

**HIGH ISOLATION VOLTAGE SAFETY STANDARD TYPE
MULTI PHOTOCOUPLER SERIES**

-NEPOC Series-

DESCRIPTION

The PS2571-1, -4 and PS2571L-1, -4 are optically coupled isolators containing GaAs light emitting diodes and NPN silicon phototransistors.

The PS2571-1, -4 are in a plastic DIP (Dual In-line Package) and the PS2571L-1, -4 are lead bending type (Gull-wing) for surface mount.

FEATURES

- High isolation voltage ($BV = 5\,000\text{ V r.m.s.}$)
- High current transfer ratio ($CTR = 200\% \text{ TYP.}$)
- High-speed switching ($t_r = 3\,\mu\text{s TYP.}$, $t_f = 5\,\mu\text{s TYP.}$)
- Ordering number of taping product : PS2571L-1-E3, E4, F3, F4
- UL approved: File No. E72422 (S)
- BSI approved: No. 8343/8344
- CSA approved: No. CA 101391
- NEMKO approved: No. P98102650
- DEMKO approved: No. 308152
- SEMKO approved: No. 9832161/01
- FIMKO approved: No. F1 11899
- VDE0884 approved (Option)

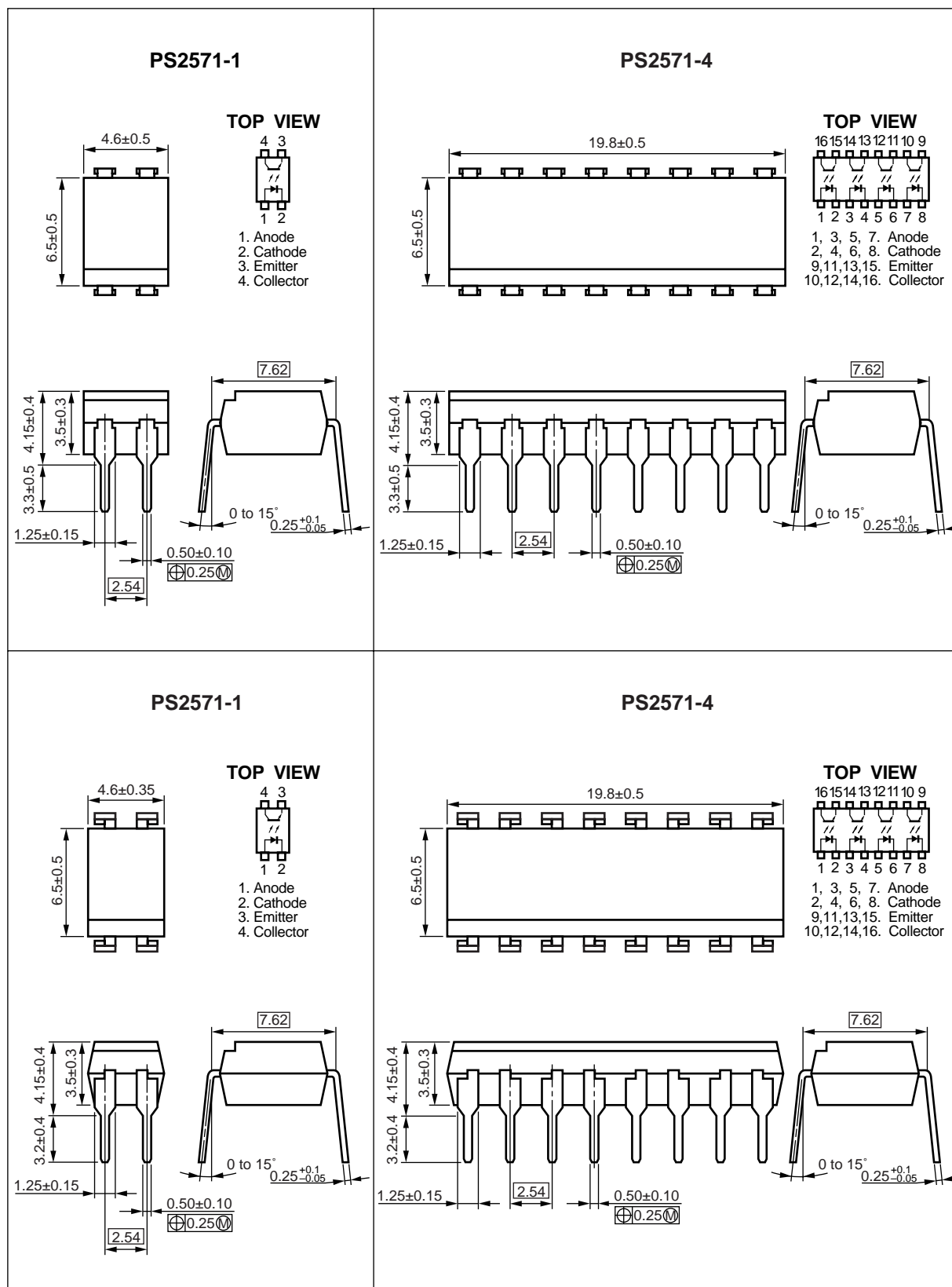
APPLICATIONS

- Power supply
- Telephone, FAX
- FA/OA equipment
- Programmable logic controller

