

**PS2633, PS2634, PS2633L, PS2634L****HIGH ISOLATION VOLTAGE  
HIGH COLLECTOR TO EMITTER VOLTAGE  
DARLINGTON TYPE 6 PIN PHOTOCOUPLER**

— NEPOC Series —

**DESCRIPTION**

PS2633, PS2634 and PS2633L, PS2634L are optically coupled isolators containing a GaAs light emitting diode and an NPN silicon darlington-connected phototransistor.

PS2633, PS2634 are in a plastic DIP (Dual In-line Package).

PS2633L, PS2634L are lead bending type (Gull-wing) for surface mount.

PS2633, PS2633L have base pin and PS2634, PS2634L have no base pin.

**FEATURES**

- High isolation voltage (BV: 5 kV<sub>r.m.s.</sub> MIN.)
- High collector to emitter voltage (V<sub>CEO</sub>: 300 V MIN.)
- Ultra High current transfer ratio (CTR: 1 000 % MIN.)
- High speed switching (t<sub>r</sub>, t<sub>f</sub> = 100 μs TYP.)
- UL recognized [File No. E72422(S)]
- Taping product name (PS2633L-E3, E4, PS2634L-E3, E4)

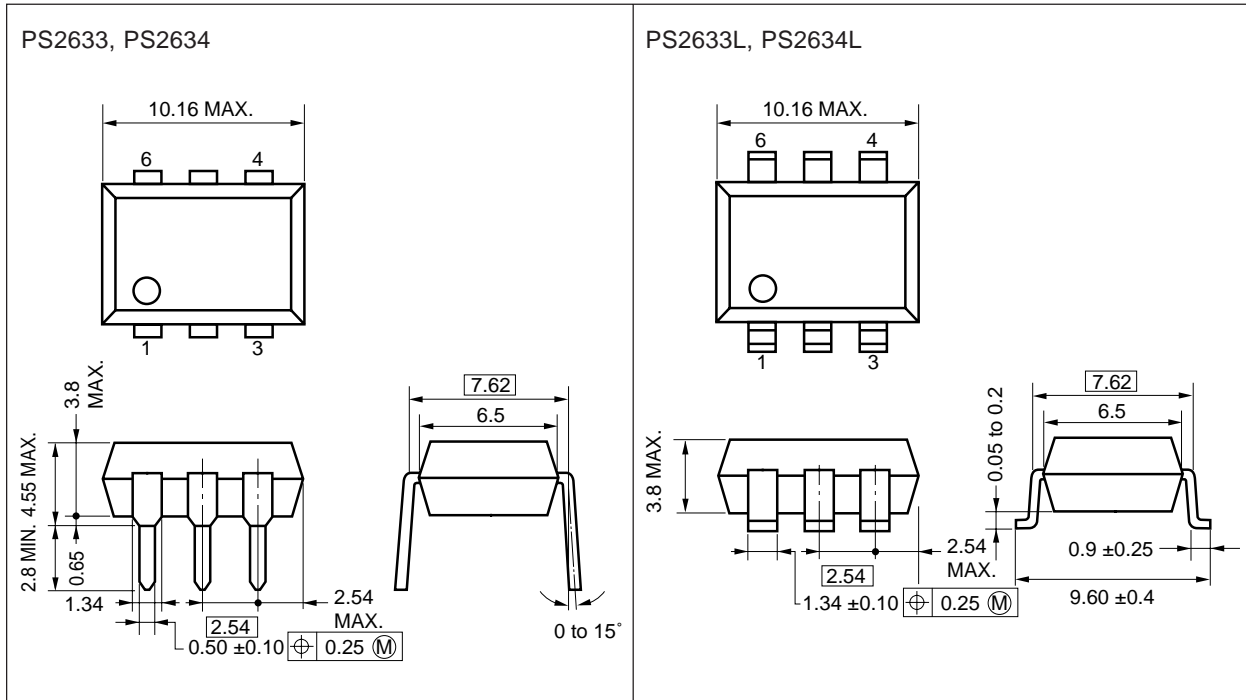
**APPLICATIONS**

- Telephone/Telegraph line receiver
- Power Supply

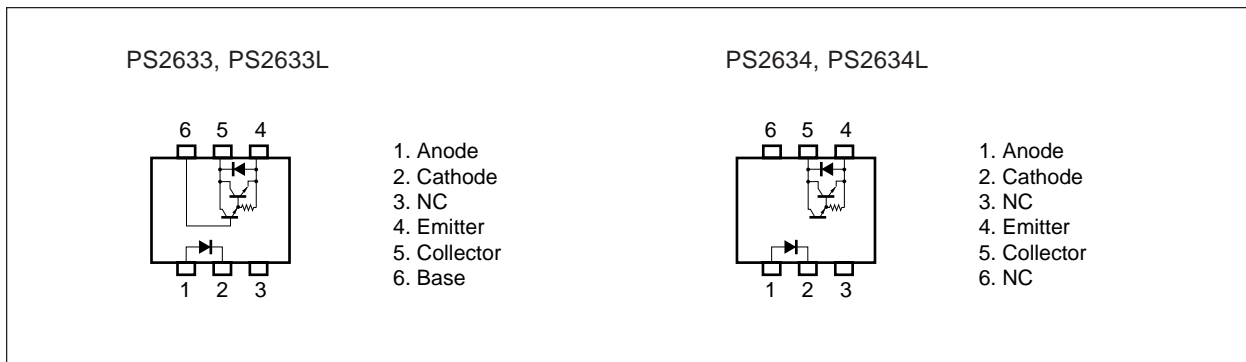
