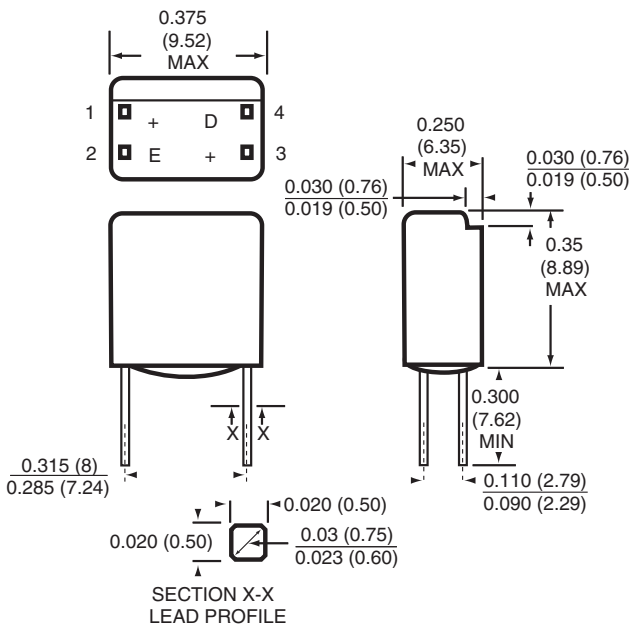


H24A1

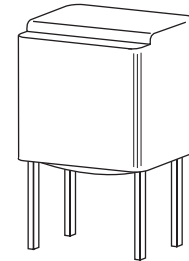
H24A2

PACKAGE DIMENSIONS

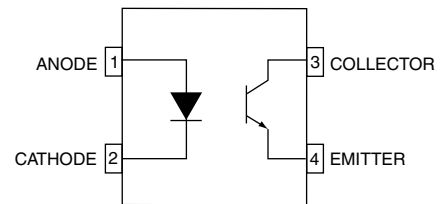


NOTES:

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 H24A series consists of a gallium arsenide infrared emitting diode coupled with a silicon phototransistor. 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

H24A1

H24A2

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}	6	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	$I_R = 10\text{ }\mu\text{A}$	$V_{(BR)R}$	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	$I_E = 100\text{ }\mu\text{A}, I_F = 0$	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}		3.3		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

H24A1

H24A2

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} = 10 V, I _F = 10 mA	H24A1	CTR	100		%
		H24A2		20		
Saturation Voltage	I _C = 500 μA, I _F = 10 mA	V _{CE(SAT)}		0.1	0.4	V
AC Characteristics	Test Conditions	Symbol	Min	Typ	Max	Units
Turn-on Time	I _C = 2mA, V _{CE} = 10V R _L = 100Ω	ton		9		μs
Turn-off Time		toff		4		μs
Turn-on Time	I _F = 10mA, V _{CC} = 5V R _L = 10kΩ	ton		6.5		μs
Turn-off Time		toff		165		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 10 volts.

