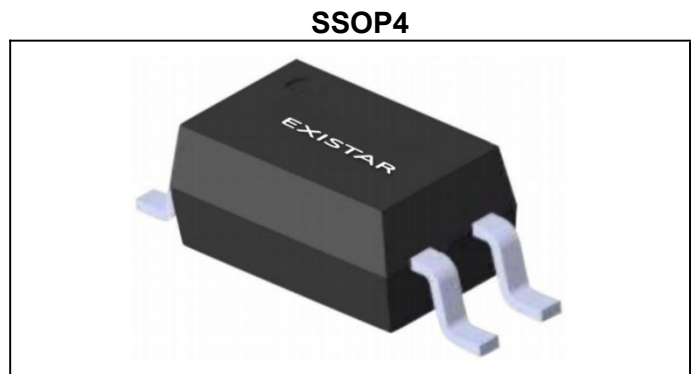


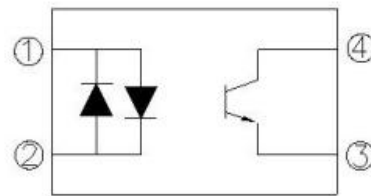
Photocoupler

Product features

- AC input response
- Halogens free
(Br <900 ppm ,Cl <900 ppm , Br+Cl < 1500 ppm)
- Current transfer ratio
(CTR: Min. 20% at $I_F = \pm 1\text{mA}$, $V_{CE} = 5\text{V}$)
- High isolation voltage between inputs and output
(Viso=3750 V rms)
- Compact small outline package
- Compliance with EU REACH
- Pb free and RoHS compliant



Schematic



PinConfiguration

1. Anode / Cathode
2. Cathode / Anode
3. Emitter
4. Collector

Product Description

- EX3H4 series contains two infrared light - emitting diodes connected in inverse parallel , optically coupled to a phototransistor detector.
- They are packaged in a 4-pin small outline SMD package.

Product Applications

- AC line monitor
- Programmable controllers
- Telecommunication equipments
- Unknown polarity DC sensor

Ordering Information

Part Number	Package	Units/ Reel
EX3H4	SSOP4	6000

Electrical-Optical characteristics

Absolute Maximum Ratings(Ta=25°C)

Parameter		Symbol	Rated Value	Unit
Input	Forward current	I_F	±50	mA
	Peak forward current(1us pulse)	I_{FP}	1	A
	Reverse voltage	V_R	-	V
	Power dissipation	P_D	70	mW
	Derating factor (above Ta=100°C)		-	mW/°C
Output	Power dissipation	P_c	150	mW
	Derating factor (above Ta = 80°C)		3.7	mW/°C
	Collector current	I_C	-	mA
	Collector and emitter Voltage	V_{CEO}	80	V
	Emitter and Collector Voltage	V_{ECO}	6	V
Total Power Dissipation		P_{TOT}	200	mW
Isolation Voltage(1*)		V_{iso}	3750	Vrms
Operating temperature		T_{OPR}	-55 to +100	°C
Storage temperature		T_{STG}	-55 to +125	°C
Soldering temperature(1*)		T_{SOL}	260	°C

Notes:

1* AC for 1 minute, R.H.= 40 ~ 60% R.H. In this test, pins 1, 2 are shorted together, and pins 3, 4 are shorted together.

2* Soldering time is 10 seconds

Electro-Optical Characteristics(Ta=25°C unless specified otherwise)

Parameter		Symbol	Min.	Typ.	Max.	Unit	Condition
In put	Forward voltage	V_F	-	1.2	1.4	V	$I_F=\pm 20\text{mA}$
	Reverse current	I_R	-	-	-	μA	$V_R=4\text{V}$
	Input capacitance	C_{in}	-	50	250	pF	$V=0, f=1\text{kHz}$
Out put	Collector-Emitter dark current	I_{CEO}	-	-	100	nA	$V_{CE}=20\text{V}$ $I_F=0\text{mA}$
	Collector-Emitter breakdown voltage	BV_{CEO}	80	-	-	V	$I_c=0.1\text{mA}$
	Emitter-Collector breakdown voltage	BV_{ECO}	7	-	-	V	$I_E=0.01\text{mA}$

Transfer Characteristics (Ta=25°C unless specified otherwise)

