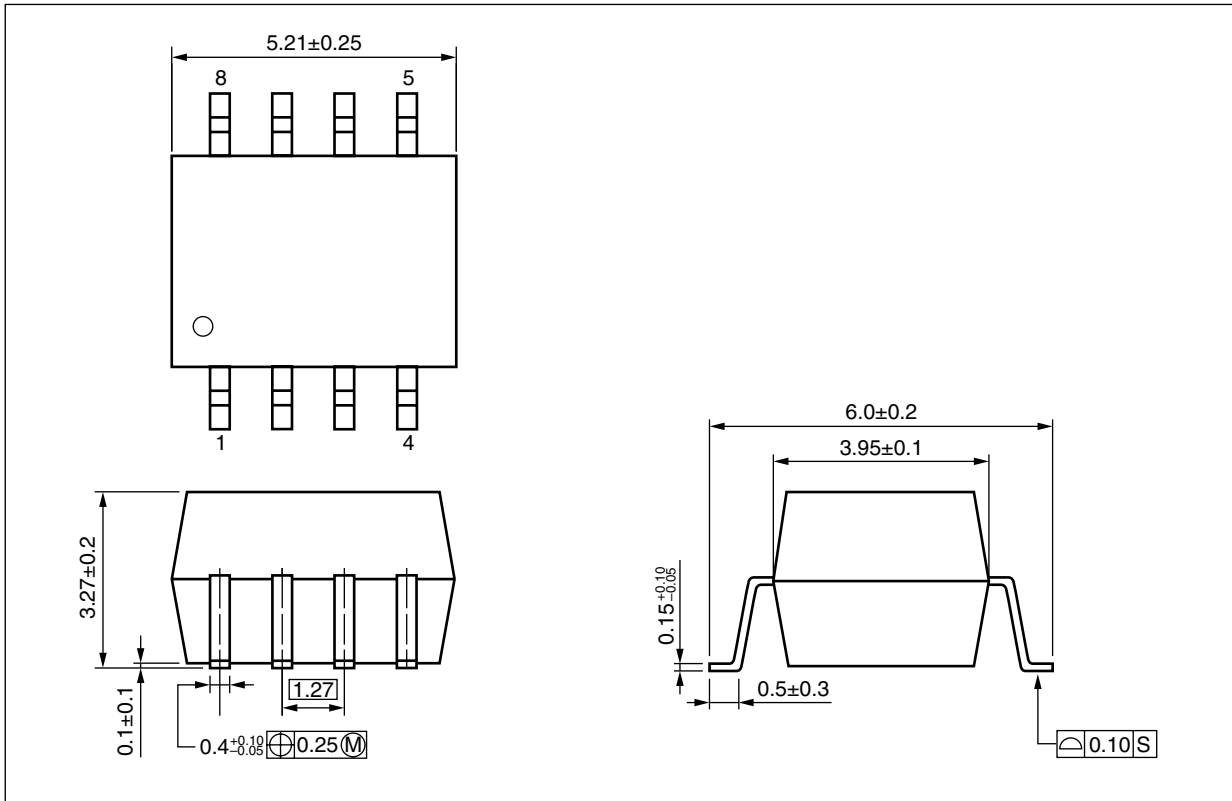
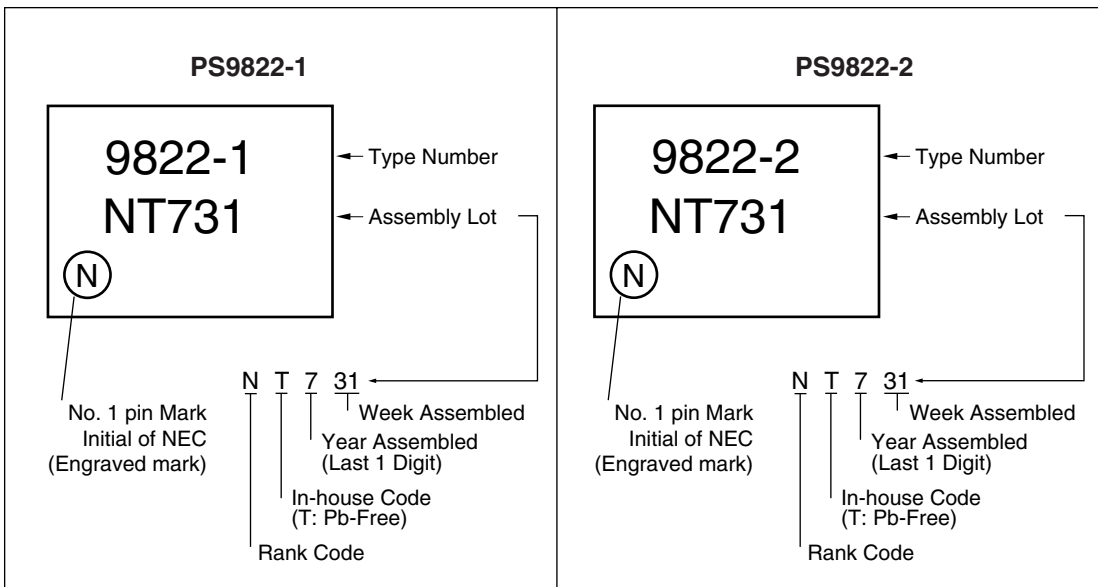


