

# 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)

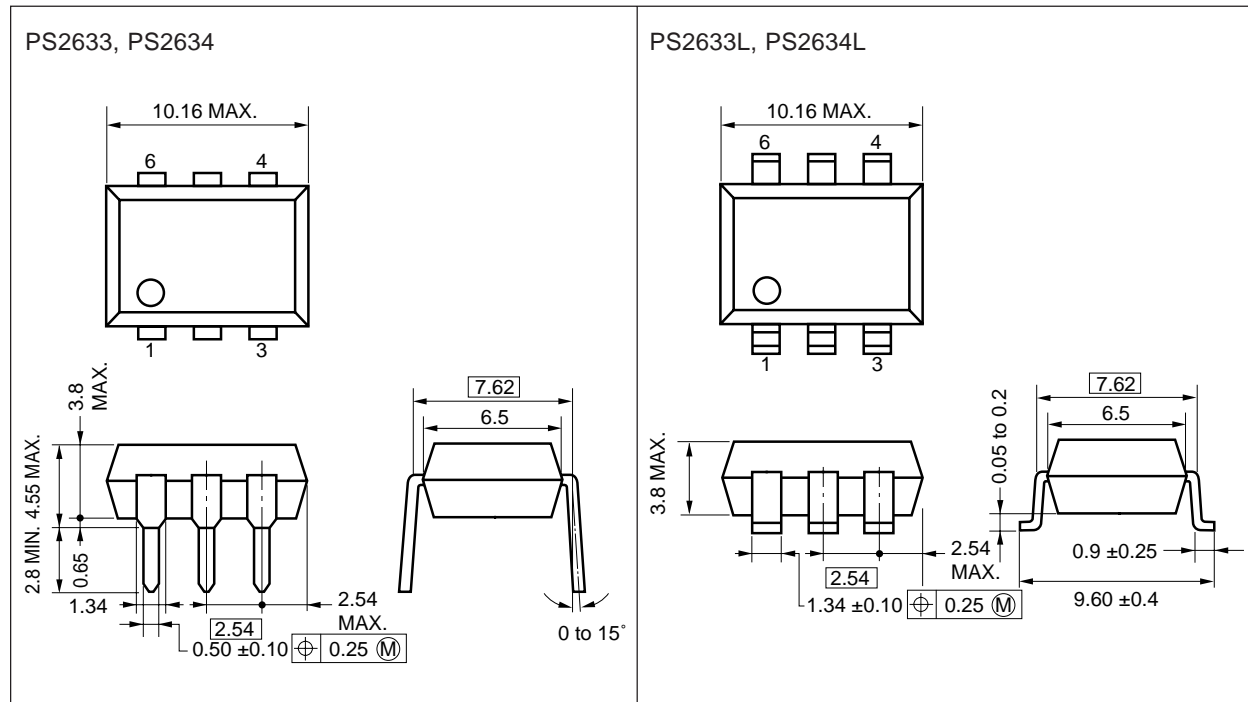
## APPLICATIONS

- Telephone/Telegraph line receiver
- Power Supply

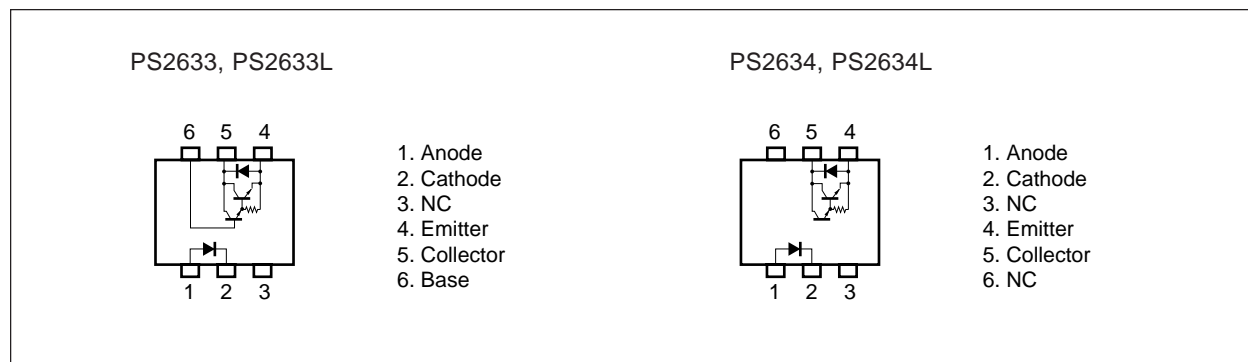
PACKAGE DIMENSIONS (Unit: mm)

