

CNX82A.W, CNX83A.W, SL5582.W & SL5583.W

DESCRIPTION

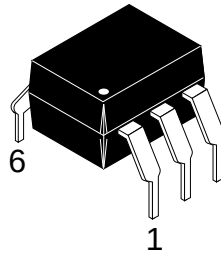
The CNX82A.W, CNX83A.W, SL5582.W AND SL5583.W, consist of a gallium arsenide infrared emitting diode driving a silicon phototransistor in a 6-pin dual in-line package.

FEATURES

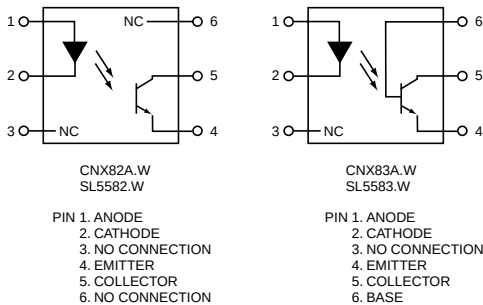
- Input/Output pin distance 10.16 mm
- UL recognized (File # E90700)

APPLICATIONS

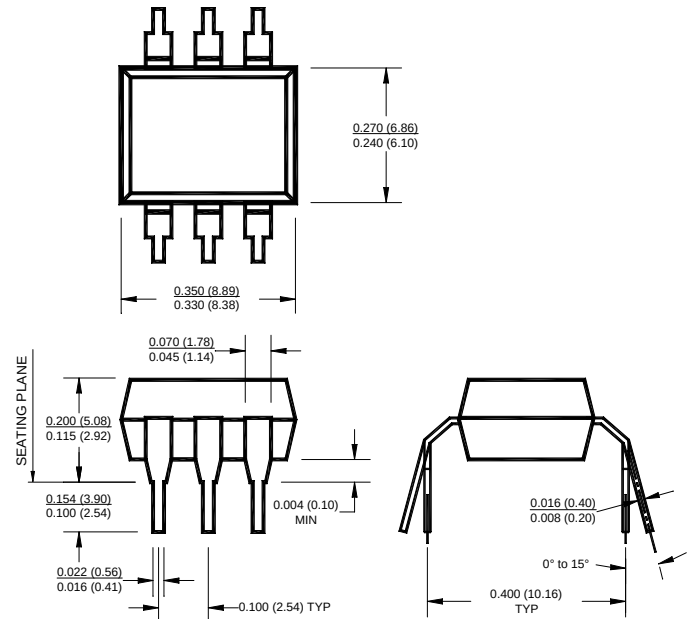
- Power supply regulators
- Digital logic inputs
- Microprocessor inputs



SCHEMATIC



PACKAGE DIMENSIONS



NOTE

All dimensions are in inches (millimeters)

ABSOLUTE MAXIMUM RATINGS

Parameter	Symbol	Value	Units
TOTAL DEVICE			
Storage Temperature	T _{STG}	-55 to +150	°C
Operating Temperature	T _{OPR}	-55 to +100	°C
Lead Solder Temperature	T _{SOL}	260 for 10 sec	°C
Junction Temperature	T _J	125	°C
Total Device Power Dissipation @ T _A = 25°C	P _D	250	mW
EMITTER			
DC/Average Forward Input Current	I _F	100	mA
Reverse Input Voltage	V _R	5.0	V
Forward Current - Peak (1μs pulse, 300pps)	I _{F(pk)}	3.0	A
LED Power Dissipation @ T _A = 25°C	P _D	140	mW
Derate above 25°C		1.33	mW/°C
DETECTOR			
Collector-Emitter Voltage	V _{CEO}	50	V
Collector-Base Voltage (CNX83A)	V _{CBO}	70	V
Emitter-Collector Voltage	V _{ECO}	7	V
Continuous Collector Current	I _C	100	mA
Detector Power Dissipation @ T _A = 25°C	P _D	150	mW
Derate above 25°C		2.0	mW/°C

CNX82A.W, CNX83A.W, SL5582.W & SL5583.W
ELECTRICAL CHARACTERISTICS ($T_A = 25^\circ\text{C}$ Unless otherwise specified.)

