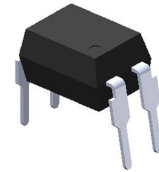
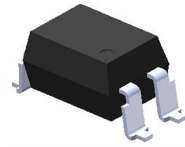


Description

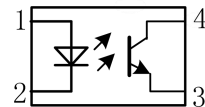
The 817 series of devices each consist of an infrared emitting diodes, optically coupled to a phototransistor detector encapsulated with green compound. The devices are in a 4-pin DIP package and available in wide-lead spacing and SMD option.



Features

- ◆ Current transfer ratio(CTR: 50~600% at $I_F = 5\text{mA}$, $V_{CE} = 5\text{V}$)
- ◆ High isolation voltage between input and output ($V_{ISO} = 5000\text{ V rms}$)
- ◆ Creepage distance $> 7.62\text{ mm}$.
- ◆ Operating temperature up to $+110^\circ\text{C}$
- ◆ Compact small outline package
- ◆ Pb free and RoHS compliant.

Schematic



Pin Configuration

1. Anode
2. Cathode
3. Emitter
4. Collector

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.

Absolute maximum ratings ($T_a = 25^\circ\text{C}$)

Parameter	Symbol	Rating	Unit	
Input	Forward current	I_F	50	mA
	Reverse voltage	V_R	6	V
	Power dissipation	P_D	70	mW
Derating factor (above $T_a = 100^\circ\text{C}$)	2.9		mW/ $^\circ\text{C}$	
Output	Power dissipation 150 mW	P_C	150	mW
	Derating factor (above $T_a = 100^\circ\text{C}$)		5.8	mW/ $^\circ\text{C}$
	Collector current	I_C	50	mA
	Collector-Emitter voltage	V_{CEO}	35	V
	Emitter-Collector voltage	V_{ECO}	6	V
Total power dissipation	P_{TOT}	200	mW	
Isolation voltage ^{*1}	V_{ISO}	5000	V rms	
Operating temperature	T_{opr}	-40~+110	$^\circ\text{C}$	
Storage temperature	T_{stg}	-55~+125	$^\circ\text{C}$	
Soldering temperature ^{*2}	T_{sol}	260	$^\circ\text{C}$	

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 (Ta=25°C unless specified otherwise)

Input

Parameter	Symbol	Min.	Typ.*	Max.	Unit	Condition
Reverse current	I _R	-		10	μA	V _R = 4V
Input capacitance	C _t		30	250	pF	V = 0, f = 1kHz

Output

Parameter	Symbol	Min.	Typ.*	Max.	Unit	Condition
Collector-Emitter darkcurrent	I _{CEO}	-	-	100	nA	V _{CE} = 20V, I _F = 0mA
Collector-Emitter breakdown voltage	BV _{CEO}	35	-	-	V	I _C = 0.1mA
Emitter-Collector breakdown voltage	BV _{ECO}	6	-	-	V	I _E = 0.1mA

Transfer characteristics (Ta=25°C unless specified otherwise)

Parameter	Symbol	Min.	Typ.*	Max.	Unit	Condition
Current Transfer ratio	817		50	-	600	% I _F = 5mA, V _{CE} = 5V
	817A		80	-	160	
	817B		130	-	260	
	817C		200	-	400	
	817D		300	-	600	
	817L		50	-	100	
Collector-Emitter saturation voltage	V _{CE(sat)}		0.1	0.2	V	I _F = 20mA, I _C = 1mA
Isolation resistance	R _{ISO}	5×10 ¹⁰			Ω	V _{IO} = 500Vdc, 40~60% R.H
Floating capacitance	C _f		0.6	1.0	pF	V _{IO} = 0, f = 1MHz
Cut-off frequency	f _c		35		kHz	V _{CE} = 5V, I _C = 2mA R _L = 100Ω, -3dB
Rise time	t _r		4	18	μs	V _{CE} = 2V, I _C = 2mA, R _L = 100Ω
Fall time	t _f		3	18	μs	

