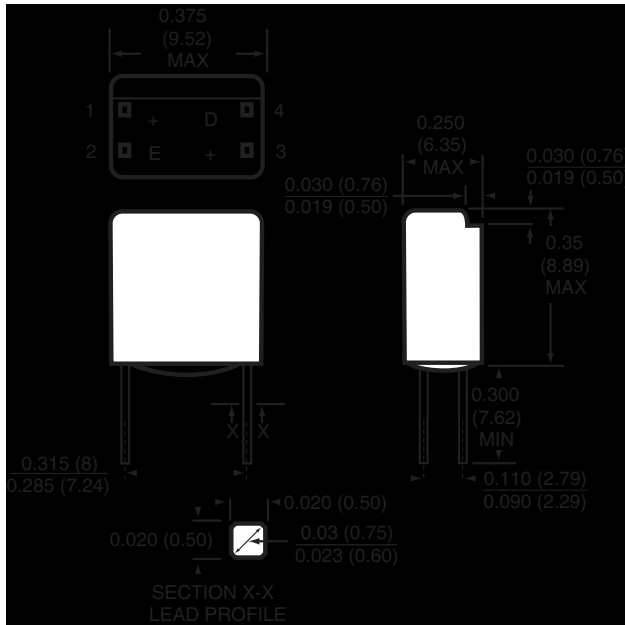
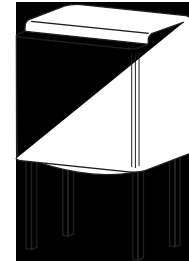


PACKAGE DIMENSIONS

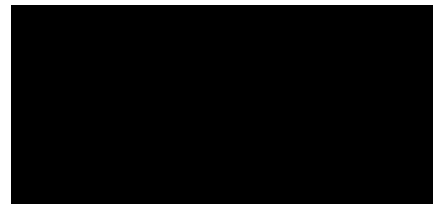


NOTES:

1. Dimensions for all drawings are in inches (mm).
2. Tolerance of $\pm .010$ (.25) on all non-nominal dimensions unless otherwise specified.



SCHEMATIC



DESCRIPTION

The H24B series consists of a gallium arsenide infrared emitting diode coupled with a silicon photodarlington. The devices are housed in a low cost plastic package with lead spacing compatible with a dual in line package.

FEATURES

- 4-pin configuration
- Small package size and low cost
- UL recognized - file E50151
- High current transfer ratio.



PHOTODARLINGTON OPTOCOUPLER

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H24B2

ABSOLUTE MAXIMUM RATINGS ($T_A = 25^\circ\text{C}$ unless otherwise specified)

Parameter	Symbol	Rating	Unit
Operating Temperature	T_{OPR}	-55 to +85	$^\circ\text{C}$
Storage Temperature	T_{STG}	-55 to +85	$^\circ\text{C}$
Soldering Temperature (Flow)	T_{SOL-F}	260 for 5 sec	$^\circ\text{C}$
EMITTER			
Power Dissipation at 25°C Ambient ⁽¹⁾	P_D	100	mW
Continuous Forward Current	I_F	60	mA
Reverse Voltage	V_R	4	V
DETECTOR			
Power Dissipation 25°C Ambient ⁽²⁾	P_D	150	mW
Collector to Emitter Voltage	V_{CEO}	30	V
Emitter to Collector Voltage	V_{ECO}	7	V
Continuous Forward Current	I_C	100	mA

ELECTRICAL / OPTICAL CHARACTERISTICS ($T_A = 25^\circ\text{C}$)

INDIVIDUAL COMPONENT CHARACTERISTICS

Parameters	Test Conditions	Symbol	Min	Typ	Max	Units
EMITTER						
Forward Voltage	$I_F = 60\text{ mA}$	V_F		–	1.7	V
Reverse Current	$V_R = 3.0\text{ V}$	I_R		–	1	μA
Reverse Breakdown Voltage	$I_R = 10\ \mu\text{A}$	$V_{(BR)R}$	4			V
Capacitance	$V = 0\text{ V}, f = 1\text{ MHz}$	C		30		pF
DETECTOR						
Breakdown Voltage Collector to Emitter	$I_C = 1.0\text{ mA}, I_F = 0$	BV_{CEO}	30			V
Emitter to Collector	$I_E = 100\ \mu\text{A}, I_F = 0$	BV_{ECO}	7			V
Leakage Current Collector to Emitter	$V_{CE} = 10\text{ V}, I_F = 0$	I_{CEO}		5	100	nA
Capacitance Collector to Emitter	$V_{CE} = 5\text{ V}, f = 1\text{ MHz}$	C_{CE}		5		pF

