PRELIMINARY DATA SHEET

NEC

PHOTOCOUPLER

PS2911-1

HIGH CTR, 4-PIN ULTRA SMALL PACKAGE FLAT-LEAD PHOTOCOUPLER

–NEPOC™ Series–

DESCRIPTION

The PS2911-1 is an optically coupled isolator containing a GaAs light emitting diode and an NPN silicon phototransistor in one package for high density mounting applications.

An ultra small flat-lead package has been provided which realizes a reduction in mounting area of about 30% compared with the PS28xx series.

FEATURES

★ • Small and thin package (4.9 (L) × 2.5 (W) × 2.1 (H) mm)
- High current transfer ratio (CTR = 200 % TYP. @ I_F = 1 mA, V_{CE} = 5 V)
- High isolation voltage (BV = 2 500 Vr.m.s.)
- Ordering number of taping product: PS2911-1-F3, F4: 3 500 pcs/reel

APPLICATIONS

- DC/DC converter
- Modem/PC card

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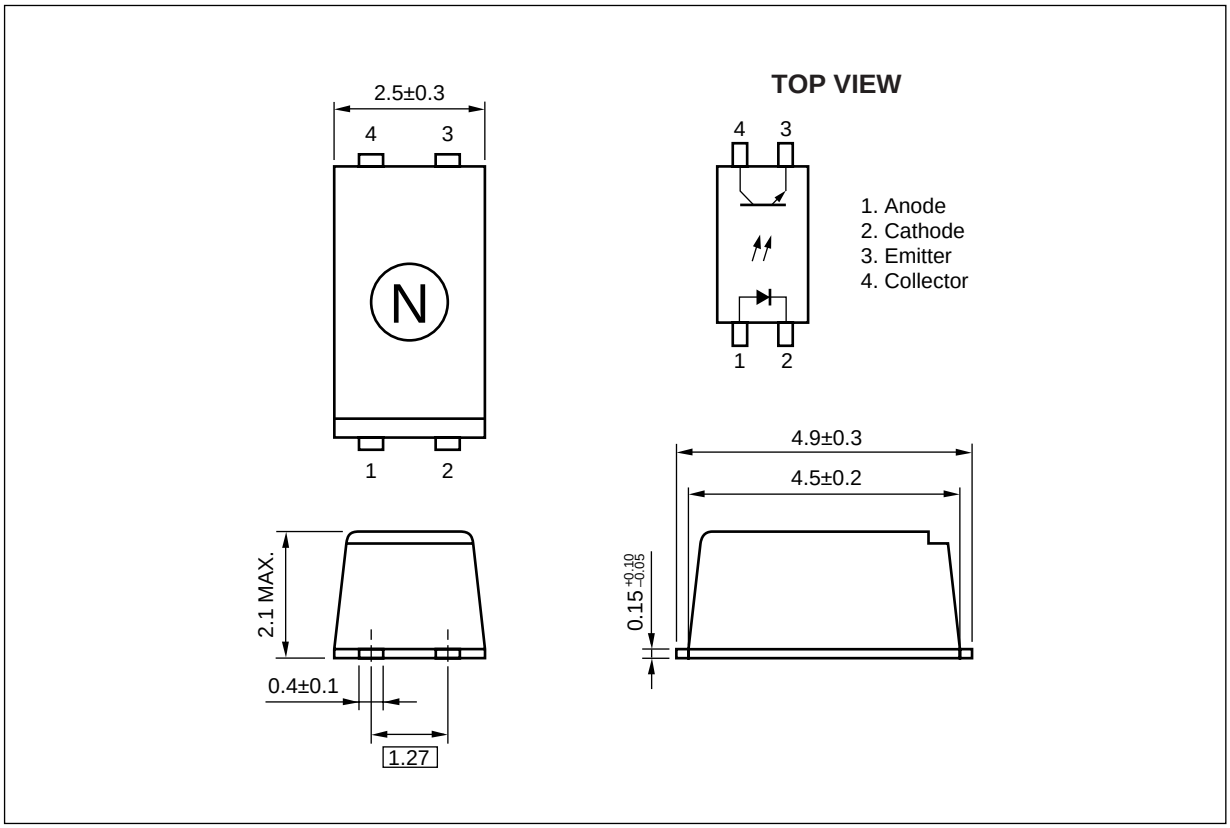
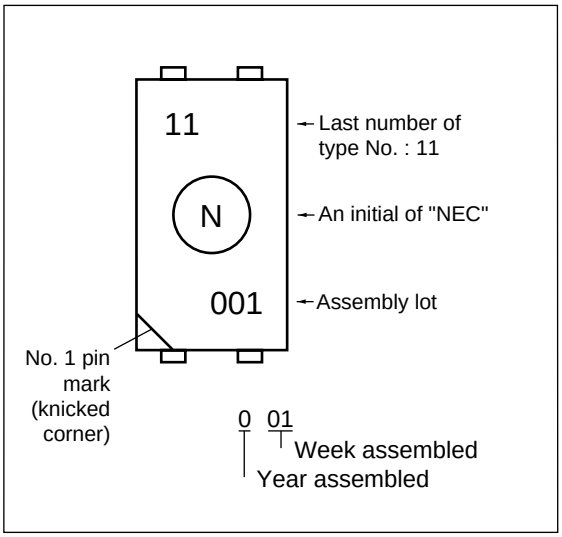
The mark ★ shows major revised points.

