

To our customers,

Old Company Name in Catalogs and Other Documents

On April 1st, 2010, NEC Electronics Corporation merged with Renesas Technology Corporation, and Renesas Electronics Corporation took over all the business of both companies. Therefore, although the old company name remains in this document, it is a valid Renesas Electronics document. We appreciate your understanding.

Renesas Electronics website: <http://www.renesas.com>

April 1st, 2010
Renesas Electronics Corporation

Issued by: Renesas Electronics Corporation (<http://www.renesas.com>)

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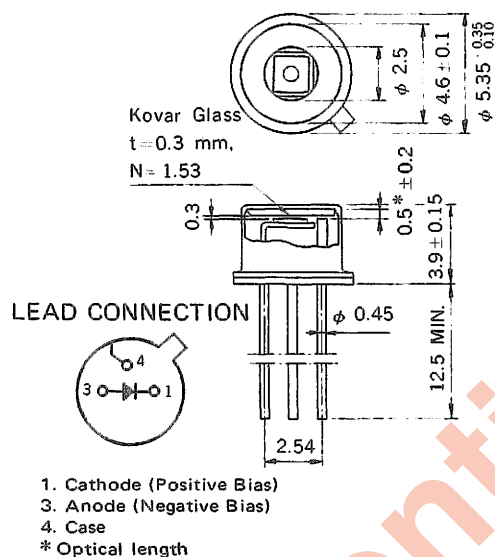
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OPTICAL FIBER COMMUNICATION SILICON AVALANCHE PHOTO DIODE

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

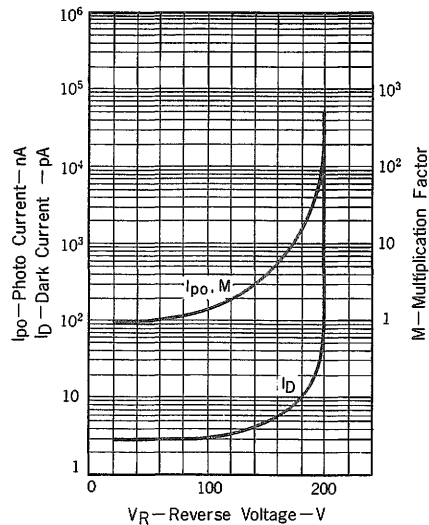
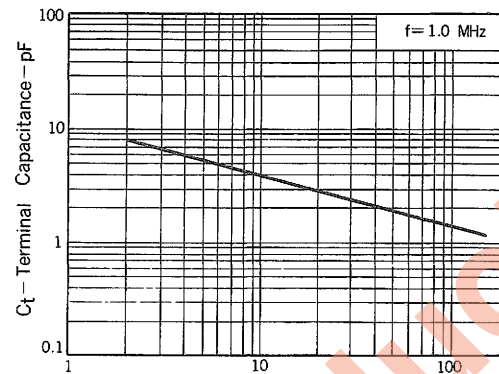
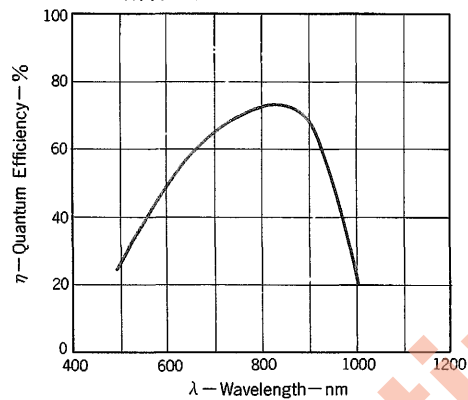
- High sensitivity. $\eta = 70\% @ 850 \text{ nm}$
- Small dark current. $I_D = 1.0 \text{ nA MAX.}$
- High speed response. $t_r, t_f = 1.0 \text{ ns MAX.}$
- Short optical length. 0.5 mm
- Detecting area size. $\phi 240 \mu\text{m}$

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

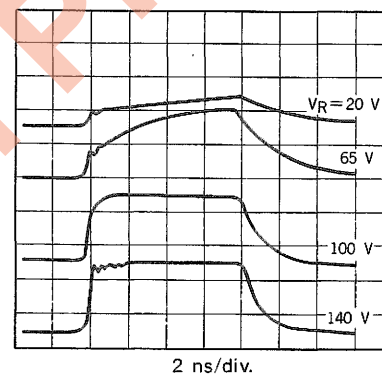
Power Dissipation	P	100	mW
Forward Current	I_F	100	mA
Storage Temperature	T_{stg}	-65 to +150	$^\circ\text{C}$

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	η	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	$\lambda = 850 \text{ nm}, M = 100, 10-90\%, R_L = 50 \Omega$
Fall Time	t_f			1.0	ns	$\lambda = 850 \text{ nm}, M = 100, 10-90\%, R_L = 50 \Omega$
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 VOLTAGETERMINAL CAPACITANCE vs.
REVERSE VOLTAGEQUANTUM EFFICIENCY vs.
WAVELENGTH

RESPONSE TIME CHARACTERISTICS

NORMALIZED SHOTNOISE vs.
CURRENT MULTIPLICATION FACTOR