NOTE:

1. Derate power linearly 1.67 mW/ $^\circ\text{C}$ above 25°C
2. Derate power linearly 2.5 mW/ $^\circ\text{C}$ above 25°C



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H24B2

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

DC Characteristics	Test Conditions	Symbol	Min	Typ	Max	Units
COUPLED DC current Transfer Ratio (note 1)	V _{CE} = 1.5 V, I _F = 5 mA	H24B1	1000			%
		H24B2	400			
Saturation Voltage	I _C = 2 mA, I _F = 5 mA	V _{CE(SAT)}		0.8	1.0	V
AC Characteristics	Test Conditions	Symbol	Min	Typ	Max	Units
Turn-on Time	I _C = 10mA, V _{CE} = 10V R _L = 100Ω	ton		105		μs
Turn-off Time		toff		60		μs
Turn-on Time	I _F = 10mA, V _{CC} = 5V R _L = 1.0kΩ	ton		10		μs
Turn-off Time		toff		700		μs

ISOLATION CHARACTERISTICS

Characteristic	Test Conditions	Symbol	Min	Typ	Max	Units
Surge Isolation Voltage	1 Minute	V _{ISO}	6000			V _{peak}
Steady-State Isolation Voltage	1 Minute	V _{ISO}	5300			V _{RMS}
Isolation Resistance	V _{I-0} = 500VDC	R _{ISO}	10 ¹¹			Ohm
Isolation Capacitance	V _{I-0} = 0, f = 1 MHz	C _{ISO}		0.5		pF

NOTE:

1. The current transfer ratio (I_C/I_F) is the ratio of the detector collector current to the LED input current with V_{CE} at 1.5 volts.

