CNY75AX, CNY75BX, CNY75CX,
CNY75A, CNY75B, CNY75C

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 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.

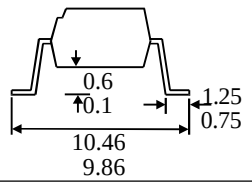
FEATURES

- 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

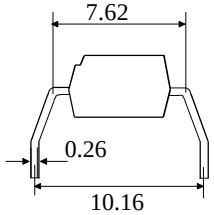
APPLICATIONS

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

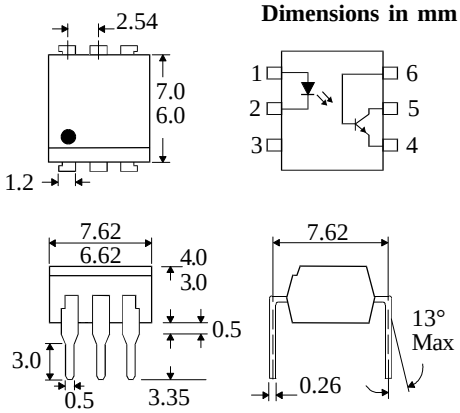
OPTION SM
SURFACE MOUNT



OPTION G



Dimensions in mm



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
Power Dissipation	160mW

POWER DISSIPATION

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

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ELECTRICAL CHARACTERISTICS (T_A= 25°C Unless otherwise noted)

PARAMETER		MIN	TYP	MAX	UNITS	TEST CONDITION
Input	Forward Voltage (V_F)		1.2	1.60	V	I_F = 50mA
	Reverse Voltage (V_R)	6			V	I_R = 10µA
	Reverse Current (I_R)			10	µA	V_R = 6V
Output	Collector-emitter Breakdown (BV_{CEO}) (Note 2)	90			V	I_C = 1mA
	Collector-base Breakdown (BV_{CBO})	90			V	I_C = 100µA
	Emitter-collector Breakdown (BV_{ECO})	6			V	I_E = 100µA
	Collector-emitter Dark Current (I_{CEO})			150	nA	V_{CE} = 20V
Coupled	I_C / I_F (CTR) (Note 2)					
	CNY75A	15			%	1mA I_F, 5V V_{CE}
	CNY75B	30			%	1mA I_F, 5V V_{CE}
	CNY75C	60			%	1mA I_F, 5V V_{CE}
	CNY75A	63		125	%	10mA I_F, 5V V_{CE}
	CNY75B	100		200	%	10mA I_F, 5V V_{CE}
	CNY75C	160		320	%	10mA I_F, 5V V_{CE}
	Collector-emitter Saturation Voltage $V_{CE(SAT)}$			0.3	V	10mA I_F , 1mA 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}	$5x10^{10}$			Ω	V_{IO} = 500V (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.

Type	R_L = 100Ω see fig 1							R_L = 1kΩ see fig 2		
	td µs	tr µs	ton µs	ts µs	tf µs	toff µs	I_C mA	ton µs	toff µs	I_F 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

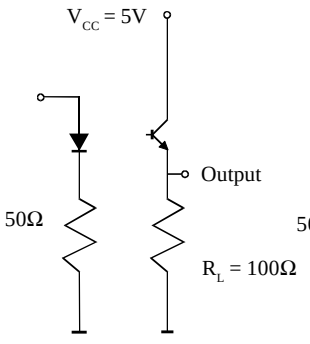


Figure 1

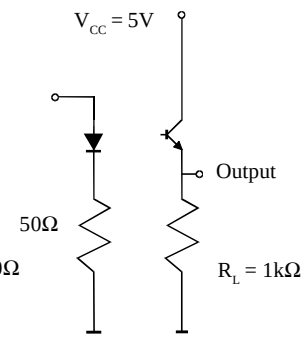
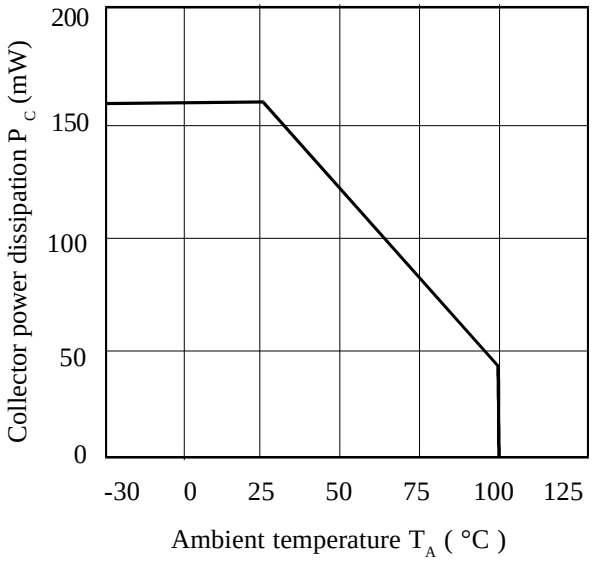
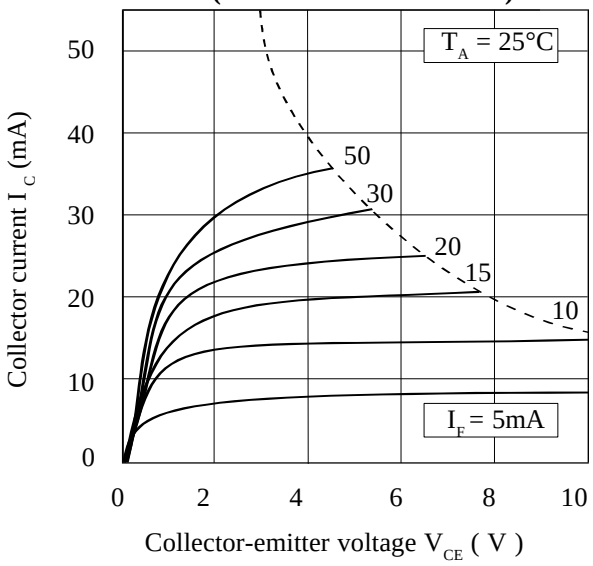


