

K4N35 • K4N36 • K4N37

These Photocouplers consist of a Gallium Arsenide Infrared Emitting Diode and a Silicon NPN Phototransistor in 6-pin package.

FEATURES

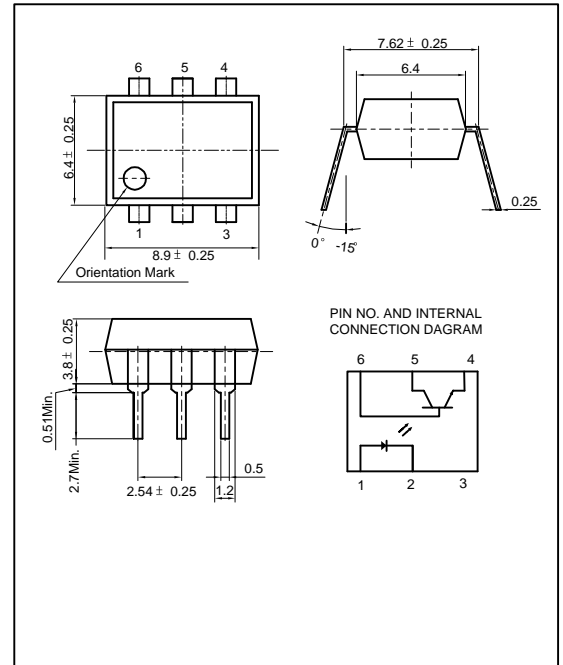
- Switching Time - Typ. 3 μ s
- Collector-Emitter Voltage : Min.30V
- Current Transfer Ratio : Typ.100% (at $I_F=10\text{mA}$, $V_{CE}=10\text{V}$)
- Electrical Isolation Voltage : AC2500V_{rms}
- UL Recognized File No. E107486

APPLICATIONS

- Interface between two circuits of different potential
- Vending Machine, Voltage Regulator
- Traffic Controller System
- Programmable Controller

DIMENSION

(Unit : mm)



MAXIMUM RATINGS

($T_a=25$)

| Parameter | | Symbol | Rating | Unit |
|---|-------------------------------------|------------|------------------|-----------|
| Input | Forward Current | I_F | 60 | mA |
| | Reverse Voltage | V_R | 5 | V |
| | Peak Forward Current ^{*1} | I_{FP} | 3 | A |
| | Power Dissipation | P_D | 70 | mW |
| Output | Collector-Emitter Breakdown Voltage | BV_{CEO} | 35 ^{*4} | V |
| | Emitter-Collector Breakdown Voltage | BV_{ECO} | 6 | V |
| | Collector-Base Breakdown Voltage | BV_{CBO} | 70 | V |
| | Collector Current | I_C | 50 | mA |
| | Collector Power Dissipation | P_C | 150 | mW |
| Input to Output Isolation Voltage ^{*2} | | V_{iso} | AC2500 | V_{rms} |
| Storage Temperature | | T_{stg} | -55~+125 | |
| Operating Temperature | | T_{opr} | -30~+100 | |
| Lead Soldering Temperature ^{*3} | | T_{sol} | 260 | |
| Total Power Dissipation | | P_{tot} | 200 | mW |

*1. Input current with 100 μ s pulse width, 1% duty cycle
 *2. Measured at RH=40~60% for 1min
 *3. 1/16 inch form case for 10sec
 *4. Customer Option

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ELECTRO-OPTICAL CHARACTERISTICS

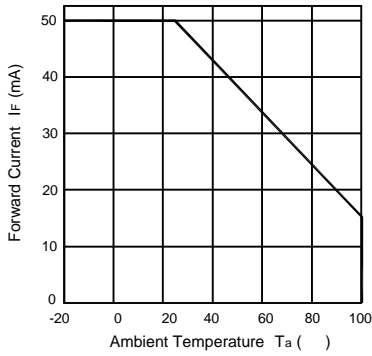
(Ta=25 , unless otherwise noted)

| Parameter | | Symbol | Condition | Min. | Typ. | Max. | Unit. |
|-----------|--------------------------------------|----------------------|---|---------------------|------------------|------|-------|
| Input | Forward Voltage | V _F | I _F =10mA | - | 1.15 | 1.30 | V |
| | Reverse Current | I _R | V _R =5V | - | - | 10 | μA |
| | Capacitance | C _T | V=0, f=1MHz | - | 30 | - | pF |
| Output | Collector-Emitter Breakdown Voltage | BV _{CEO} | I _c =1mA | 35 | - | - | V |
| | Emitter-Collector Breakdown Voltage | BV _{ECO} | I _E =0.1mA | 6 | - | - | V |
| | Collector-Base Breakdown Voltage | BV _{CBO} | I _c =0.1mA | 70 | - | - | V |
| | Collector Dark Current | I _{CEO} | I _F =0, V _{CE} =10V | - | - | 50 | nA |
| | Capacitance | C _{CE} | V _{CE} =0, f=1MHz | - | 10 | - | pF |
| Coupled | Current Transfer Ratio ^{*5} | CTR | I _F =10mA, V _{CE} =10V | 100 | - | - | % |
| | Collector-Emitter Saturation Voltage | V _{CE(SAT)} | I _F =10mA, I _c =0.5mA | - | 0.15 | 0.3 | V |
| | Input-Output Capacitance | C _{IO} | V=0, f=1MHz | - | 1 | - | pF |
| | Input-Output Isolation Resistance | R _{IO} | RH=40~60%, V=500V | - | 10 ¹¹ | - | |
| | Rise Time | t _r | V _{CC} =10V, R _L =100 | - | 3 | 10 | |
| | Fall Time | t _f | | I _c =2mA | - | 3 | 10 |

