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4N25X, 4N26X, 4N27X, 4N28X
4N25, 4N26, 4N27, 4N28

Jameco Part Number 41005



**OPTICALLY COUPLED
ISOLATOR
PHOTOTRANSISTOR OUTPUT**

APPROVALS

- UL recognised, File No. E91231
- 'X' SPECIFICATION APPROVALS
- VDE 0884 in 3 available lead forms : -
 - STD
 - G form
 - SMD approved to CECC 00802
- Certified to EN60950 by the following Test Bodies :-
 - Nemko - Certificate No. P96101299
 - Fimko - Registration No. 190469-01..22
 - Semko - Reference No. 9620076 01
 - Demko - Reference No. 305567

DESCRIPTION

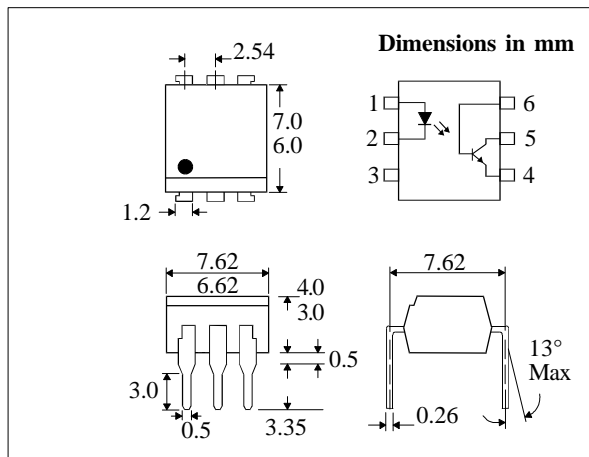
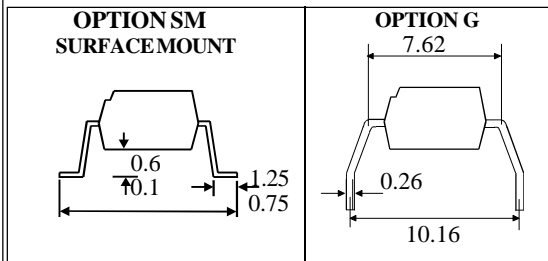
The 4N25, 4N26, 4N27, 4N28 series of optically coupled isolators consist of infrared light emitting diode and NPN silicon photo transistor in a standard 6 pin dual in line plastic package.

FEATURES

- Options :-
 - 10mm lead spread - add G after part no.
 - Surface mount - add SM after part no.
 - Tape&reel - add SMT&R after part no.
- High Isolation Voltage (5.3kV_{RMS}, 7.5kV_{PK})
- All electrical parameters 100% tested
- Custom electrical selections available

APPLICATIONS

- DC motor controllers
- Industrial systems controllers
- Measuring instruments
- Signal transmission between systems of different potentials and impedances



**ABSOLUTE MAXIMUM RATINGS
(25°C unless otherwise specified)**

| | |
|-------------------------------------------------------------------------|------------------|
| Storage Temperature | -55°C to + 150°C |
| Operating Temperature | -55°C to + 100°C |
| Lead Soldering Temperature (1/16 inch (1.6mm) from case for 10 secs) | 260°C |

INPUT DIODE

| | |
|-------------------|-------|
| Forward Current | 60mA |
| Reverse Voltage | 6V |
| Power Dissipation | 105mW |

OUTPUT TRANSISTOR

| | |
|--------------------------------------|-------|
| Collector-emitter Voltage BV_{CEO} | 30V |
| Collector-base Voltage BV_{CBO} | 70V |
| Emitter-collector Voltage BV_{ECO} | 6V |
| Power Dissipation | 160mW |

POWER DISSIPATION

| | |
|----------------------------------------|-------|
| Total Power Dissipation | 200mW |
| (derate linearly 2.67mW/°C above 25°C) | |

