

Photocoupler

Part Name: LA315

Description

LA315 photocoupler is an optically coupled pair employing a GaAs infrared LED and a NPN silicon photodarlington.

Features

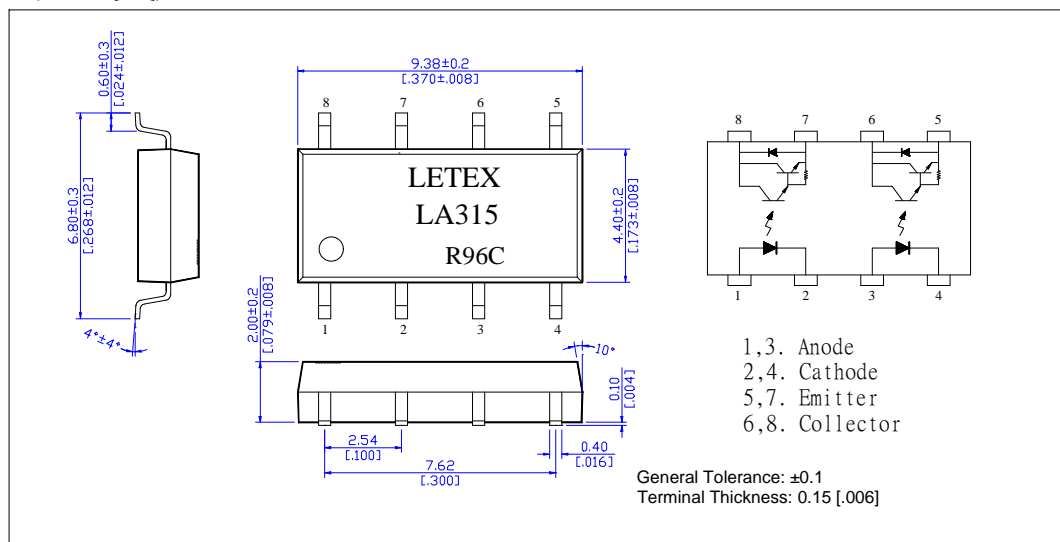
- SOP package 8 Pin type in miniature design
- 600% minimum current transfer ratio ($V_{ceo}:300V_{min.}$)
- 2500V rms Input/Output isolation

Applications

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

Outline Dimensions

(Unit: mm [inch])



Part Name: LA315
High Collector-emitter Voltage

Absolute Maximum Ratings (Ambient Temperature: 25°C)

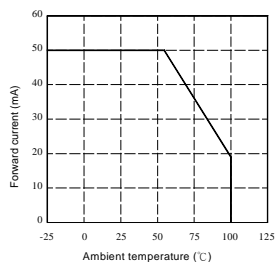
Item		Symbol	Rating	Units	Note
Input	Forward Current	I _F	50	mA	
	Reverse Voltage	V _R	5	V	
	Peak Forward Current	I _{FP}	1	A	
Output	Collector to Emitter Voltage	V _{ceo}	300	V	I _c =1mA, I _B =0
	Emitter to Collector Voltage	V _{eco}	0.1	V	I _E =100μA, I _B =0
	Collector Current	I _c	50	mA	
	Power Dissipation	P _c	150	mW	
I/O Breakdown Voltage		V _{I/O}	2500	V _{rms}	RH=60%, 1min
Power Dissipation		P _D	200	mW	
Storage Temperature		T _{stg}	-55 to +125	°C	
Operating Temperature		T _{op}	-55 to +100	°C	
Soldering Temperature		T _{sol}	260	°C	10 seconds max.

