

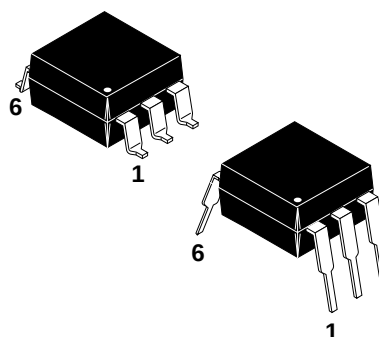
DESCRIPTION

The CNW82, CNW83, CNW84 and CNW85 optocouplers consist of a GaAs infrared emitting diode which is optically coupled to an NPN phototransistor.

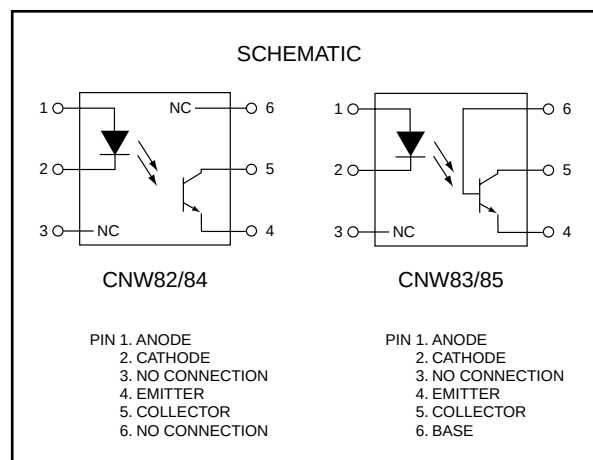
The CNW82 and CNW84 do not have the base pin connected for improved noise immunity.

FEATURES

- Wide body DIL encapsulation, with a pin distance of 10.16 mm.
- Minimum creepage distance 10 mm.
- High current transfer ratio and Low Saturation Voltage, making the device suitable for use with TTL integrated circuits.
- High degree of AC and DC insulation (5900 V (RMS) and 8340 V (DC)).
- Minimum 2 mm isolation thickness between emitter and detector. (CNW84/85 only).
- An external clearance of 9.6 mm minimum and an external creepage distance of 10 mm minimum.
- Collector-Emitter Breakdown Voltage: 50 V (CNW82/83 only).
- Collector-Emitter Breakdown Voltage: 80 V (CNW84/85 only).
- UL recognized (File # E90700)



CNW82
CNW83
CNW84
CNW85



ABSOLUTE MAXIMUM RATINGS

Parameter	Symbol	Value	Units
EMITTER			
Forward Current - Continuous	I _F	100	mA
Forward Current - Peak (PW = 100μs, 120pps)	I _F (pk)	3	A
Reverse Voltage	V _R	5	V
Total Power Dissipation @ T _A = 25°C	P _D	200	mW
Derate above 25°C		2.0	mW/°C
DETECTOR			
Collector Current-Continuous	I _C	100	mA
Emitter-Collector Voltage	V _{ECO}	7	V
Collector-Emitter Voltage (CNW82/CNW83)	V _{CEO}	50	V
(CNW84/CNW85)		80	
Collector-Base Voltage (CNW83)	V _{CBO}	70	V
(CNW85)		120	
Total Power Dissipation @ T _A = 25°C	P _D	200	mW
Derate above 25°C		2.0	mW/°C
TOTAL DEVICE			
Storage Temperature Range	T _{stg}	-55 to 150	°C
Ambient Operating Temperature Range	T _A	-40 to 100	°C
Lead Soldering Temperature (1/16" from case, 10 sec. duration)	T _L	260	°C

