

**CNY75AX, CNY75BX, CNY75CX,
CNY75A, CNY75B, CNY75C**



**OPTICALLY COUPLED
ISOLATOR
PHOTOTRANSISTOR OUTPUT**

APPROVALS

- UL recognised, File No. E91231
Package Code "GG "

'X' SPECIFICATION APPROVALS

- VDE 0884 in 3 available lead form : -
- STD
- G form
- SMD approved to CECC 00802
- Certified to EN60950 by
Nemko - Certificate No. P01102464

DESCRIPTION

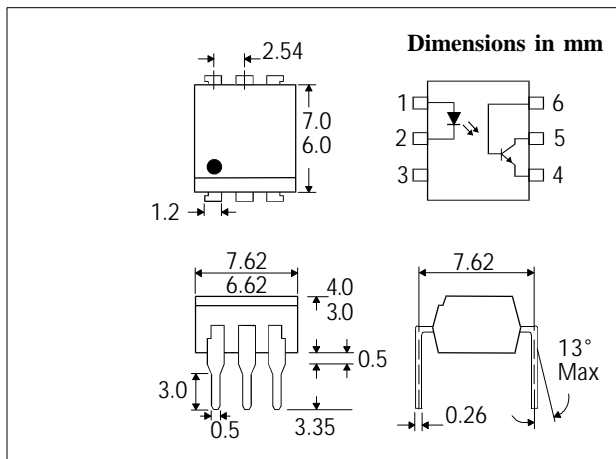
The CNY75A, CNY75B, CNY75C series of optically coupled isolators consist of infrared light emitting diode and NPN silicon photo transistor in a standard 6 pin dual in line plastic package.

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 BV_{CEO} (90V min)
- 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

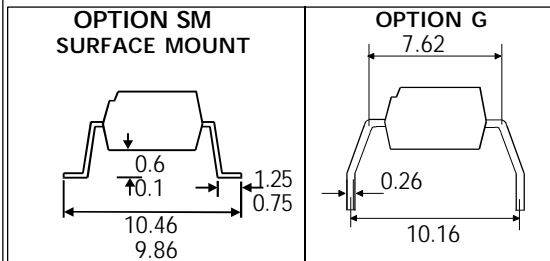
| | |
|-------------------|-------|
| Forward Current | 60mA |
| Reverse Voltage | 6V |
| Power Dissipation | 105mW |

OUTPUT TRANSISTOR

| | |
|--------------------------------------|-------|
| Collector-emitter Voltage BV_{CEO} | 90V |
| Collector-base Voltage BV_{CBO} | 90V |
| Emitter-collector Voltage BV_{ECO} | 6V |
| Collector Current | 50mA |
| Power Dissipation | 160mW |

POWER DISSIPATION

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



ISOCOM COMPONENTS LTD
Unit 25B, Park View Road West,
Park View Industrial Estate, Brenda Road
Hartlepool, TS25 1YD England Tel: (01429)863609
Fax: (01429)863581 e-mail sales@isocom.co.uk
<http://www.isocom.com>

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

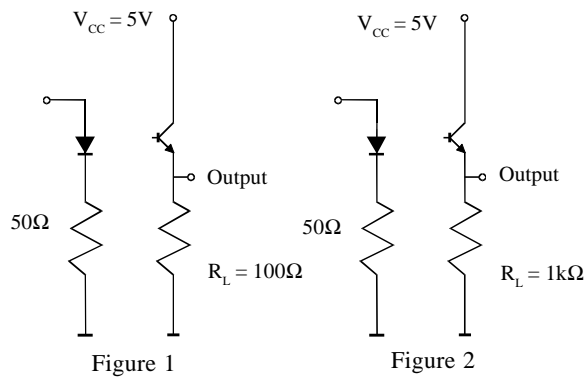
| PARAMETER | | MIN | TYP | MAX | UNITS | TEST CONDITION | |
|-----------|--|--------|--------------------|------|---------------|---------------------------------------|---------------------------------|
| Input | Forward Voltage (V_F) | | 1.2 | 1.60 | V | $I_F = 50\text{mA}$ | |
| | Reverse Current (I_R) | | | 10 | μA | $V_R = 6\text{V}$ | |
| Output | Collector-emitter Breakdown (BV_{CEO}) (Note 2) | 90 | | | V | $I_C = 1\text{mA}$ | |
| | Collector-base Breakdown (BV_{CBO}) | 90 | | | 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}) | | | 150 | nA | $V_{CE} = 20\text{V}$ | |
| Coupled | I_C / I_F (CTR) (Note 2) | CNY75A | 15 | | % | $1\text{mA } I_F, 5\text{V } V_{CE}$ | |
| | | CNY75B | 30 | | % | $1\text{mA } I_F, 5\text{V } V_{CE}$ | |
| | | CNY75C | 60 | | % | $1\text{mA } I_F, 5\text{V } V_{CE}$ | |
| | | CNY75A | 63 | 125 | % | $10\text{mA } I_F, 5\text{V } V_{CE}$ | |
| | | CNY75B | 100 | 200 | % | $10\text{mA } I_F, 5\text{V } V_{CE}$ | |
| | | CNY75C | 160 | 320 | % | $10\text{mA } I_F, 5\text{V } V_{CE}$ | |
| | Collector-emitter Saturation Voltage $V_{CE(SAT)}$ | | | 0.3 | V | $10\text{mA } I_F, 1\text{mA } I_C$ | |
| | 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) |

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.

