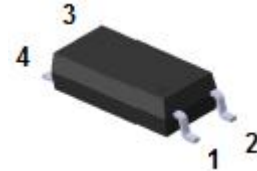
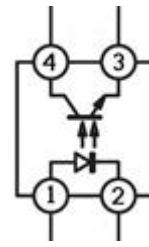


## Features

- Current Transfer Ratio  
(CTR: 50~600% at  $I_F = 5\text{mA}$ ,  $V_{CE} = 5\text{V}$ )  
(CTR: 63~320% at  $I_F = 10\text{mA}$ ,  $V_{CE} = 5\text{V}$ )
- High Isolation Voltage Between Input and Output ( $V_{iso} = 5000\text{V rms}$ )
- Wide operating temperature range:
  - BL101XG Series (Top=-55°C to 110°C)
  - BL101XHG Series (Top=-55°C to 125°C)

HF



LSOP-4L

## Applications

- Programmable Controllers
- System Appliances, Measuring Instruments
- Telecommunication Equipments
- Home Appliances, Such as Fan Heaters, etc
- Signal Transmission Between Circuits of Different Potentials and Impedances

## Mechanical Data

- Case: LSOP-4L
- Molding Compound, UL Flammability Classification Rating 94V-0
- Terminals: Matte Tin Plated Leads, Solderable per MIL-STD-202, Method 208

## Ordering Information

Part Number	Package	Shipping	Marking Code
BL101X(H)G	LSOP-4L	3000 pcs / Tape & Reel	BL101X(H)

X: CTR Rank (0, 2, 3, 4, 7, 8 or 9)

H: is for Top=-55°C to 125°C.

## Maximum Ratings (@ $T_A=25^\circ\text{C}$ unless otherwise specified)

Parameter		Symbol	Value	Units
Input	Forward Current	$I_F$	60	mA
	Peak Forward Current (1us, pulse)	$I_{FP}$	1.5	A
	Reverse Voltage	$V_R$	6	V
	Power Dissipation	$P_D$	100	mW
Output	Power Dissipation	$P_C$	150	mW
	Collector Current	$I_C$	50	mA
	Collector-Emitter Voltage	$V_{CEO}$	80	V
	Emitter-Collector Voltage	$V_{ECO}$	7	V

## Thermal Characteristics

Parameter	Symbol	Values	Units
Total Power Dissipation	$P_{TOT}$	250	mW
Isolation Voltage <sup>(Note1)</sup>	$V_{ISO}$	5000	V <sub>rms</sub>
Operating Temperature	$T_{OPR}$	BL101XG	-55 to 110 °C
		BL101XHG	-55 to 125 °C
Storage Temperature Range	$T_{STG}$	BL101XG	-55 to +125 °C
		BL101XHG	-55 to +135 °C
Soldering Temperature <sup>(Note2)</sup>	$T_{SOL}$	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. For 10 seconds.

## Electrical Characteristics-TR1 (@TA=25°C unless otherwise specified)

Parameter		Symbol	Test conditions	MIN	TYP	MAX	UNIT					
Input	Forward Voltage	BL101XG	$I_F=50mA$	-	1.30	1.5	V					
		BL101XHG		-	1.50	1.7	V					
	Reverse Current		$I_R$	$V_R=6V$	-	-	10	uA				
	Input Capacitance		$C_{in}$	$V_R=0V, f=1kHz$	-	50	-	pF				
Output	Collector-Emitter Dark Current		$I_{CEO}$	$V_{CE}=20V, I_F=0mA$	-	-	100	nA				
	Collector-Emitter Breakdown Voltage		$BV_{CEO}$	$I_C=0.1mA$	80	-	-	V				
	Emitter-Collector Breakdown Voltage		$BV_{ECO}$	$I_E=0.1mA$	7	-	-	V				
Transfer Characteristics	Current Transfer Ratio	BL1010(H)G	CTR	$I_F=5mA, V_{CE}=5V$	50	-	600	%				
		BL1017(H)G			80	-	160					
		BL1018(H)G			130	-	260					
		BL1019(H)G			200	-	400					
	Current Transfer Ratio	BL1012(H)G	CTR	$I_F=10mA, V_{CE}=5V$	63	-	125	%				
		BL1013(H)G			100	-	200					
		BL1014(H)G			160	-	320					
		BL1012(H)G			22	-	-					
	Current Transfer Ratio	BL1013(H)G	CTR	$I_F=1mA, V_{CE}=5V$	34	-	-	%				
		BL1014(H)G			56	-	-					
		Collector-Emitter Saturation Voltage			$V_{CE(sat)}$	$I_F=10mA, I_C=1mA$	-		-	0.3	V	
		Isolation Resistance			$R_{IO}$	$V_{IO}=500Vdc, 40\sim60\%$ R.H.	$5 \times 10^{10}$		-	-	$\Omega$	
Floating Capacitance		$C_{IO}$	$V_{IO}=0, f=1MHz$	-	-	1.0	pF					
Turn On Time		$T_{on}$	$V_{CE}=5V$ $I_C=5mA$ $RL=100\Omega$	-	4	-	us					
Turn Off Time		$T_{off}$		-	3	-						
Rise Time		$t_r$		-	-	18		us				
Fall Time		$T_f$	-	-	18							

