

Photocoupler

Part Name: LA311

Description

LA311 photocoupler is an optically coupled pair employing a GaAs infrared LED and a silicon NPN phototransistor.

Features

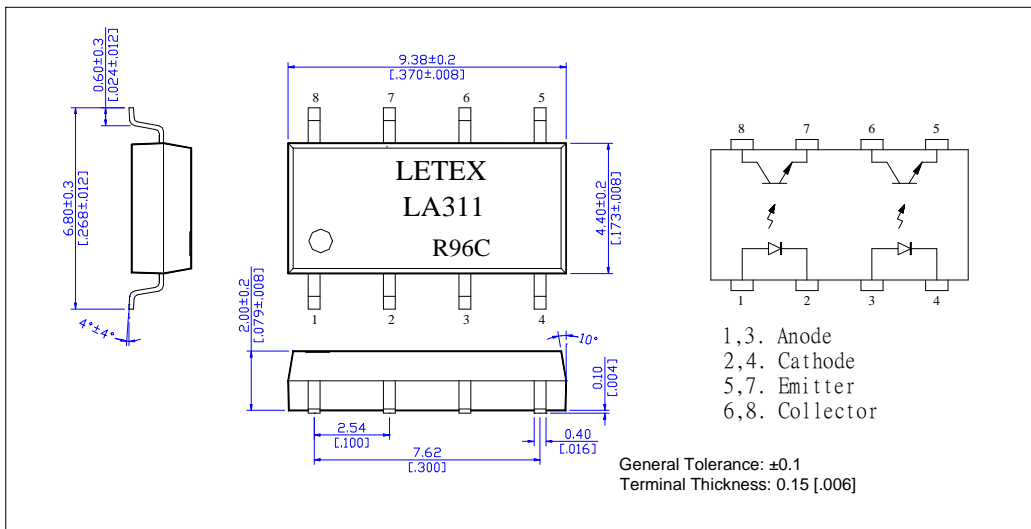
- SOP package 8 Pin type in miniature design
- 80% minimum current transfer ratio
- 2500V rms Input/Output isolation

Applications

- Telephones
- Programmable controllers
- System appliances, measuring instruments.
- Signal transmission between circuits of different potentials and impedances.

Outline Dimensions

(Unit: mm [inch])



Part Name: LA311**Absolute Maximum Ratings (Ambient Temperature: 25°C)**

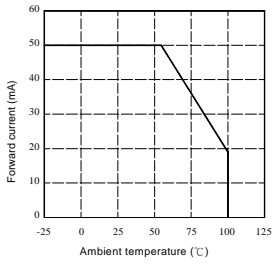
Item		Symbol	Rating	Units	Note
Input	Forward Current	IF	50	mA	
	Reverse Voltage	VR	5	V	
	Peak Forward Current	IFP	1	A	
Output	Collector to Emitter Voltage	Vceo	80	V	Ic=1mA, IB=0
	Emitter to Collector Voltage	Veco	6	V	IE=100μA, IB=0
	Collector Current	Ic	50	mA	
	Power Dissipation	Pc	150	mW	
I/O Breakdown Voltage		VI/O	2500	Vrms	RH=60%, 1min
Power Dissipation		PD	200	mW	
Storage Temperature		Tstg	-55 to +125	°C	
Operating Temperature		Topr	-55 to +100	°C	
Soldering Temperature		Tsol	260	°C	10 seconds max.

Electrical Specifications (Ambient Temperature: 25°C)

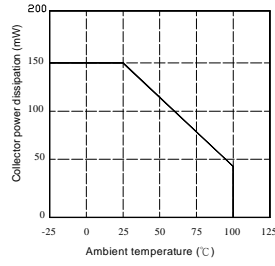
Item		Symbol	MIN.	TYP.	MAX.	Units	Conditions	
Input	Forward Voltage	VF		1.2	1.4	V	IF=20mA	
	Reverse Current	IR			10	μA	VR=5V	
	Junction Capacitance	Ct		25		pF	V=0, f=1.0MHz	
Output	C-E Breakdown Voltage	Vceo	80			V	Ic=0.5mA	
	E-C Breakdown Voltage	Veco	5			V	Ie=0.1mA	
	Collector Dark Current	Iceo			100	nA	Vce=10V, IF=0	
Coupled	Current Transfer Ratio	BIN GRADE					IF=5mA, Vce=5V	
		A	80					160
		B	130					260
		C	200					400
		D	300		600			
	Collector Saturation Voltage	Vce(sat)			0.4	V	IF=10mA, Ic=1mA	
	Isolation Resistance	R _{I/O}	10 ⁹			Ω	V=500V DC	
	Isolation Capacitance	C _{I/O}		1.0		pF	V=0, f=1.0MHz	
Rise Time	tr			3	μs	Vce=5V, Ic=2mA,		
Fall Time	tf			3	μs	RL=100Ω		