INDIVIDUAL COMPONENT CHARACTERISTICS

Parameter	Test Conditions	Symbol	Device	Min	Typ**	Max	Unit
EMITTER							
Input Forward Voltage	($I_F = 10\text{ mA}$)	V_F	ALL		1.2	1.50	V
Reverse Leakage Current	($V_R = 5.0\text{ V}$)	I_R	ALL		0.001	10	μA
DETECTOR							
Collector-Emitter Breakdown Voltage	($I_C = 1.0\text{ mA}$, $I_F = 0$)	BV_{CEO}	ALL	50	100		V
Collector-Base Breakdown Voltage	($I_C = 100\text{ }\mu\text{A}$, $I_F = 0$)	BV_{CBO}	CNX83A.W SL5583.W	70	120		V
Emitter-Collector Breakdown Voltage	($I_E = 100\text{ }\mu\text{A}$, $I_F = 0$)	BV_{ECO}	ALL	7	10		V
Collector-Emitter Dark Current	($V_{CE} = 10\text{ V}$, $I_F = 0$)	I_{CEO}	ALL		0.001	0.050	μA
	($V_{CE} = 10\text{ V}$, $I_F = 0$) ($T_A = 70^\circ\text{C}$)		CNX82A.W CNX83A.W		0.5	10	
			SL5582.W SL5583.W			0.5	
	($V_{CE} = 10\text{ V}$, $I_F = 0$) ($T_A = 100^\circ\text{C}$)		SL5582.W SL5583.W			50	
Collector-Base Dark Current	($V_{CB} = 10\text{ V}$)	I_{CBO}	CNX83A.W SL5583.W			20	nA
Capacitance	($V_{CE} = 0\text{ V}$, $f = 1\text{ MHz}$)	C_{CE}	ALL		8		pF

Note

 ** Typical values at $T_A = 25^\circ\text{C}$

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

CNX82A.W, CNX83A.W, SL5582.W & SL5583.W

TRANSFER CHARACTERISTICS (T_A = 25°C Unless otherwise specified.)

DC Characteristic	Test Conditions	Symbol	Device	Min	Typ**	Max	Units
Current Transfer Ratio, Collector-Emitter	(I _F = 10 mA, V _{CE} = 0.4 V)	CTR	ALL	40			%
	(I _F = 10 mA, V _{CE} = 5 V)		CNX82A.W CNX83A.W	40		250	
			SL5582.W SL5583.W	40		320	
	(I _F = 10 mA, V _{CE} = 5 V) (T _A = 100°C)		SL5582.W SL5583.W	25		320	
	(I _F = 1 mA, V _{CE} = 5 V)		CNX82A.W CNX83A.W	10		100	
	(I _F = 2 mA, V _{CE} = 5 V)		SL5582.W SL5583.W	20			
	(I _F = 2 mA, V _{CE} = 5 V) (T _A = 100°C)		SL5582.W SL5583.W	15			
Saturation Voltage	(I _F = 10 mA, I _C = 4 mA)	V _{CE(sat)}	ALL		0.19	0.4	V
Turn-on Time	(I _C = 2 mA, V _{CC} = 5 V, R _L = 100 Ω)	t _{on}	ALL		3		μs
	(I _C = 2 mA, V _{CC} = 5 V, R _L = 1 kΩ)		ALL		12		
	(I _F = 16 mA, V _{CC} = 5 V, R _L = 1 kΩ)		SL5582.W SL5583.W			20	
Turn-off Time	(I _C = 2 mA, V _{CC} = 5 V, R _L = 100 Ω)	t _{off}	ALL		3		μs
	(I _C = 2 mA, V _{CC} = 5 V, R _L = 1 kΩ)		ALL		12		
	(I _F = 16 mA, V _{CC} = 5 V, R _L = 1 kΩ)		SL5582.W SL5583.W			50	

ISOLATION CHARACTERISTICS

Characteristic	Test Conditions	Symbol	Min	Typ**	Max	Units
Input-Output Isolation Voltage	(I _{I-O} ≤ 1 μA, 1 min.)	V _{ISO}	5300			Vac(rms)
Isolation Resistance	(V _{I-O} = 500 VDC)	R _{ISO}	10 ¹¹			Ω
Isolation Capacitance	(V _{I-O} = ∅, f = 1 MHz)	C _{ISO}		0.5		pf
External air gap (clearance)			9.6			mm
External tracking path (creepage)			8.0			mm
Internal plastic gap (clearance)			1.0			mm

