

CNX83A



# OPTICALLY COUPLED ISOLATOR PHOTOTRANSISTOR OUTPUT

### APPROVALS

- UL recognised, File No. E91231

### DESCRIPTION

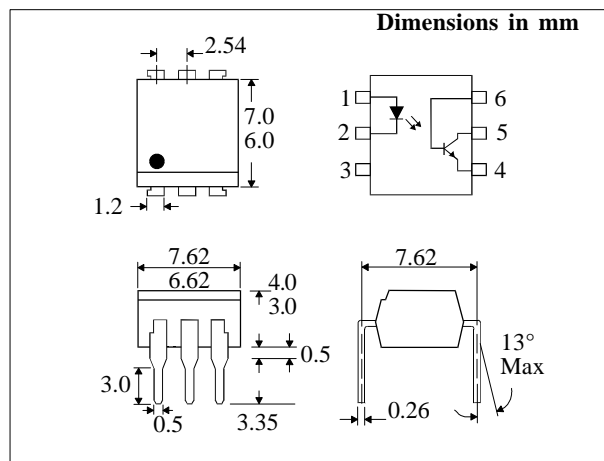
The CNX83A optically coupled isolator consists of an infrared light emitting diode and a NPN silicon photo transistor in a standard 6 pin dual in line plastic package.

### 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 Current Transfer Ratio (40% min)
- Low Saturation Voltage suitable for TTL integrated circuits
- High  $BV_{CEO}$  (50V min)
- High Isolation Voltage ( $5.3kV_{RMS}, 7.5kV_{PK}$ )

### APPLICATIONS

- DC motor controllers
- Industrial systems controllers
- 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

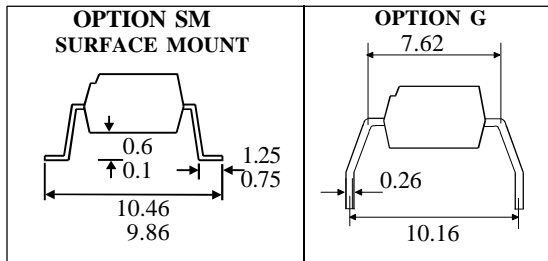
Forward Current \_\_\_\_\_ 60mA  
 Reverse Voltage \_\_\_\_\_ 6V  
 Power Dissipation \_\_\_\_\_ 105mW

### OUTPUT TRANSISTOR

Collector-emitter Voltage  $BV_{CEO}$  \_\_\_\_\_ 50V  
 Collector-base Voltage  $BV_{CBO}$  \_\_\_\_\_ 70V  
 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)



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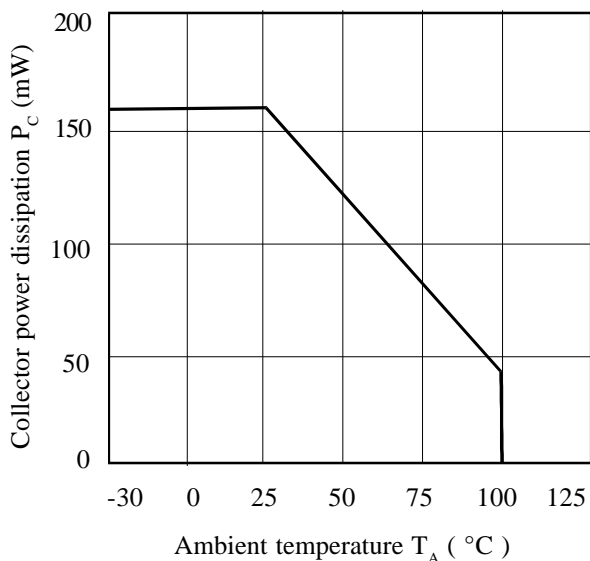
**ELECTRICAL CHARACTERISTICS (  $T_A = 25^\circ\text{C}$  Unless otherwise noted )**

PARAMETER		MIN	TYP	MAX	UNITS	TEST CONDITION
Input	Forward Voltage ( $V_F$ )		1.2	1.5	V	$I_F = 10\text{mA}$
	Reverse Current ( $I_R$ )			10	$\mu\text{A}$	$V_R = 6\text{V}$
Output	Collector-emitter Breakdown ( $BV_{CEO}$ ) (Note 2)	50			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	$V_{CE} = 10\text{V}$
Coupled	Current Transfer Ratio ( $I_C / I_F$ ) (Note 2)	0.4	1.5			$10\text{mA } I_F, 0.4\text{V } V_{CE}$ $10\text{mA } I_F, 5\text{V } V_{CE}$
	Collector-emitter Saturation Voltage $V_{CE(SAT)}$			0.4	V	$10\text{mA } I_F, 4\text{mA } I_C$
	Input to Output Isolation Voltage $V_{ISO}$	5300 7500			$V_{RMS}$ $V_{PK}$	See note 1 See note 1
	Input-output Isolation Resistance $R_{ISO}$	$5 \times 10^{10}$			$\Omega$	$V_{IO} = 500\text{V}$ (note 1)
	Response Time (Rise), tr Response Time (Fall), tf		2 2	7 8	$\mu\text{s}$ $\mu\text{s}$	$V_{CC} = 5\text{V}, I_F = 10\text{mA},$ $R_L = 75\Omega$