DIP (Dual In-line Package)

Lead Bending type (Gull-wing)



PIN CONNECTION (Top View)



**ABSOLUTE MAXIMUM RATINGS ( $T_A = 25\text{ }^{\circ}\text{C}$ )****Diode**

Reverse Voltage	$V_R$	6	V
Forward Current (DC)	$I_F$	80	mA
Power Dissipation Derating	$\Delta P_D/^{\circ}\text{C}$	1.5	mW/ $^{\circ}\text{C}$
Power Dissipation	$P_D$	150	mW
Peak Forward Current	$I_{F(\text{Peak})}$	1	A
(PW = 100 $\mu\text{s}$ , Duty Cycle 1 %)			

**Transistor**

Collector to Emitter Voltage	$V_{CEO}$	300	V
Emitter to Collector Voltage	$V_{ECO}$	0.6	V
Collector Current	$I_C$	150	mA
Power Dissipation Derating	$\Delta P_C/^{\circ}\text{C}$	3.0	mW/ $^{\circ}\text{C}$
Power Dissipation	$P_C$	300	mW

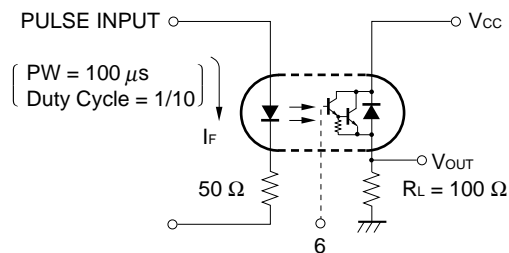
**Coupled**

Isolation Voltage *1)	$BV$	5 000	$V_{r.m.s.}$
Storage Temperature	$T_{stg}$	-55 to +150	$^{\circ}\text{C}$
Operating Temperature	$T_{opt}$	-55 to +100	$^{\circ}\text{C}$