Electrical Specifications (Ambient Temperature: 25°C)

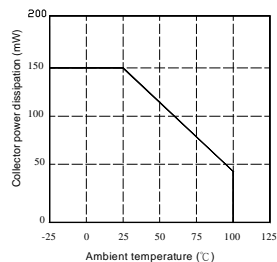
Item		Symbol	MIN.	TYP.	MAX.	Units	Conditions
Input	Forward Voltage	V _F		1.2	1.4	V	I _F = 20mA
	Reverse Current	I _R			10	μA	V _R =5V
	Junction Capacitance	C _t		30		pF	V=0, f=1.0KHz
Output	C-E Breakdown Voltage	V _{ceo}	300			V	I _c =0.5mA
	E-C Breakdown Voltage	V _{eco}	0.1			V	I _e =0.1mA
	Collector Dark Current	I _{ceo}			100	nA	V _{ce} =20V, I _F =0
Coupled	Current Transfer Ratio	CTR	600		9000	%	I _F = 1mA, V _{ce} =5V
	Collector Saturation Voltage	V _{ce(sat)}		0.6	1.5	V	I _F =20mA, I _c =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	t _r			300	μs	V _{ce} =5V, I _c =2mA,
	Fall Time	t _f			100	μs	RL=100Ω

Reference Data

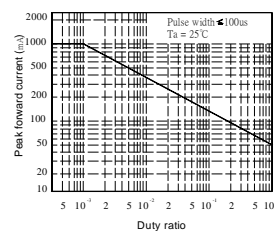
Forward current Vs.
Ambient temperature



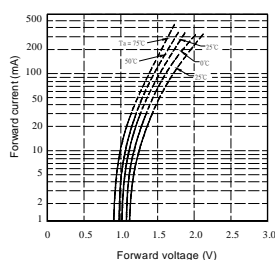
Collector power dissipation Vs.
Ambient temperature



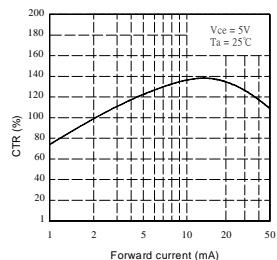
Peak forward current Vs.
Duty ratio



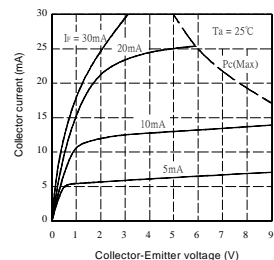
Forward current Vs.
Forward voltage



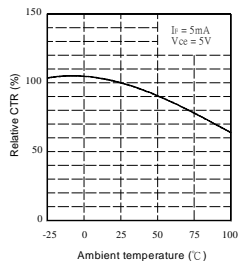
Current transfer ratio Vs.
Forward current



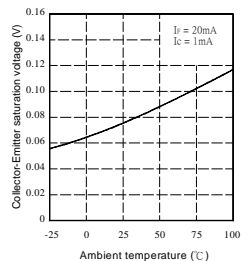
Collector current Vs.
Collector-Emitter voltage



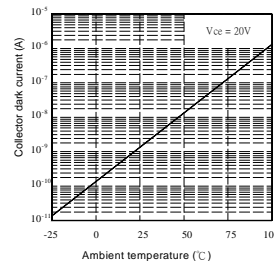
Relative CTR Vs.
Ambient temperature



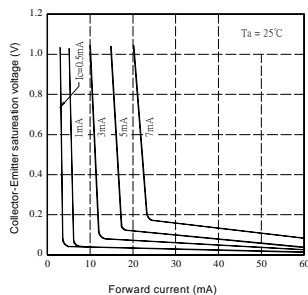
Collector-Emitter saturation voltage Vs.
Ambient temperature



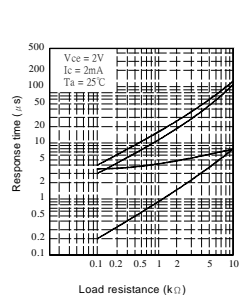
Collector dark current Vs.
Ambient temperature



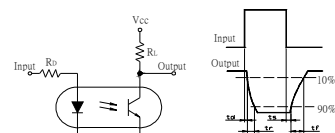
Collector-Emitter saturation voltage Vs.
Forward current



