

PS2625, PS2626, PS2625L, PS2626L

HIGH ISOLATION VOLTAGE AC INPUT
LARGE FORWARD AC INPUT TYPE
6 PIN PHOTOCOUPLER

— NEPOC Series —

DESCRIPTION

PS2625, PS2626 and PS2625L, PS2626L are optically coupled isolators containing a GaAs light emitting diode and an NPN silicon phototransistor.

PS2625, PS2626 are in a plastic DIP (Dual In-line Package).

PS2625L, PS2626L are lead bending type (Gull-wing) for surface mount.

PS2625, PS2625L have base pin and PS2622, PS2622L have no base pin.

FEATURES

- High isolation voltage (BV: 5 kV_{r.m.s.} MIN.)
- AC input response
- Large forward input (current) (I_F: ±150 mA MAX.)
- High collector to emitter voltage (V_{CEO}: 80 V MIN.)
- High speed switching (t_r = 3 μs, t_f = 5 μs TYP.)
- UL recognized [File No. E72422(S)]
- Taping product name (PS2625L-E3, E4, PS2626L-E3, E4)

APPLICATIONS

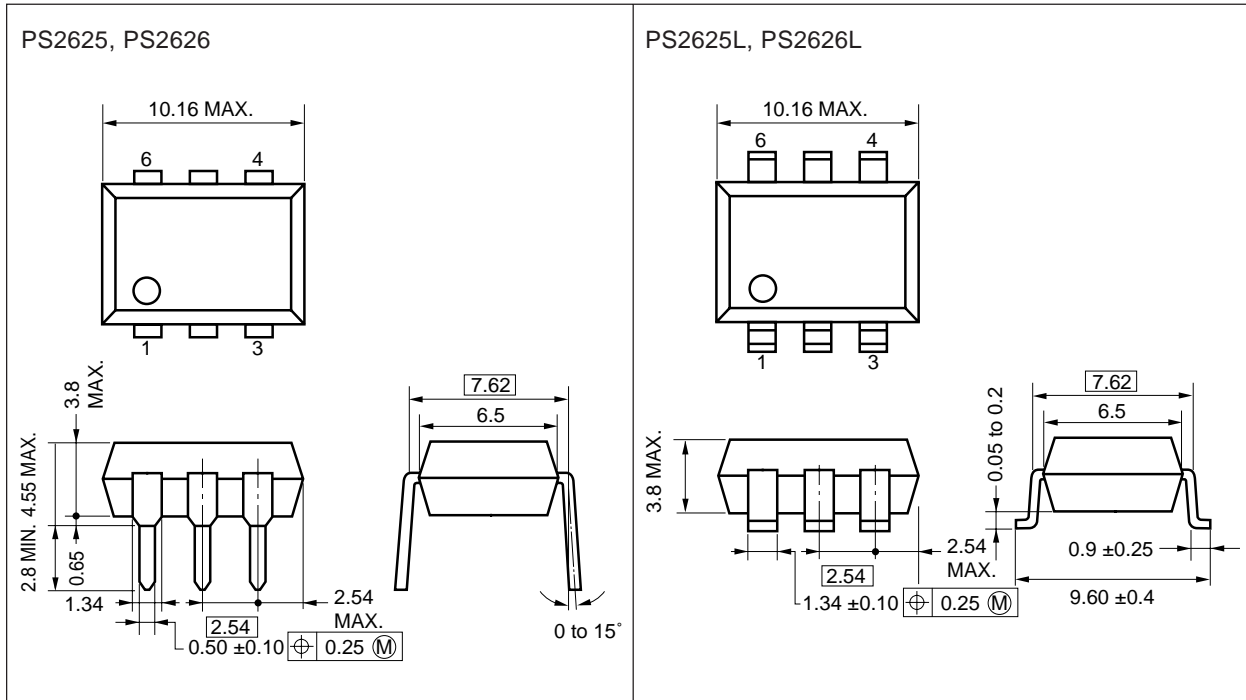
Interface circuit for various instrumentations, control equipments.