Ratings and Characteristic Curves ( $T_A=25^\circ\text{C}$  unless otherwise noted)

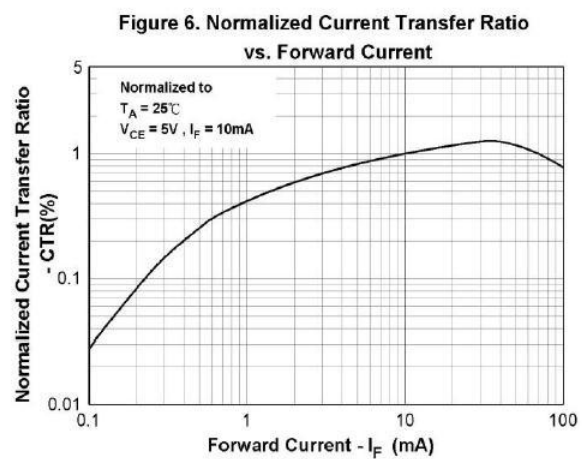
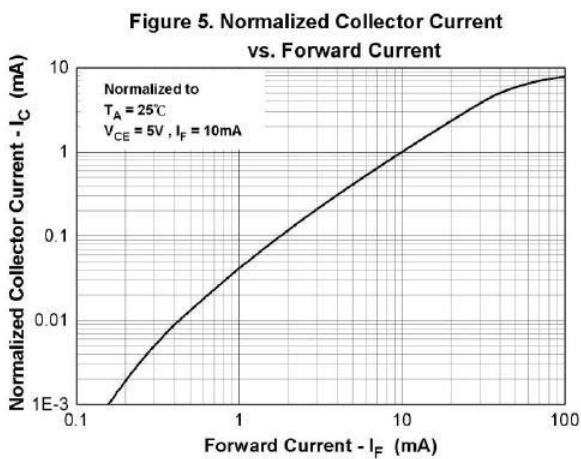
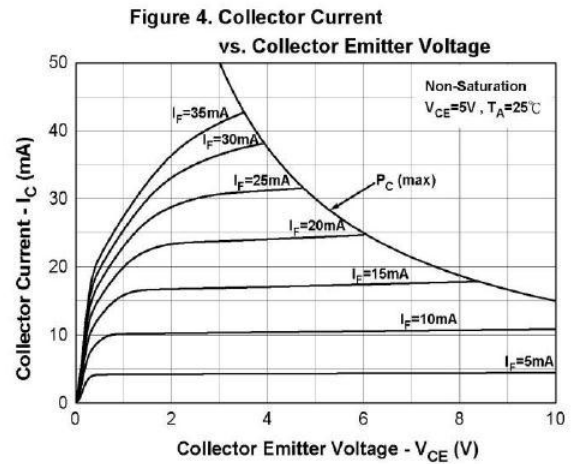
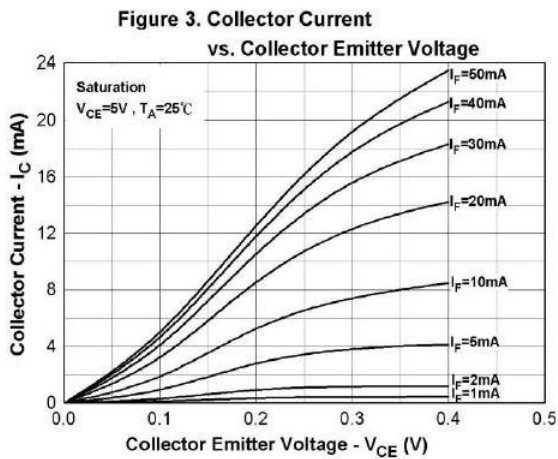
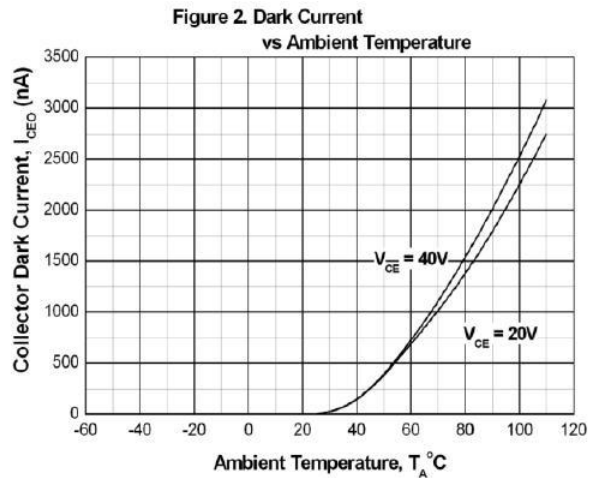
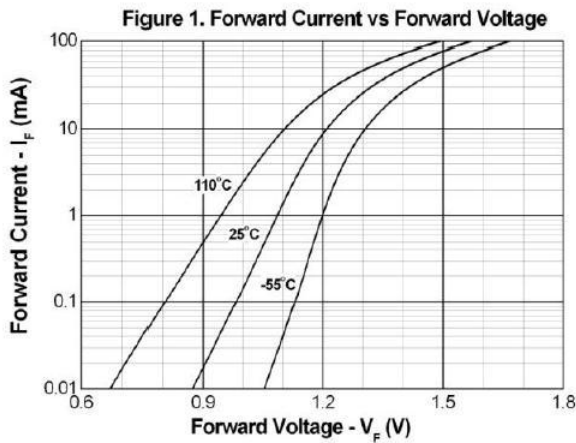