PACKAGE DIMENSIONS (in millimeters)



MARKING



★ PHOTOCOUPLER CONSTRUCTION

Parameter	Unit (MIN.)
Air Distance	5 mm
Creepage Distance	5 mm
Isolation Distance	0.4 mm

ABSOLUTE MAXIMUM RATINGS (T_A = 25 °C, unless otherwise specified)

Parameter		Symbol	Ratings	Unit
Diode	Forward Current	I_F	50	mA
	Reverse Voltage	V_R	6	V
	Power Dissipation Derating	ΔP_D/°C	0.6	mW/°C
	Power Dissipation	P_D	60	mW
	Peak Forward Current*1	I_{FP}	1	A
Transistor	Collector to Emitter Voltage	V_{CEO}	40	V
	Emitter to Collector Voltage	V_{ECO}	5	V
	Collector Current	I_C	40	mA
	Power Dissipation Derating	ΔP_C/°C	1.2	mW/°C
	Power Dissipation	P_C	120	mW
Isolation Voltage*2		BV	2 500	Vr.m.s.
Total Power Dissipation		P_T	160	mW
Operating Ambient Temperature		T_A	–55 to +100	°C
Storage Temperature		T_{stg}	–55 to +150	°C

***1** PW = 100 μs, Duty Cycle = 1 %

***2** AC voltage for 1 minute at T_A = 25 °C, RH = 60 % between input and output

ELECTRICAL CHARACTERISTICS (T_A = 25 °C)

Parameter		Symbol	Conditions	MIN.	TYP.	MAX.	Unit
Diode	Forward Voltage	V_F	I_F = 5 mA		1.1	1.4	V
	Reverse Current	I_R	V_R = 5 V			5	μA
	Terminal Capacitance	C_t	V = 0 V, f = 1 MHz		30		pF
Transistor	Collector to Emitter Current	I_{CEO}	I_F = 0 mA, V_{CE} = 40 V			100	nA
Coupled	Current Transfer Ratio (I_C/I_F)*1	CTR	I_F = 1 mA, V_{CE} = 5 V	100	200	400	%
	Collector Saturation Voltage	$V_{CE (sat)}$	I_F = 1 mA, I_C = 0.2 mA			0.3	V
	Isolation Resistance	R_{I-O}	V_{I-O} = 1 kV_{DC}	10^{11}			Ω
	Isolation Capacitance	C_{I-O}	V = 0 V, f = 1 MHz		0.4		pF
	Rise Time*2	t_r	V_{CC} = 5 V, I_C = 2 mA, R_L = 100 Ω		4		μs
	Fall Time*2	t_f			5		

★ ***1** CTR rank

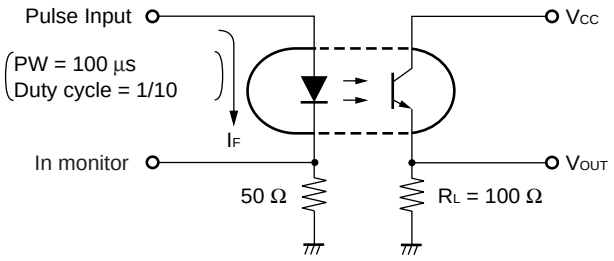
N : 100 to 400 (%)

K : 200 to 400 (%)

L : 150 to 300 (%)

M : 100 to 200 (%)

***2** Test circuit for switching time



[MEMO]

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CAUTION

Within this device there exists GaAs (Gallium Arsenide) material which is a harmful substance if ingested. Please do not under any circumstances break the hermetic seal.

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