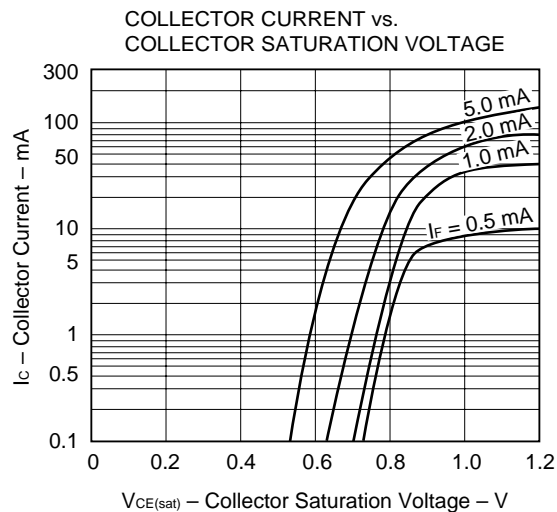
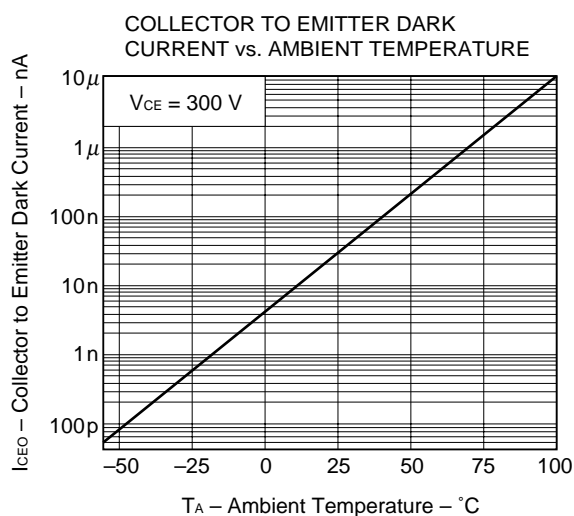
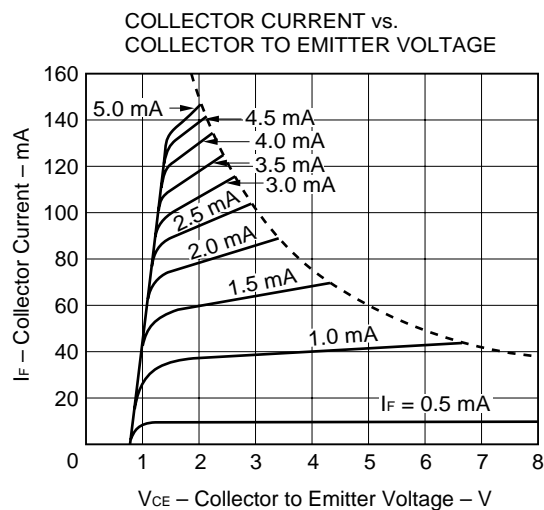
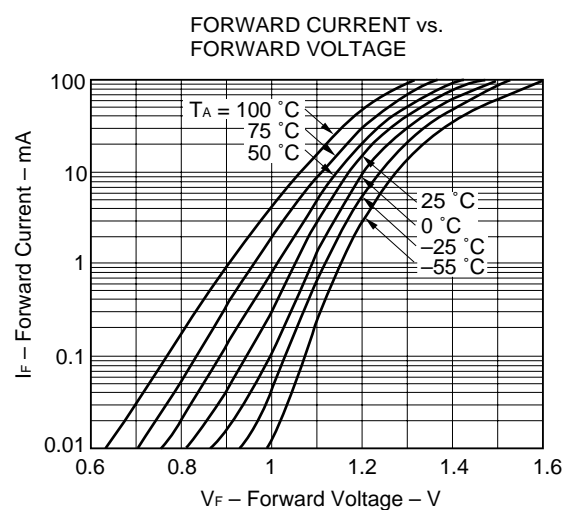
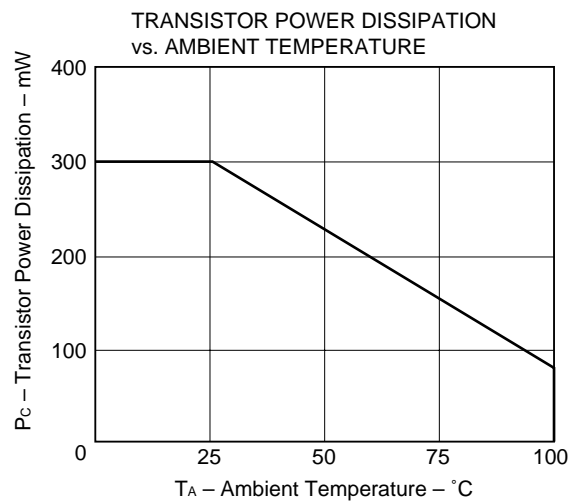
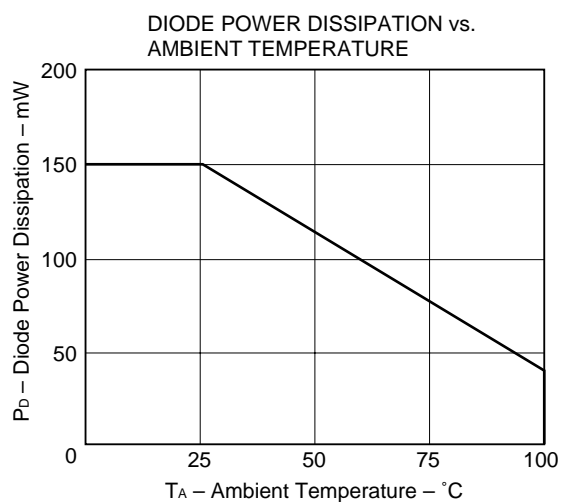
\*1) AC voltage for 1 minute at  $T_A = 25\text{ }^{\circ}\text{C}$ , RH = 60 % between input (Pin No. 1, 2, 3, Common) and output (Pin No. 4, 5, 6 Common).