Reference Data

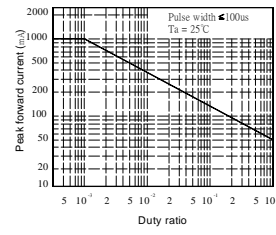
Forward current Vs.
Ambient temperature



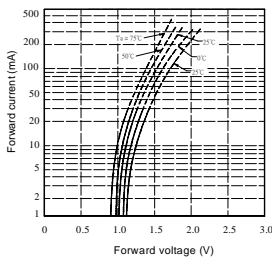
Collector power dissipation Vs.
Ambient temperature



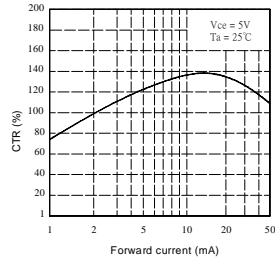
Peak forward current Vs.
Duty ratio



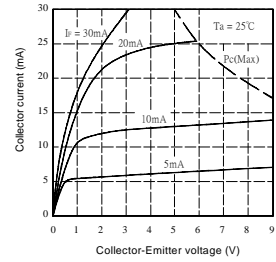
Forward current Vs.
Forward voltage



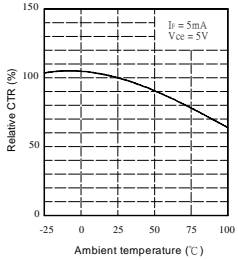
Current transfer ratio Vs.
Forward current



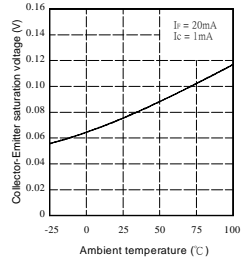
Collector current Vs.
Collector-Emitter voltage



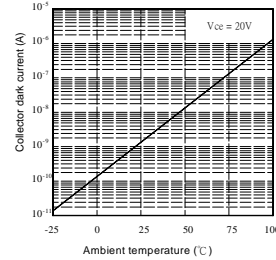
Relative CTR Vs.
Ambient temperature



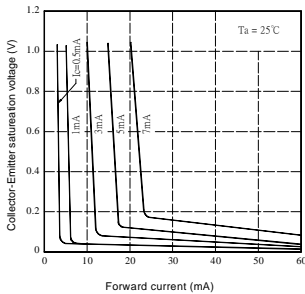
Collector-Emitter saturation voltage Vs.
Ambient temperature



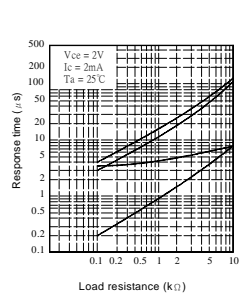
Collector dark current Vs.
Ambient temperature



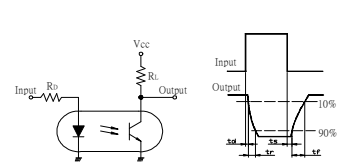
Collector-Emitter saturation voltage Vs.
Forward current



