



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.

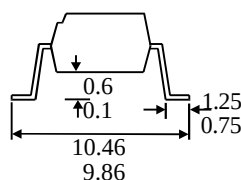
FEATURES

- 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

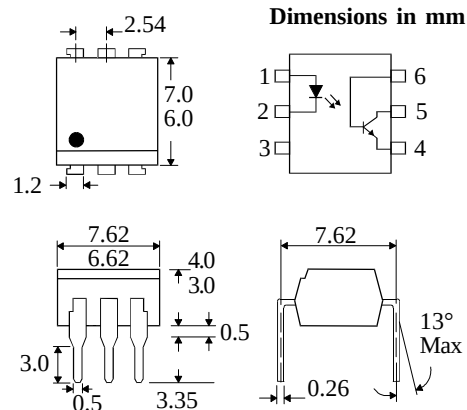
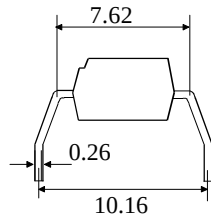
APPLICATIONS

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

OPTION SM SURFACE MOUNT



OPTION G



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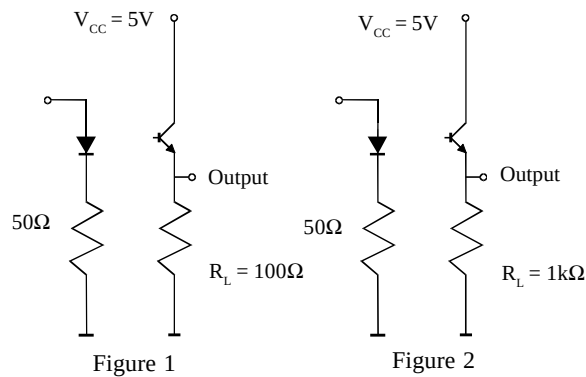
ELECTRICAL CHARACTERISTICS ($T_A = 25^\circ\text{C}$ Unless otherwise noted)

PARAMETER		MIN	TYP	MAX	UNITS	TEST CONDITION
Input	Forward Voltage (V_F)		1.2	1.60	V	$I_F = 50\text{mA}$
	Reverse Voltage (V_R)	6			V	$I_R = 10\mu\text{A}$
	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)

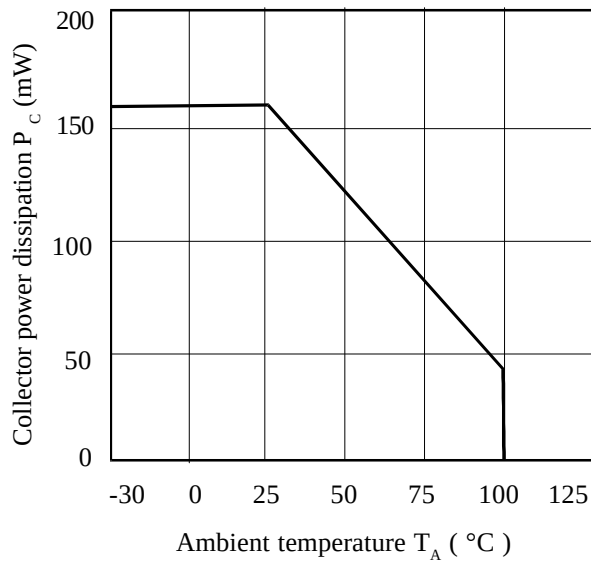
Note 1 Measured with input leads shorted together and output leads shorted together.

Note 2 Special Selections are available on request. Please consult the factory.

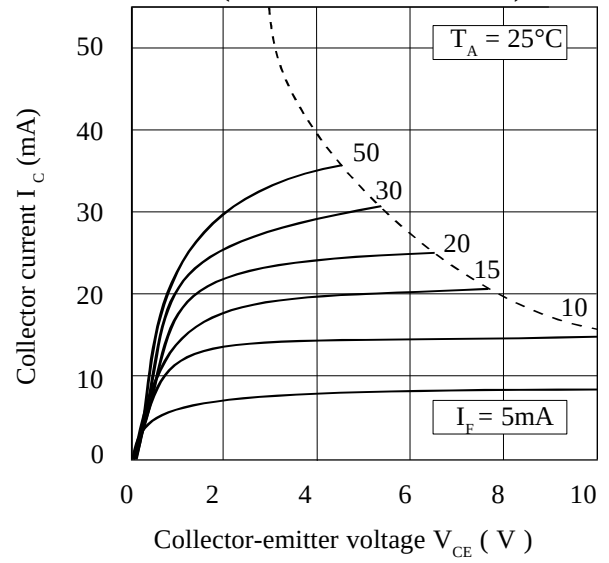
Type	$R_L = 100\Omega$ see fig 1							$R_L = 1k\Omega$ see fig 2		
	td	tr	ton	ts	tf	toff	I_C	ton	toff	I_F
	μs	μs	μs	μs	μs	μs	mA	μs	μs	mA
CNY75A	2.0	2.5	4.5	0.3	2.7	3.0	10	10	25	20
CNY75B	2.5	3.0	5.5	0.3	3.7	4.0	10	16.5	20	10
CNY75C	2.8	4.2	7.0	0.3	4.7	5.0	10	11	37.5	10