PACKAGE DIMENSIONS (Unit: mm)

DIP (Dual In-line Package)

Lead Bending type (Gull-wing)



PIN CONNECTION (Top View)



**ABSOLUTE MAXIMUM RATINGS (T<sub>A</sub> = 25 °C)**

Diode

Reverse Voltage	V <sub>R</sub>	6	V
Forward Current (DC)	I <sub>F</sub>	80	mA
Power Dissipation Derating	ΔP <sub>D</sub> /°C	1.5	mW/°C
Power Dissipation	P <sub>D</sub>	150	mW
Peak Forward Current	I <sub>F(Peak)</sub>	1	A
(PW = 100 μs, Duty Cycle 1 %)			

Transistor

Collector to Emitter Voltage	V <sub>CEO</sub>	300	V
Emitter to Collector Voltage	V <sub>ECO</sub>	0.6	V
Collector Current	I <sub>C</sub>	150	mA
Power Dissipation Derating	ΔP <sub>C</sub> /°C	3.0	mW/°C
Power Dissipation	P <sub>C</sub>	300	mW

Coupled

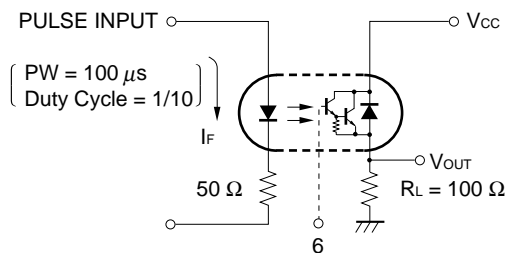
Isolation Voltage *1)	BV	5 000	V <sub>r.m.s.</sub>
Storage Temperature	T <sub>stg</sub>	-55 to +150	°C
Operating Temperature	T <sub>opt</sub>	-55 to +100	°C

\*1) AC voltage for 1 minute at T<sub>A</sub> = 25 °C, RH = 60 % between input (Pin No. 1, 2, 3, Common) and output (Pin No. 4, 5, 6 Common).

