PC817

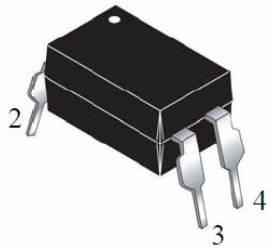
General Description

The PC817 contains a light emitting diode optically coupled to a phototransistor.It is a packaged in a 4-pin DIP package.Input-output isolation voltage is 5000Vrms,Response time,tr,is typically 4μs and minimum CTR is 50% at input current of 5mA.

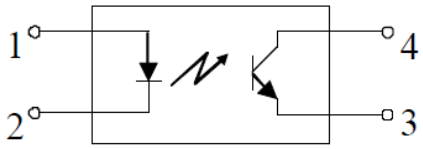
Characteristics

- Current transfer ratio(CTR:MIN.50% at I_F=5mA, V_{CE}=5V)
- High isolation voltage between input and output (Viso=5000Vrms)
- Excellent Stability at High Temperature
- Minimum BVCEO of 70V guaranteed
- Compact dual-in-line package

Package 4-pin DIP



Block Diagram



Applications

- Feedback circuit in power supply
- System appliances, measuring instruments
- Registers, copiers, automatic vending machines
- Electric home appliances, such as fan heaters, etc

Absolute Maximum Ratings (Ta= 25℃ unless otherwise noted)

Parameter		Symbol	Value	Unit
Input	Forward Current	I_F	50	mA
	Reverse Voltage	V_R	6	V
	Power Dissipation	P	70	mW
Output	Collector Power Dissipation	P_C	150	mW
	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		Viso	5000	Vrms
Operating Temperature		T_{opr}	-30～+100	℃
Storage Temperature		T_{stg}	-55～+125	℃
Soldering Temperature		T_{sol}	260	℃

Electrical Characteristics (Ta= 25℃ unless otherwise noted)

Parameter		Symbol	Test Conditions	Criterion			Unit
				Min.	Typ.	Max.	
Input	Forword	V_F	I_F=20mA	-	1.2	1.4	V
	Reverse Current	I_R	V_R=4V	-	-	10	μA
	Terminal Capacitance	C_t	V=0V, f=1MHZ	-	30	250	pF
Output	Collector Dark Current	I_{CEO}	V_{CE}=20V	-	-	100	nA
	Collector-Emitter Breakdown Voltage	BV_{CEO}	I_C=0.1mA, I_F=0	70	-	-	V
	Emitter-Collector Breakdown Voltage	BV_{ECO}	I_E=10μA, I_F=0	6	-	-	V
Transfer characteristics	Current Transfer Ratio	CTR	V_{CE}=5V, I_F=5mA	50	-	600	%
	Collector-Emitter Saturation Voltage	$V_{CE\ sat}$	I_F=20mA, I_C=1mA	-	0.1	0.2	V
	Isolation Resistance	Riso	DC500V,40~60%R.H.	5×10^{10}	1×10^{11}	-	Ω
	Floating Capacitance	Cf	V=0, f=1MHz	-	0.6	1.0	pF
	Cut-off Frequency	F_C	V_{CE}=5V，I_C=2mA, R_L=100Ω,-3dB	-	80	-	KHz
	Rise Time	t_r	V_{CE}=2V，I_C=2mA, R_L=100Ω	-	4	18	μs
	Fall Time	t_f	V_{CE}=2V，I_C=2mA, R_L=100Ω	-	3	18	μs

* CTR=$I_C/I_F\times100\%$

Rank Table of CTR

Classification	A	B	C	D	L	-
CTR	80-160	130-260	200-400	300-600	50-100	50-600

Electrical Characteristics (Curves)

