Photocoupler

Part Name: LA314

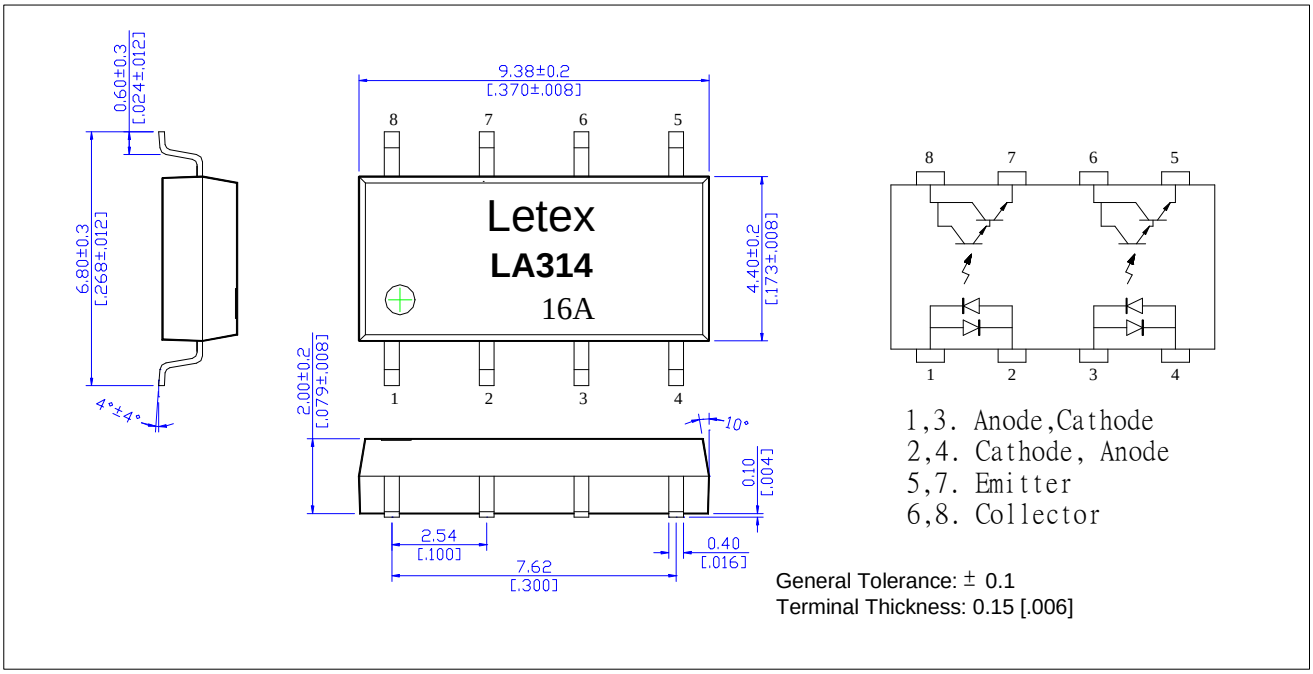
Features

- SOP package 4 Pin type in miniature design
- 600% minimum current transfer ratio
- 1500V rms Input/Output isolation
- AC input.

Applications

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

Dimensions(Unit: mm [inch])



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Absolute Maximum Ratings (Ambient Temperature: 25℃)

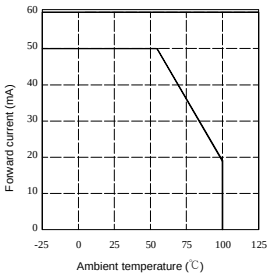
Item		Symbol	Rating	Units	Note
Input	Forward Current	I_F	50	mA	
	Reverse Voltage	V_R	5	V	
	Peak Forward Current	I_{FP}	1	A	
Output	Collector to Emitter Voltage	Vceo	40	V	Ic=1mA, I_B=0
	Emitter to Collector Voltage	Veco	6	V	I_E=100μA, I_B=0
	Collector Current	Ic	50	mA	
	Power Dissipation	Pc	150	mW	
I/O Breakdown Voltage		$V_{I/O}$	1500	Vrms	RH=60%, 1min
Power Dissipation		P_D	200	mW	
Storage Temperature		Tstg	-55 to +125	℃	
Operating Temperature		Top	-55 to +100	℃	
Soldering Temperature		T_{Sol}	260	℃	10 seconds max.

