

The PC817 Series contains a light emitting diode optically coupled to a phototransistor. Input-output isolation voltage is 5000Vrms. Response time(t_r) is typically 4 μ s and minimum CTR is 50% at input current of 5mA.

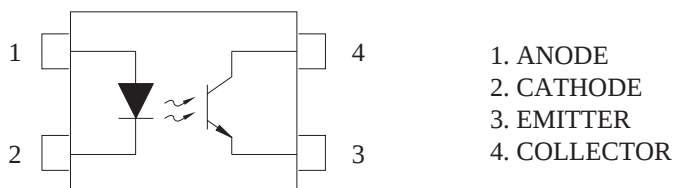
FEATURES

- Collector-Emitter Voltage : Min.80V
- Current Transfer Ratio
(CTR : MIN. 50% at $I_F=5mA$, $V_{CE}=5V$).
- High isolation voltage between input and output.
($V_{ISO}=5,000V_{rms}$)

APPLICATIONS

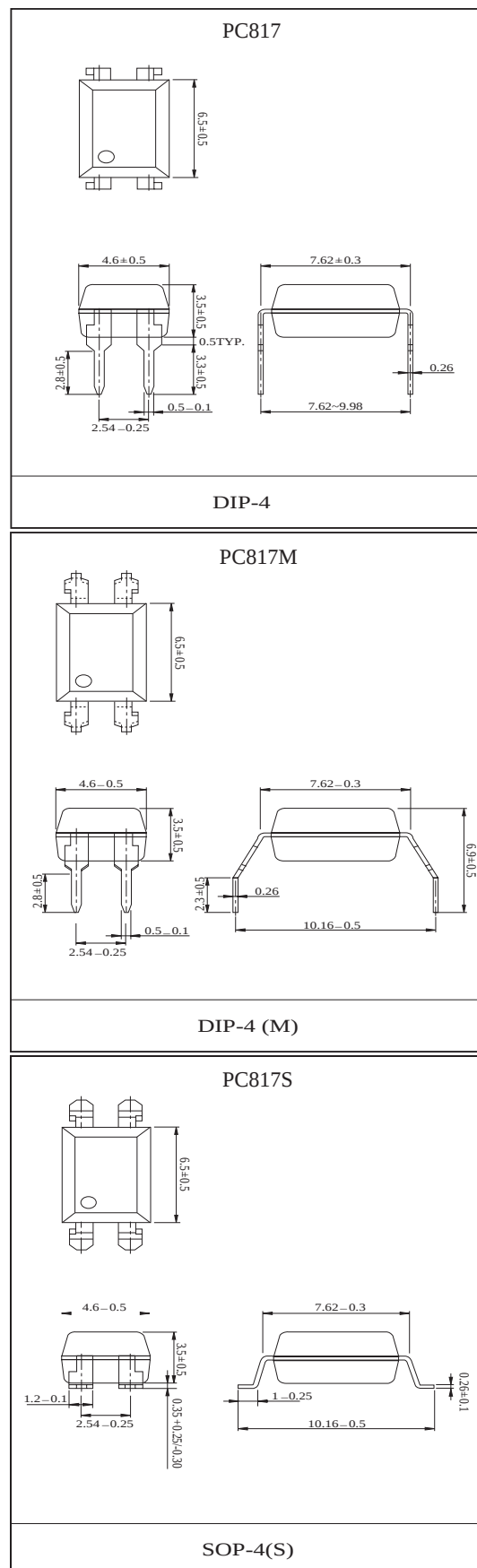
- Feedback circuit in power supply.
- Switching Mode Power Supply.
- System appliances, Measuring instruments.
- Registers, Copiers, Automatic vending machines.
- Electric home appliances such as fan heaters, etc.

BLOCK DIAGRAM AND PIN CONFIGURATIONS (TOP VIEW)



RANK TABLE OF CURRENT TRANSFER RATIO(CTR)

RANK MARK	CTR (%)	TEST CONDITION
(None)	50~600	$I_F=5mA$, $V_{CE}=5V$, $T_a=25^\circ C$
A	80~160	
B	130~260	
C	200~400	
D	300~600	
L	50~100	



MAXIMUM RATING (Ta=25℃)