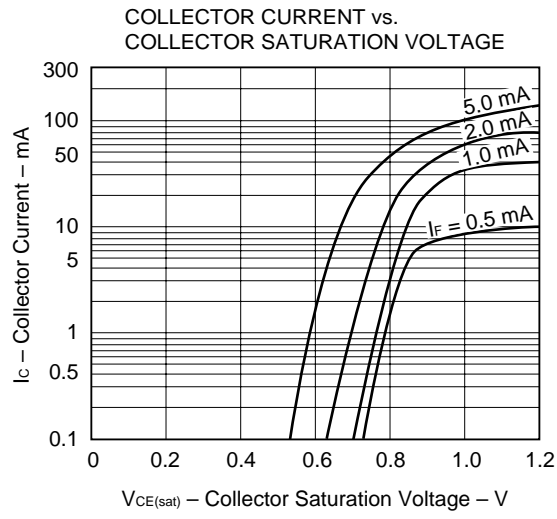
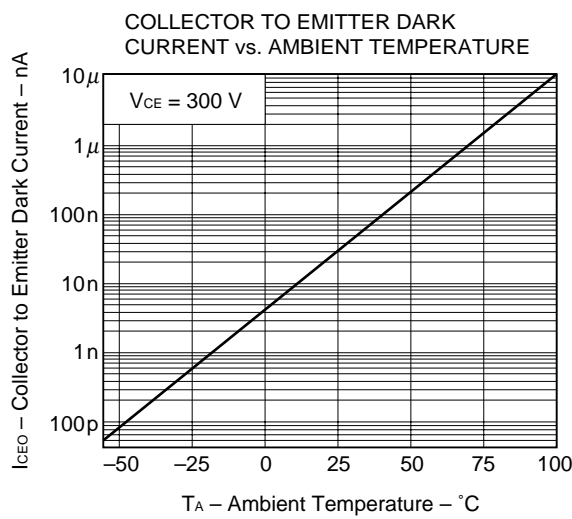
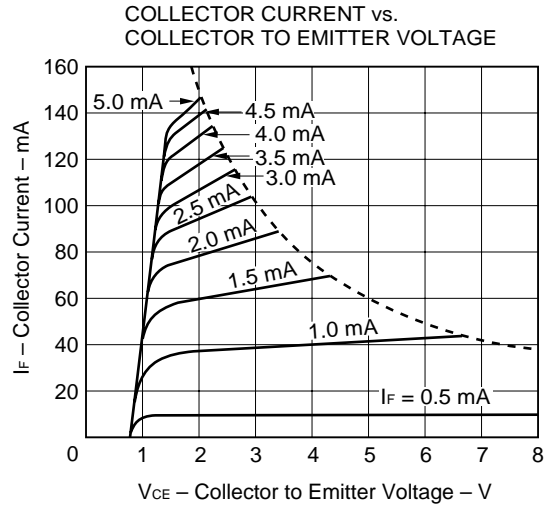
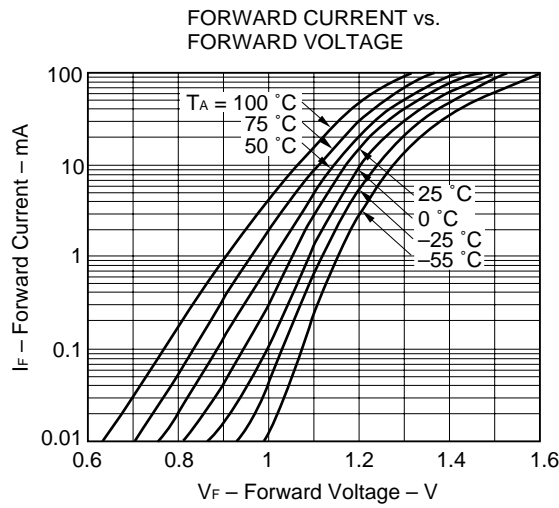
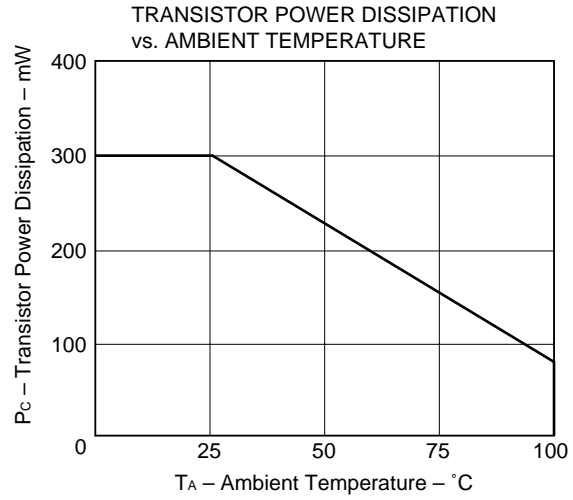
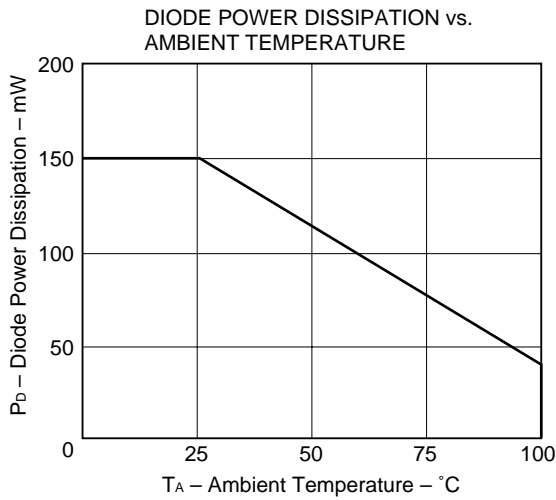
**ELECTRICAL CHARACTERISTICS (T<sub>A</sub> = 25 °C)**