CNW82, CNW83, CNW84, CNW85

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

Parameter	Test Conditions	Symbol	Min	Typ	Max	Unit
EMITTER						
Input Forward Voltage	(I _F = 10 mA)	V _F	—	1.20	1.50	V
Reverse Leakage Current	(V _R = 5.0 V)	I _R	—	—	10	μA
DETECTOR						
Collector-Emitter Breakdown Voltage (CNW84/85)	(I _C = 1.0 mA)	BV _{CEO}	50	100	—	V
			80	100	—	
Emitter-Collector Breakdown Voltage	(I _E = 0.1 mA)	BV _{ECO}	7	10	—	V
Collector-Base Breakdown Voltage (CNW83) (CNW85)	(I _C = 0.1 mA)	BV _{CBO}	70	100	—	V
			120	140	—	
Collector-Emitter Dark Current	(T _A = 25°C)	I _{CEO}	—	1	50	nA
	(T _A = 70°C)		—	0.1	10	μA
Collector-Base Cut-off Current	(CNW83/85) (V _{CB} = 10 V, I _F = 0)	I _{CBO}	—	—	20	nA
COUPLED						
Collector-Emitter Saturation Voltage	(I _C = 4 mA, I _F = 10 mA)	V _{CE(sat)}	—	0.15	0.4	V
Isolation Voltage	(DC Value)	V _{ISO}	8.34	—	—	kV
	(RMS Value)		5.9	—	—	
Isolation Resistance	(V _{I-O} = 500 V)	R _{ISO}	1	10	—	TΩ
Isolation Capacitance	(V _{I-O} = 0, f = 1.0 MHz)	C _{ISO}	—	0.4	1	pF
Current Transfer Ratio	(CNW82/83) (I _F = 10 mA, V _{CE} = 0.4 V)	CTR	0.4	0.8	—	%
	(CNW84/85) (I _F = 10 mA, V _{CE} = 5 V)		0.63	1.5	3.2	
Capacitance	(CNW83/85) (V _{CB} = 10 V, f = 1 MHz)	C _{CB}	—	4.5	—	pF
Turn-on Time	(I _C = 2 mA, V _{CC} = 5 V, R _L = 100 Ω)	T _{ON}	—	3	—	μs
	(I _C = 2 mA, V _{CC} = 5 V, R _L = 1 kΩ)		—	12	—	
Turn-off Time	(I _C = 2 mA, V _{CC} = 5 V, R _L = 100 Ω)	T _{OFF}	—	3	—	μs
	(I _C = 2 mA, V _{CC} = 5 V, R _L = 1 kΩ)		—	12	—	

NOTE:

1. Every product is tested with pins 1, 2 and 3 shorted together, and pins 4, 5 and 6 shorted together.

CNW82, CNW83, CNW84, CNW85

Fig. 1 Forward Current vs. Forward Voltage

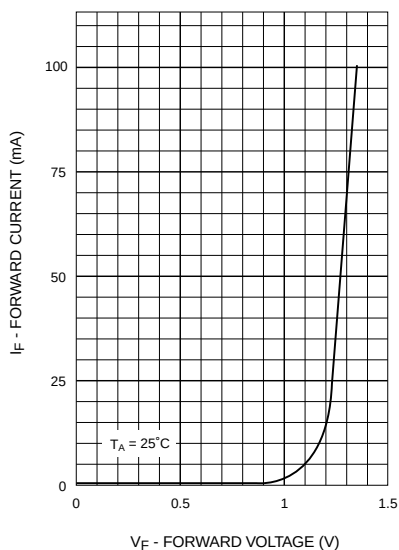


Fig. 2 Collector Current vs. Forward Current (for CNW84 and CNW85)

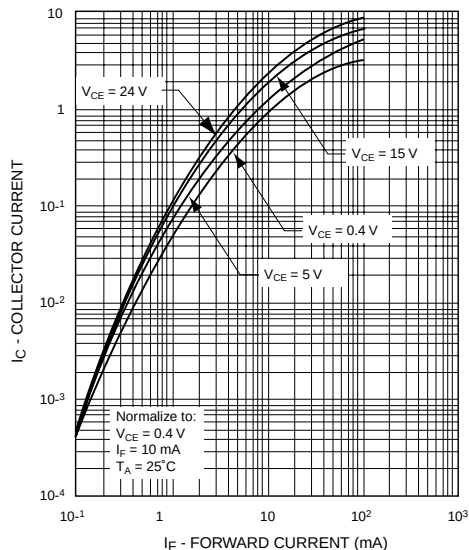


Fig. 3 Collector Current vs. Forward Current (for CNW82 and CNW83)