PACKAGE DIMENSIONS (UNIT: mm)



MARKING EXAMPLE



ORDERING INFORMATION

Part Number	Order Number	Rank	Solder Plating Specification	Packing Style
PS9822-1	PS9822-1-AX	N ^{*1}	Pb-Free	20 pcs (Tape 20 pcs cut)
		L ^{*2}		
PS9822-1-F3	PS9822-1-F3-AX	N ^{*1}		Embossed Tape 1 500 pcs/reel
		L ^{*2}		
PS9822-2	PS9822-2-AX	N ^{*1}		20 pcs (Tape 20 pcs cut)
		L ^{*2}		
PS9822-2-F3	PS9822-2-F3-AX	N ^{*1}		Embossed Tape 1 500 pcs/reel
		L ^{*2}		

*1 N rank: V_{CC} = 3.3 V

*2 L rank: V_{CC} = 5 V

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

Parameter		Symbol	Ratings		Unit
			PS9822-1	PS9822-2	
Diode	Forward Current	I _F	20 ^{*1}	15 ^{*2}	mA
	Reverse Voltage	V _R	5		V/ch
Detector	Supply Voltage	V _{CC}	7		V
	Output Voltage	V _O	7		V/ch
	Output Current	I _O	25		mA/ch
	Power Dissipation ^{*3}	P _C	40		mW/ch
Isolation Voltage ^{*4}		BV	2 500		Vr.m.s.
Operating Ambient Temperature		T _A	-40 to +100		°C
Storage Temperature		T _{stg}	-55 to +125		°C

*1 Reduced to 0.3 mA/°C at T_A = 60°C or more.

*2 Reduced to 0.1 mA/°C at T_A = 60°C or more.

*3 Applies to output pin V_O (collector pin). Reduced to 1.5 mW/°C at T_A = 65°C or more.

*4 AC voltage for 1 minute at T_A = 25°C, RH = 60% between input and output.
Pins 1-4 shorted together, 5-8 shorted together.

RECOMMENDED OPERATING CONDITIONS

Parameter		Symbol	MIN.	TYP.	MAX.	Unit
Low Level Input Voltage		V _{FL}	0		0.8	V
High Level Input Current		I _{FH}	6.3	10	12.5	mA
Supply Voltage	N rank	V _{CC}	2.7	3.3	3.6	V
	L rank		4.5	5.0	5.5	
Pull-up Resistance		R _L	330		4 k	Ω
TLL (R _L = 1.0 kΩ, loads)		N			5	

ELECTRICAL CHARACTERISTICS: N rank (T_A = -40 to +100°C, unless otherwise specified)

Parameter		Symbol	Conditions	MIN.	TYP.*1	MAX.	Unit
Diode	Forward Voltage	V _F	I _F = 10 mA, T _A = 25°C		1.6	1.8	V
	Reverse Current	I _R	V _R = 3 V, T _A = 25°C			10	μA
	Terminal Capacitance	C _t	V = 0 V, f = 1 MHz, T _A = 25°C		30		pF
Detector	High Level Output Current	I _{OH}	V _{CC} = V _O = 3.3 V, V _F = 0.8 V		1	100	μA
	Low Level Output Voltage ²	V _{OL}	V _{CC} = 3.3 V, I _F = 5 mA, I _{OL} = 13 mA		0.2	0.6	V
	High Level Supply Current	I _{COH}	V _{CC} = 3.3 V, I _F = 0 mA, V _O = Open			2	mA/ch
	Low Level Supply Current	I _{COL}	V _{CC} = 3.3 V, I _F = 10 mA, V _O = Open			3	
Coupled	Threshold Input Current (H → L)	I _{FHL}	V _{CC} = 3.3 V, V _O = 0.8 V, R _L = 350 Ω			5	mA
	Isolation Resistance	R _{I-O}	V _{I-O} = 1 kV _{DC} , R _H = 40 to 60%, T _A = 25°C	10 ¹¹			Ω
	Isolation Capacitance	C _{I-O}	V = 0 V, f = 1 MHz, T _A = 25°C		0.6		pF
	Propagation Delay Time (H → L)	t _{PHL}	V _{CC} = 3.3 V, R _L = 350 Ω, I _F = 7.5 mA, V _{THHL} = V _{THLH} = 1.5 V			500	ns
	Propagation Delay Time (L → H)	t _{PLH}				700	
Pulse Width Distortion (PWD)	t _{PHL} -t _{PLH}	V _{CC} = 3.3 V, R _L = 350 Ω, I _F = 7.5 mA, V _{THHL} = V _{THLH} = 1.5 V			200	ns	