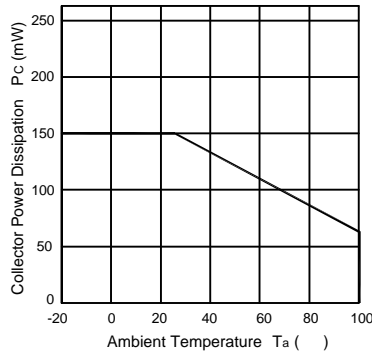
*5. CTR=(I_c/I_F) X 100 (%)

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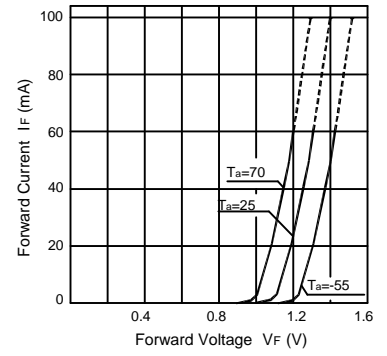
Forward Current vs. Ambient Temperature



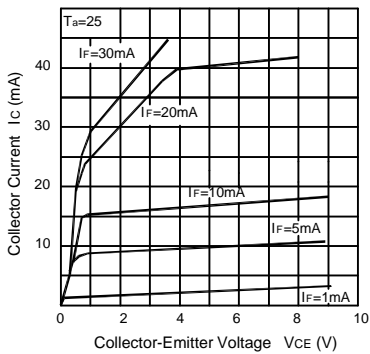
Collector Power Dissipation vs. Ambient Temperature



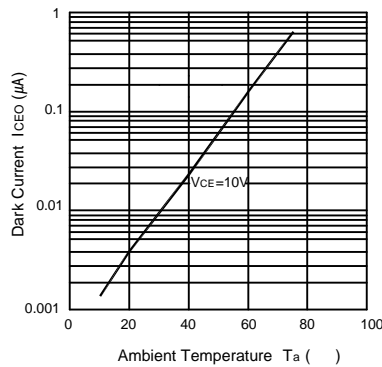
Forward Current vs. Forward Voltage



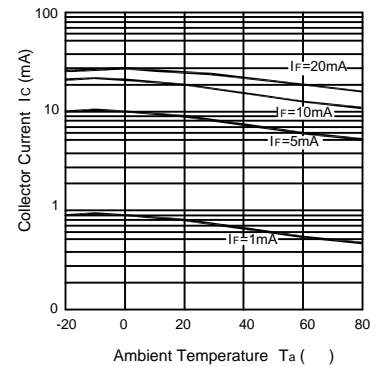
Collector Current vs. Collector-Emitter Voltage



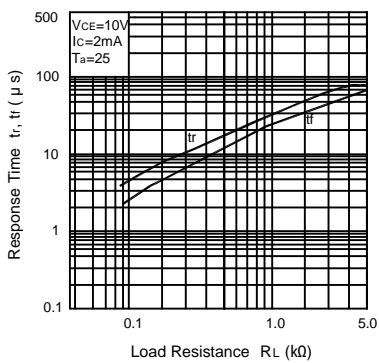
Dark Current vs. Ambient Temperature



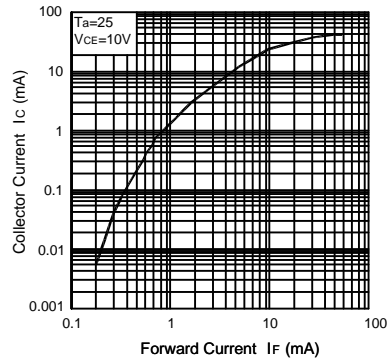
Collector Current vs. Ambient Temperature



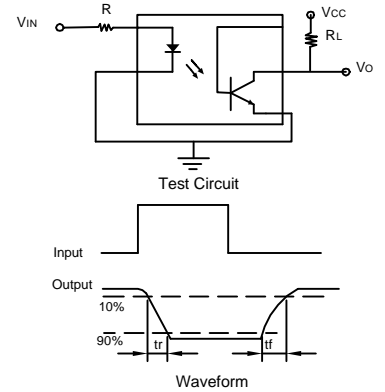
Response Time vs. Load Resistance



Collector Current vs. Forward Current



Switching Time Test Circuit



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