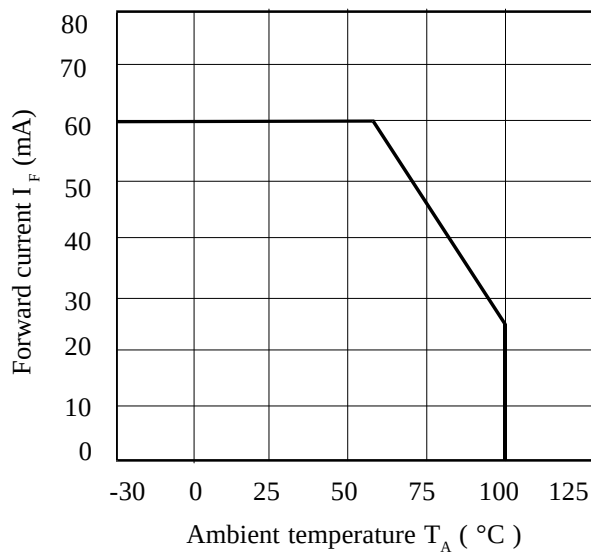
Collector Power Dissipation vs. Ambient Temperature



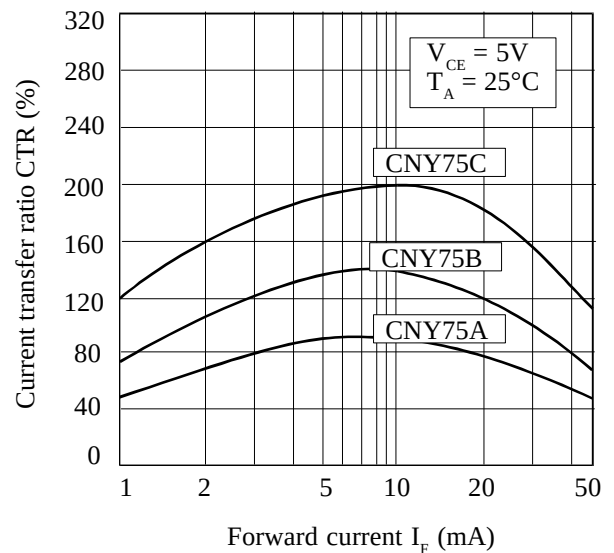
**Collector Current vs. Collector-emitter Voltage
(normalised to CNY75B)**



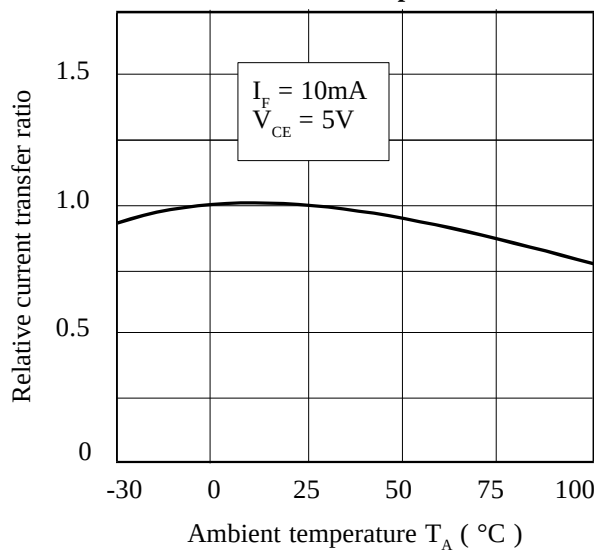
Forward Current vs. Ambient Temperature



Current Transfer Ratio vs. Forward Current



**Relative Current Transfer Ratio
vs. Ambient Temperature**



**Collector-emitter Saturation
Voltage vs. Ambient Temperature**