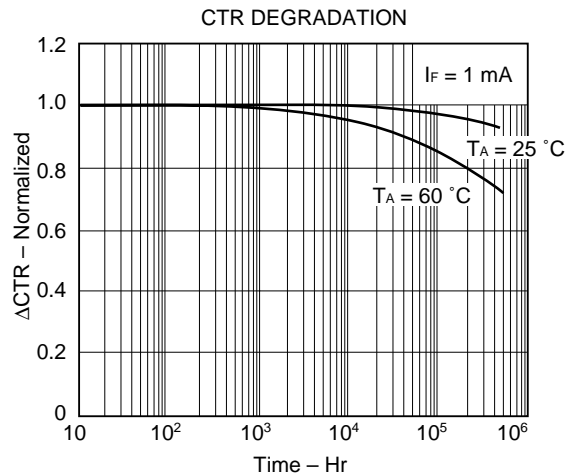
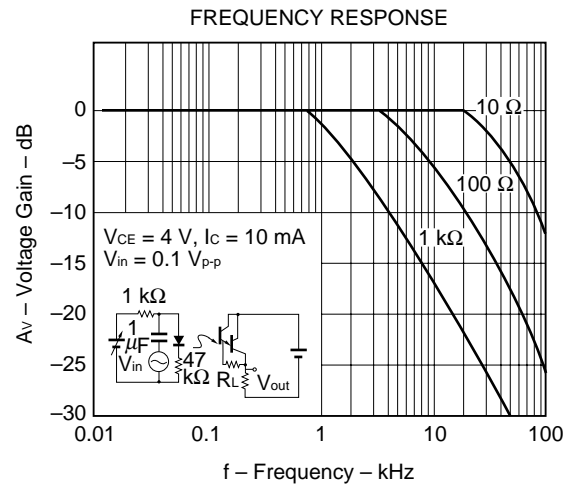
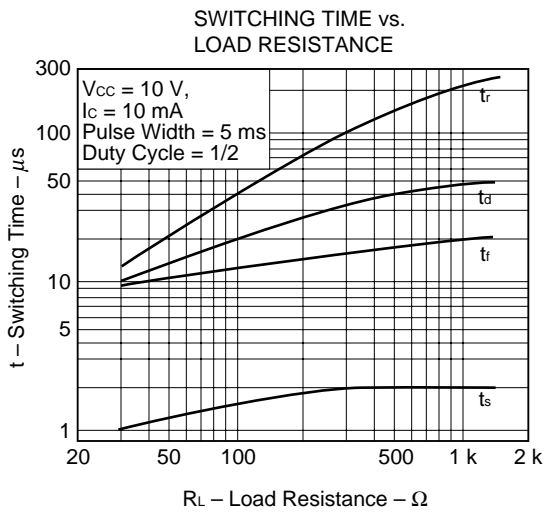
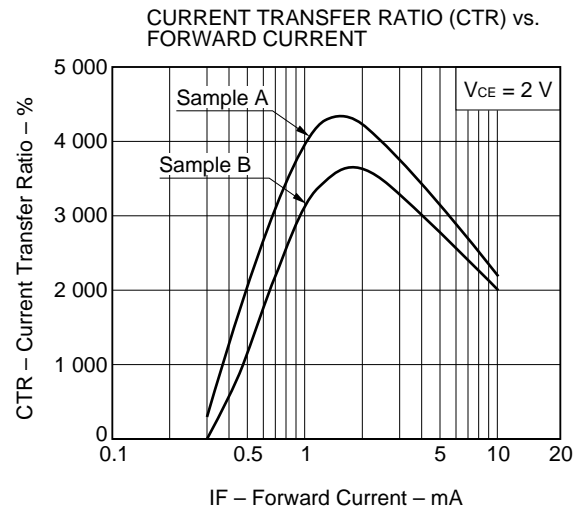
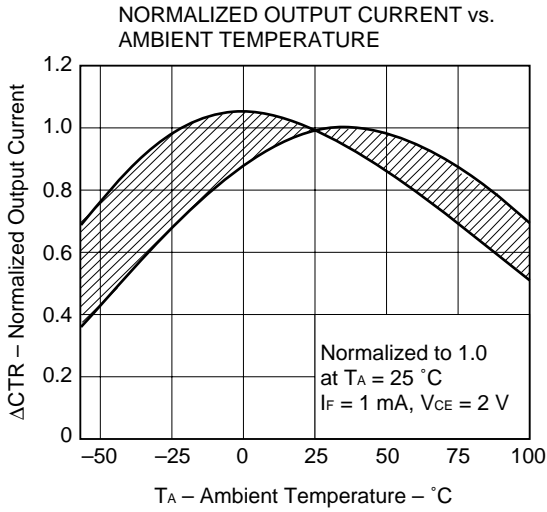
CHARACTERISTIC		SYMBOL	MIN.	TYP.	MAX.	UNIT	TEST CONDITIONS
Diode	Forward Voltage	V <sub>F</sub>		1.15	1.4	V	I <sub>F</sub> = 10 mA
	Reverse Current	I <sub>R</sub>			5	μA	V <sub>R</sub> = 5 V
	Junction Capacitance	C <sub>t</sub>		30		pF	V = 0, f = 1.0 MHz
Transistor	Collector to Emitter Dark Current	I <sub>CEO</sub>			400	nA	V <sub>CE</sub> = 300 V, I <sub>F</sub> = 0
Coupled	Current Transfer Ratio	CTR	1 000	4 000	15 000	%	I <sub>F</sub> = 1 mA, V <sub>CE</sub> = 2 V
	Collector Saturation Voltage	V <sub>CE(sat)</sub>			1.0	V	I <sub>F</sub> = 1 mA, I <sub>C</sub> = 2 mA
	Isolation Resistance	R <sub>1-2</sub>	10 <sup>11</sup>			Ω	V <sub>in-out</sub> = 1.0 kV <sub>DC</sub>
	Isolation Capacitance	C <sub>1-2</sub>		0.6		pF	V = 0, f = 1.0 MHz
	Rise Time*2)	t <sub>r</sub>		100		μs	V <sub>CC</sub> = 5 V, I <sub>C</sub> = 10 mA, R <sub>L</sub> = 100 Ω
	Fall Time*2)	t <sub>f</sub>		100		μs	V <sub>CC</sub> = 5 V, I <sub>C</sub> = 10 mA, R <sub>L</sub> = 100 Ω