*1 Typical values at T_A = 25°C

*2 Because V_{OL} of 2 V or more may be output when LED current input and when output supply of V_{CC} = 2.6 V or less, it is important to confirm the characteristics (operation with the power supply on and off) during design, before using this device.

ELECTRICAL CHARACTERISTICS: L rank (T_A = -40 to +100°C, unless otherwise specified)

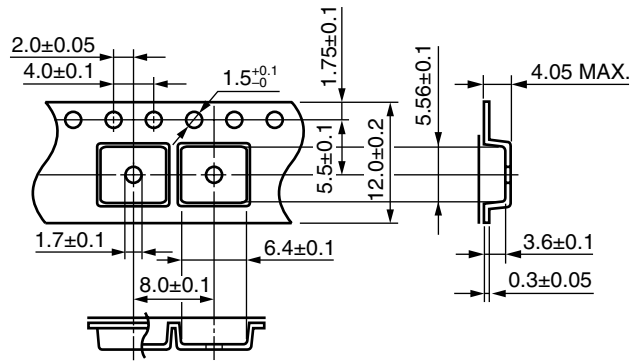
Parameter		Symbol	Conditions	MIN.	TYP.*1	MAX.	Unit
Diode	Forward Voltage	V _F	I _F = 10 mA, T _A = 25°C		1.6	1.8	V
	Reverse Current	I _R	V _R = 3 V, T _A = 25°C			10	μA
	Terminal Capacitance	C _t	V = 0 V, f = 1 MHz, T _A = 25°C		30		pF
Detector	High Level Output Current	I _{OH}	V _{CC} = V _O = 5 V, V _F = 0.8 V		1	100	μA
	Low Level Output Voltage ²	V _{OL}	V _{CC} = 5 V, I _F = 5 mA, I _{OL} = 13 mA		0.2	0.6	V
	High Level Supply Current	I _{COH}	V _{CC} = 5 V, I _F = 0 mA, V _O = Open			2.5	mA/ch
	Low Level Supply Current	I _{COL}	V _{CC} = 5 V, I _F = 10 mA, V _O = Open			3.5	
Coupled	Threshold Input Current (H → L)	I _{FHL}	V _{CC} = 5 V, V _O = 0.8 V, R _L = 350 Ω			5	mA
	Isolation Resistance	R _{I-O}	V _{I-O} = 1 kV _{DC} , R _H = 40 to 60%, T _A = 25°C	10 ¹¹			Ω
	Isolation Capacitance	C _{I-O}	V = 0 V, f = 1 MHz, T _A = 25°C		0.6		pF
	Propagation Delay Time (H → L)	t _{PHL}	V _{CC} = 5 V, R _L = 350 Ω, I _F = 7.5 mA, V _{THHL} = V _{THLH} = 1.5 V			500	ns
	Propagation Delay Time (L → H)	t _{PLH}				700	
	Pulse Width Distortion (PWD)	t _{PHL} -t _{PLH}	V _{CC} = 5 V, R _L = 350 Ω, I _F = 7.5 mA, V _{THHL} = V _{THLH} = 1.5 V			200	ns

*1 Typical values at T_A = 25°C

*2 Because V_{OL} of 2 V or more may be output when LED current input and when output supply of V_{CC} = 2.6 V or less, it is important to confirm the characteristics (operation with the power supply on and off) during design, before using this device.