Figure 7. Normalized Current Transfer Ratio vs. Ambient Temperature

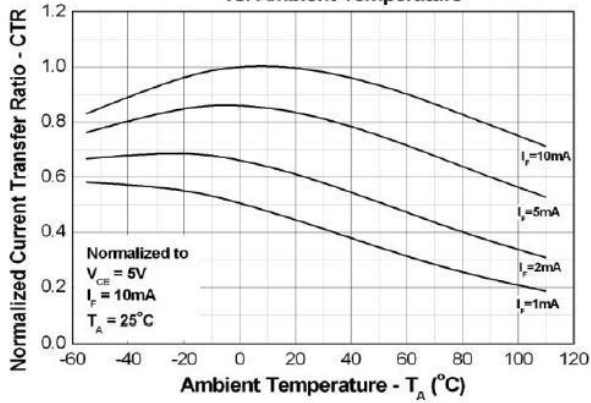


Figure 8. Normalized Current Transfer Ratio vs. Ambient Temperature

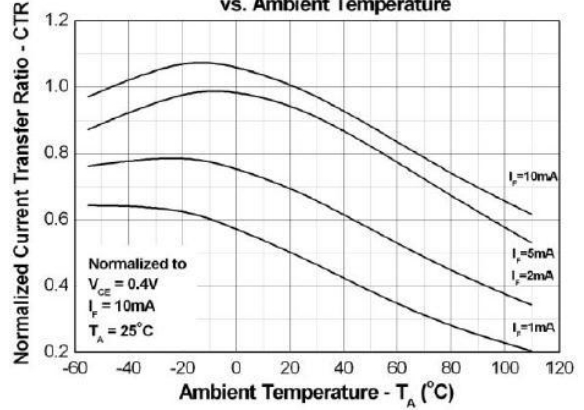


Figure 9. Turn on/off Time vs. Collector Current

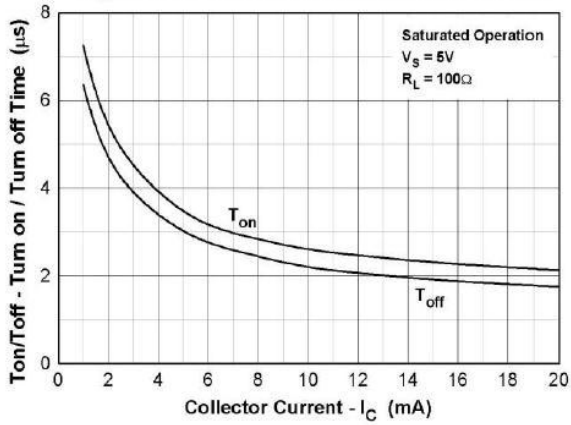
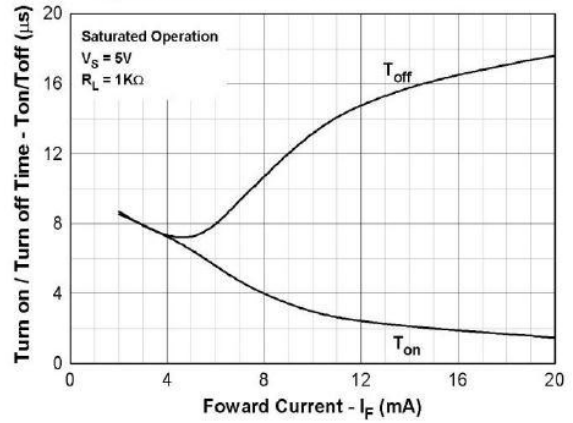
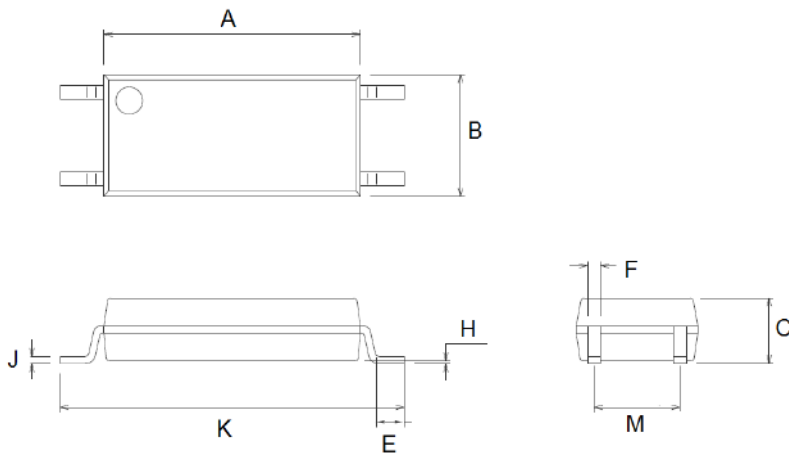


