

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

DESCRIPTION

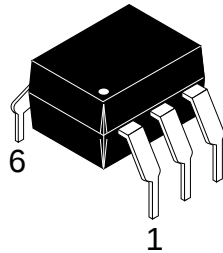
The CNX82A.W, CNX83A.W, SL5582.W AND SL5583.W, consist of a gallium arsenide infrared emitting diode driving a silicon phototransistor in a 6-pin dual in-line package.

FEATURES

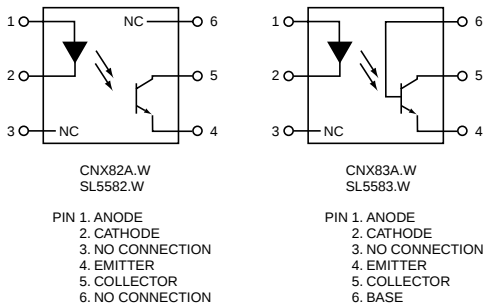
- Input/Output pin distance 10.16 mm
- UL recognized (File # E90700)

APPLICATIONS

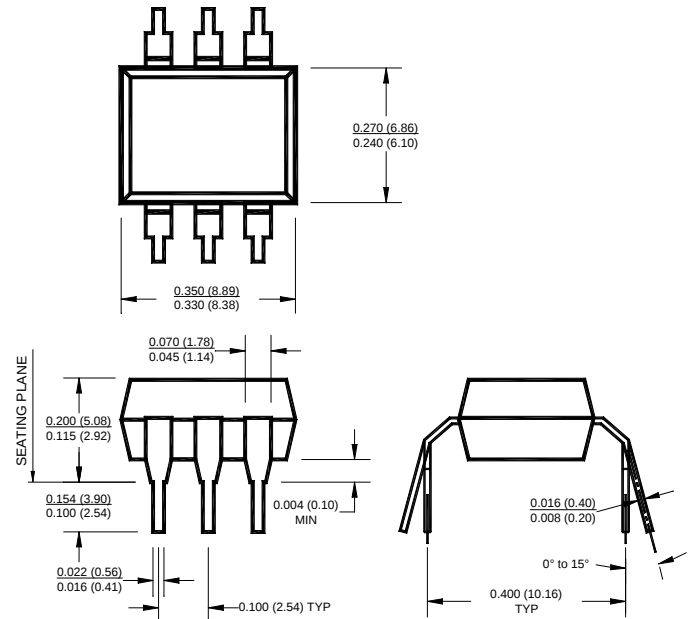
- Power supply regulators
- Digital logic inputs
- Microprocessor inputs



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 @ $T_A = 25^\circ\text{C}$	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 @ $T_A = 25^\circ\text{C}$	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 @ $T_A = 25^\circ\text{C}$	P_D	150	mW
Derate above 25°C		2.0	mW/°C

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

INDIVIDUAL COMPONENT CHARACTERISTICS

Parameter	Test Conditions	Symbol	Device	Min	Typ**	Max	Unit
EMITTER							
Input Forward Voltage	(I _F = 10 mA)	V _F	ALL		1.2	1.50	V
Reverse Leakage Current	(V _R = 5.0 V)	I _R	ALL		0.001	10	μA
DETECTOR							
Collector-Emitter Breakdown Voltage	(I _C = 1.0 mA, I _F = 0)	BV _{CEO}	ALL	50	100		V
Collector-Base Breakdown Voltage	(I _C = 100 μA, I _F = 0)	BV _{CBO}	CNX83A.W SL5583.W	70	120		V
Emitter-Collector Breakdown Voltage	(I _E = 100 μA, I _F = 0)	BV _{ECO}	ALL	7	10		V
Collector-Emitter Dark Current	(V _{CE} = 10 V, I _F = 0)	I _{CEO}	ALL		0.001	0.050	μA
	(V _{CE} = 10 V, I _F = 0) (T _A = 70°C)		CNX82A.W CNX83A.W		0.5	10	
			SL5582.W SL5583.W			0.5	
	(V _{CE} = 10 V, I _F = 0) (T _A = 100°C)		SL5582.W SL5583.W			50	
Collector-Base Dark Current	(V _{CB} = 10 V)	I _{CBO}	CNX83A.W SL5583.W			20	nA
Capacitance	(V _{CE} = 0 V, f = 1 MHz)	C _{CE}	ALL		8		pF

Note

** Typical values at T_A = 25°C

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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

