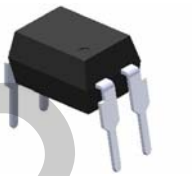
PC817(D)

4 PIN DPHOTOTRANSISTOR PHOTOCOUPLER

Description

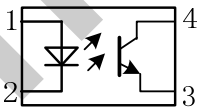
The 817 series of devices each consist of an infrared emitting diodes, optically coupled to a phototransistor detector encapsulated with green compound.The devices are in a 4-pin DIP package and available in wide-lead spacing and SMD option.



Features

- Current transfer ratio(CTR: 50~600% at IF =5mA, VCE =5V)
- High isolation voltage between inputand output (Viso=5000 V rms)
- Creepage distance >7.62 mm.
- Operating temperature up to +110℃
- 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 (Ta=25℃)

Parameter	Symbol	Rating	Unit	
Input	Forward current	IF	50	mA
	Reverse voltage	VR	6	V
	Power dissipation	PD	70	mW
	Derating factor (above Ta = 100℃)		2.9	mW/℃
Output	Power dissipation 150 mW	PC	150	mW
	Derating factor (above Ta = 100℃)		5.8	mW/℃
	Collector current	IC	50	mA
	Collector-Emitter voltage	VCEO	35	V
	Emitter-Collector voltage	VECO	6	V
Total power dissipation	PTOT	200	mW	
Isolation voltage *1	VISO	5000	V rms	
Operating temperature	Topr	-40~+110	℃	
Storage temperature	Tstg	-55~+125	℃	
Soldering temperature *2	Tsol	260	℃	

Notes

1.AC for 1 minute, R.H.= 40 ~ 60% R.H. In this test, pins 1 & 2 are shorted together, and pins 3 & 4are shorted together.

2.For 10 seconds

Electrical characteristics (Ta=25℃ unless specified otherwise)

Input

Parameter	Symbol	Min.	Typ.*	Max.	Unit	Condition
Reverse current	I_R	-		10	uA	VR = 4V
Input capacitance	Ct		30	250	pF	V = 0, f = 1kHz

Output

Parameter	Symbol	Min.	Typ.*	Max.	Unit	Condition
Collector-Emitter darkcurrent	ICEO	-	-	100	nA	VCE = 20V, IF = 0mA
Collector-Emitter breakdown voltage	BVCEO	35	-	-	V	IC = 0.1mA
Emitter-Collector breakdown voltage	BVECO	6	-	-	V	IE = 0.1mA

Transfer characteristics (Ta=25℃ unless specified otherwise)

Parameter		Symbol	Min.	Typ.*	Max.	Unit	Condition
Current Transfer ratio	817	CTR	50	-	600	%	IF = 5mA ,VCE = 5V
	817A		80	-	160		
	817B		130	-	260		
	817C		200	-	400		
	817D		300	-	600		
	817L		50	-	100		
Collector-Emitter saturation voltage		VCE(sat)		0.1	0.2	V	IF =20mA ,IC = 1mA
Isolation resistance		RISO	5×10^{10}			Ω	VIO = 500Vdc, 40~60% R.H
Floating capacitance		Cf		0.6	1.0	pF	VIO = 0,f = 1MHz
Cut-off frequency		fc		35		kHz	VCE = 5V,IC = 2mA RL = 100Ω,-3dB
Rise time		tr		4	18	μs	VCE = 2V, IC =2mA,RL = 100Ω
Fall time		tf		3	18	μs	