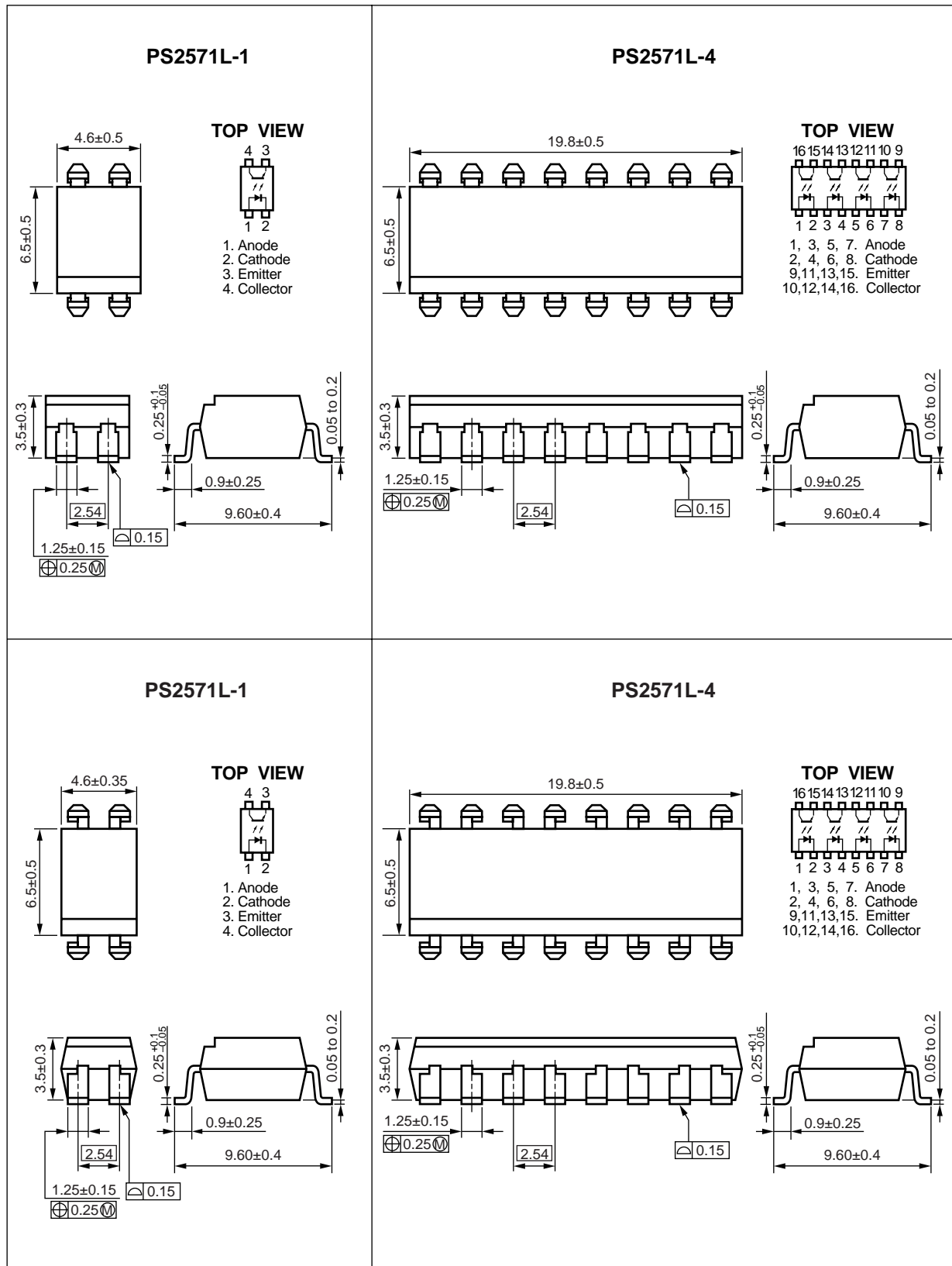
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Not all devices/types available in every country. Please check with local NEC Compound Semiconductor Devices representative for availability and additional information.