* Typical values at Ta = 25°C

Typical Performance Curves

Figure 1. Forward Current vs Forward Voltage

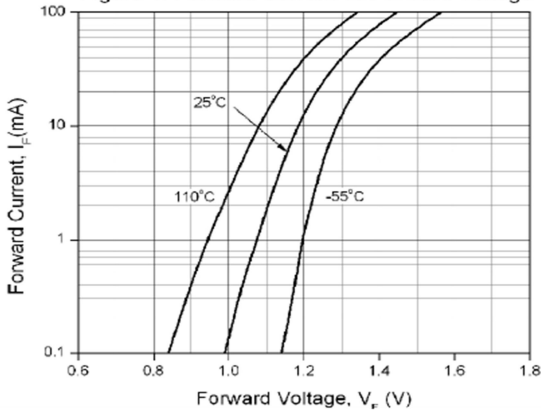


Figure 4. Dark Current vs Ambient Temperature

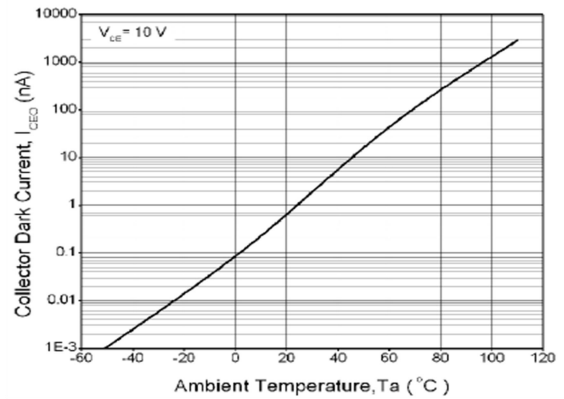


Figure 3. Current Transfer Ratio vs Ambient Temperature

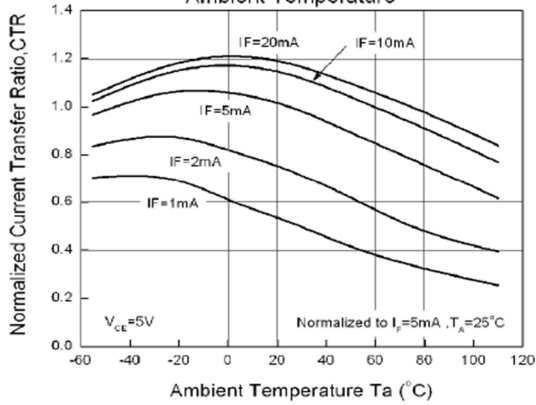


Figure 2. Normalized Current Transfer Ratio vs Forward Current

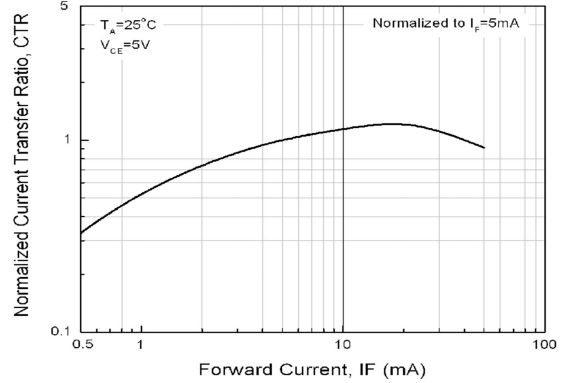