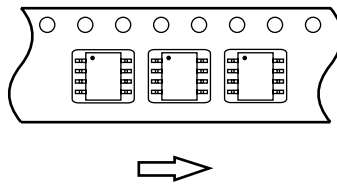
TAPING SPECIFICATIONS (UNIT: mm)

Outline and Dimensions (Tape)

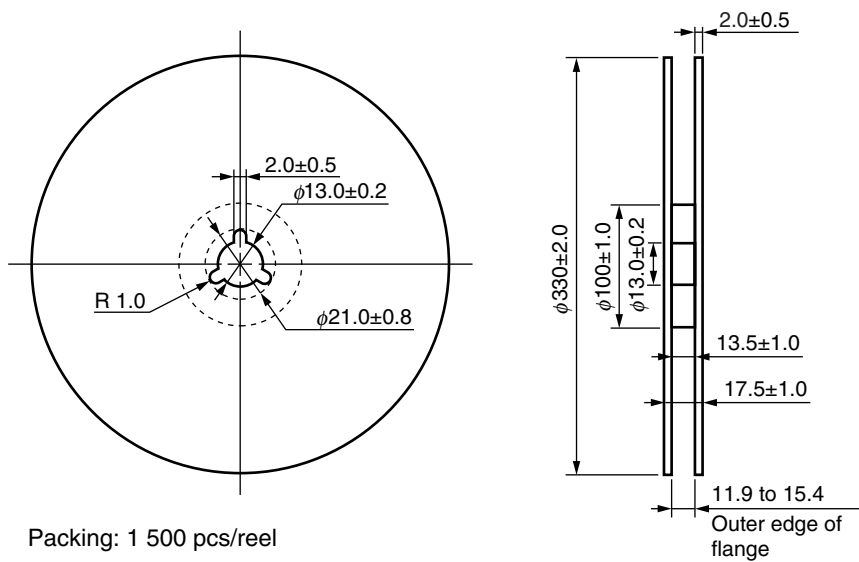


Taping Direction

PS9822-1-F3
PS9822-2-F3

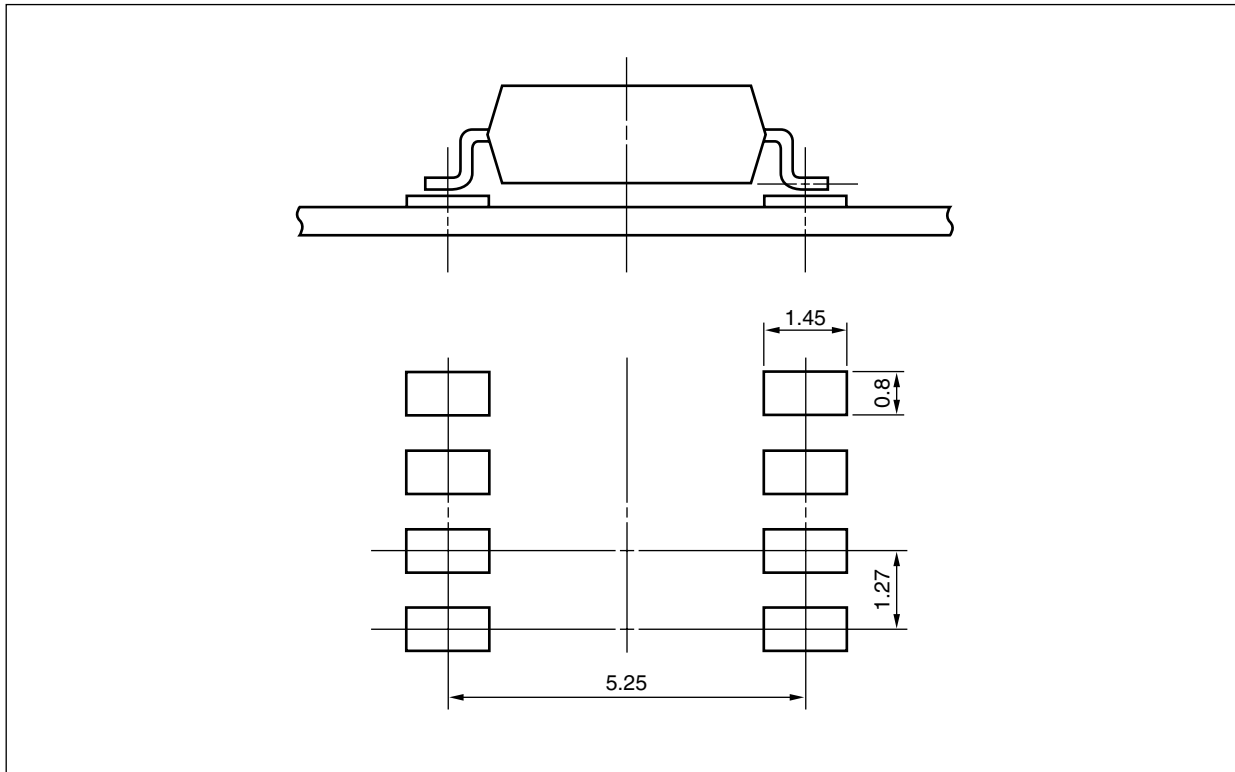


Outline and Dimensions (Reel)