\*2) Test Circuit for Switching Time



TYPICAL CHARACTERISTICS (T<sub>A</sub> = 25 °C)





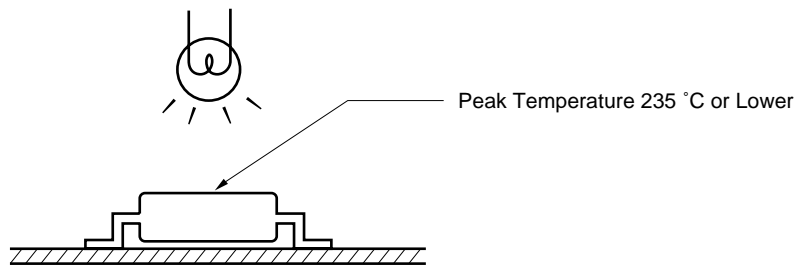
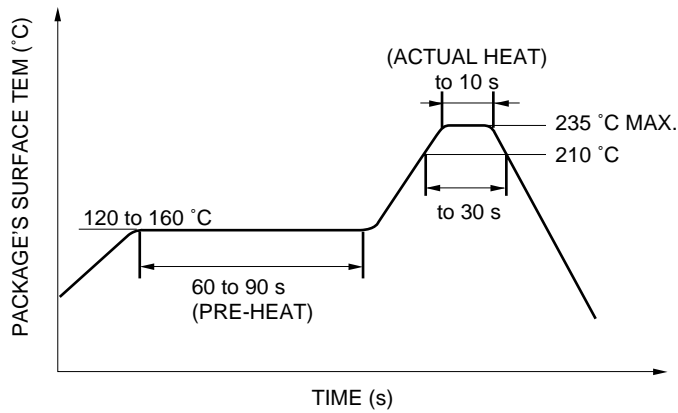
★ The measurement of TYPICAL CHARACTERISTICS are only for reference, not guaranteed.

**SOLDERING PRECAUTION**

(1) Infrared reflow soldering

- Peak reflow temperature : 235 °C or below (Plastic surface temperature)
- Reflow time : 30 seconds or less  
(Time period during which the plastic surface temperature is 210 °C)
- Number of reflow processes : Three
- Flux : Rosin flux containing small amount of chlorine  
(The flux with a maximum chlorine content of 0.2 Wt % is recommended.)