Note

** Typical values at T_A = 25°C

ORDERING INFORMATION

Option	Order Entry Identifier	Description
300	.300W	VDE 0884

CNX82A.W, CNX83A.W, SL5582.W & SL5583.W

TYPICAL CHARACTERISTICS

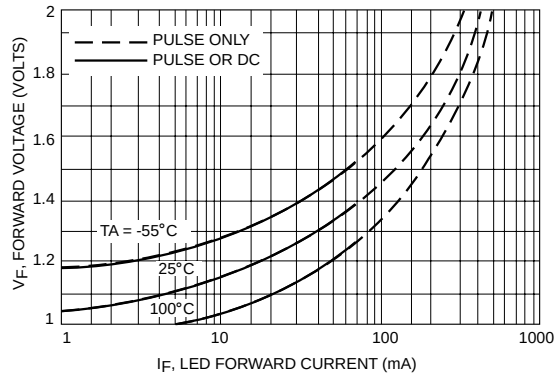


Figure 1. LED Forward Voltage versus Forward Current

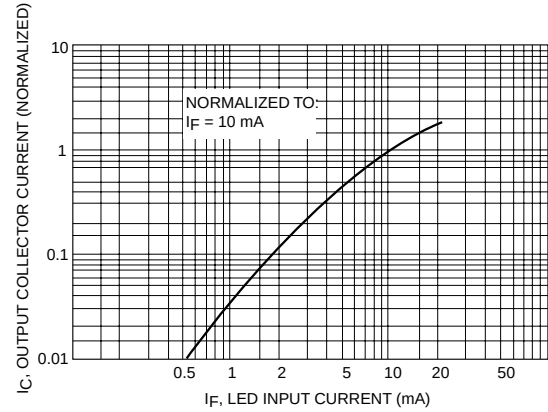


Figure 2. Output Current versus Input Current

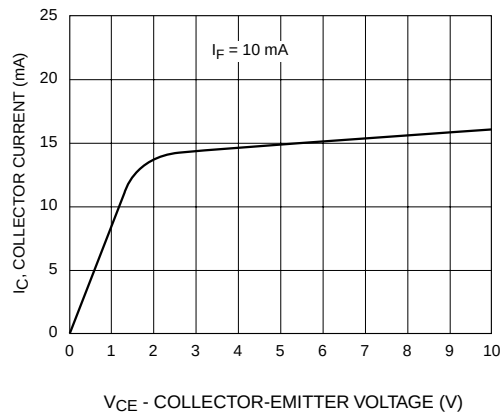


Figure 3. Collector Current versus Collector-Emitter Voltage

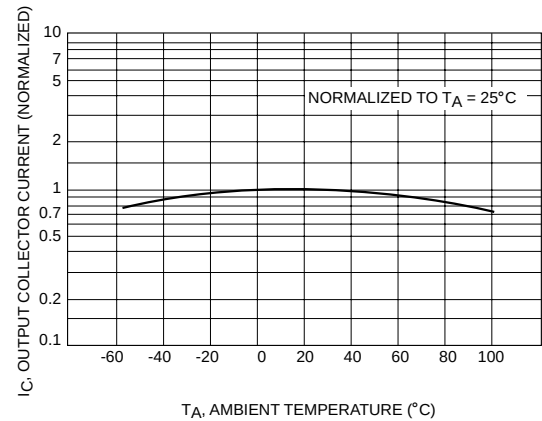


Figure 4. Output Current versus Ambient Temperature

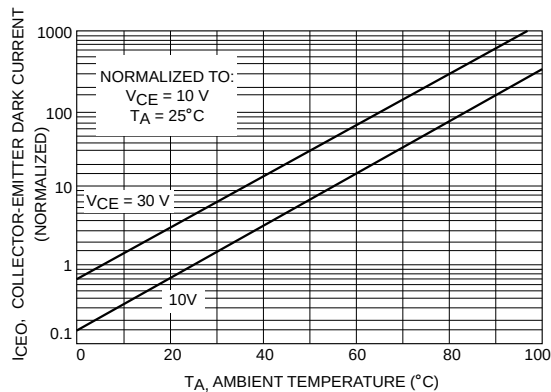


Figure 5. Dark Current versus Ambient Temperature

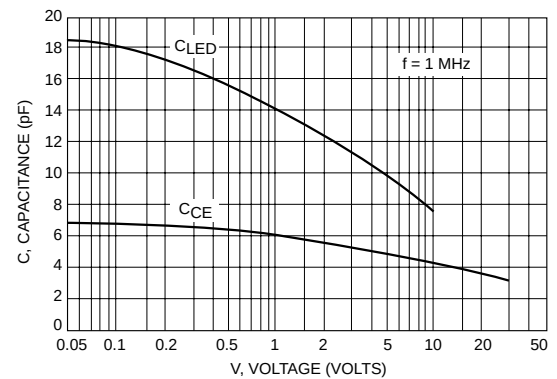