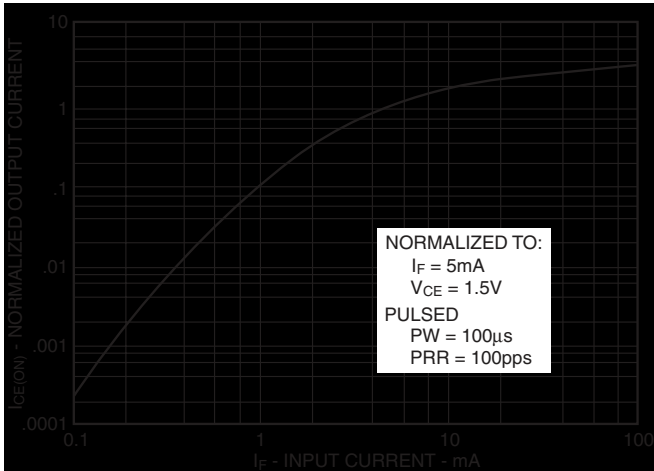


Fig. 1. Output Current vs. Input Current

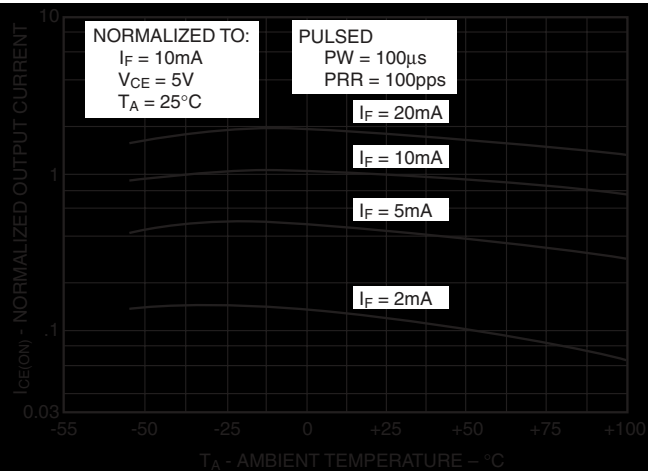


Fig. 2. Output Current vs. Temperature

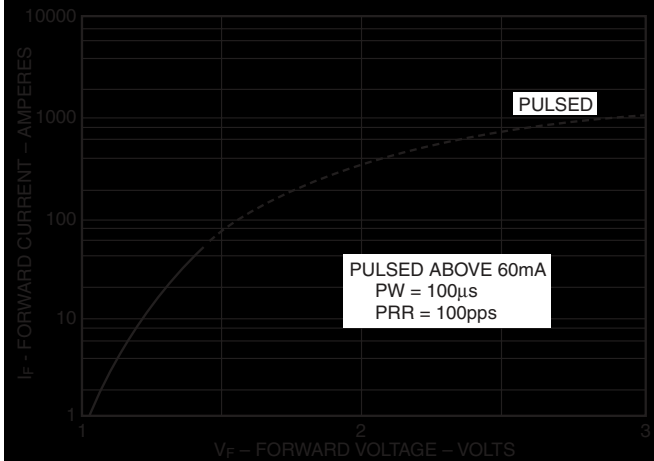


Fig. 3. Input Characteristics

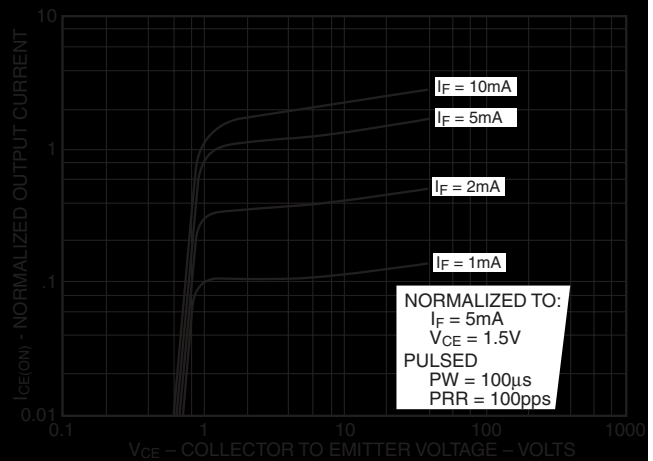


Fig. 4. Output Characteristics

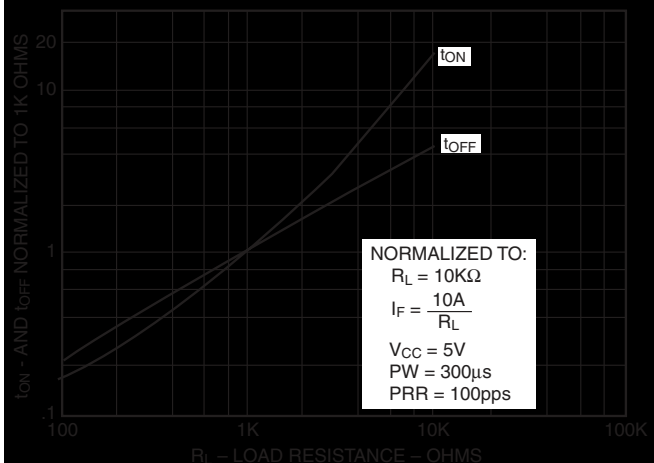


Fig. 5. Switching Speed vs RL

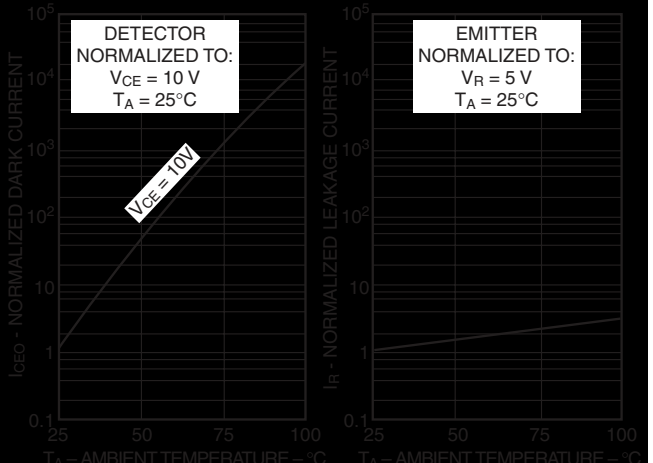


Fig. 6. Leakage Current vs. Temperature



PHOTODARLINGTON OPTOCOUPLER

H24B1**H24B2**

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