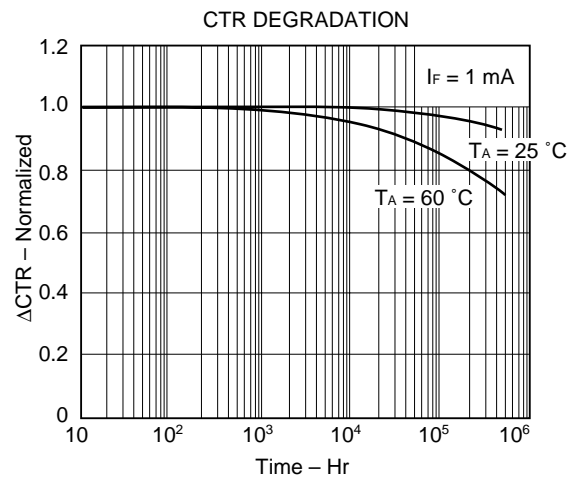
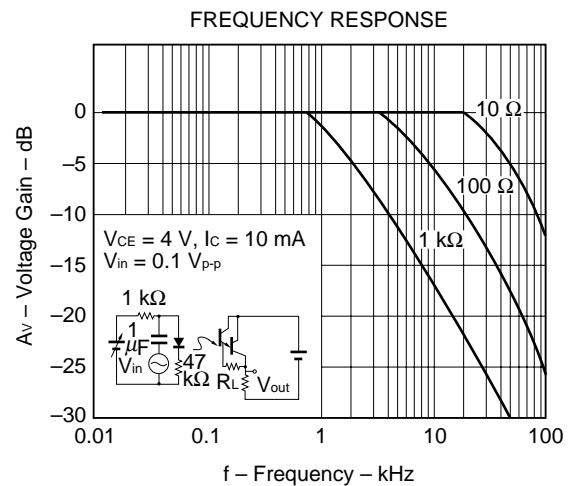
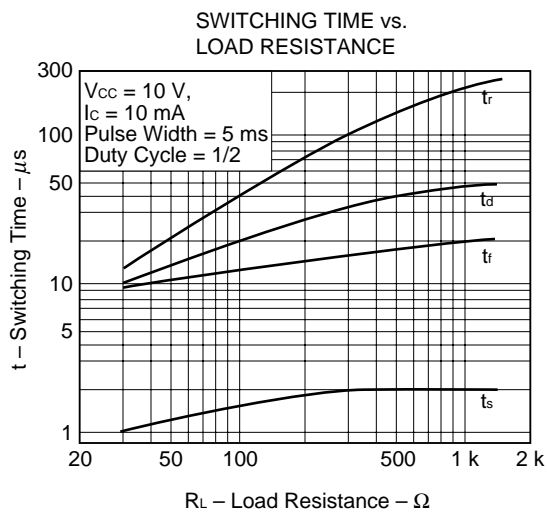
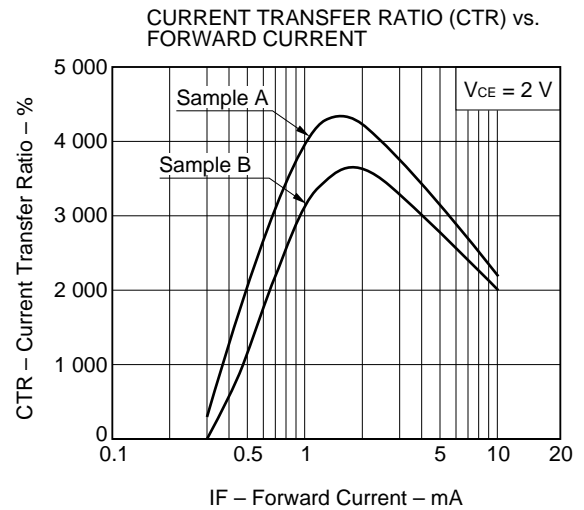
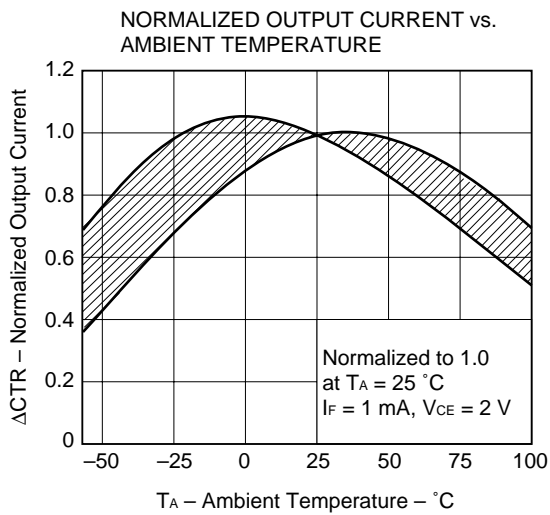
**ELECTRICAL CHARACTERISTICS ( $T_A = 25\text{ }^{\circ}\text{C}$ )**