TYPICAL SWITCHING CHARACTERISTICS

| Type | $R_L = 100\Omega$ see fig 1 | | | | | | | $R_L = 1k\Omega$ see fig 2 | | |
|--------|-----------------------------|---------------|---------------|---------------|---------------|---------------|-------|----------------------------|---------------|-------|
| | td | tr | ton | ts | tf | toff | I_C | ton | toff | I_F |
| | μs | μs | μs | μs | μs | μs | mA | μs | μs | mA |
| CNY75A | 2.0 | 2.5 | 4.5 | 0.3 | 2.7 | 3.0 | 10 | 10 | 25 | 20 |
| CNY75B | 2.5 | 3.0 | 5.5 | 0.3 | 3.7 | 4.0 | 10 | 16.5 | 20 | 10 |
| CNY75C | 2.8 | 4.2 | 7.0 | 0.3 | 4.7 | 5.0 | 10 | 11 | 37.5 | 10 |



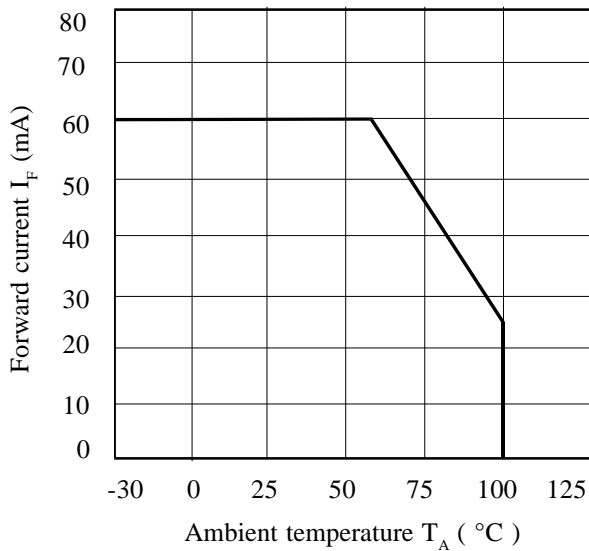
Collector Power Dissipation vs. Ambient Temperature



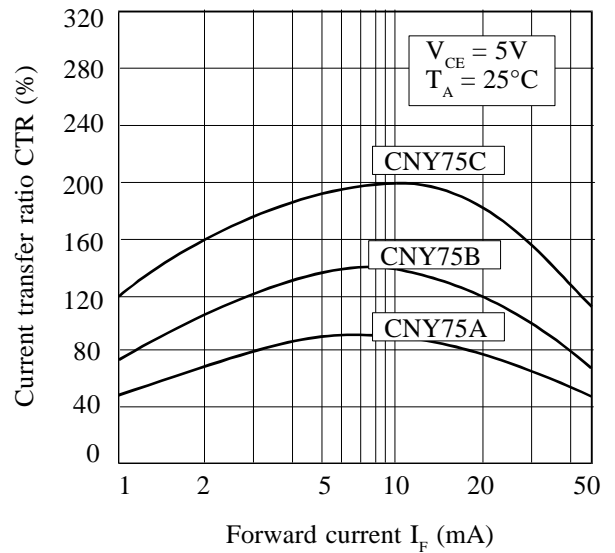
Collector Current vs. Collector-emitter Voltage (normalised to CNY75B)



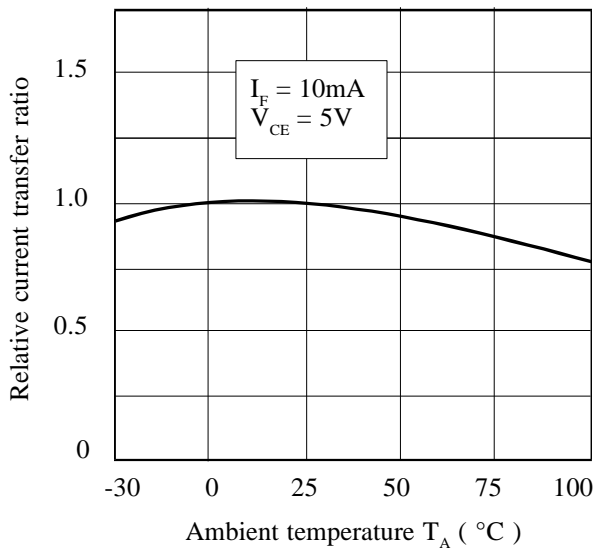
Forward Current vs. Ambient Temperature



Current Transfer Ratio vs. Forward Current



Relative Current Transfer Ratio vs. Ambient Temperature



Collector-emitter Saturation Voltage vs. Ambient Temperature