★ PACKAGE DIMENSIONS (in millimeters)

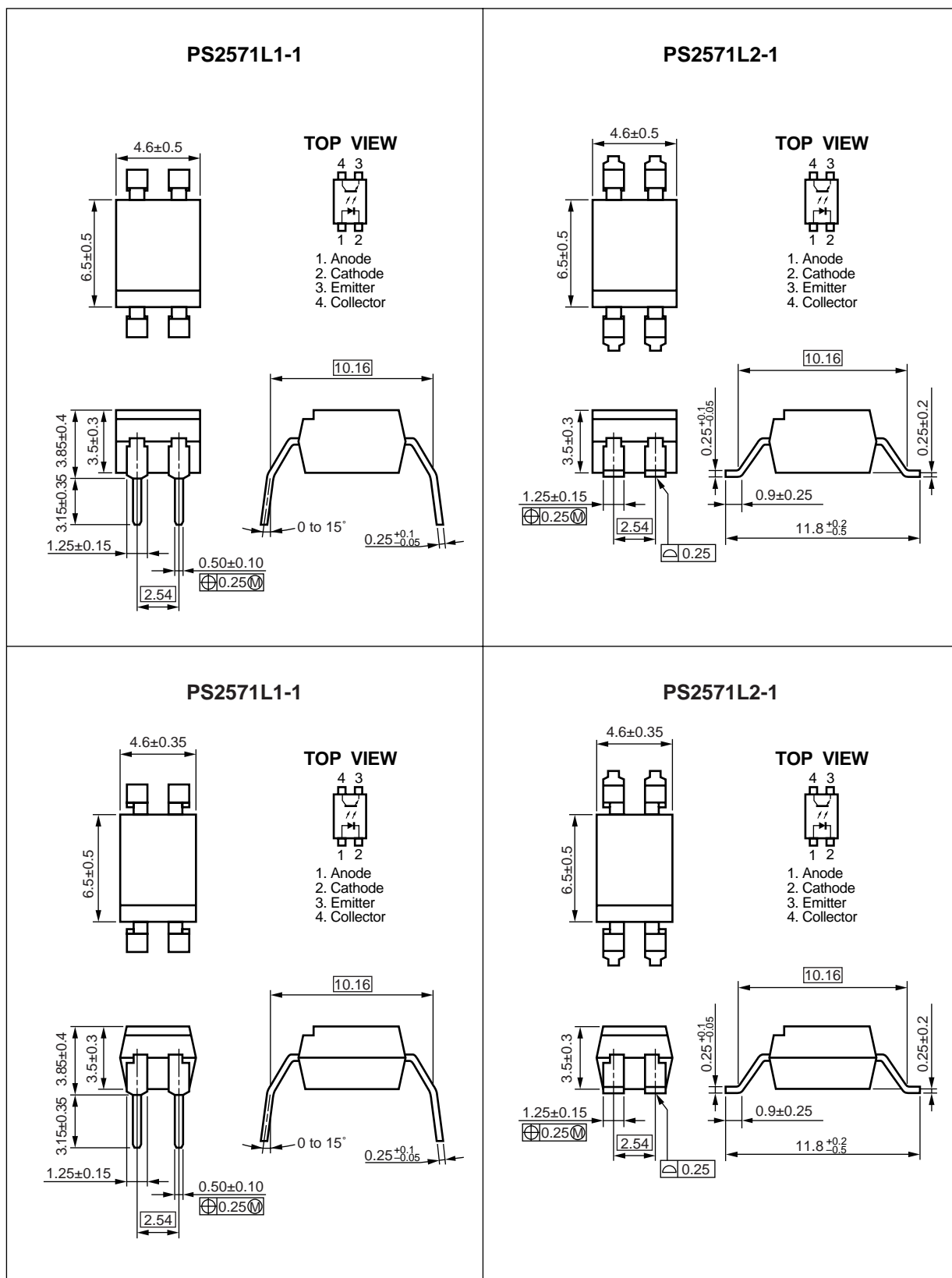
DIP type



Lead bending type



Lead bending type for long distance



PHOTOCOUPLER CONSTRUCTION

Parameter	Unit (MIN.)
Air Distance	7 mm
Outer Creepage Distance	7 mm
Inner Creepage Distance	4 mm
Isolation Distance	0.4 mm

ORDERING INFORMATION

Part Number	Package	Packing Style	Safety Standard Approval	Application Part Number ^{*1}
PS2571-1	4-pin DIP	Magazine case 100 pcs	Standard products (UL, CSA, BSI, NEMKO, SEMKO, DEMKO, FIMKO approved)	PS2571-1
PS2571L-1				
PS2571L-1-E3		Embossed Tape 1 000 pcs/reel		
PS2571L-1-E4				
PS2571L-1-F3		Embossed Tape 2 000 pcs/reel		
PS2571L-1-F4				
PS2571-4	16-pin DIP	Magazine case 20 pcs	VDE0884 approved products (Option)	PS2571-4
PS2571L-4				
PS2571-1-V	4-pin DIP	Magazine case 100 pcs		PS2571-1
PS2571L-1-V				
PS2571L-1-V-E3		Embossed Tape 1 000 pcs/reel		
PS2571L-1-V-E4				
PS2571L-1-V-F3		Embossed Tape 2 000 pcs/reel		
PS2571L-1-V-F4				
PS2571-4-V	16-pin DIP	Magazine case 20 pcs		PS2571-4
PS2571L-4-V				

*1 For the application of the Safety Standard, following part number should be used.

