

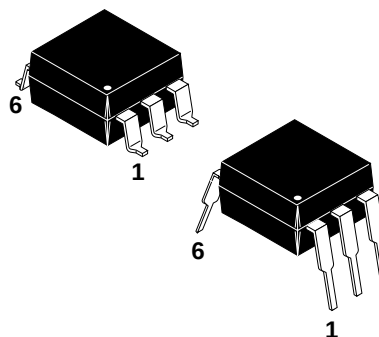
DESCRIPTION

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

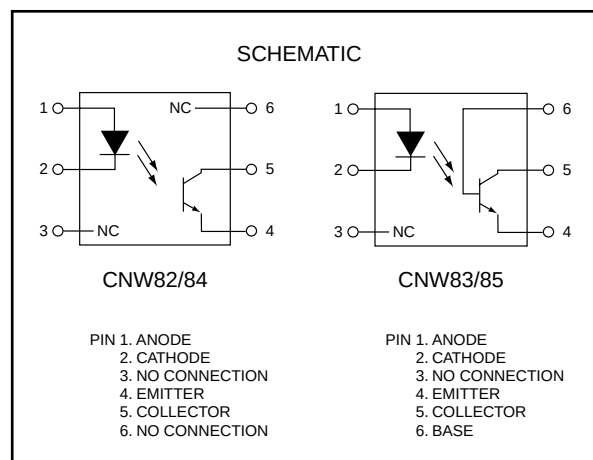
The CNW82 and CNW84 do not have the base pin connected for improved noise immunity.

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 ($T_A = 25^\circ\text{C}$ Unless otherwise specified)

Parameter	Test Conditions	Symbol	Min	Typ	Max	Unit
EMITTER						
Input Forward Voltage	($I_F = 10\text{ mA}$)	V_F	—	1.20	1.50	V
Reverse Leakage Current	($V_R = 5.0\text{ V}$)	I_R	—	—	10	μA
DETECTOR						
Collector-Emitter Breakdown Voltage (CNW84/85)	(CNW82/83) ($I_C = 1.0\text{ mA}$)	BV_{CEO}	50	100	—	V
			80	100	—	
Emitter-Collector Breakdown Voltage	($I_E = 0.1\text{ mA}$)	BV_{ECO}	7	10	—	V
Collector-Base Breakdown Voltage (CNW83) (CNW85)	(CNW83) ($I_C = 0.1\text{ mA}$)	BV_{CBO}	70	100	—	V
			120	140	—	
Collector-Emitter Dark Current	(CNW83/85) ($V_{CE} = 10\text{ V}$, $I_F = 0$)	I_{CEO}	($T_A = 25^\circ\text{C}$) —	1	50	nA
			($T_A = 70^\circ\text{C}$) —	0.1	10	μA
Collector-Base Cut-off Current	(CNW83/85) ($V_{CB} = 10\text{ V}$, $I_F = 0$)	I_{CBO}	—	—	20	nA
COUPLED						
Collector-Emitter Saturation Voltage	($I_C = 4\text{ mA}$, $I_F = 10\text{ mA}$)	$V_{CE(sat)}$	—	0.15	0.4	V
Isolation Voltage	(DC Value) (t = 1.0 min.) ⁽¹⁾	V_{ISO}	8.34	—	—	kV
	(RMS Value) (t = 1.0 min.) ⁽¹⁾		5.9	—	—	
Isolation Resistance	($V_{I-O} = 500\text{ V}$)	R_{ISO}	1	10	—	$T\Omega$
Isolation Capacitance	($V_{I-O} = 0$, f = 1.0 MHz)	C_{ISO}	—	0.4	1	pF
Current Transfer Ratio	(CNW82/83) ($I_F = 10\text{ mA}$, $V_{CE} = 0.4\text{ V}$)	CTR	0.4	0.8	—	%
	(CNW84/85) ($I_F = 10\text{ mA}$, $V_{CE} = 5\text{ V}$)		0.63	1.5	3.2	
Capacitance	(CNW83/85) ($V_{CB} = 10\text{ V}$, f = 1 MHz)	C_{CB}	—	4.5	—	pF
Turn-on Time	($I_C = 2\text{ mA}$, $V_{CC} = 5\text{ V}$, $R_L = 100\Omega$)	T_{ON}	—	3	—	μs
	($I_C = 2\text{ mA}$, $V_{CC} = 5\text{ V}$, $R_L = 1\text{ k}\Omega$)		—	12	—	
Turn-off Time	($I_C = 2\text{ mA}$, $V_{CC} = 5\text{ V}$, $R_L = 100\Omega$)	T_{OFF}	—	3	—	μs
	($I_C = 2\text{ mA}$, $V_{CC} = 5\text{ V}$, $R_L = 1\text{ k}\Omega$)		—	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