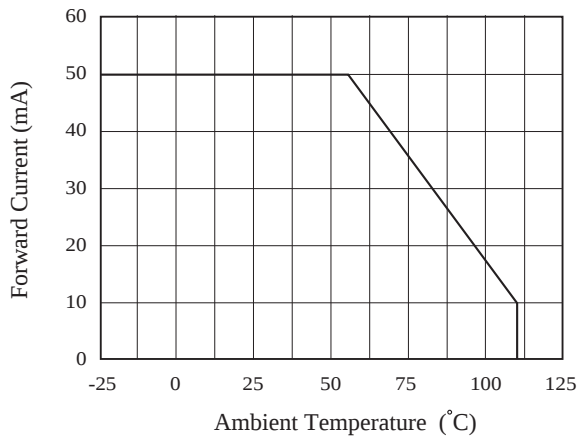
CHARACTERISTIC		SYMBOL	RATING	UNIT
Input	Forward Current	I _F	50	mA
	Reverse Voltage	V _R	6	V
	Power Dissipation	P _D	70	mW
Output	Collector Power Dissipation	P _C	150	mW
	Collector Current	I _C	50	mA
	Collector-Emitter Voltage	V _{CEO}	80	V
	Emitter-Collector Voltage	V _{ECO}	6	V
Total Power Dissipation		P _{tot}	200	mW
Isolation Voltage		V _{ISO}	5000	V _{rms}
Operating Temperature		T _{opr}	-50 ~ 110	℃
Storage Temperature		T _{stg}	-55~125	℃
Soldering Temperature		T _{sol}	260	℃

ELECTRO-OPTICAL CHARACTERISTICS (Ta=25℃ unless otherwise noted)

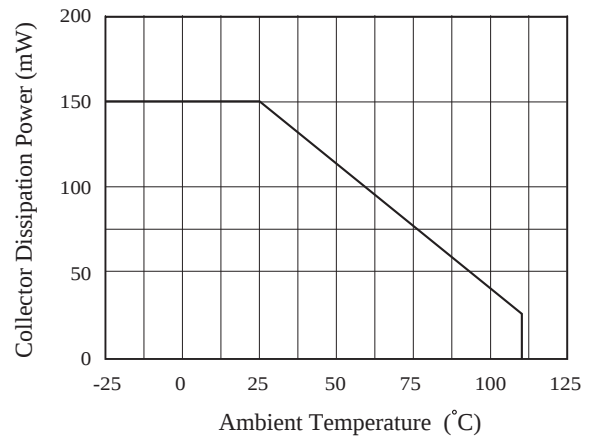
CHARACTERISTIC		SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
Input	Forward	V _F	I _F =20mA	-	1.2	1.4	V
	Reverse Current	I _R	V _R =4V	-	-	10	uA
	Terminal Capacitance	C _t	V=0, f=1kHz	-	30	250	pF
Output	Collector Dark Current	I _{CEO}	V _{CE} =20V, I _F =0	-	-	100	nA
	Collector-Emitter Breakdown Voltage	BV _{CEO}	I _C =0.1mA, I _F =0	80	-	-	V
	Emitter-Collector Breakdown Voltage	BV _{ECO}	10uA, I _F =0	6	-	-	V
Transfer Characteristics	*Current Transfer Ratio	CTR	I _F =5mA, V _{CE} =5V	50	-	600	%
	Collector-Emitter Saturation Voltage	V _{CE(sat)}	I _F =20mA, I _C =1mA	-	0.1	0.2	V
	Isolation Resistance	R _{ISO}	DC500V, 40~60% R.H.	5 × 10 ¹⁰	1 × 10 ¹¹	-	Ω
	Floating Capacitance	C _f	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	us
	Fall Time	T _f	V _{CE} =2V, I _C =2mA, R _L =100Ω	-	3	18	us