Figure 10. Turn on/off Time vs. Forward Current



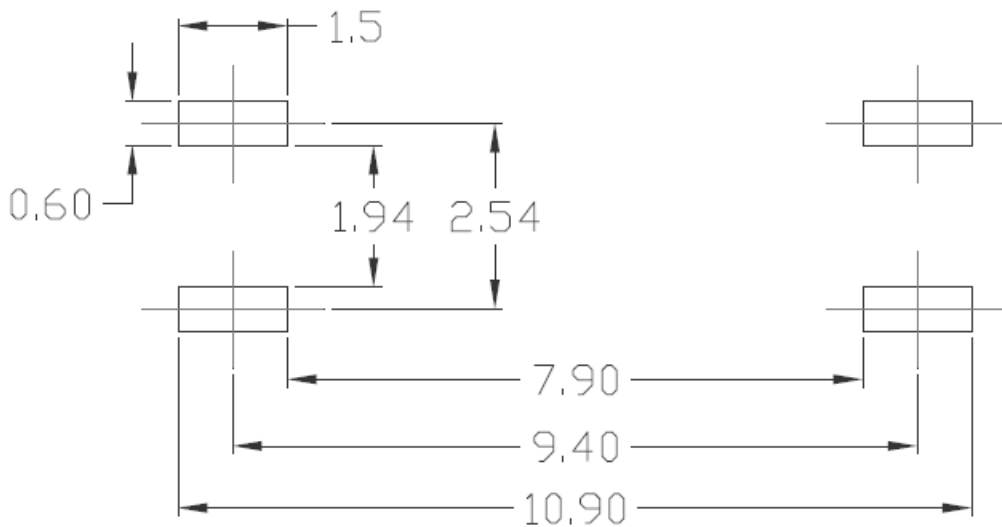
## Package Outline Dimensions (unit: mm)

### LSOP-4L



LSOP-4L		
Dim	Min	Max
A	7.40	7.80
B	3.40	3.80
C	1.90	2.10
E	0.45	0.65
F	0.30	0.50
H	0.02	0.15
J	0.15	0.35
K	9.90	10.50
M	2.44	2.64

## SOLDERING FOOTPRINT (unit: mm)



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