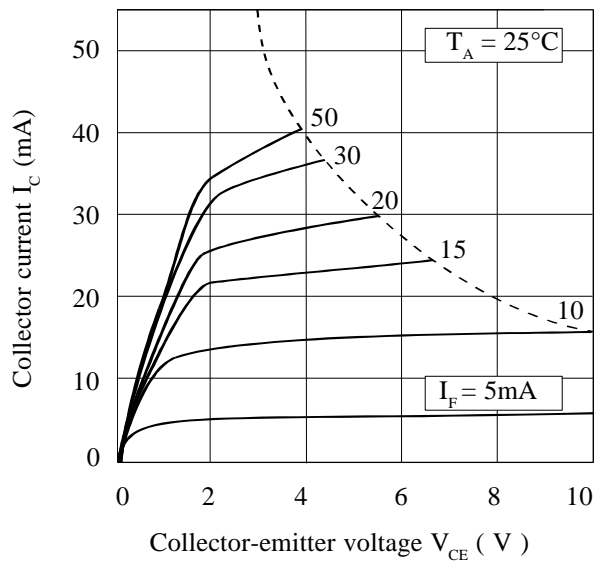
Note 1 Measured with input leads shorted together and output leads shorted together.

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

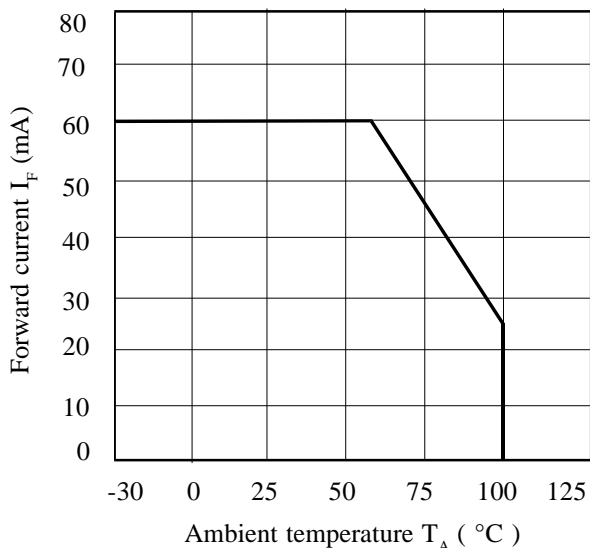
**Collector Power Dissipation vs. Ambient Temperature**



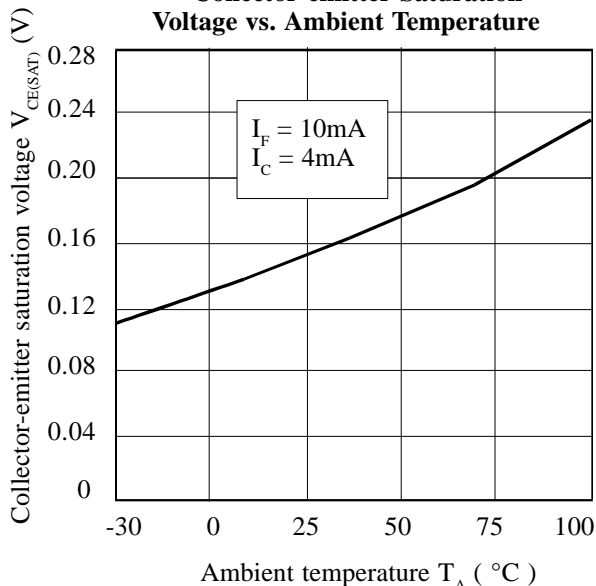
**Collector Current vs. Collector-emitter Voltage**



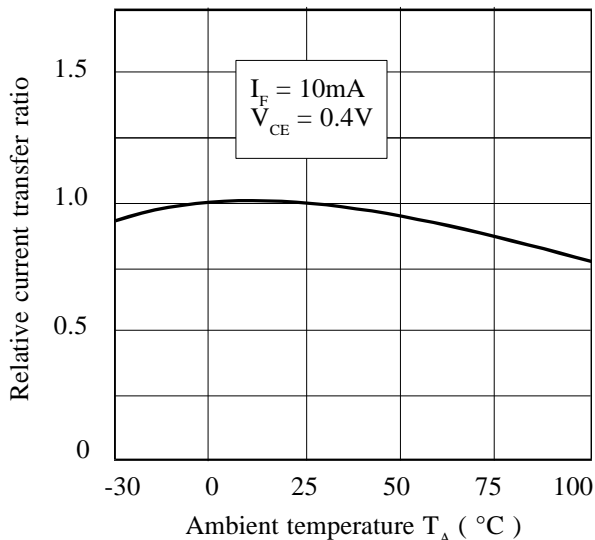
**Forward Current vs. Ambient Temperature**



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



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



**Relative Current Transfer Ratio vs. Forward Current**