ELECTRICAL CHARACTERISTICS ($T_A = 25^\circ\text{C}$ Unless otherwise noted)

| PARAMETER | | MIN | TYP | MAX | UNITS | TEST CONDITION | |
|-------------------------|----------------------------------------------------------|--------------------|-----|-----|---------------|-------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------|
| Input | Forward Voltage (V_F) | | 1.2 | 1.5 | V | $I_F = 10\text{mA}$ $I_R = 10\mu\text{A}$ $V_R = 6\text{V}$ | |
| | Reverse Voltage (V_R) | 6 | | | V | | |
| | Reverse Current (I_R) | | | 10 | μA | | |
| Output | Collector-emitter Breakdown (BV_{CEO}) (Note 2) | 30 | | | V | $I_C = 1\text{mA}$ | |
| | Collector-base Breakdown (BV_{CBO}) | 70 | | | V | $I_C = 100\mu\text{A}$ | |
| | Emitter-collector Breakdown (BV_{ECO}) | 6 | | | V | $I_E = 100\mu\text{A}$ | |
| | Collector-emitter Dark Current (I_{CEO}) | | | 50 | nA | $V_{CE} = 10\text{V}$ | |
| | Collector-base Dark Current (I_{CBO}) | | | 20 | nA | $V_{CE} = 10\text{V}$ | |
| Coupled | Current Transfer Ratio (CTR) 4N25, 4N26 | 20 | | | % | $10\text{mA } I_F, 10\text{V } V_{CE}$ $10\text{mA } I_F, 10\text{V } V_{CE}$ $50\text{mA } I_F, 2\text{mA } I_C$ | |
| | 4N27, 4N28 | 10 | | | % | | |
| | Collector-emitter Saturation Voltage $V_{CE(SAT)}$ | | | 0.5 | V | | |
| | Input to Output Isolation Voltage V_{ISO} | 5300 | | | | V_{RMS} | See note 1 |
| | | 7500 | | | | V_{PK} | See note 1 |
| | Input-output Isolation Resistance R_{ISO} | 5×10^{10} | | | | Ω | $V_{IO} = 500\text{V}$ (note 1) |
| | Turn-on Time t_{on} | | 4 | | | μs | $V_{CC} = 10\text{V}$, $I_F = 10\text{mA}$, $R_L = 100\Omega$ (FIG 1) |
| Turn-off Time t_{off} | | 3 | | | μs | | |
| Output Rise Time t_r | | 2 | | | μs | | |
| Output Fall Time t_f | | 2 | | | μs | | |

- Note 1 Measured with input leads shorted together and output leads shorted together.
 Note 2 Special Selections are available on request. Please consult the factory.

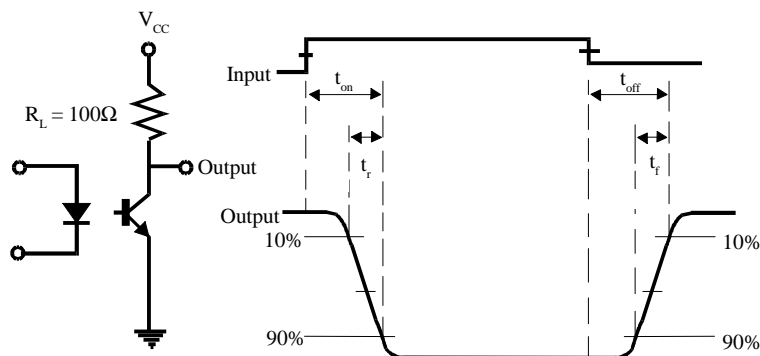
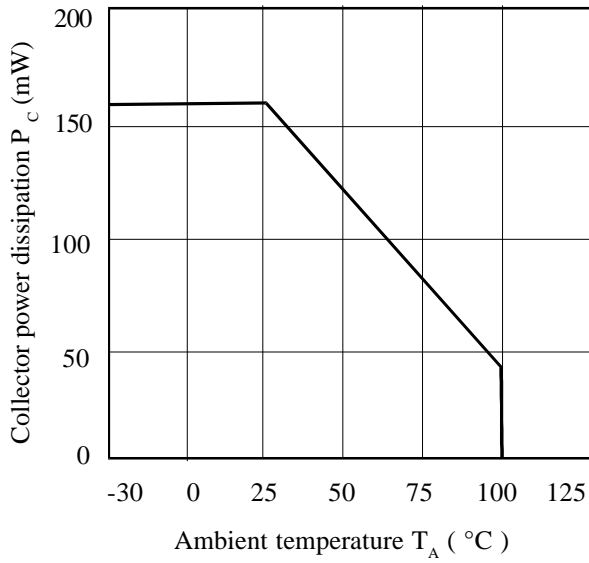
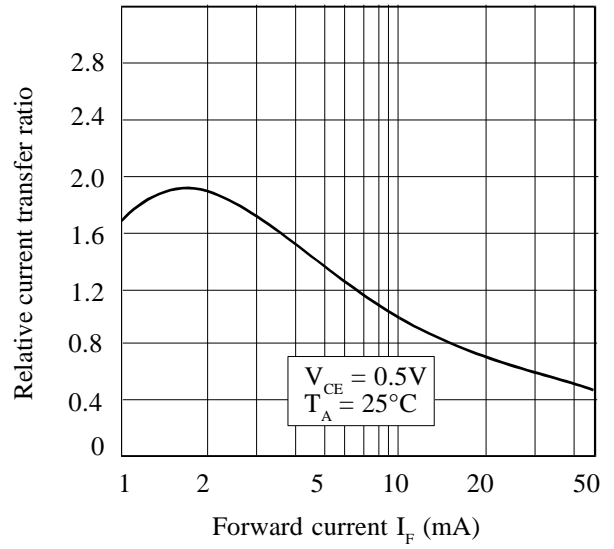