Typical values at Ta = 25℃

Typical Performance Curves

Figure 1. Forward Current vs Forward Voltage

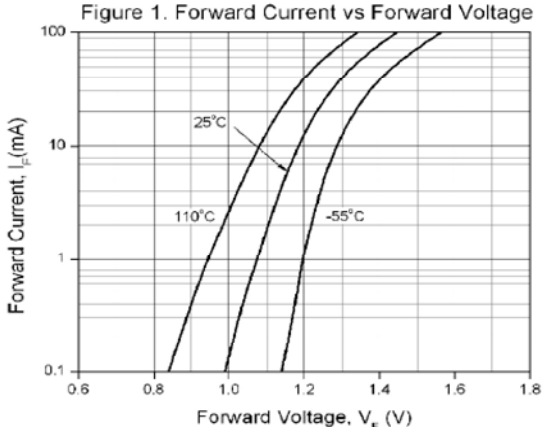


Figure 4. Dark Current vs Ambient Temperature

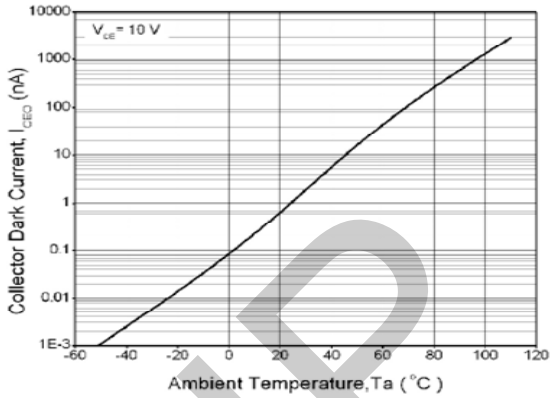


Figure 3. Current Transfer Ratio vs Ambient Temperature

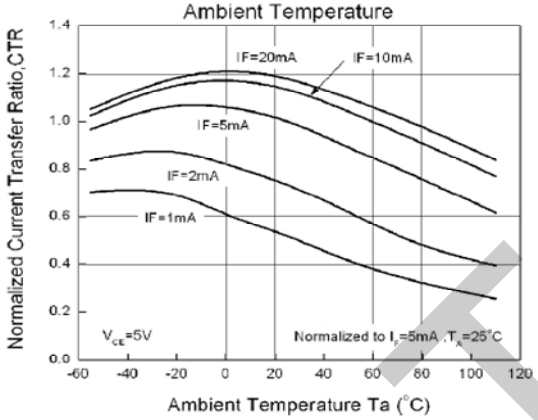


Figure 2. Normalized Current Transfer Ratio vs Forward Current

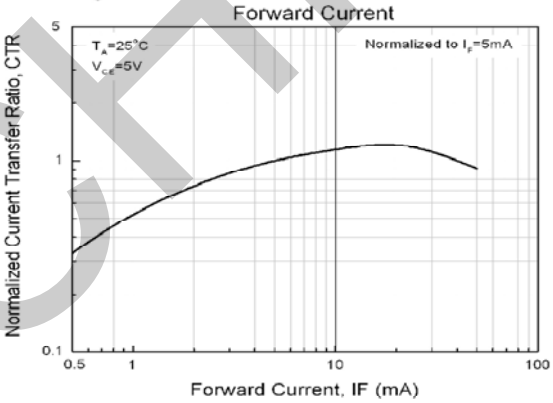