- AC Line/Digital Logic Isolate high voltage transient
- Digital Logic/Digital Logic Eliminate spurious ground loops
- Twisted pair line receiver Eliminate ground loop pick-up
- Telephone/Telegraph line receiver Isolate high voltage transient
- High Frequency Power Supply Feedback Control Maintain floating ground

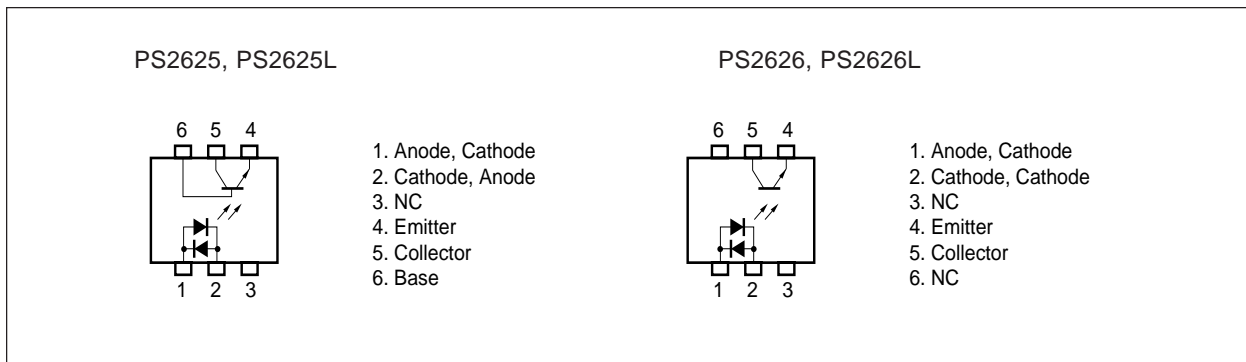
PACKAGE DIMENSIONS (Unit: mm)

DIP (Dual In-line Package)

Lead Bending type (Gull-wing)



PIN CONNECTION (Top View)



ABSOLUTE MAXIMUM RATINGS (T_A = 25 °C)

Diode

| | | | |
|---|----------------------|------|-------|
| Forward Current (DC) | I _F | ±150 | mA |
| Power Dissipation Derating | ΔP _D /°C | 2.0 | mW/°C |
| Power Dissipation | P _D | 200 | mW |
| Peak Forward Current (PW = 100 μs, Duty Cycle 1 %) | I _{F(Peak)} | ±1 | A |

Transistor

| | | | |
|------------------------------|---------------------|-----|-------|
| Collector to Emitter Voltage | V _{CEO} | 80 | V |
| Emitter to Collector Voltage | V _{ECO} | 7 | V |
| Collector Current | I _c | 50 | mA |
| Power Dissipation Derating | ΔP _c /°C | 1.5 | mW/°C |
| Power Dissipation | P _c | 150 | mW |

Coupled

| | | | |
|-----------------------|------------------|-------------|---------------------|
| Isolation Voltage *1) | BV | 5 000 | V _{r.m.s.} |
| Storage Temperature | T _{stg} | -55 to +150 | °C |
| Operating Temperature | T _{opt} | -55 to +100 | °C |

*1) AC voltage for 1 minute at T_A = 25 °C, RH = 60 % between input (Pin No. 1, 2, 3, Common) and output (Pin No. 4, 5, 6 Common).