Parameter		Symbol	Min.	Typ.	Max.	Unit	Condition
Current Transferratio	EX3H4	CTR	20	-	300	%	$I_F=\pm 1\text{mA}$ $V_{CE}=5\text{V}$
	EX3H4A		50	-	150		
	EX3H4B		100	-	300		
Collector-Emitter saturation voltage		$V_{CE(sat)}$	-	0.1	0.2	V	$I_F=\pm 20\text{mA}$ $I_c=1\text{mA}$
Isolation resistance		R_{IO}	5×10^{10}	10^{11}	-	Ω	$V_{IO}=500\text{Vdc}$ 40~60% RH.
Floating capacitance		C_{IO}	-	0.6	1.0	pF	$V_{IO}=0, f=1\text{MHz}$ z
Rise time		t_r	-	6	18	μs	$V_{CE}=2\text{V}$, $I_c=2\text{mA}$, $R_L=100$
Fall time		t_f	-	8	18	μs	

Characteristic Curves

Figure1. Normalized Collector Current vs Forward Current

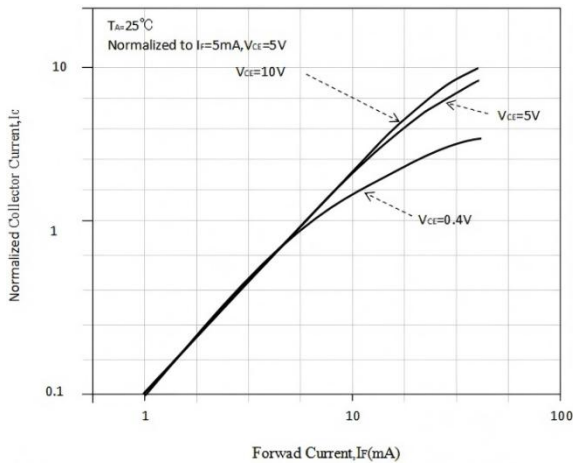


Figure2. Forward Current vs Forward Voltage

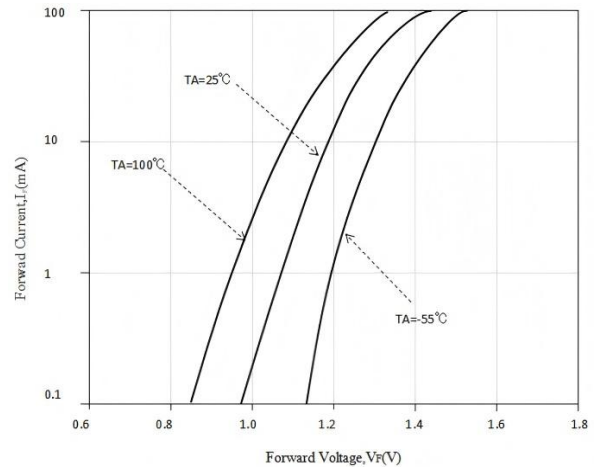


Figure3. Normalized Current Transfer Ratio vs Forward Current

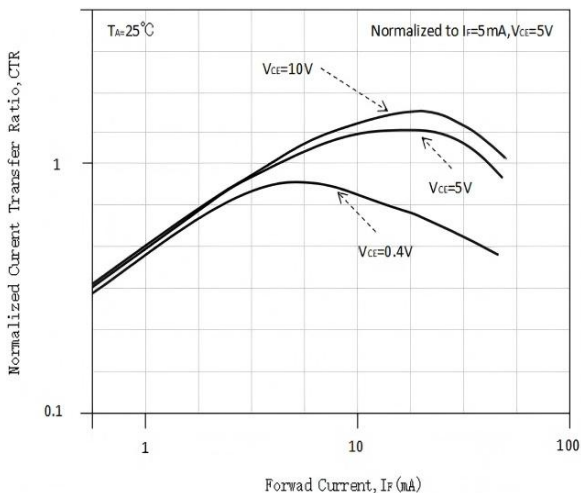


Figure4. Collector Current vs Collector-Emitter Voltage

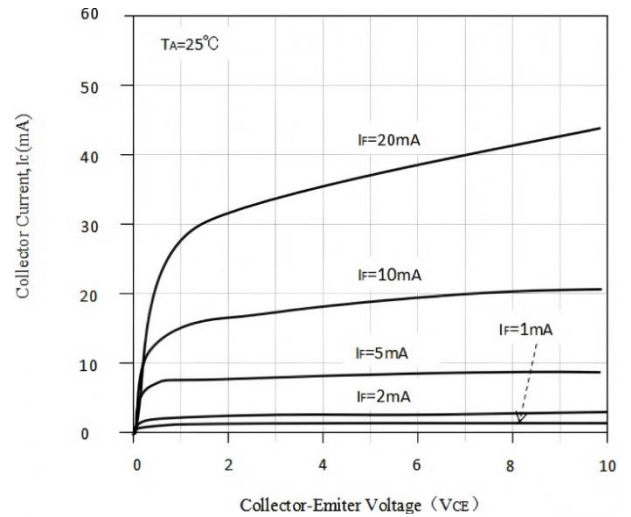


Figure5. Collector Current vs Collector-Emitter Voltage

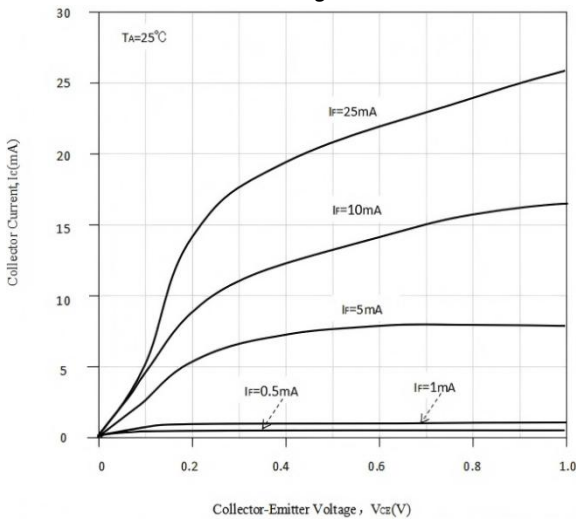


Figure6. Normalized Current Transfer Ratio vs Ambient Temperature