Figure 5. Collector-Emitter Saturation Voltage vs Collector Current

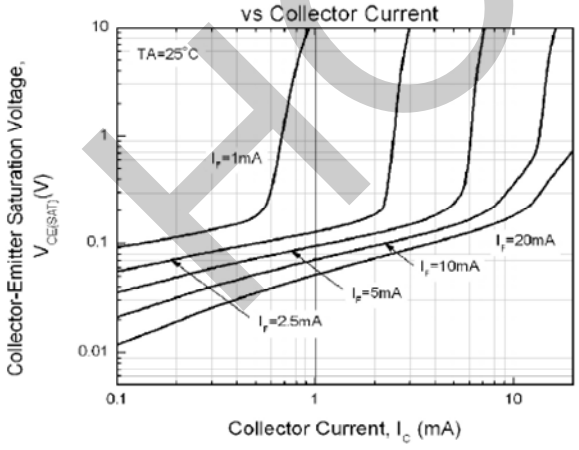


Figure 6. Switching Time vs Load Resistance

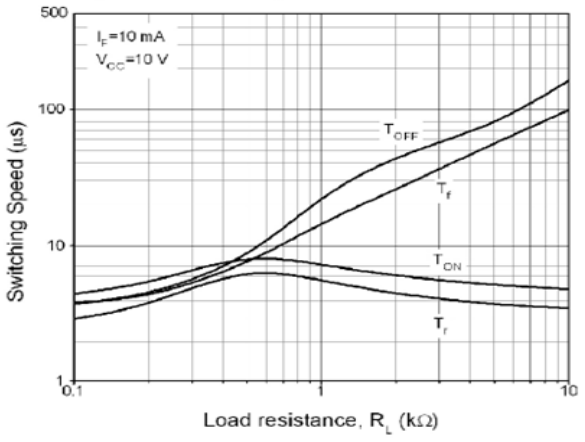
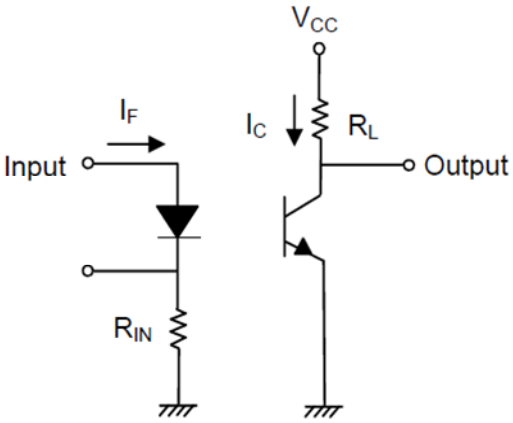
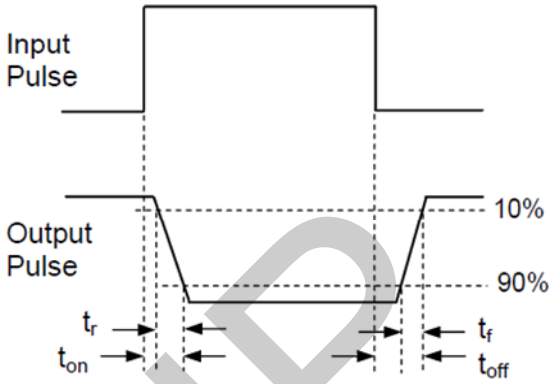


Figure:7. Switching Time Test Circuit & Waveforms

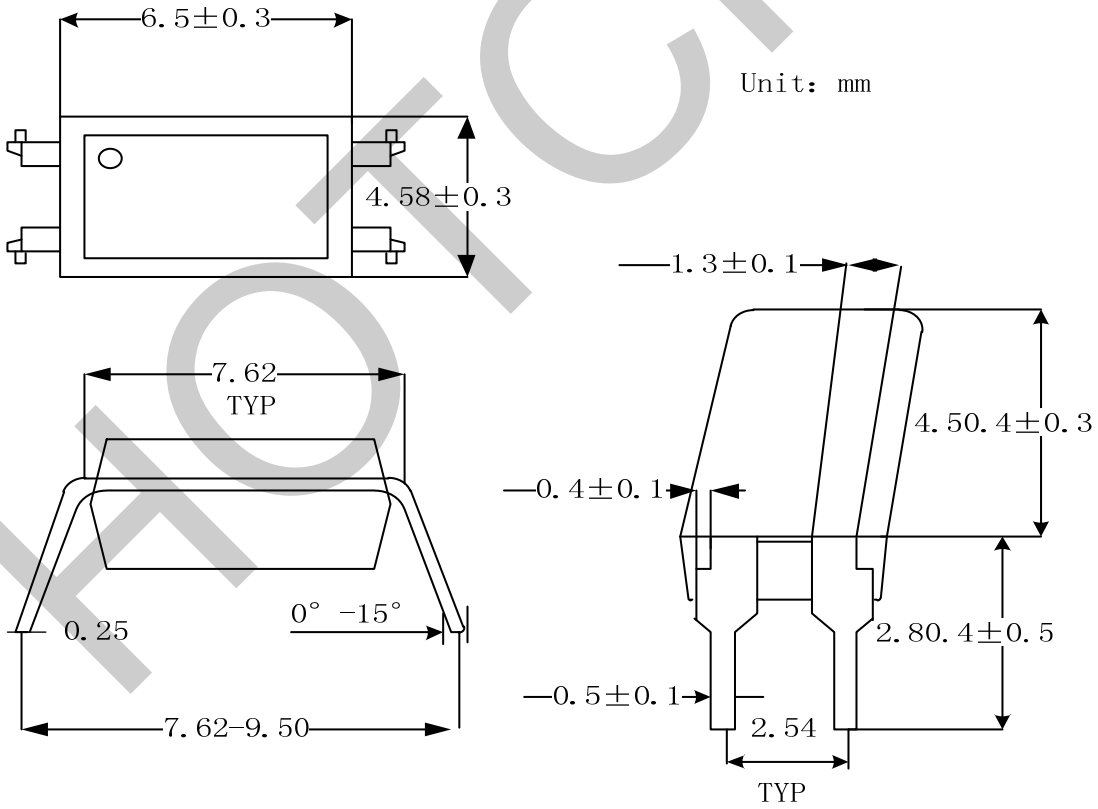




Package Drawing(Dimensions in mm)

Standard DIP Type

Unit: mm



Option SOT Type