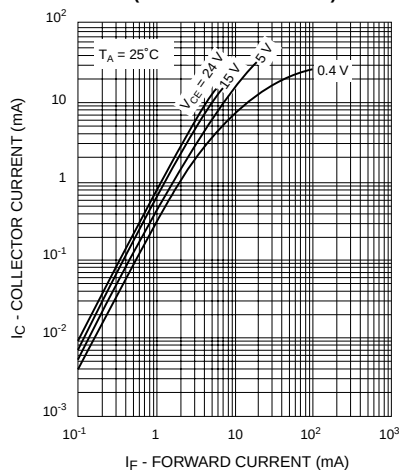


Fig. 4 Collector Current vs. Collector-Emitter Voltage

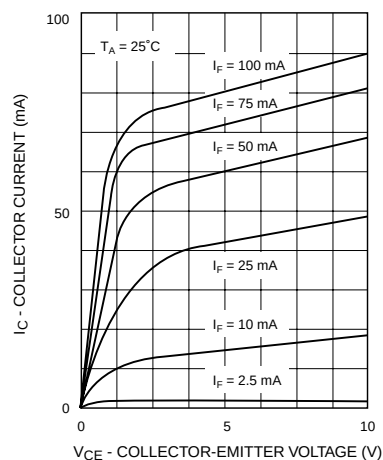


Fig. 5 Collector Current vs. Ambient Temperature (for CNW82 and CNW83)

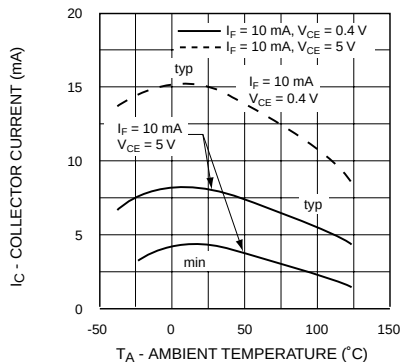
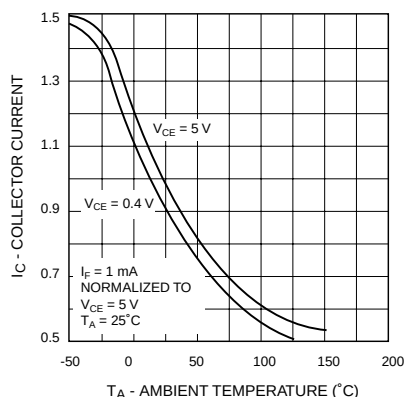


Fig. 6 Collector Current vs. Ambient Temperature (for CNW84 and CNW85)



