

Features

- Non-contact switching.
- For direct PC board or dual-in-line socket mounting.
- Fast switching speed.

Application

- Scanner
- Printer
- FAX machine
- Counter

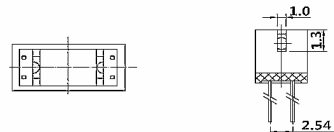
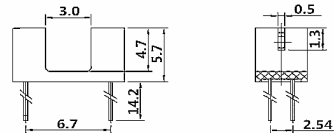
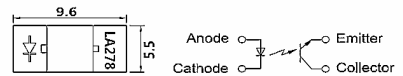
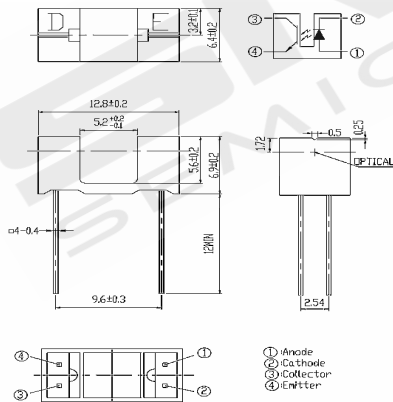
Description

The LA301A/LA215 series consist of Gallium Arsenide infrared emitting diode and a NPN silicon phototransistor mounted in a black plastic housing. Phototransistor switching takes place whenever an opaque object passes through the slot. These series are designed for direct soldering into PC board or mounting in standard dual-in-line socket.

Package Dimensions

LA301A

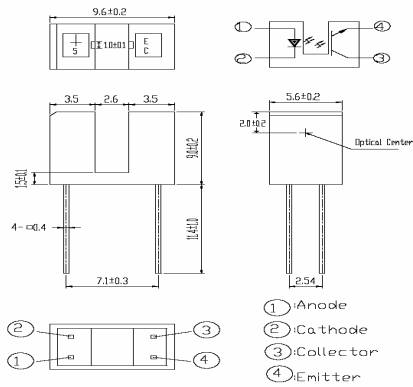
LA278



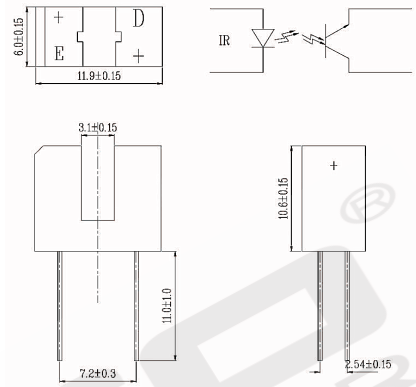
Notes:

1. All dimensions are in millimeters (inches).
2. Tolerance is ± 0.25 mm (.010").
3. Lead spacing is measured where the leads emerge from the package.
4. Specifications are subject to change without notice.