Fig.1 Forward Current vs. Ambient Temperature

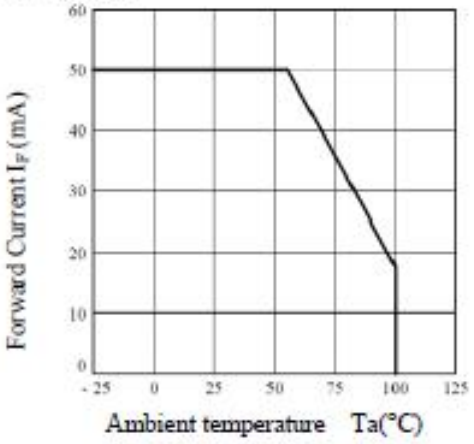


Fig.2 Collector Power Dissipation vs Ambient Temperature

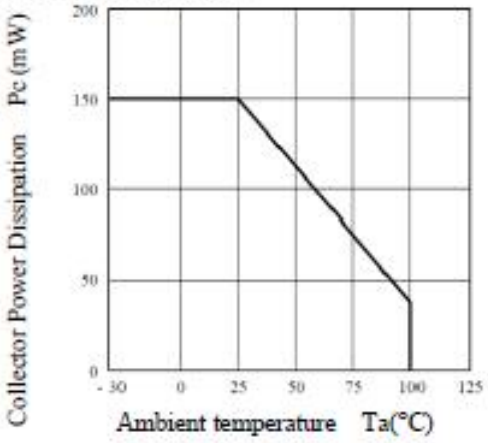


Fig.3 Forward Current vs. Ambient Temperature

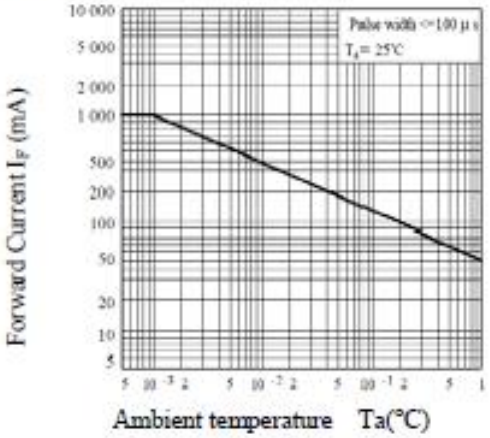


Fig.4 Current Transfer Ratio vs. Forward Current

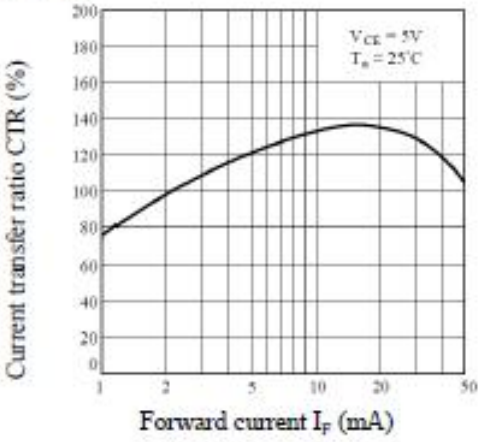


Fig.5 Forward Current vs. Forward Voltage

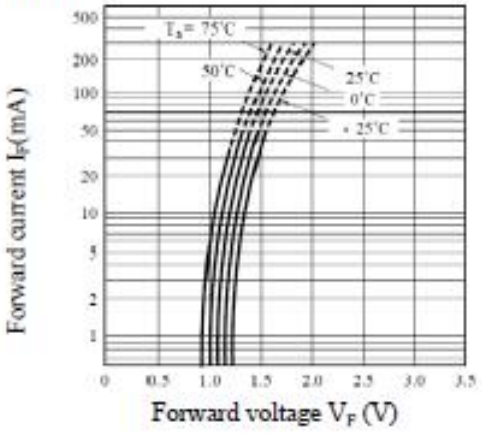


Fig.6 Collector Current vs. Collector-emitter Voltage

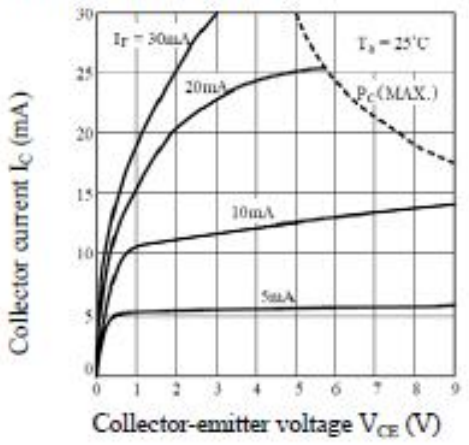