CNW82, CNW83, CNW84, CNW85

**Fig. 7 Collector Current vs. Ambient Temperature
(for CNW84 and CNW85)**

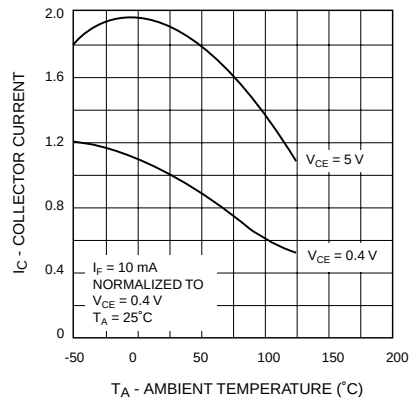


**Fig. 8 Collector-Emitter Dark Current
vs. Junction Temperature**

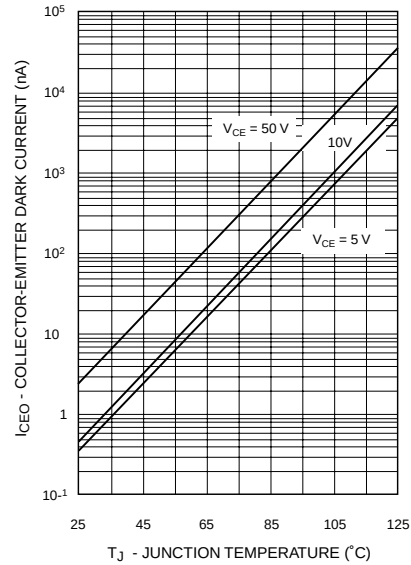


**Fig. 9 Collector-Emitter Saturation Voltage
vs. Collector Current**

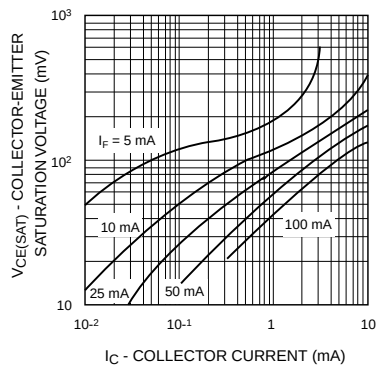
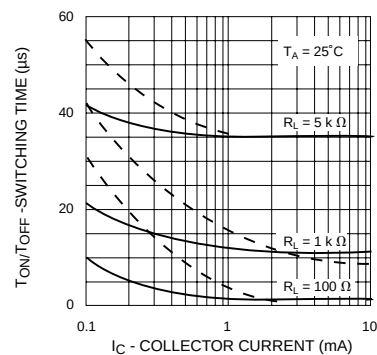
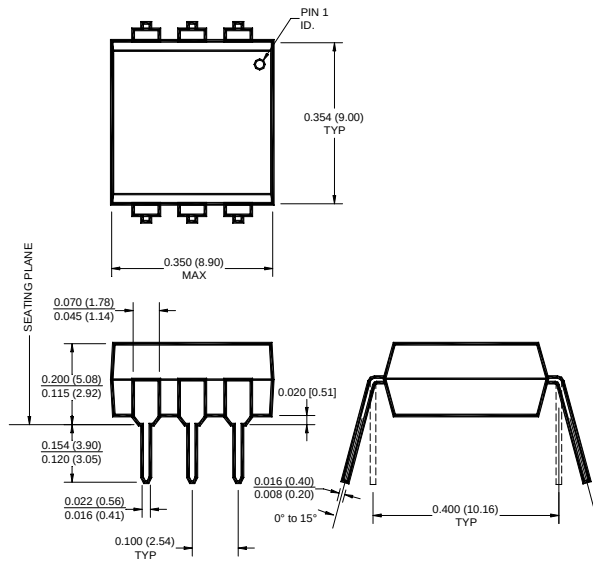


Fig. 10 Rise and Fall Time vs. Collector Current

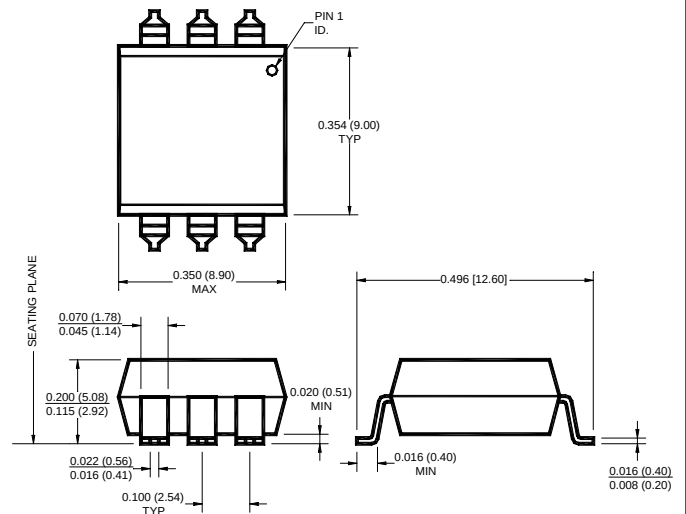


CNW82, CNW83, CNW84, CNW85

Package Dimensions (Through Hole)



Package Dimensions (Surface Mount)



NOTE

All dimensions are in inches (millimeters)

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