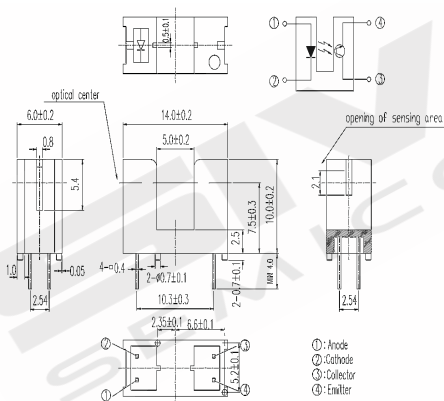
LA215



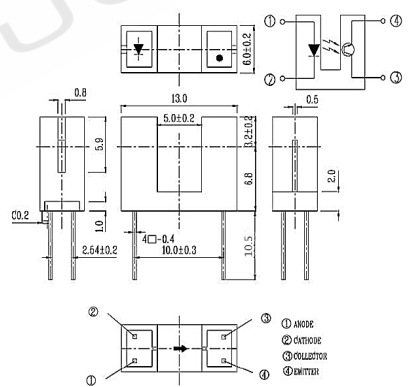
LA8110



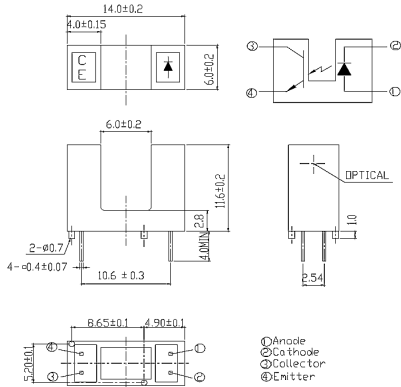
LA216



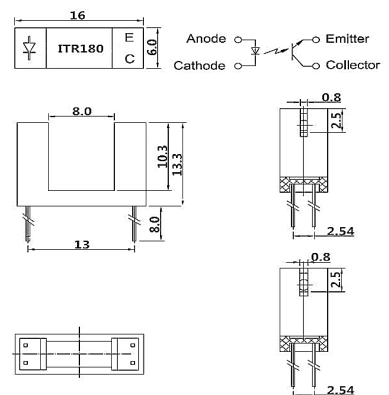
LA218



LA8142



ITR180



Absolute Maximum Ratings at Ta=25°C

Parameter		Symbol	Maximum Rating	Unit
Input LED	Continuous Forward Current	I _F	60	mA
	Reverse Voltage	V _R	5	V
	Peak Forward Current (Pulse Wide=10 μs, 300PPS)	I _{CP}	1	A
	Power Dissipation	P _D	75	mW
Output phototransistor	Collector Current	I _C	20	mA
	Power Dissipation	P _C	100	mW
	Collector-emitter Voltage	V _{CEO}	30	V
	Emitter-collector Voltage	V _{ECO}	5	V
Operating Temperature Range		T _{opr}	-25°C to + 85°C	
Storage Temperature Range		T _{stg}	-40°C to + 100°C	
Lead Soldering Temperature [1.6mm(.063 in.)from body]		T _s	260°C for 5 Seconds	

Electrical Optical Characteristics at Ta=25°C

Parameter	Symbol	Part No.	Min.	Typ.	Max.	Unit	Test Condition
Input LED							
Forward Voltage	V _F			1.2	1.6	V	I _F =20mA
Reverse Current	I _R				100	μA	V _R =5V
Output phototransistor							
Collector Dark Current	I _{CEO}				100	nA	V _{CE} =10V
Coupler							
Collector-Emitter Saturation Voltage	V _{CE(sat)}	LA301A			0.4	V	I _C =0.25mA, I _F =20mA
		LA278			0.4		I _C =0.25mA, I _F =20mA
		LA215			0.4		I _C =0.25mA, I _F =20mA
		LA8110			0.4		I _C =0.75mA, I _F =20mA
		LA216			0.4		I _C =0.2mA, I _F =20mA
		LA218			0.4		I _C =0.2mA, I _F =20mA
		LA8142			0.4		I _C =2.5mA, I _F =20mA
		ITR180			0.4		I _C =0.25mA, I _F =20mA
On State Collector Current	I _{C(ON)}	LA301A	0.5			mA	V _{CE} =5V, I _F =20mA
		LA278	0.5				
		LA215	0.4				
		LA8110	1.5				
		LA216	0.4				
		LA218	0.4				
		LA8142	5.0				
		ITR180	0.5				
Response Time	Rise Time	t _r		3	15	μs	V _{CE} =5V, I _C =2mA R _L =100 Ω
	Fall Time	t _f		4	20		

Typical Electrical/Optical Characteristic Curves (25°C Ambient Temperature Unless Otherwise Noted)