ABSOLUTE MAXIMUM RATINGS ($T_A = 25\text{ }^{\circ}\text{C}$, unless otherwise specified)

Parameter		Symbol	Ratings		Unit
			PS2571-1, PS2571L-1	PS2571-4, PS2571L-4	
Diode	Forward Current (DC)	I_F	50		mA
	Reverse Voltage	V_R	6		V
	Power Dissipation Derating	$\Delta P_D/^{\circ}\text{C}$	0.7	0.55	mW/ $^{\circ}\text{C}$
	Power Dissipation	P_D	70	55	mW/ch
	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/ch
	Power Dissipation Derating	$\Delta P_C/^{\circ}\text{C}$	1.5	1.2	mW/ $^{\circ}\text{C}$
	Power Dissipation	P_C	150	120	mW/ch
Isolation Voltage ^{*2}		BV	5 000		Vr.m.s.
Operating Ambient Temperature		T_A	-55 to +100		$^{\circ}\text{C}$
Storage Temperature		T_{stg}	-55 to +150		$^{\circ}\text{C}$

*1 PW = 100 μs , Duty Cycle = 1 %

*2 AC voltage for 1 minute at $T_A = 25\text{ }^{\circ}\text{C}$, RH = 60 % between input and output

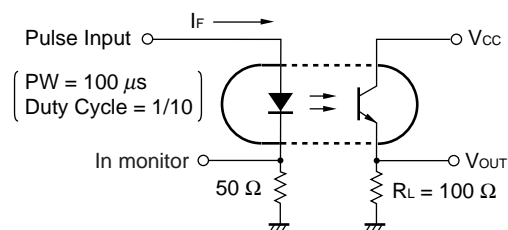
ELECTRICAL CHARACTERISTICS (T_A = 25 °C)

Parameter		Symbol	Conditions	MIN.	TYP.	MAX.	Unit
Diode	Forward Voltage	V _F	I _F = 10 mA		1.2	1.4	V
	Reverse Current	I _R	V _R = 5 V			5	μA
	Terminal Capacitance	C _t	V = 0 V, f = 1.0 MHz		50		pF
Transistor	Collector to Emitter Dark Current	I _{CEO}	V _{CE} = 40 V, I _F = 0 mA			100	nA
Coupled	Current Transfer Ratio (I _C /I _F) ^{*1}	CTR	I _F = 5 mA, V _{CE} = 5 V	80	200	400	%
	Collector Saturation Voltage	V _{CE(sat)}	I _F = 10 mA, I _C = 2 mA			0.3	V
	Isolation Resistance	R _{I-O}	V _{I-O} = 1.0 kV _{DC}	10 ¹¹			Ω
	Isolation Capacitance	C _{I-O}	V = 0 V, f = 1.0 MHz		0.5		pF
	Rise Time ^{*2}	t _r	V _{CC} = 10 V, I _C = 2 mA, R _L = 100 Ω		3		μs
	Fall Time ^{*2}	t _f			5		