Fig.7 Relative Current Transfer Ratio vs. Ambient Temperature

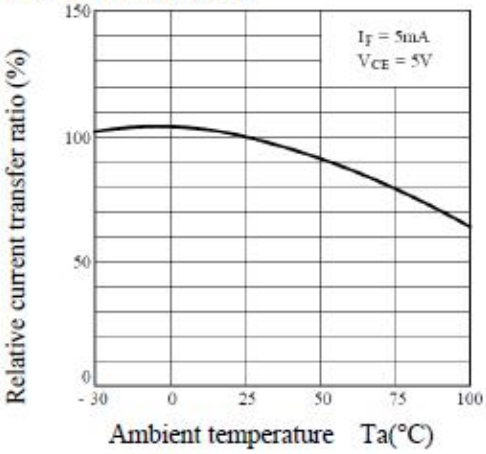


Fig.8 Collector-emitter Saturation Voltage vs. Ambient Temperature

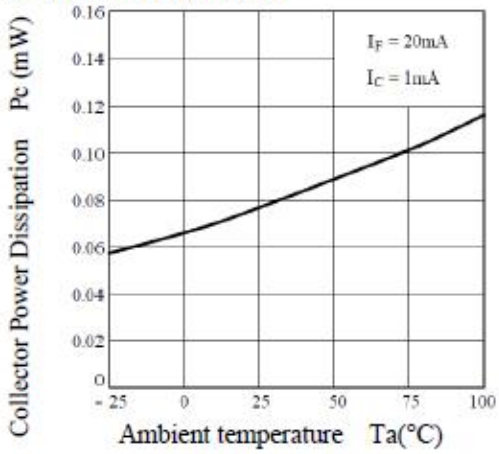


Fig.9 Collector Dark Current vs. Ambient Temperature

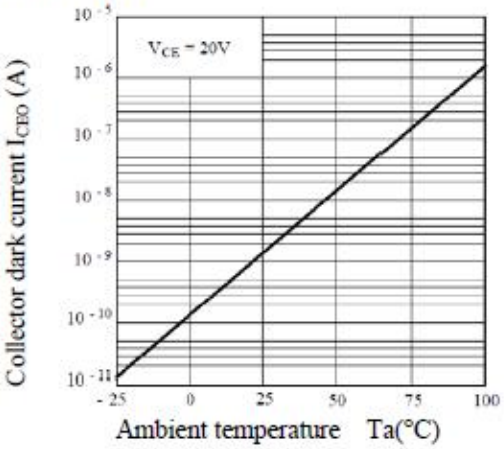


Fig.10 Response Time vs. Load Resistance

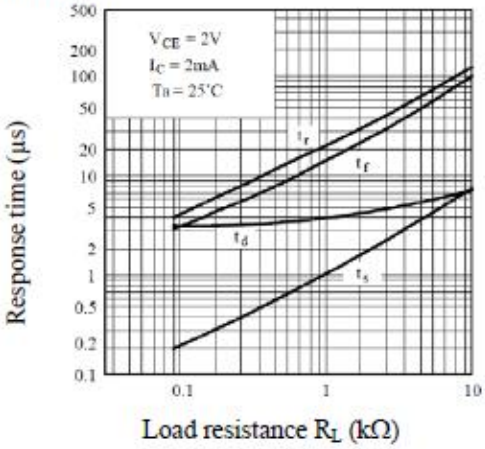


Fig.11 Frequency Response

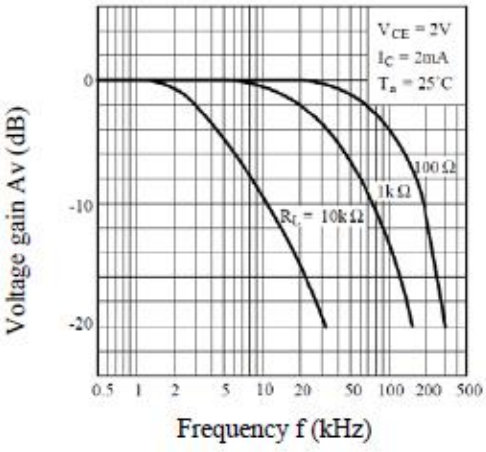


Fig.12 Collector-emitter Saturation Voltage vs. Forward Current