CHARACTERISTIC		SYMBOL	MIN.	TYP.	MAX.	UNIT	TEST CONDITIONS
Diode	Forward Voltage	$V_F$		1.15	1.4	V	$I_F = 10\text{ mA}$
	Reverse Current	$I_R$			5	$\mu\text{A}$	$V_R = 5\text{ V}$
	Junction Capacitance	$C_t$		30		pF	$V = 0$ , $f = 1.0\text{ MHz}$
Transistor	Collector to Emitter Dark Current	$I_{CEO}$			400	nA	$V_{CE} = 300\text{ V}$ , $I_F = 0$
Coupled	Current Transfer Ratio	CTR	1 000	4 000	15 000	%	$I_F = 1\text{ mA}$ , $V_{CE} = 2\text{ V}$
	Collector Saturation Voltage	$V_{CE(\text{sat})}$			1.0	V	$I_F = 1\text{ mA}$ , $I_C = 2\text{ mA}$
	Isolation Resistance	$R_{1-2}$	$10^{11}$			$\Omega$	$V_{in-out} = 1.0\text{ kV}_{DC}$
	Isolation Capacitance	$C_{1-2}$		0.6		pF	$V = 0$ , $f = 1.0\text{ MHz}$
	Rise Time*2)	$t_r$		100		$\mu\text{s}$	$V_{CC} = 5\text{ V}$ , $I_C = 10\text{ mA}$ , $R_L = 100\text{ }\Omega$
	Fall Time*2)	$t_f$		100		$\mu\text{s}$	$V_{CC} = 5\text{ V}$ , $I_C = 10\text{ mA}$ , $R_L = 100\text{ }\Omega$

**\*2) Test Circuit for Switching Time**

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





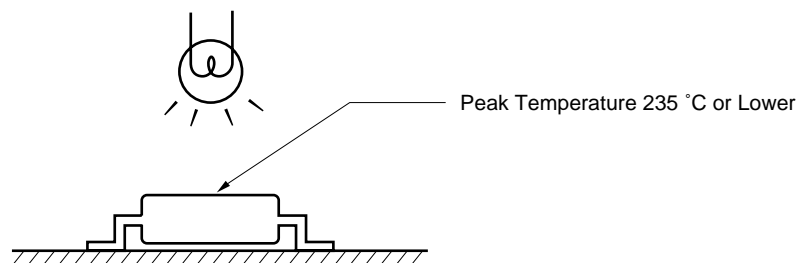
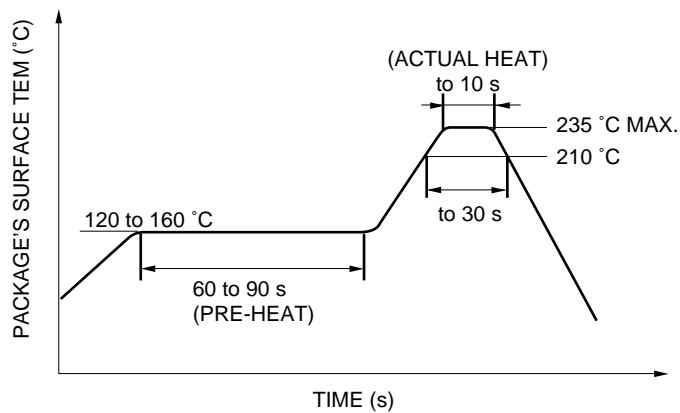
★ The measurement of TYPICAL CHARACTERISTICS are only for reference, not guaranteed.