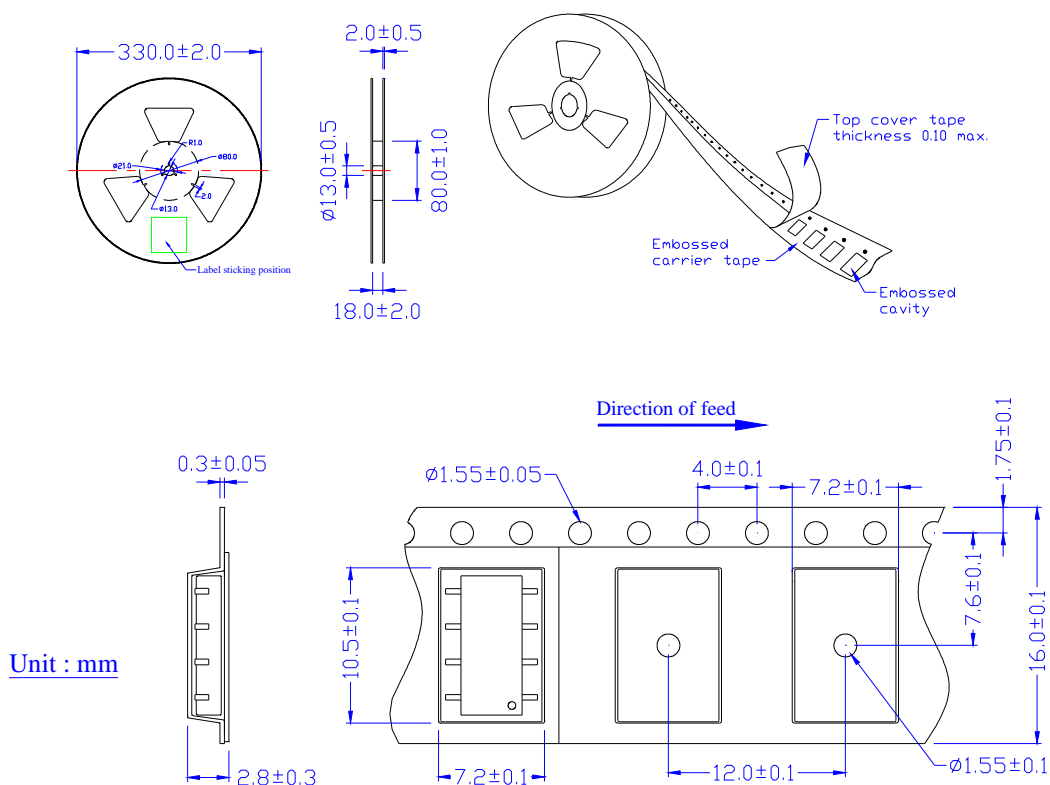
Response time Vs.
Load resistance



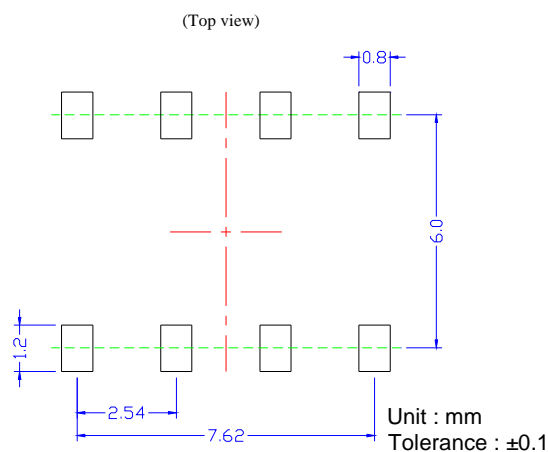
Test circuit for response time



Taping Specifications for Surface Mount Devices

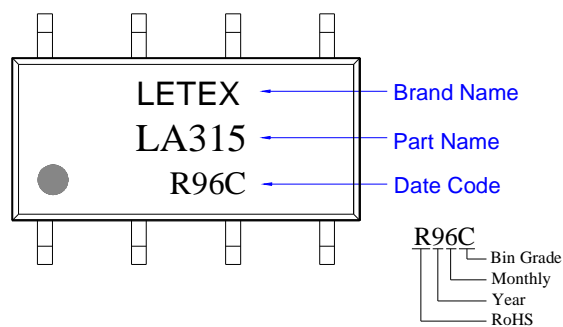


Recommended Mounting Pad



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.