Figure 5. Collector-Emitter Saturation Voltage vs Collector Current

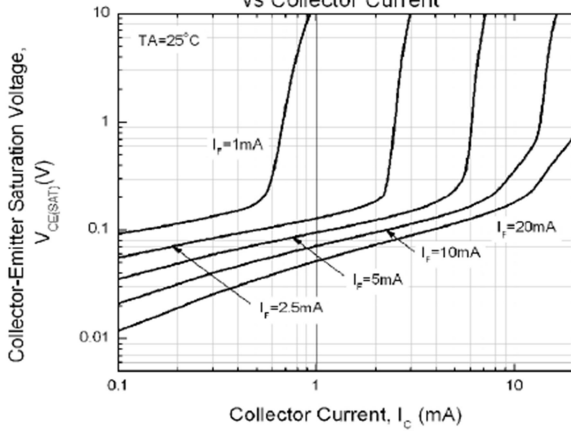


Figure 6. Switching Time vs Load Resistance

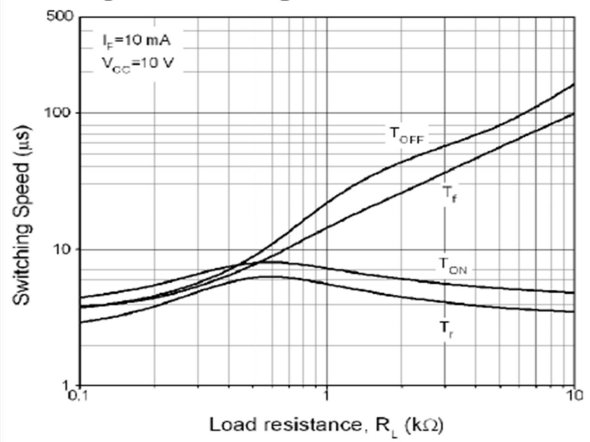
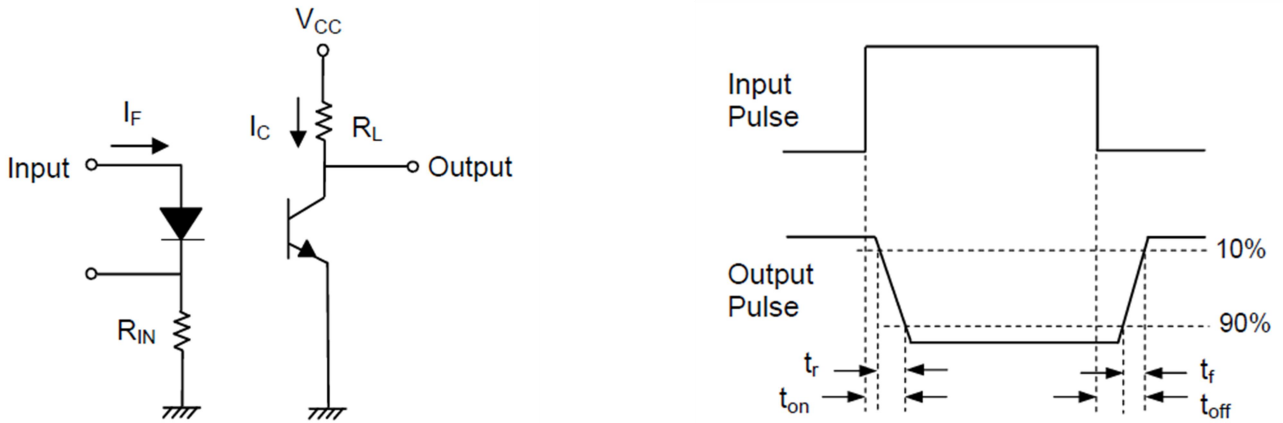
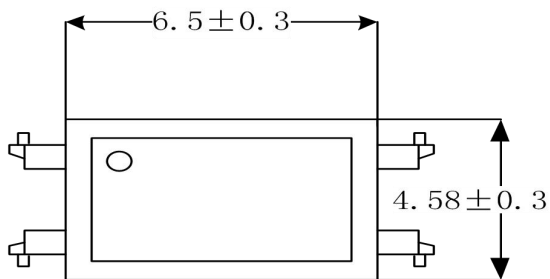


Figure:7. Switching Time Test Circuit & Waveforms

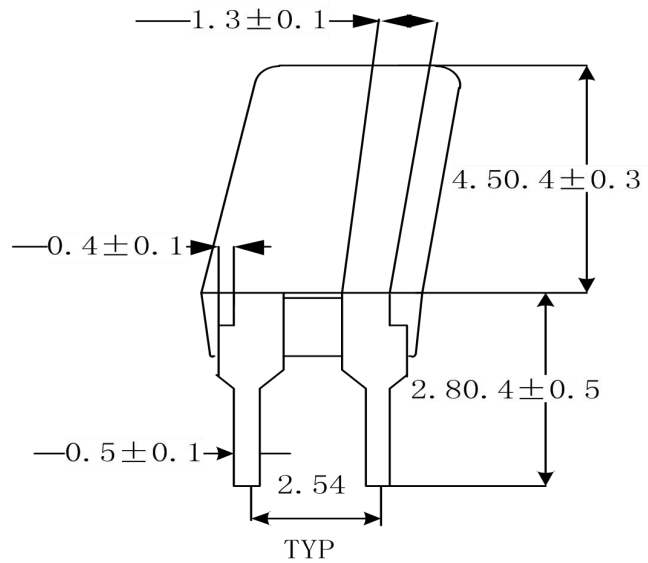
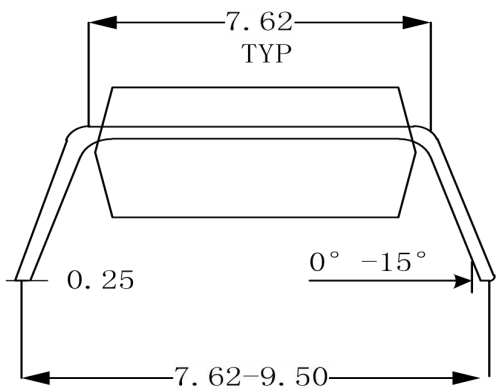


Package Drawing(Dimensions in mm)

Standard DIP Type



Unit: mm



Option SOT Type