Packing: 1 500 pcs/reel

RECOMMENDED MOUNT PAD DIMENSIONS (UNIT: mm)



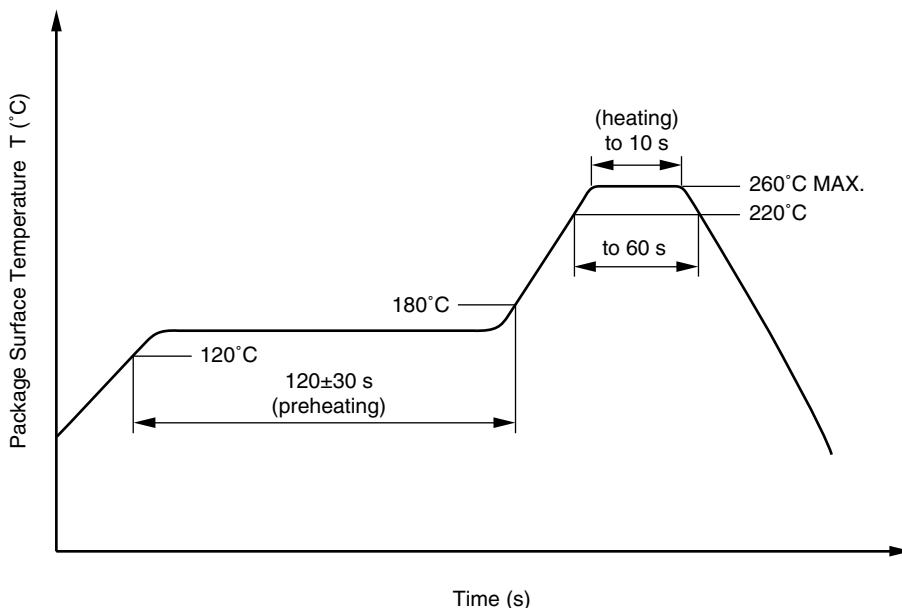
NOTES ON HANDLING

1. Recommended soldering conditions

(1) Infrared reflow soldering

- Peak reflow temperature 260°C or below (package surface temperature)
- Time of peak reflow temperature 10 seconds or less
- Time of temperature higher than 220°C 60 seconds or less
- Time to preheat temperature from 120 to 180°C 120±30 s
- Number of reflows Three
- Flux Rosin flux containing small amount of chlorine (The flux with a maximum chlorine content of 0.2 Wt% is recommended.)

Recommended Temperature Profile of Infrared Reflow



(2) Wave soldering

- Temperature 260°C or below (molten solder temperature)
- Time 10 seconds or less
- Preheating conditions 120°C or below (package surface temperature)
- Number of times One (Allowed to be dipped in solder including plastic mold portion.)
- Flux Rosin flux containing small amount of chlorine (The flux with a maximum chlorine content of 0.2 Wt% is recommended.)

(3) Soldering by soldering iron

- Peak temperature (lead part temperature) 350°C or below
- Time (each pins) 3 seconds or less
- Flux Rosin flux containing small amount of chlorine (The flux with a maximum chlorine content of 0.2 Wt% is recommended.)

- (a) Soldering of leads should be made at the point 1.5 to 2.0 mm from the root of the lead.
- (b) Please be sure that the temperature of the package would not be heated over 100°C.

(4) Cautions

- Fluxes

Avoid removing the residual flux with freon-based and chlorine-based cleaning solvent.

2. Cautions regarding noise

Be aware that when voltage is applied suddenly between the photocoupler's input and output or between collector-emitters at startup, the output transistor may enter the on state, even if the voltage is within the absolute maximum ratings.

USAGE CAUTIONS

1. This product is weak for static electricity by designed with high-speed integrated circuit so protect against static electricity when handling.
2. By-pass capacitor of 0.1 μ F is used between V_{CC} and GND near device. Also, ensure that the distance between the leads of the photocoupler and capacitor is no more than 10 mm.
3. Avoid storage at a high temperature and high humidity.

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

April 1st, 2010
Renesas Electronics Corporation

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