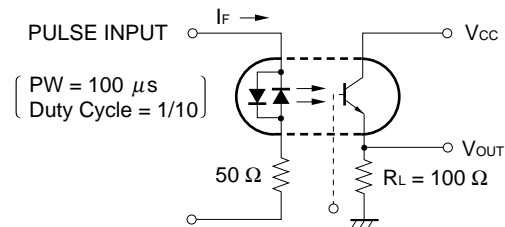
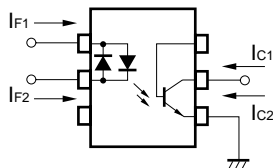
ELECTRICAL CHARACTERISTICS (T_A = 25 °C)

| CHARACTERISTIC | | SYMBOL | MIN. | TYP. | MAX. | UNIT | TEST CONDITIONS |
|----------------|-----------------------------------|----------------------|------------------|------|------|--|--|
| Diode | Forward Voltage | V _F | | 1.3 | 1.7 | V | I _F = ±100 mA |
| | Junction Capacitance | C | | 140 | | pF | V = 0, f = 1.0 MHz |
| Transistor | Collector to Emitter Dark Current | I _{CEO} | | | 100 | nA | V _{CE} = 80 V, I _F = 0 |
| | DC Current Gain*2) | h _{FE} | | 700 | | | I _c = 2 mA, V _{CE} = 5 V |
| Coupled | Current Transfer Ratio | CTR | 20 | | 50 | % | I _F = ±100 mA, V _{CE} = 3 V |
| | CTR Ratio*3) | CTR1/CTR2 | 0.3 | 1.0 | 3.0 | | I _F = ±100 mA, V _{CE} = 3 V |
| | Collector Saturation Voltage | V _{CE(sat)} | | | 0.3 | V | I _F = ±100 mA, I _c = 4 mA |
| | Isolation Resistance | R ₁₋₂ | 10 ¹¹ | | | Ω | V _{in-out} = 1.0 kV |
| | Isolation Capacitance | C ₁₋₂ | | 0.6 | | pF | V = 0, f = 1.0 MHz |
| | Rise Time*4) | t _r | | 3 | | μs | V _{CC} = 5 V, I _c = 2 mA, R _L = 100 Ω |
| Fall Time*4) | t _f | | 5 | | μs | V _{CC} = 5 V, I _c = 2 mA, R _L = 100 Ω | |

*2) PS2625, PS2625L only

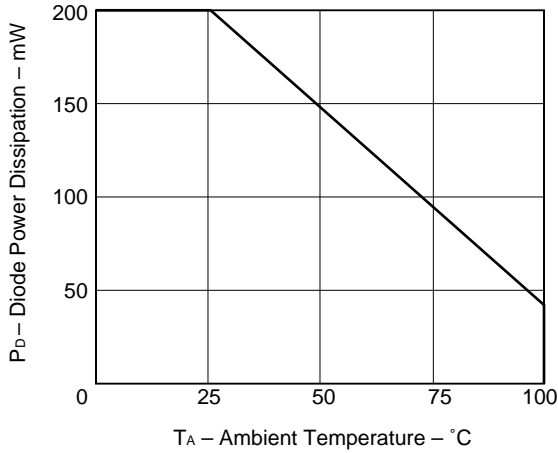
*4) Test Circuit for Switching Time

*3) $CTR1 = \frac{I_{c1}}{I_{F1}}$, $CTR2 = \frac{I_{c2}}{I_{F2}}$

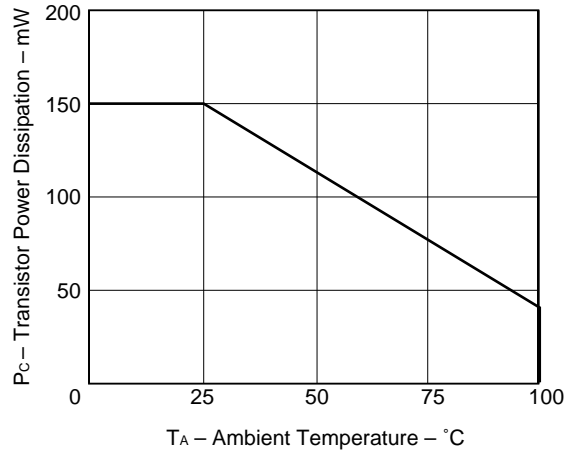


TYPICAL CHARACTERISTICS (T_A = 25 °C)