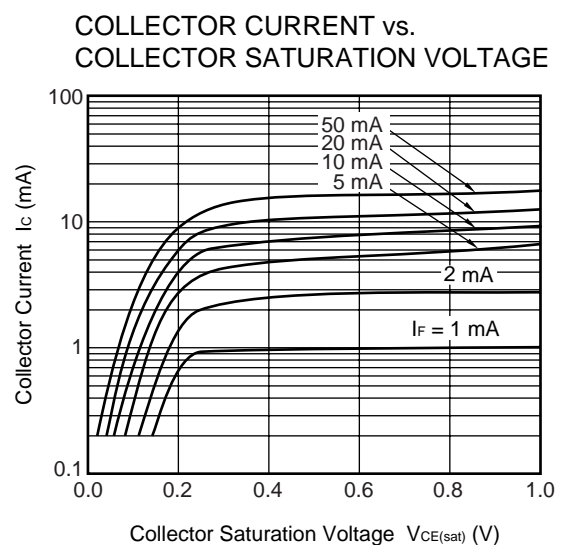
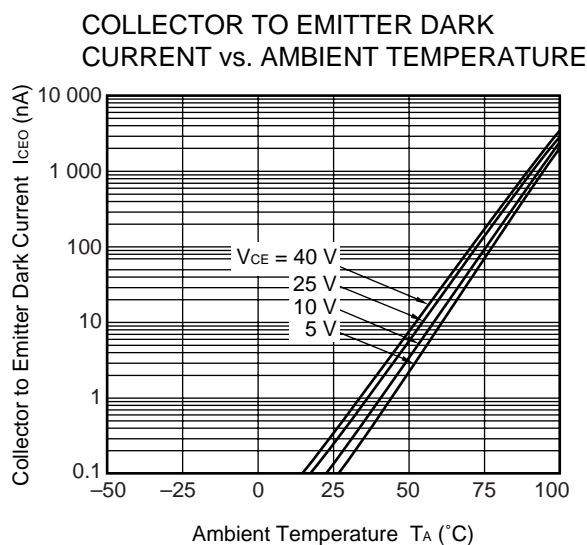
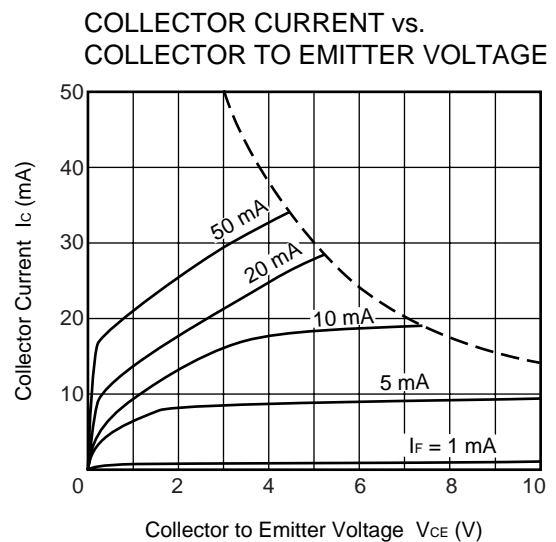
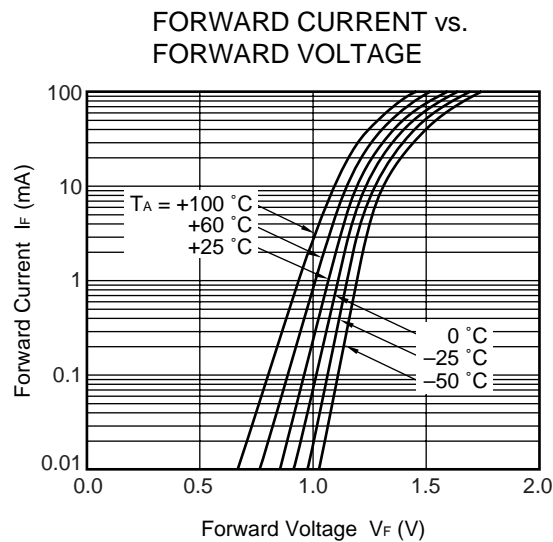
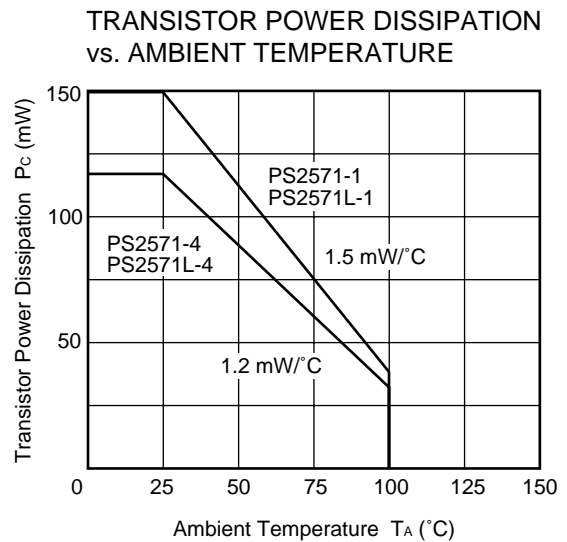
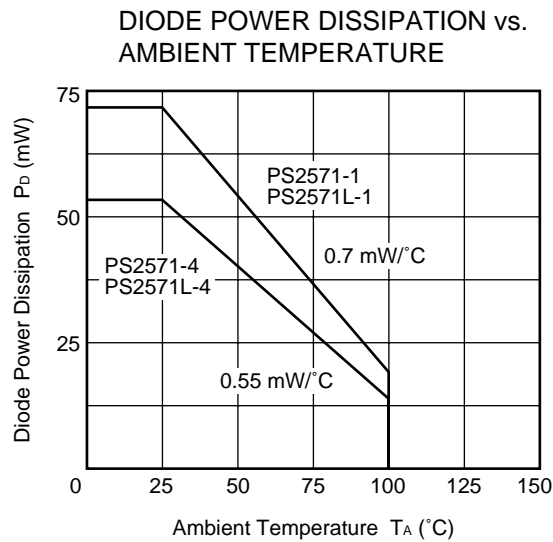
*1 CTR rank (PS2571-1,PS2571L-1 only)

