

To our customers,

Old Company Name in Catalogs and Other Documents

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

April 1st, 2010
Renesas Electronics Corporation

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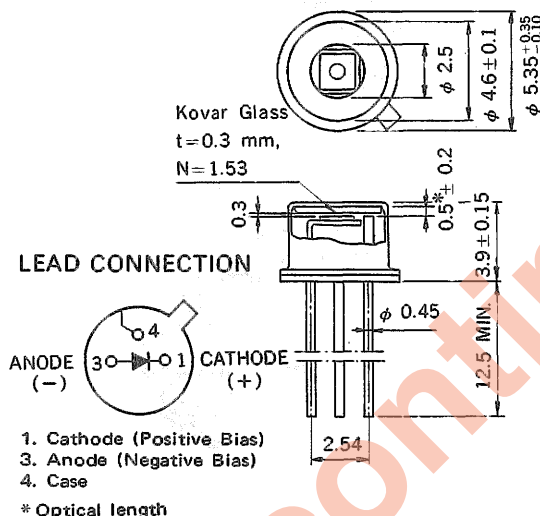
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OPTICAL FIBER COMMUNICATION SILICON AVALANCHE PHOTO DIODE

DESCRIPTION

NDL1102 is a widely used general purpose silicon avalanche photodiode detector. It is designed for moderate speed (4 to 30 Mb/s), medium distance (0.1–5 km) telecommunication systems. NDL1102 has a high speed response time and a wide spectral sensitivity, making it ideal for systems operating between 600 and 900 nm. It is also recommended to use as a detector in distance measurement equipment. Because of its short optical length between detecting surface and window surface, coupling with optical fiber cables is easy. NDL1102 is hermetically sealed in a rugged TO-18 can-type package with a kovar window and floating leads.

PACKAGE DIMENSIONS in millimeters



FEATURES

- Low cost.
- Low bias voltage. $V_{op} = 100$ to 140 V
- Low temperature dependence of $V_{(BR)R}$. $0.12\% / ^\circ C$
- High quantum efficiency. 65% @ 630 nm
- Low excess noise factor. 0.25 @ 850 nm
- Short optical length. 0.5 mm
- Detecting area size. $\phi 240 \mu m$

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

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

ELECTRO-OPTICAL CHARACTERISTICS ($T_a = 25^\circ C$)

CHARACTERISTIC	SYMBOL	MIN.	TYP.	MAX.	UNIT	TEST CONDITIONS
Breakdown Voltage	$V_{(BR)R}$	100	120	140	V	$I_D = 10$ nA
Dark Current	I_D			1.0	nA	$V_R = V_{(BR)R} - 1$ V
Terminal Capacitance	C_t		2.5	5.0	pF	$V_R = 30$ V
Sensitivity	S	0.25	0.33		A/W	$\lambda = 630$ nm
			0.43			$\lambda = 850$ nm
Quantum Efficiency	η	50	65		%	$\lambda = 630$ nm
Rise, Fall Time	t_r, t_f		0.5		ns	$\lambda = 630$ nm, $M = 100$, $R_L = 50 \Omega$, 10 – 90 %
			10			$\lambda = 850$ nm, $M = 100$, $R_L = 50 \Omega$, 10 – 90 %
Excess Noise Factor	x		0.25			$\lambda = 850$ nm, $M = 100$
Multiplication Factor	M	100	150			$V_R = V_{(BR)R} - 1.0$ V
Maximum Multiplication Factor	M_m		600			$V_R = V_{(BR)R}$

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