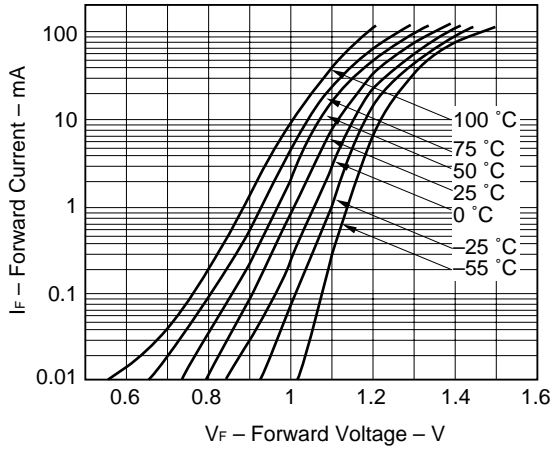
DIODE POWER DISSIPATION vs. AMBIENT TEMPERATURE



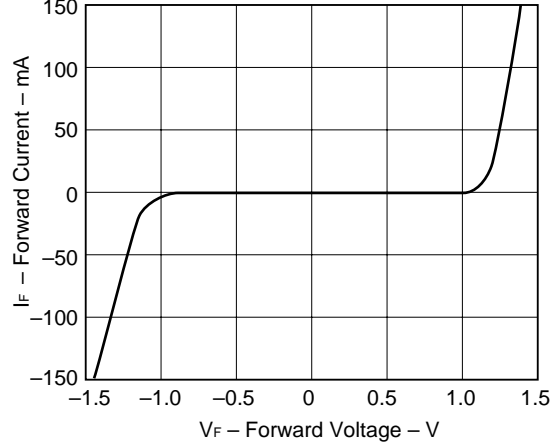
TRANSISTOR POWER DISSIPATION vs. AMBIENT TEMPERATURE