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TYPICAL CHARACTERISTICS

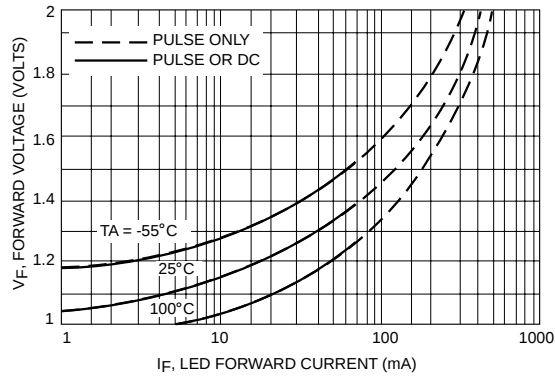


Figure 1. LED Forward Voltage versus Forward Current

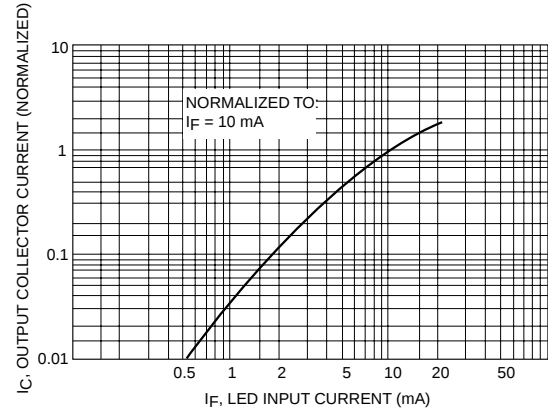


Figure 2. Output Current versus Input Current

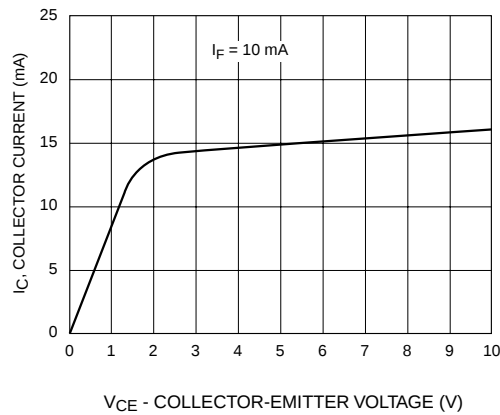


Figure 3. Collector Current versus Collector-Emitter Voltage

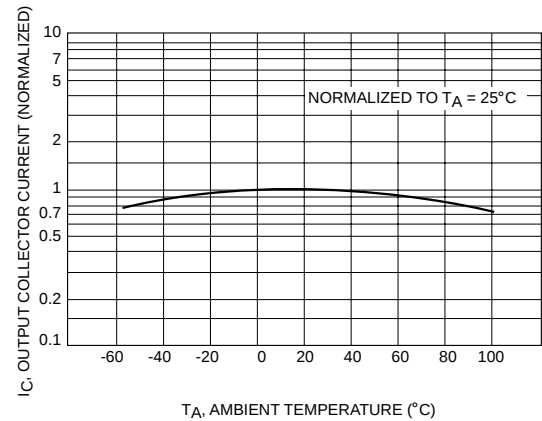


Figure 4. Output Current versus Ambient Temperature

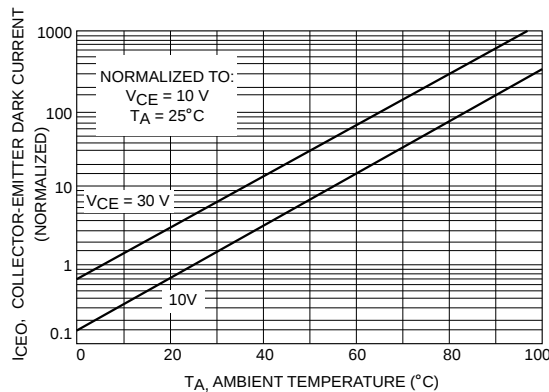


Figure 5. Dark Current versus Ambient Temperature

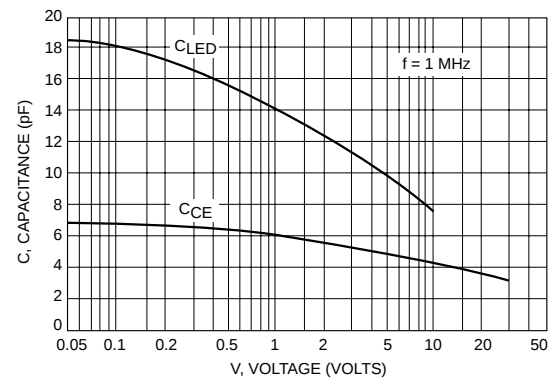


Figure 6. Capacitance versus Voltage

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