circ\text{C}$ )**

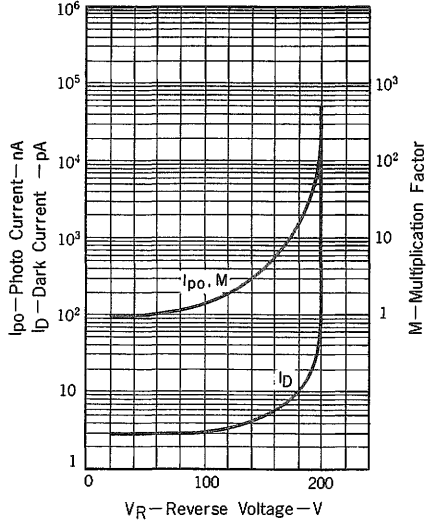
Power Dissipation	P	100	mW
Forward Current	$I_F$	100	mA
Storage Temperature	$T_{stg}$	-65 to +150	$^\circ\text{C}$

**ELECTRO-OPTICAL CHARACTERISTICS ( $T_a = 25^\circ\text{C}$ )**

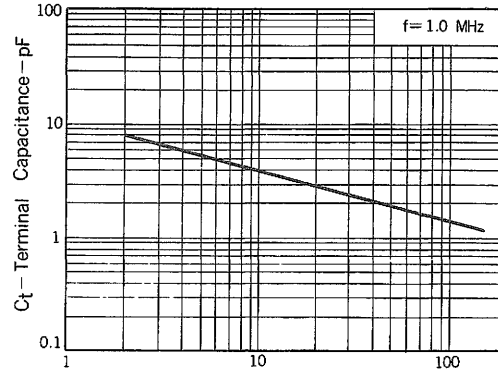
CHARACTERISTIC	SYMBOL	MIN.	TYP.	MAX.	UNIT	TEST CONDITIONS
Reverse Breakdown Voltage	$V_{(BR)R}$	180	200	220	V	$I_D = 10 \text{ nA}$
Dark Current	$I_D$			1.0	nA	$V_R = V_{(BR)R} - 2.0 \text{ V}$
Terminal Capacitance	$C_t$		1.3	2.5	pF	$V_R = 150 \text{ V}, f = 1.0 \text{ MHz}$
Quantum Efficiency	$\eta$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

TYPICAL CHARACTERISTICS ( $T_a = 25^\circ\text{C}$ )

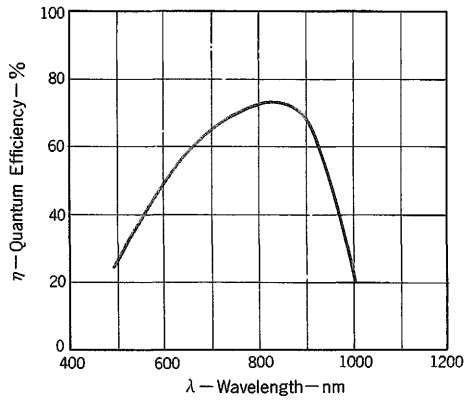
PHOTO CURRENT, DARK CURRENT, MULTIPLICATION FACTOR vs. REVERSE VOLTAGE



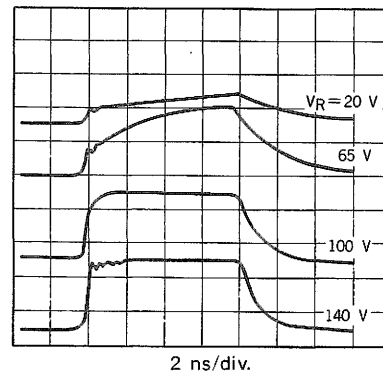
TERMINAL CAPACITANCE vs. REVERSE VOLTAGE



QUANTUM EFFICIENCY vs. WAVELENGTH



RESPONSE TIME CHARACTERISTICS



NORMALIZED SHOTNOISE vs. CURRENT MULTIPLICATION FACTOR