Figure 2

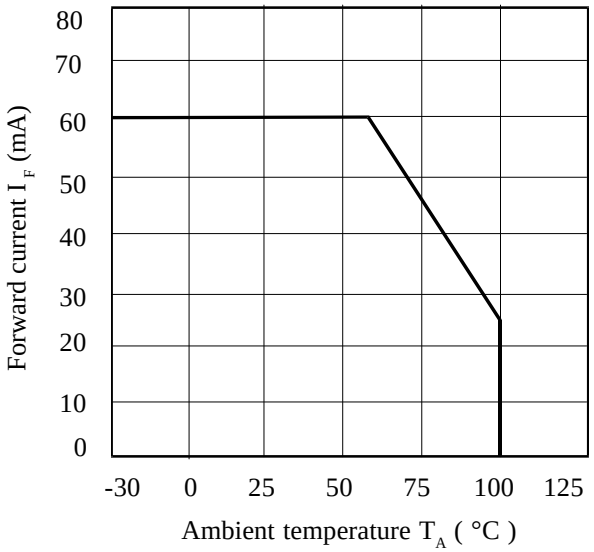
Collector Power Dissipation vs. Ambient Temperature



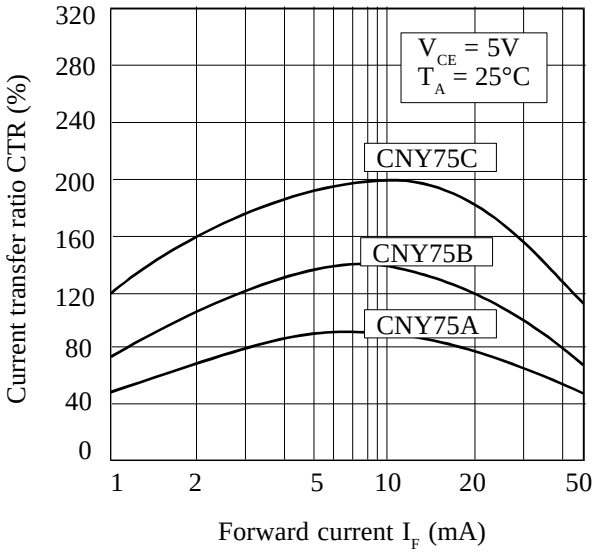
Collector Current vs. Collector-emitter Voltage (normalised to CNY75B)



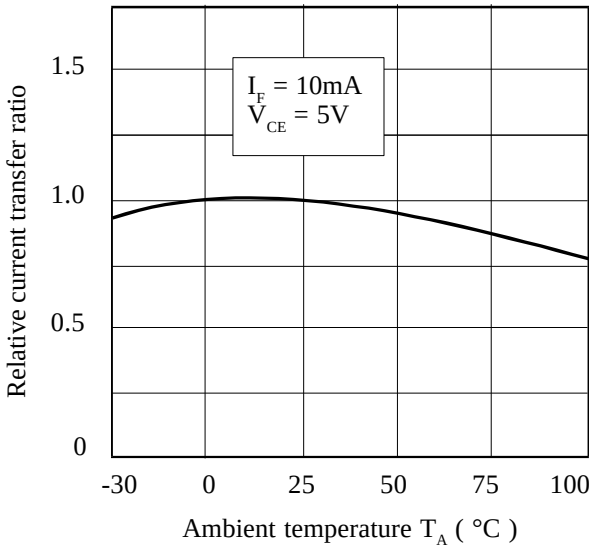
Forward Current vs. Ambient Temperature



Current Transfer Ratio vs. Forward Current



Relative Current Transfer Ratio vs. Ambient Temperature



Collector-emitter Saturation Voltage vs. Ambient Temperature