Electrical Specifications (Ambient Temperature: 25℃)

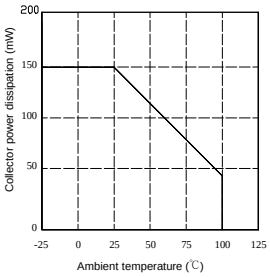
Item		Symbol	MIN.	TYP.	MAX.	Units	Conditions
Input	Forward Voltage	V_F		1.2	1.4	V	I_F= ± 20mA
	Reverse Current	I_R			-	μA	
	Junction Capacitance	Ct		30		pF	V=0, f=1.0KHz
Output	C-E Breakdown Voltage	Vceo	35			V	Ic=0.5mA
	E-C Breakdown Voltage	Veco	6			V	Ie=0.1mA
	Collector Dark Current	Iceo			100	nA	Vce=20V, I_F=0
Coupled	Current Transfer Ratio	CTR	600	1600	7000	%	I_F= ± 1mA, Vce=5V
	Collector Saturation Voltage	Vce(sat)			1	V	I_F=±20mA, 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			300	μs	Vce=5V, Ic=2mA, RL=100Ω
	Fall Time	tf			250	μs	

Photocoupler
Reference Data

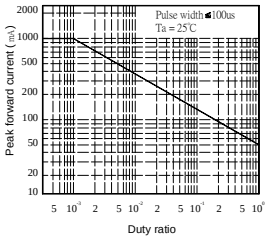
Forward current Vs.
Ambient temperature



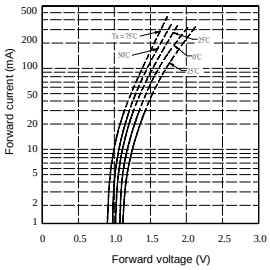
Collector power dissipation Vs.
Ambient temperature



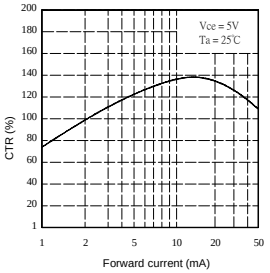
Peak forward current Vs.
Duty ratio



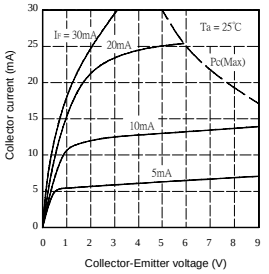
Forward current Vs.
Forward voltage



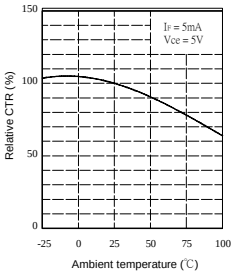
Current transfer ratio Vs.
Forward current



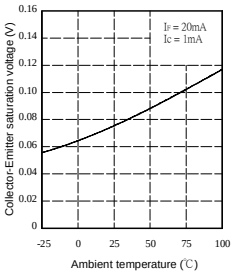
Collector current Vs.
Collector-Emitter voltage



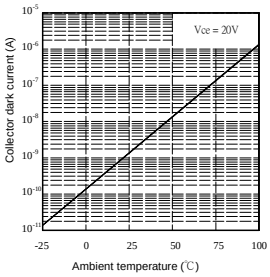
Relative CTR Vs.
Ambient temperature



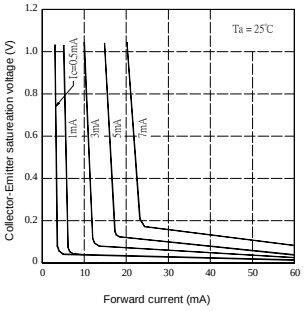
Collector-Emitter saturation voltage Vs.
Ambient temperature



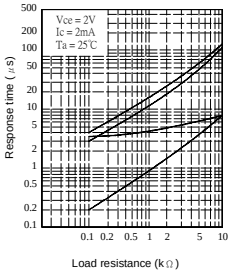
Collector dark current Vs.
Ambient temperature



Collector-Emitter saturation voltage Vs.
Forward current



Response time Vs.
Load resistance



Test circuit for resopnse time