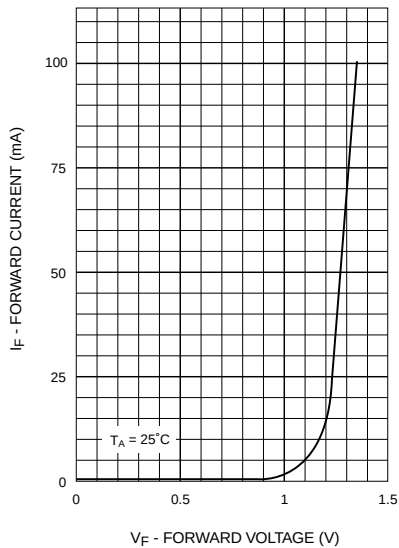


Fig. 2 Collector Current vs. Forward Current (for CNW84 and CNW85)

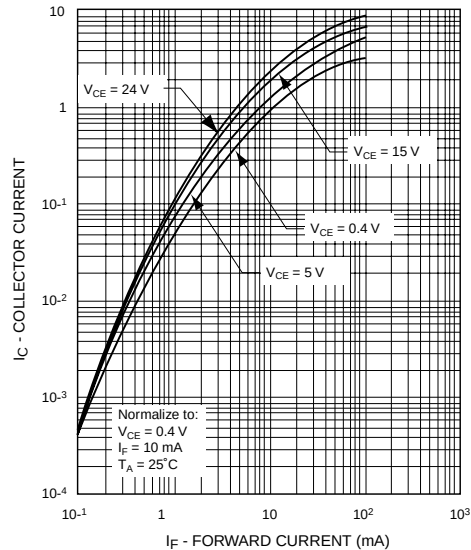


Fig. 3 Collector Current vs. Forward Current (for CNW82 and CNW83)

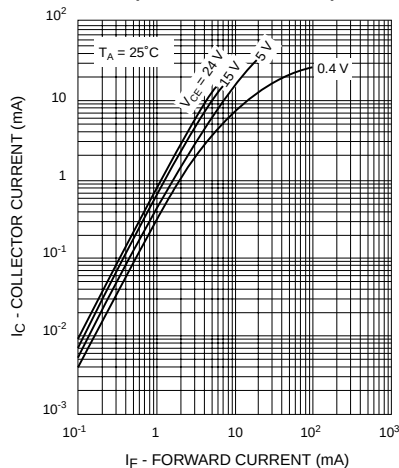


Fig. 4 Collector Current vs. Collector-Emitter Voltage

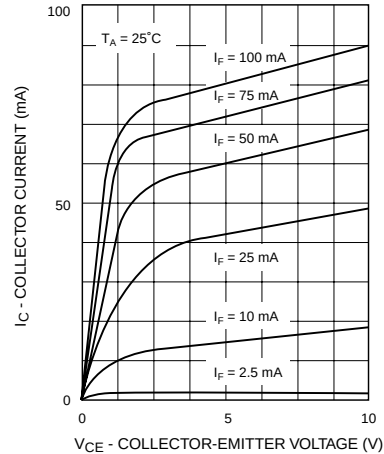


Fig. 5 Collector Current vs. Ambient Temperature (for CNW82 and CNW83)

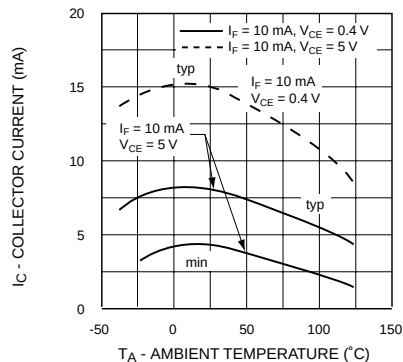
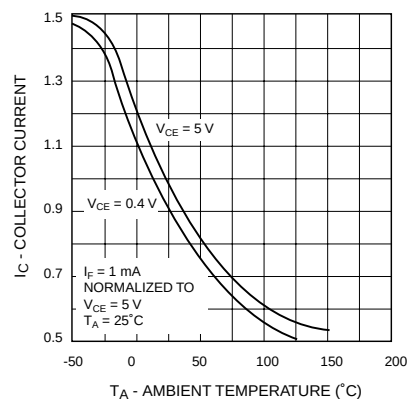
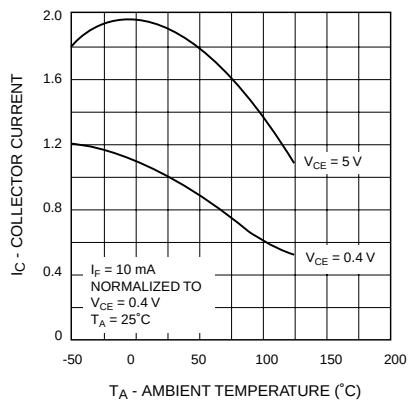