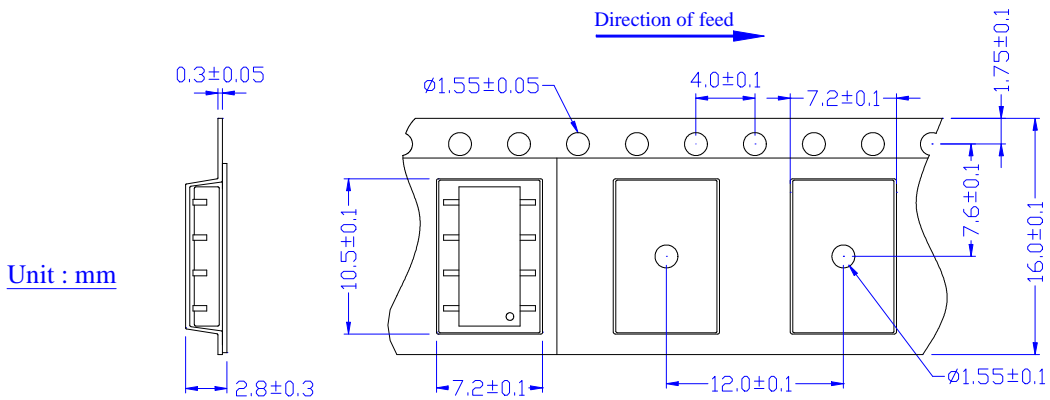
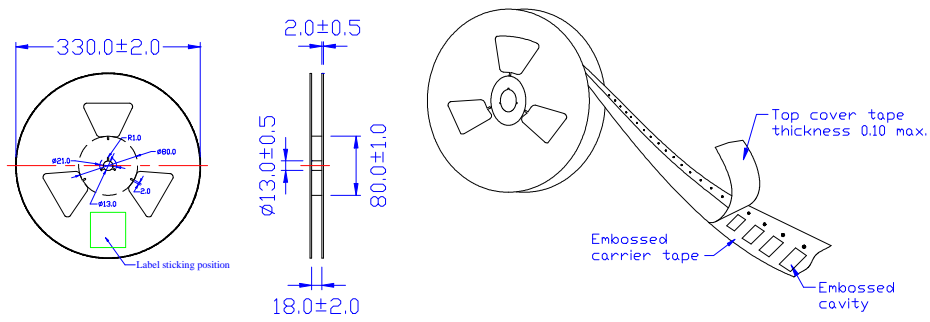
Response time Vs.
Load resistance



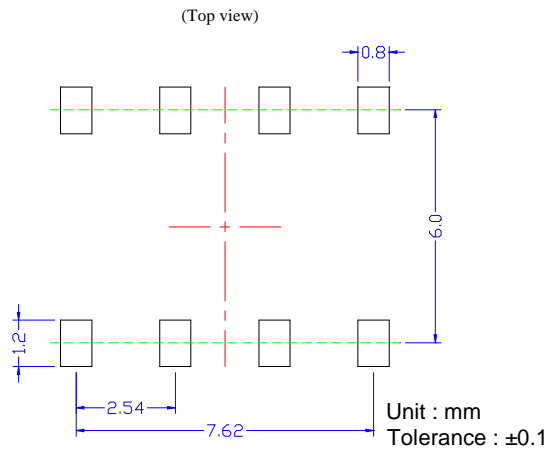
Test circuit for response time



Taping Specifications for Surface Mount Devices

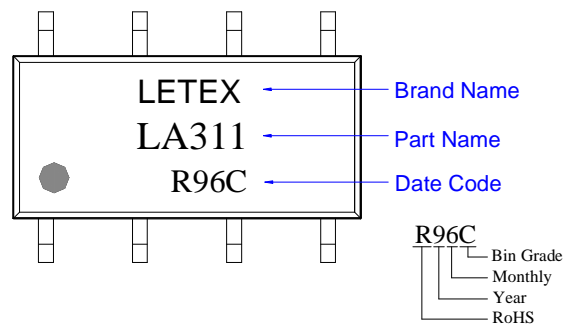


Recommended Mounting Pad



Marking

(Each photo MOS Relay shall be marked with the following information)



- Note:
1. There shall be leader of 230 mm minimum which may consist of carrier and or cover tape follower by a minimum of 160 mm of carrier tape sealed with cover tape.
 2. There shall be a minimum of 160 mm of empty component pockets sealed with cover tape.
 3. Devices are pockets in accordance with EIA standard EIA-481-A and specifications given above.
 4. Packaging: 1,000pcs per reel, 2 reel per box, 5 boxes per carton.