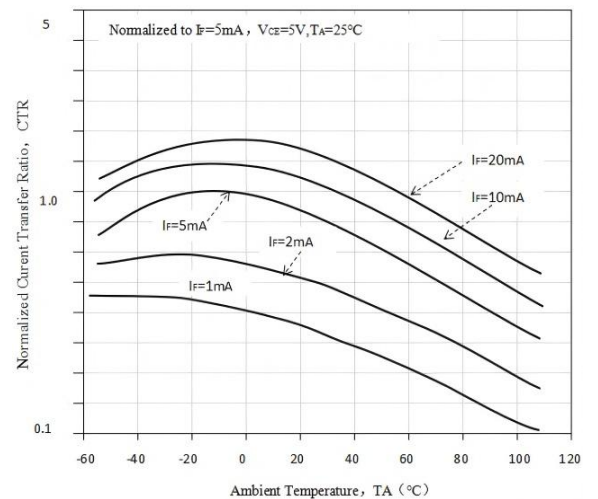


Figure7. Collector Dark Current vs Ambient Temperature

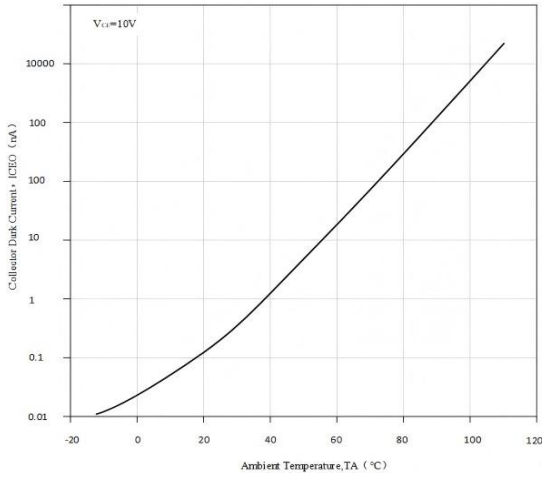


Figure8. Normalized Collector Current vs Ambient Temperature

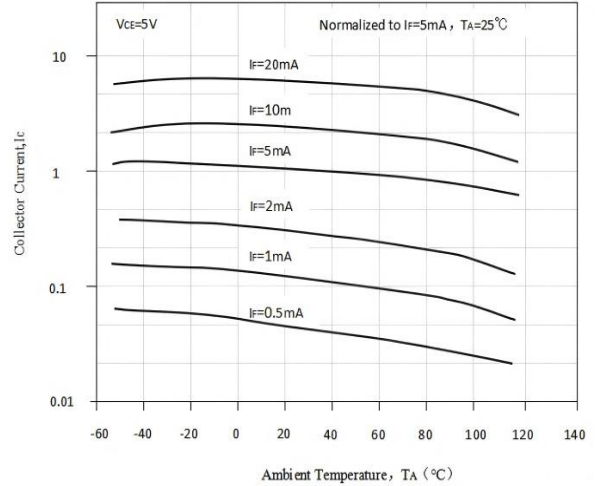


Figure9. Collector-Emitter Saturation Voltage vs Ambient Temperature

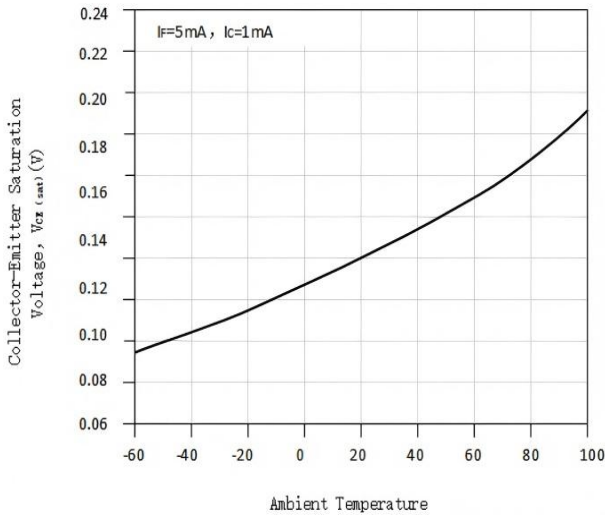


Figure10. Switching Time vs Load Resistance

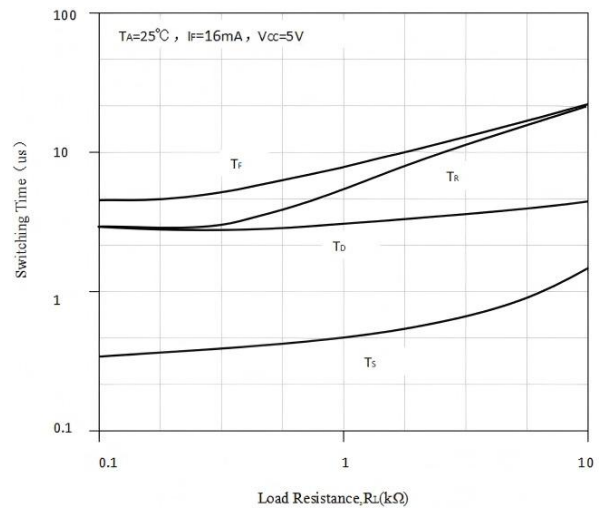
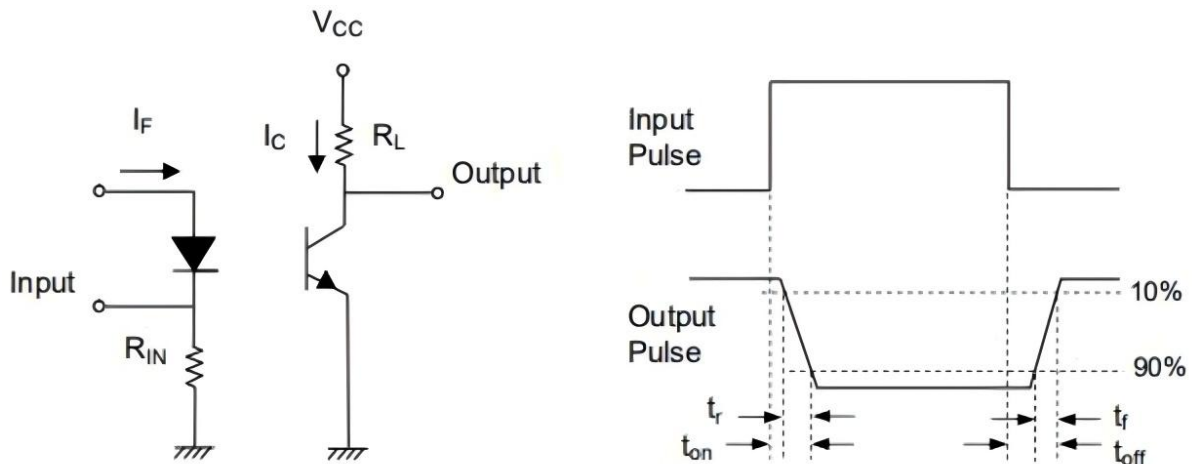
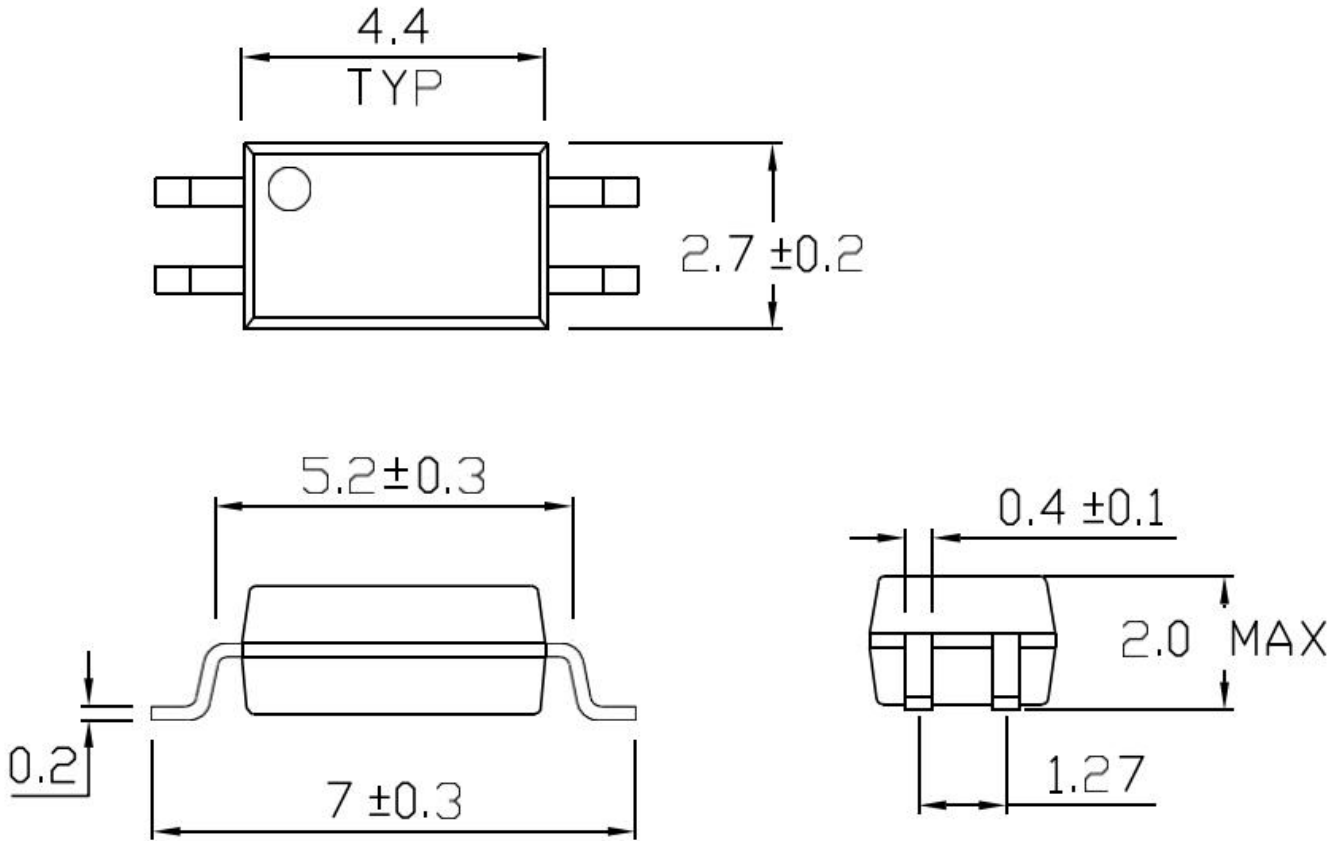


