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## 4 PIN DIP PHOTOTRANSISTOR PHOTOCOUPLER

### Features:

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



### Description:

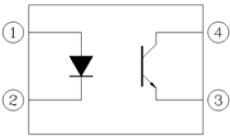
1. The JC817 series of devices each consist of an infrared emitting diode, optically coupled to a phototransistor detector.
2. They are packaged in a 4-pin DIP package and available in a wide-lead spacing and an SMD option.

### Applications:

1. Programmable controllers
2. System appliances, measuring instruments
3. Telecommunication equipment
4. Home appliances, such as fan heaters, etc.
5. Signal transmission between circuits of different potentials and impedances

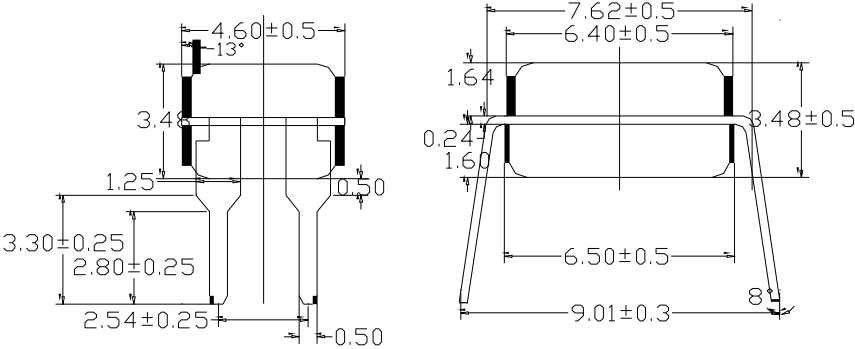


**Package Drawing  
(Dimensions in mm)**



Pin Configuration

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



**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	70	mW
Output	Collector-Emitter voltage	$V_{CEO}$	70	V
	Emitter-Collector voltage	$V_{ECO}$	6	
	Collector current	$I_C$	50	mA
	Power dissipation	$P_C$	150	mW
Total power dissipation		$P_{tot}$	200	mW
Isolation voltage *1		$V_{iso}$	5,000	Vrms
Operating temperature		$T_{opr}$	-55 to + 100	°C
Storage temperature		$T_{stg}$	-55 to + 125	
Soldering temperature *2		$T_{sol}$	260	

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

\*2. For 10 seconds.



**Electrical Characteristics (T<sub>a</sub>=25°C unless specified otherwise)**

Parameter		Symbol	Condition	Min.	Typ.*	Max	Unit
Input	Forward voltage	V <sub>F</sub>	I <sub>F</sub> =20mA	---	1.2	1.4	V
	Reverse current	I <sub>R</sub>	V <sub>R</sub> =4V	---	---	10	μA
	Input capacitance	C <sub>t</sub>	V=0, f=1KHz	---	30	250	pF
Output	Collector-Emitter dark current	I <sub>CEO</sub>	V <sub>CE</sub> =20V, I <sub>F</sub> =0	---	---	100	nA
	Collector-Emitter breakdown voltage	BV <sub>CEO</sub>	I <sub>C</sub> =0.1mA I <sub>F</sub> =0	70	100	---	V
	Emitter-Collector breakdown voltage	BV <sub>ECO</sub>	I <sub>E</sub> =10μA I <sub>F</sub> =0	6	9	---	V

\*Typical values at T<sub>a</sub> = 25°C

**Transfer Characteristics (T<sub>a</sub>=25°C unless specified otherwise)**

Parameter	Symbol	Condition	Min.	Typ.*	Max.	Unit
Current transfer ratio (EL817)	CTR	I <sub>F</sub> = 5mA , V <sub>CE</sub> = 5V	50	-	600	%
Collector-Emitter saturation voltage	V <sub>CE(sat)</sub>	I <sub>F</sub> = 20mA , I <sub>C</sub> = 1mA	-	0.1	0.2	V
Isolation resistance	R <sub>iso</sub>	V <sub>IO</sub> = 500Vdc, 40~60% R.H.	5×10 <sup>10</sup>	1×10 <sup>11</sup>	-	Ω
Floating capacitance	C <sub>f</sub>	V <sub>IO</sub> = 0, f = 1MHz	-	0.6	1.0	pF
Cut-off frequency	f <sub>c</sub>	V <sub>CE</sub> = 5V, I <sub>C</sub> = 2mA RL = 100Ω,	-	80	-	kHz
Rise time	T <sub>r</sub>	V <sub>CE</sub> = 2V, I <sub>C</sub> =	-	4	18	μs
Fall time	t <sub>f</sub>		-	3	18	μs

\*Typical values at T<sub>a</sub> = 25°C