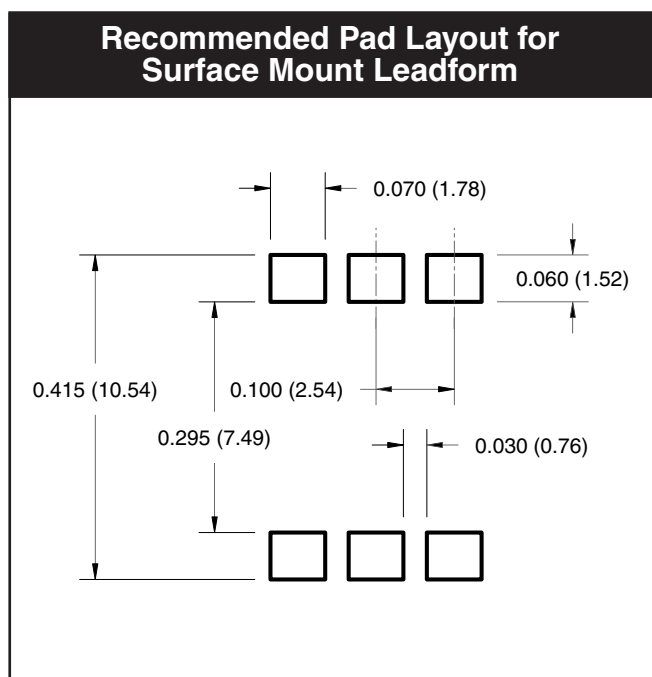


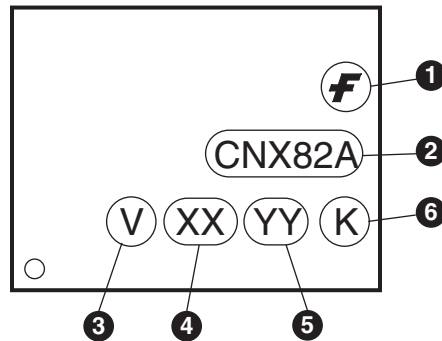
Figure 6. Capacitance versus Voltage



Note

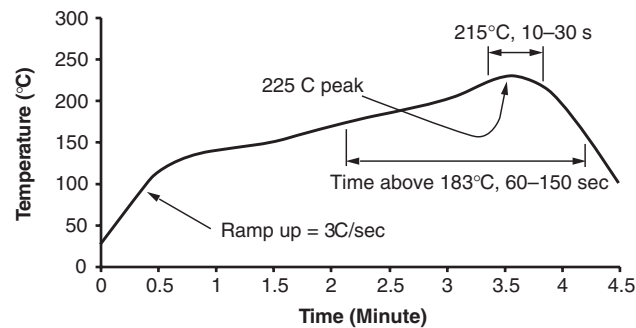
All dimensions are in inches (millimeters)

MARKING INFORMATION



Definitions	
1	Fairchild logo
2	Device number
3	VDE mark (Note: Only appears on parts ordered with VDE option – See order entry table)
4	Two digit year code, e.g., '03'
5	Two digit work week ranging from '01' to '53'
6	Assembly package code

Reflow Profile (Black Package, No Suffix)



- Peak reflow temperature: 225°C (package surface temperature)
- Time of temperature higher than 183°C for 60–150 seconds
- One time soldering reflow is recommended

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