Fig.1 Power Dissipation vs. Ambient Temperature

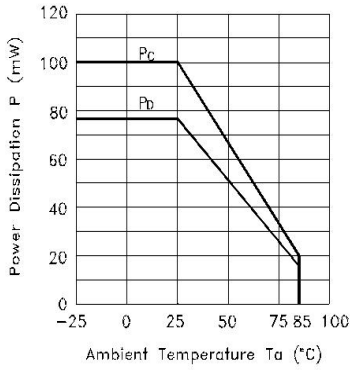


Fig.2 Forward Current vs. Forward Voltage

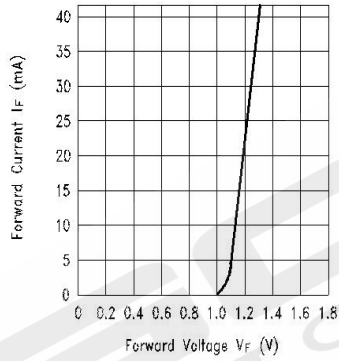


Fig.3 Collector Current vs. Collector-emitter Voltage

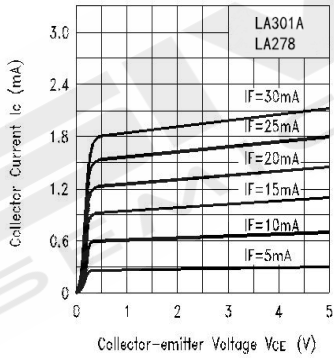


Fig.4 Collector Current vs. Collector-emitter Voltage

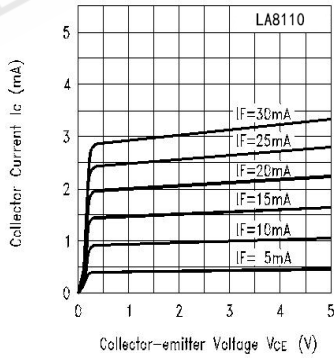


Fig.5 Collector Current vs. Collector-emitter Voltage

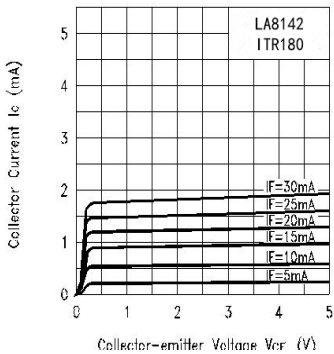
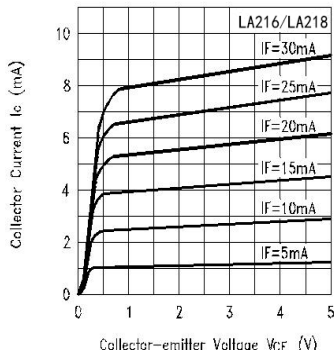


Fig.6 Collector Current vs. Collector-emitter Voltage



Typical Electrical/Optical Characteristic Curves (25°C Ambient Temperature Unless Otherwise Noted)

Fig.7 Collector Current vs. Collector-emitter Voltage

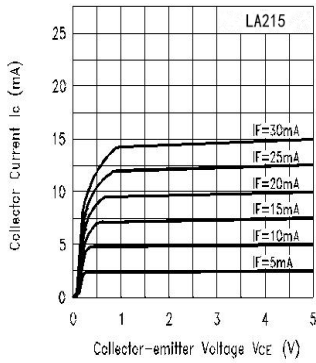


Fig.8 Collector Current vs. Ambient Temperature

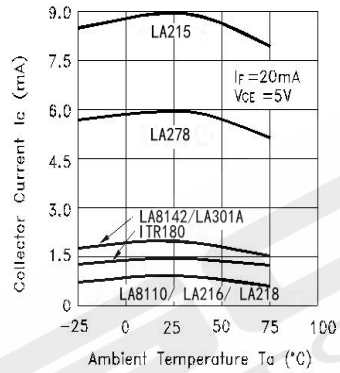


Fig.9 Collector-emitter Saturation Voltage vs. Ambient Temperature

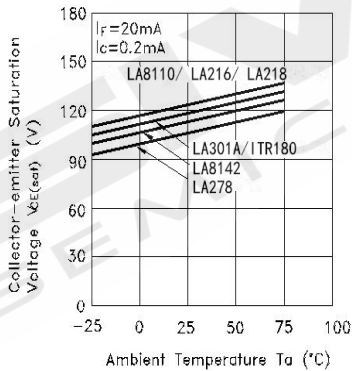
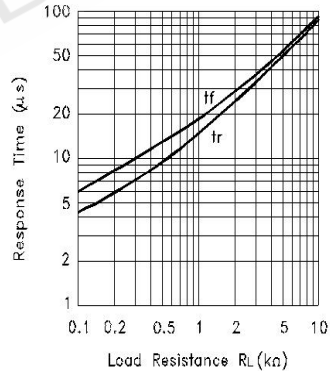


Fig.10 Response Time vs. Load Resistance



Test Circuit for Response Time