D : 100 to 300 %

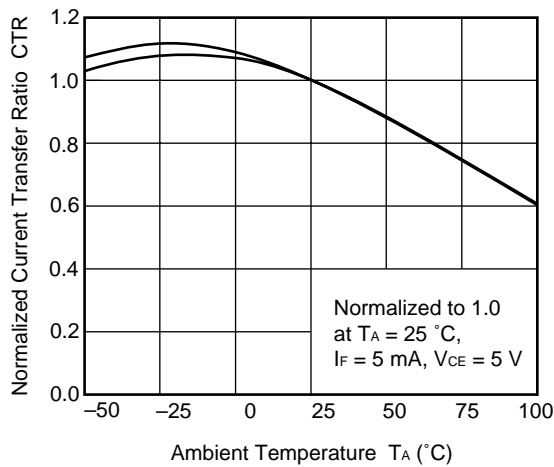
*2 Test Circuit for Switching Time



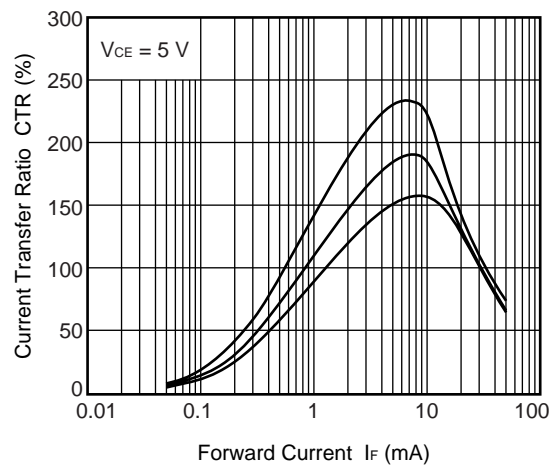
TYPICAL CHARACTERISTICS ($T_A = 25^\circ\text{C}$, unless otherwise specified)



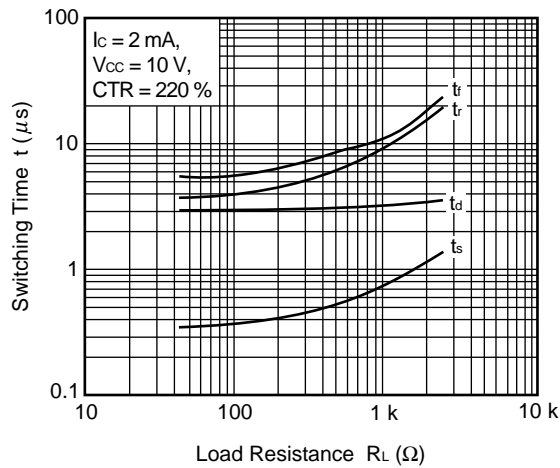
NORMALIZED CURRENT TRANSFER RATIO vs. AMBIENT TEMPERATURE



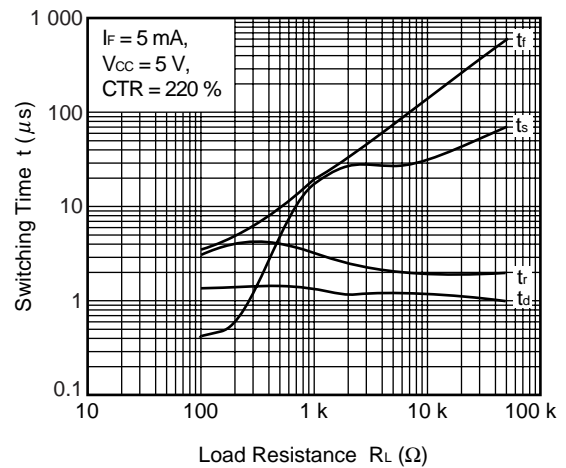
CURRENT TRANSFER RATIO vs. FORWARD CURRENT