## 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

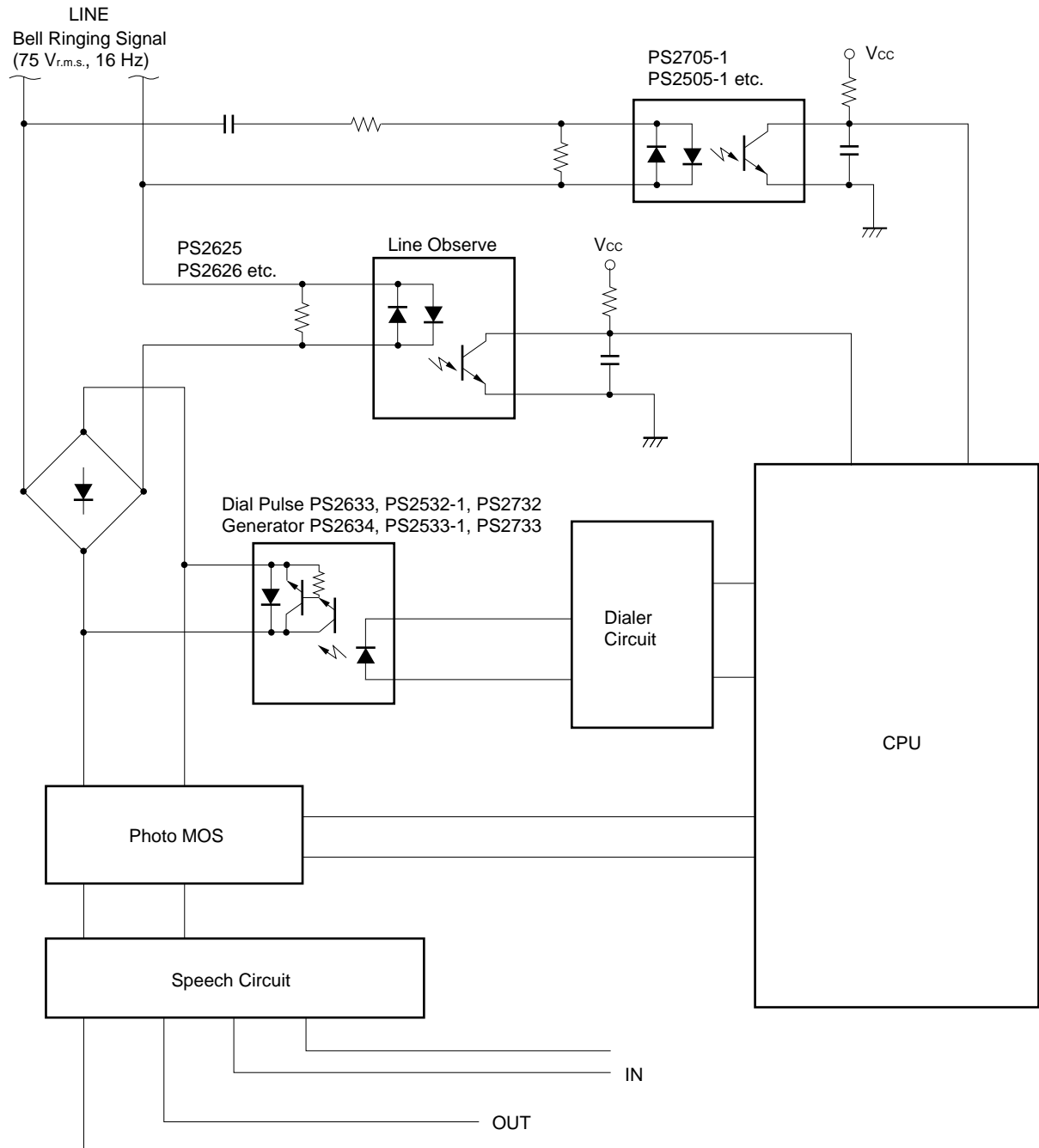


### (2) Dip soldering

- 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.