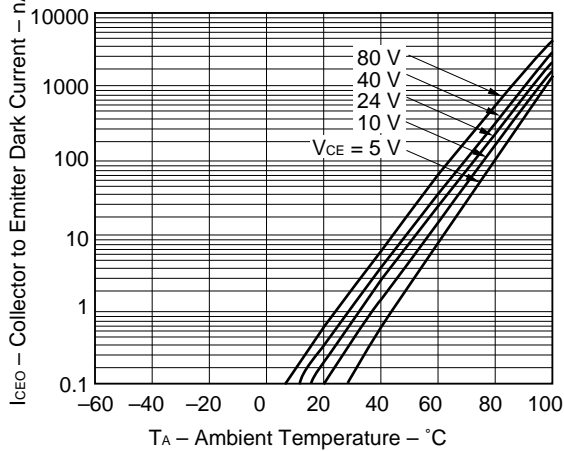
FORWARD CURRENT vs. FORWARD VOLTAGE



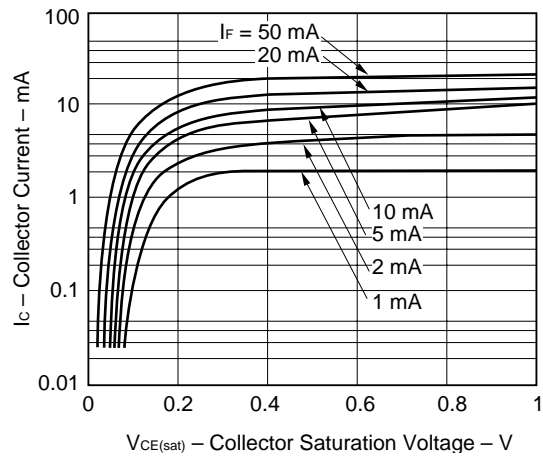
FORWARD CURRENT vs. FORWARD VOLTAGE

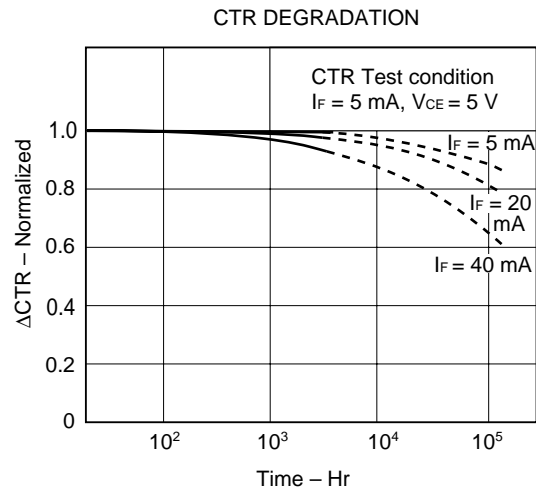
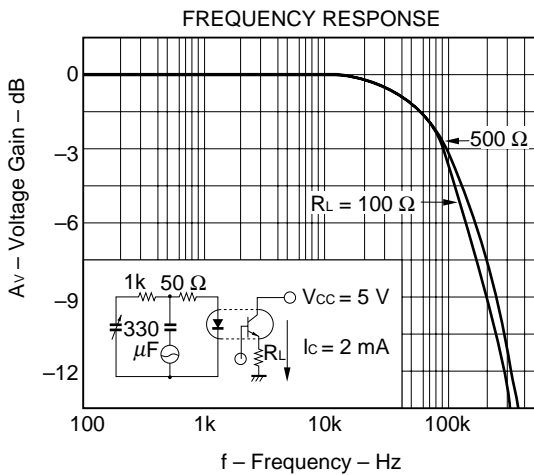
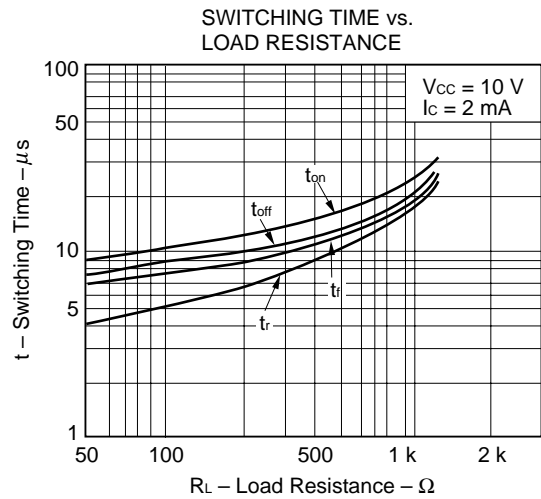
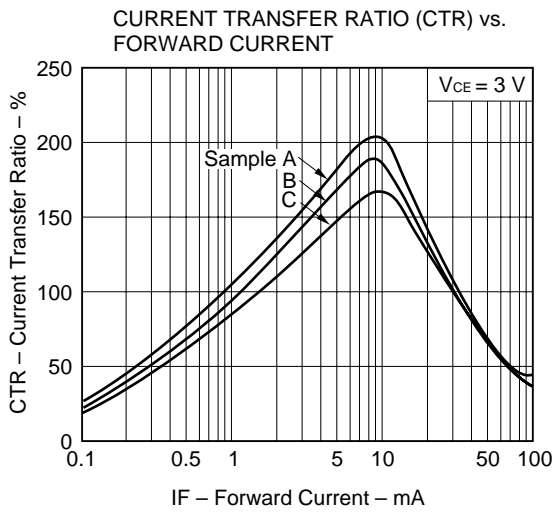
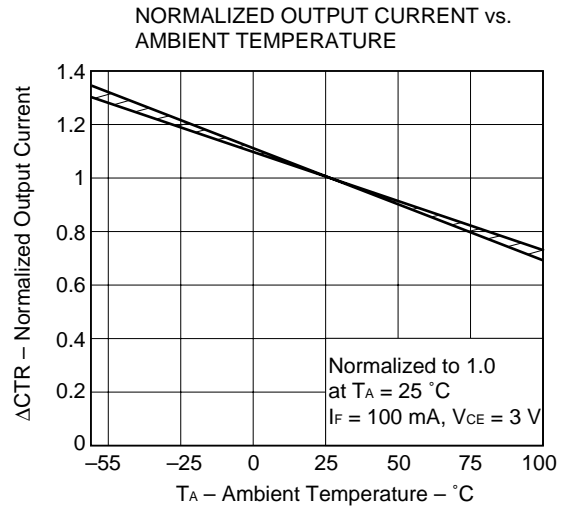
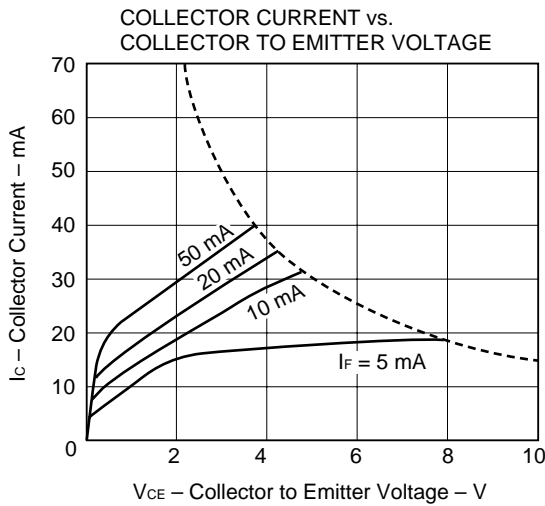