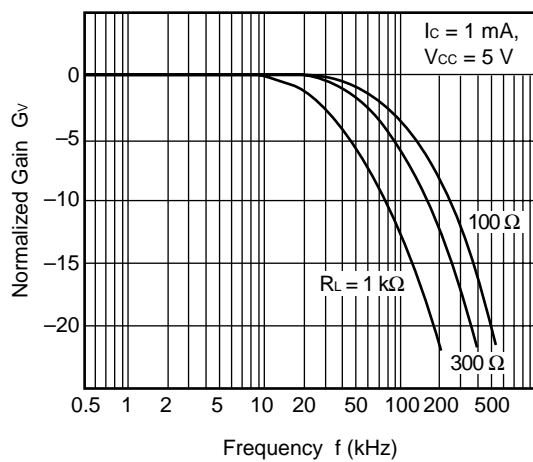
SWITCHING TIME vs. LOAD RESISTANCE



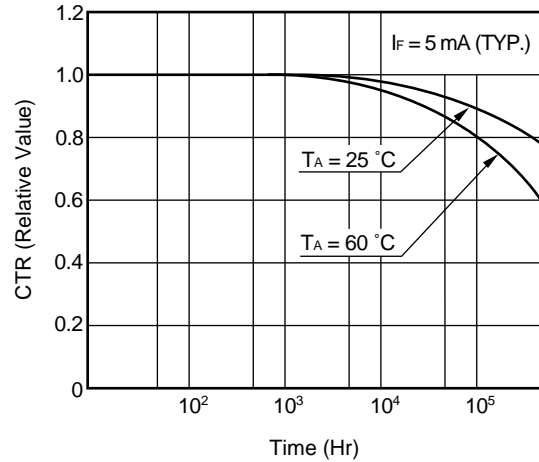
SWITCHING TIME vs. LOAD RESISTANCE



FREQUENCY RESPONSE



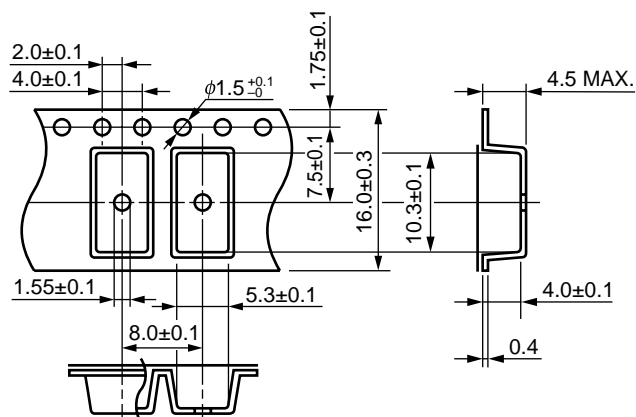
LONG TERM CTR DEGRADATION



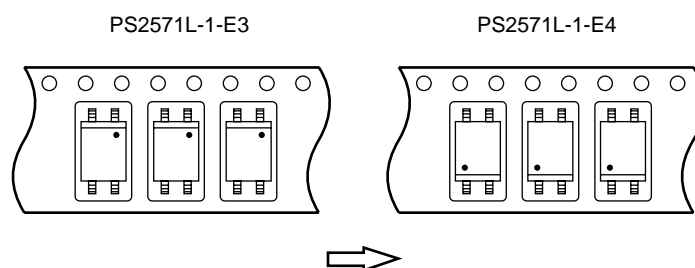
Remark The graphs indicate nominal characteristics.

★ TAPING SPECIFICATIONS (in millimeters)

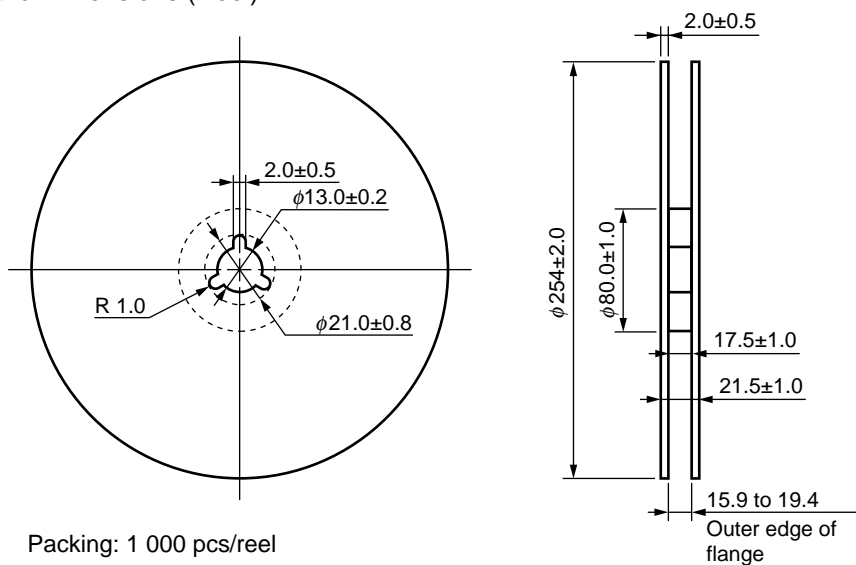
Outline and Dimensions (Tape)



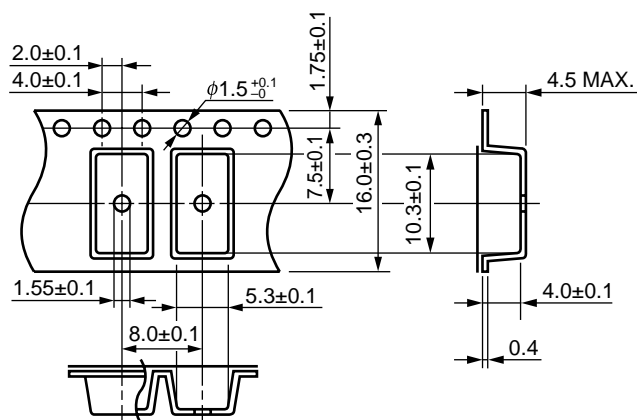
Tape Direction



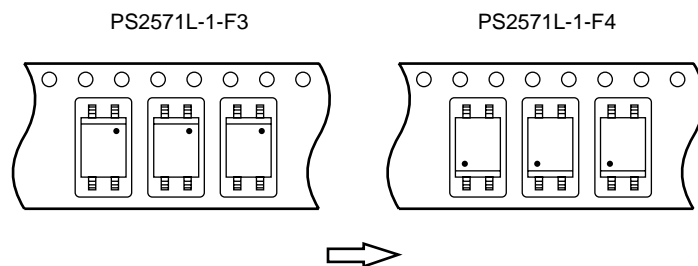
Outline and Dimensions (Reel)