Fig. 6 Collector Current vs. Ambient Temperature (for CNW84 and CNW85)

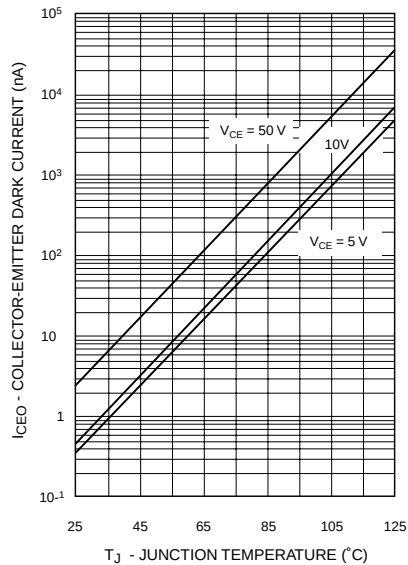


CNW82, CNW83, CNW84, CNW85

**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**

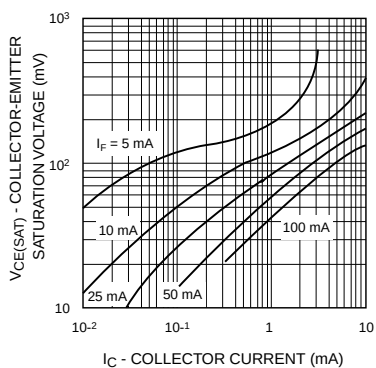
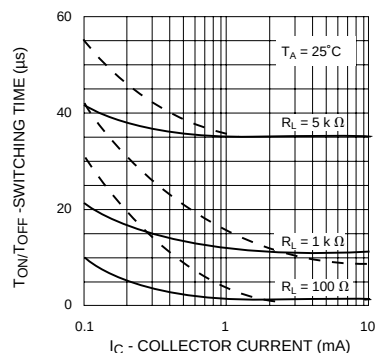
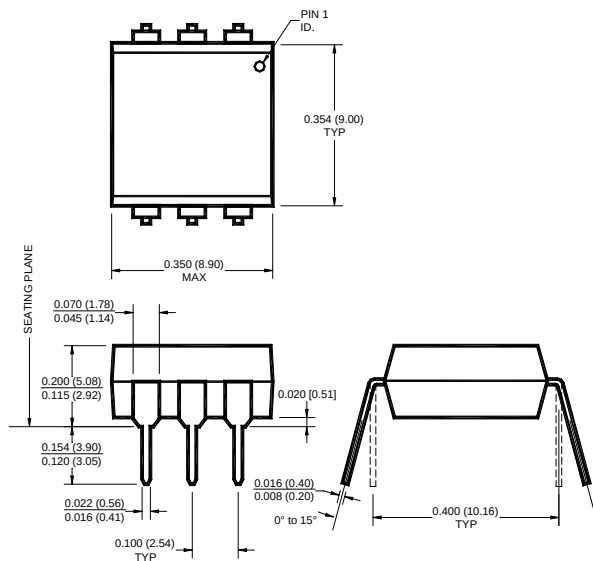


Fig. 10 Rise and Fall Time vs. Collector Current

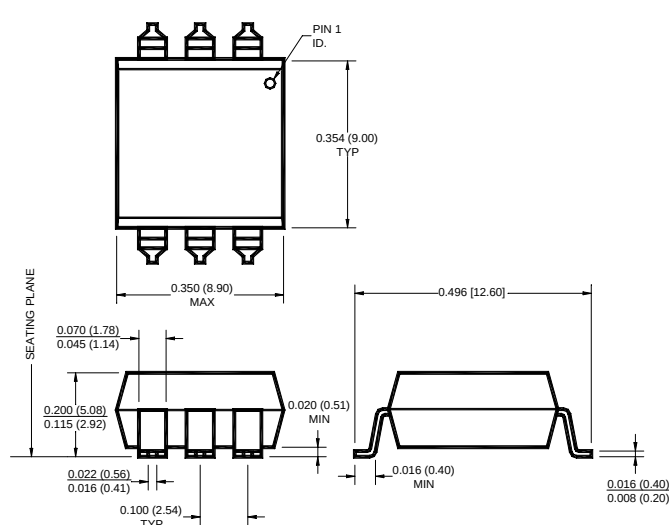


CNW82, CNW83, CNW84, CNW85

Package Dimensions (Through Hole)



Package Dimensions (Surface Mount)



NOTE

All dimensions are in inches (millimeters)

Call QT Optoelectronics for more information or the phone number of your nearest distributor.

United States 800-533-6786 • France 33 [0] 1.45.18.78.78 • Germany 49 [0] 89/96.30.51 • United Kingdom 44 [0] 1296 394499 • Asia/Pacific 603-7352417