COLLECTOR TO EMITTER DARK CURRENT vs. AMBIENT TEMPERATURE



COLLECTOR CURRENT vs. COLLECTOR SATURATION VOLTAGE





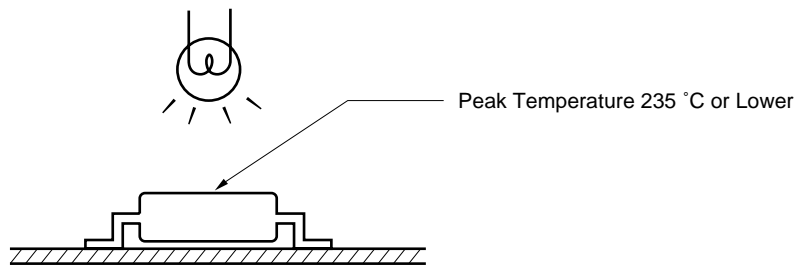
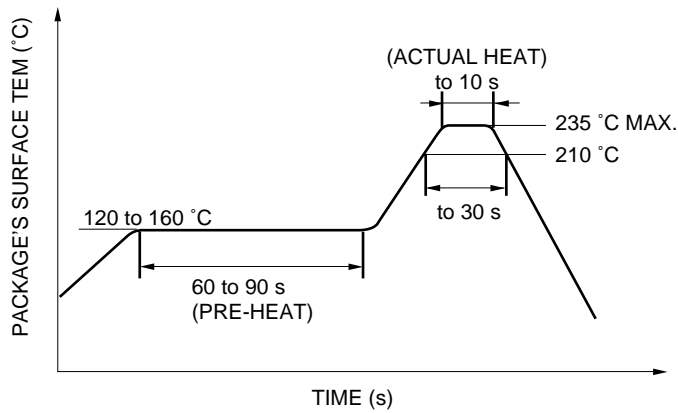
★ The measurement of TYPICAL CHARACTERISTICS are only for reference, not guaranteed.

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

[MEMO]

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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Anti-radioactive design is not implemented in this product.