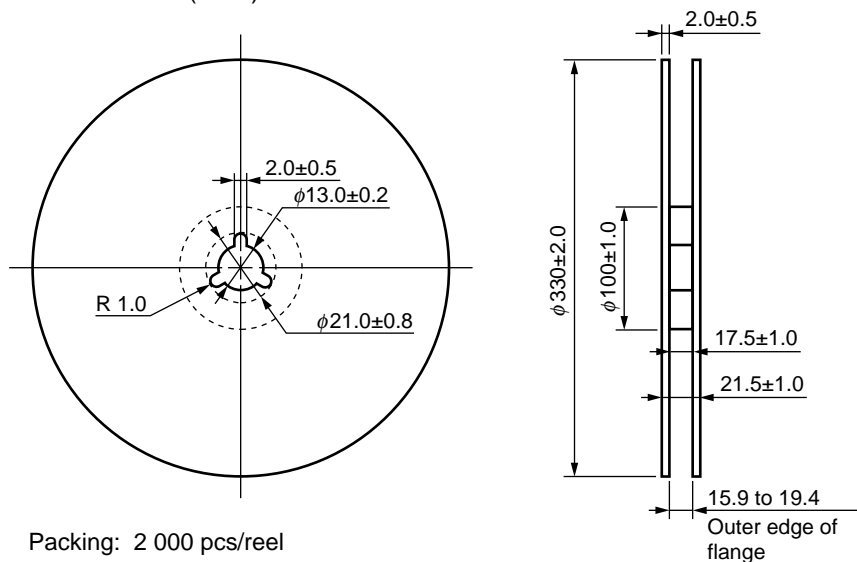
Outline and Dimensions (Tape)



Tape Direction



Outline and Dimensions (Reel)



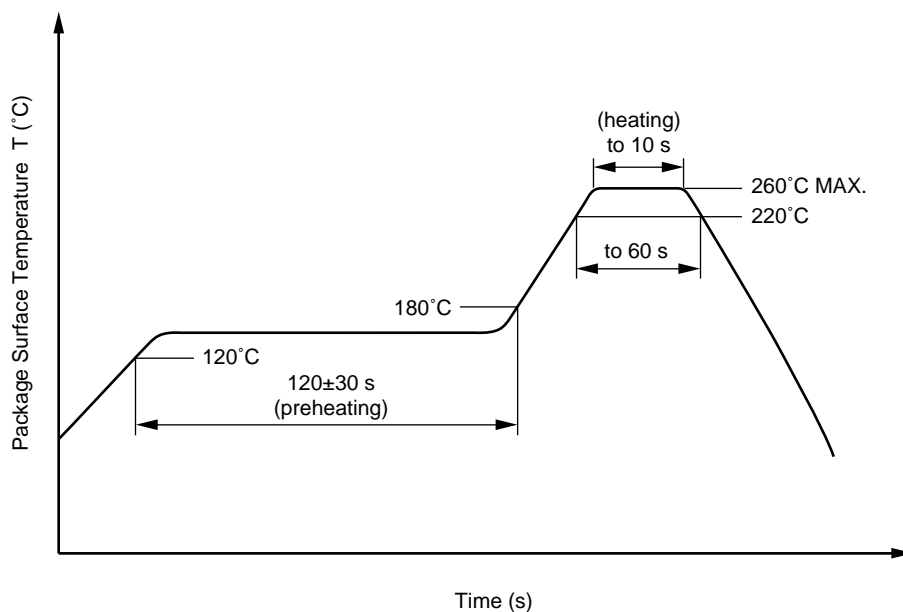
★ NOTES ON HANDLING

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) 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 side may enter the on state, even if the voltage is within the absolute maximum ratings.

★ USAGE CAUTIONS

1. Protect against static electricity when handling.
2. Avoid storage at a high temperature and high humidity.

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M8E 00.4-0110

SAFETY INFORMATION ON THIS PRODUCT

<div data-bbox="188 275 280 304" data-label="Section-Header">Caution</div> <div data-bbox="300 275 446 300" data-label="Text">GaAs Products</div>	<p>The product contains gallium arsenide, GaAs. GaAs vapor and powder are hazardous to human health if inhaled or ingested.</p> <ul style="list-style-type: none"> • Do not destroy or burn the product. • Do not cut or cleave off any part of the product. • Do not crush or chemically dissolve the product. • Do not put the product in the mouth. <p>Follow related laws and ordinances for disposal. The product should be excluded from general industrial waste or household garbage.</p>
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► For further information, please contact

NEC Compound Semiconductor Devices, Ltd.

5th Sales Group, Sales Division TEL: +81-44-435-1588 FAX: +81-44-435-1579 E-mail: salesinfo@csd-nec.com

NEC Compound Semiconductor Devices Hong Kong Limited

Hong Kong Head Office TEL: +852-3107-7303 FAX: +852-3107-7309
 Taipei Branch Office TEL: +886-2-8712-0478 FAX: +886-2-2545-3859
 Korea Branch Office TEL: +82-2-558-2120 FAX: +82-2-558-5209

NEC Electronics (Europe) GmbH <http://www.ee.nec.de/>

TEL: +49-211-6503-01 FAX: +49-211-6503-487

California Eastern Laboratories, Inc. <http://www.cel.com/>

TEL: +1-408-988-3500 FAX: +1-408-988-0279