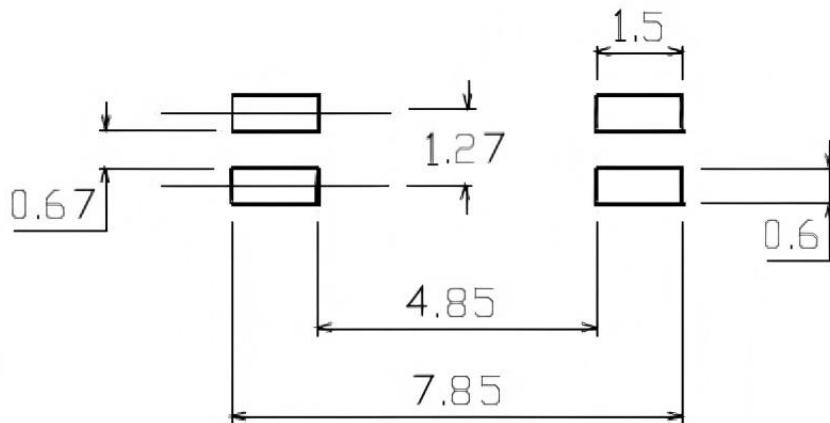
Figure11. Switching Time Test Circuit vs Waveforms



Package Drawing(Unit:mm)



Recommended pad layout for surface mount leadform



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