**INFRARED RAY REFLOW TEMPERATURE PROFILE**

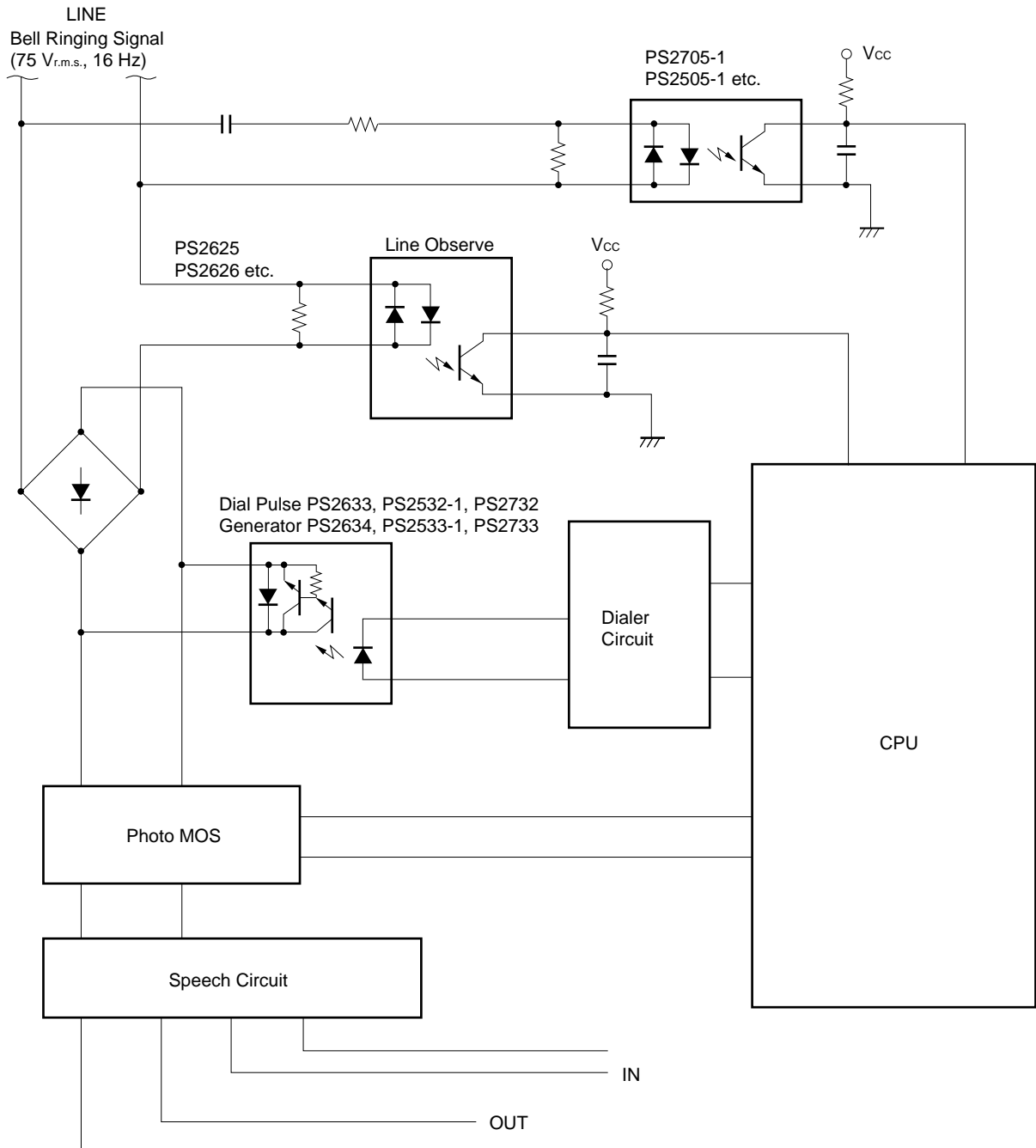


(2) Dip soldering

- Peak temperature : 260 °C or lower
- Time : 10 s or less
- Flux : Rosin-base flux

APPLICATIONS OF PHOTO COUPLERS

TELEPHONE



## Caution

**The Great Care must be taken in dealing with the devices in this guide.  
The reason is that the material of the devices is GaAs (Gallium Arsenide), which is  
designated as harmful substance according to the law concerned.  
Keep the law concerned and so on, especially in case of removal.**

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Specific: Aircrafts, aerospace equipment, submersible repeaters, nuclear reactor control systems, life support systems or medical equipment for life support, etc.

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Anti-radioactive design is not implemented in this product.