FIG 1

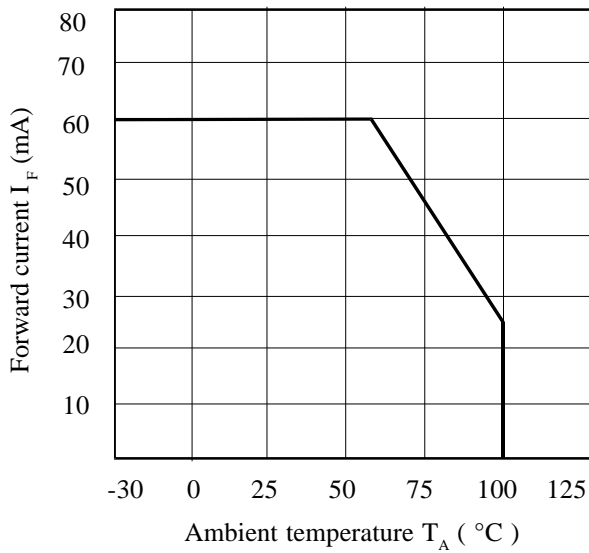
Collector Power Dissipation vs. Ambient Temperature



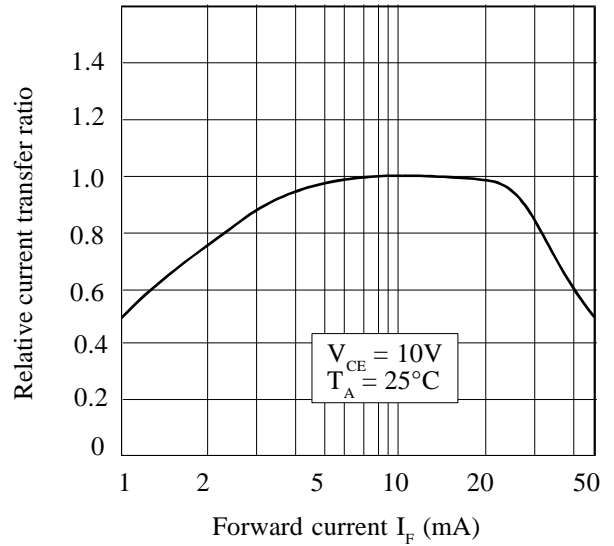
Relative Current Transfer Ratio vs. Forward Current



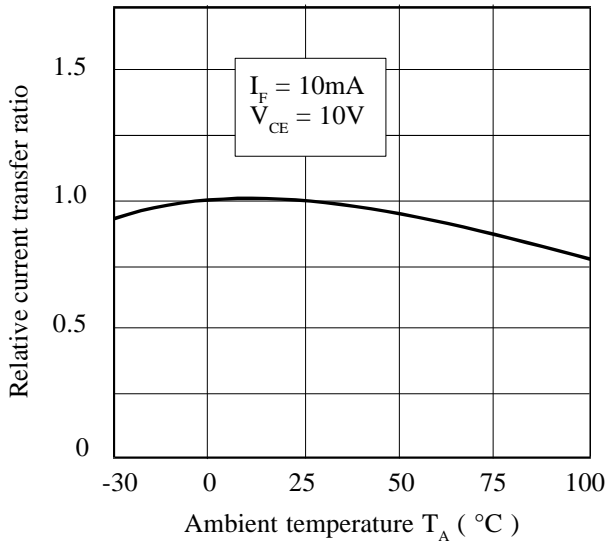
Forward Current vs. Ambient Temperature



Relative Current Transfer Ratio vs. Forward Current



Relative Current Transfer Ratio vs. Ambient Temperature



Collector-emitter Saturation Voltage vs. Ambient Temperature