H24A1

H24A2

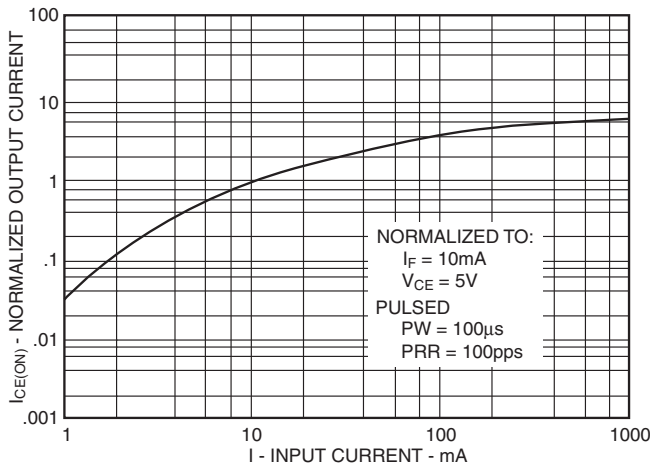


Fig. 1. Output Current vs. Input Current

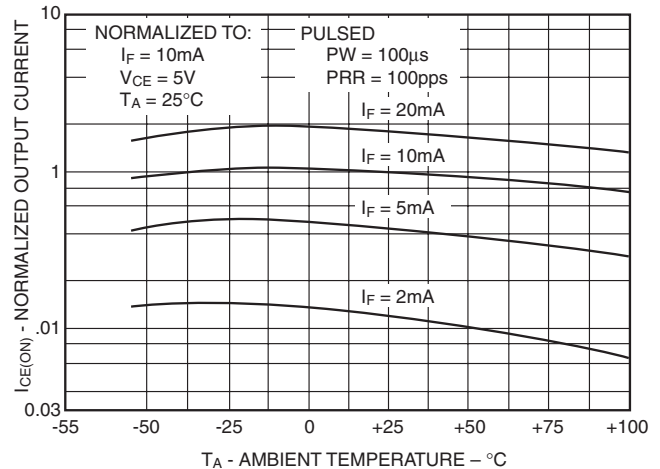


Fig. 2. Output Current vs. Temperature

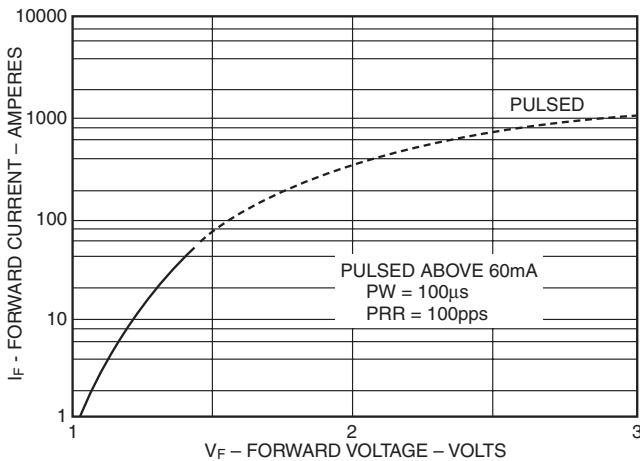


Fig. 3. Input Characteristics

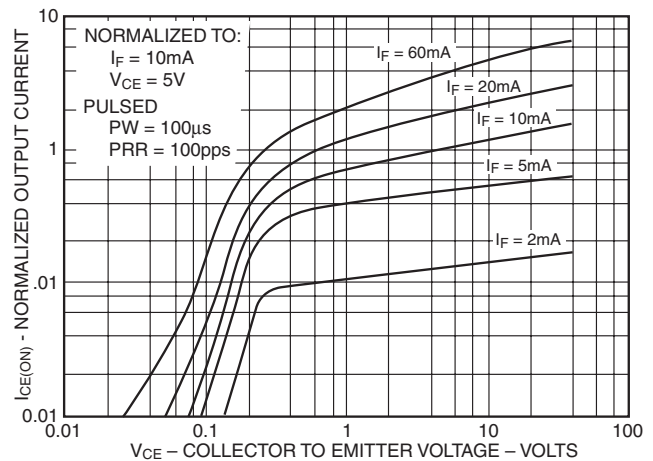


Fig. 4. Output Characteristics

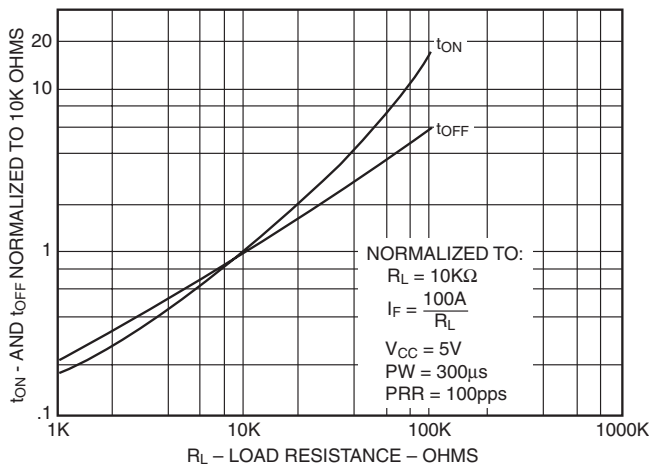


Fig. 5. Switching Speed vs R_L

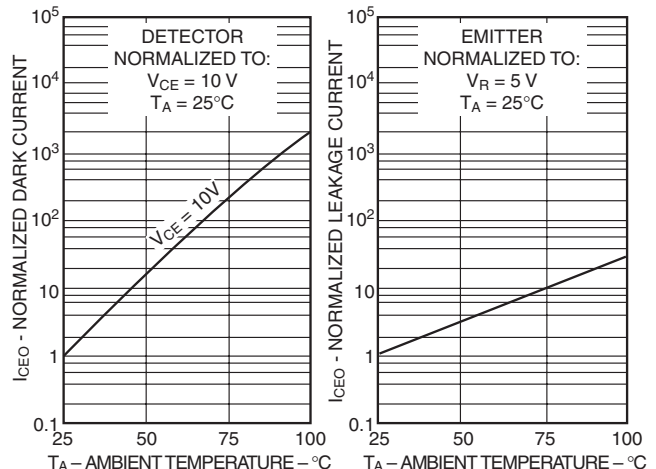


Fig. 6. Leakage Current vs. Temperature

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