$$* CTR = \frac{I_C}{I_F} \times 100\%$$

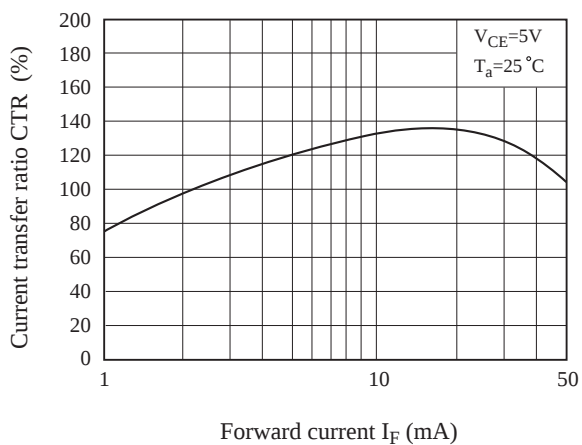
Forward Current vs. Ambient Temperature



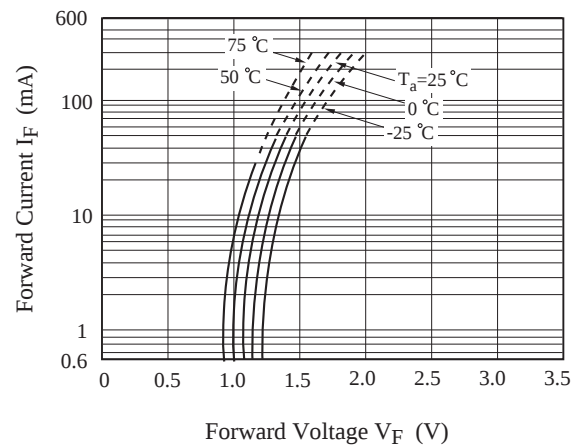
Collector Power Dissipation vs. Ambient Temperature



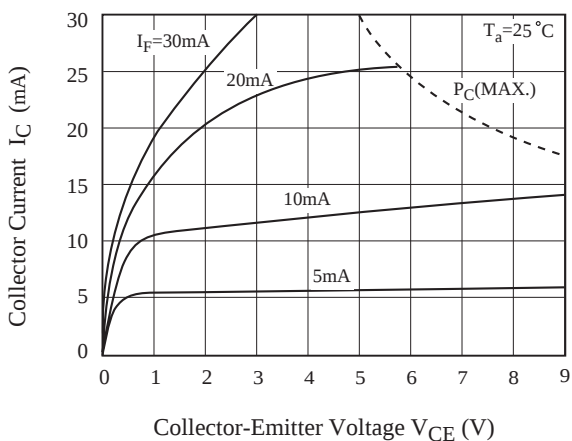
Current Transfer Ratio vs. Forward Current



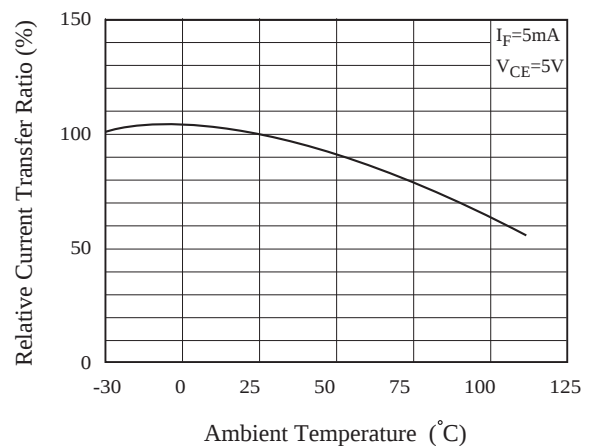
Forward Current vs. Forward Voltage



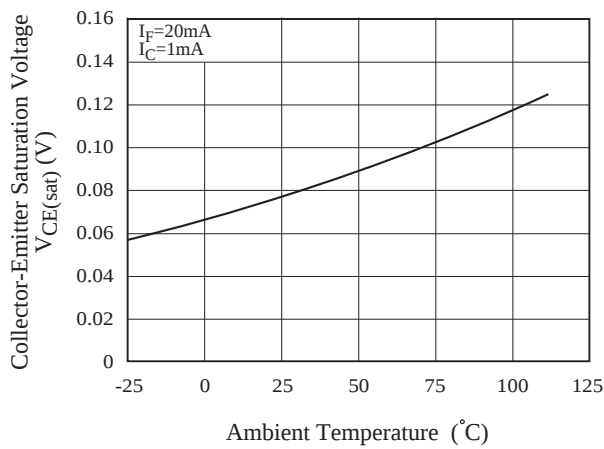
Collector Current vs. Collector-Emitter Voltage



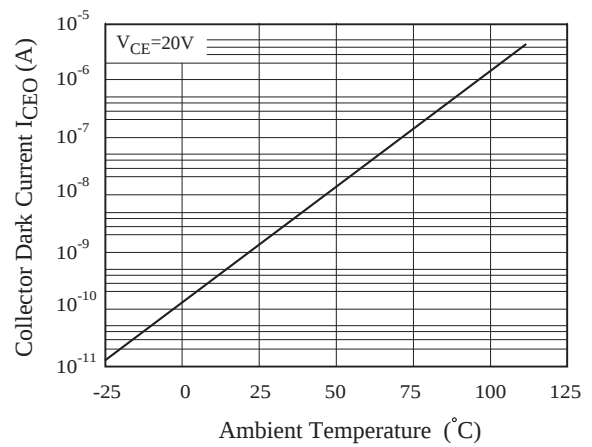
Relative Current Transfer Ratio vs. Ambient Temperature



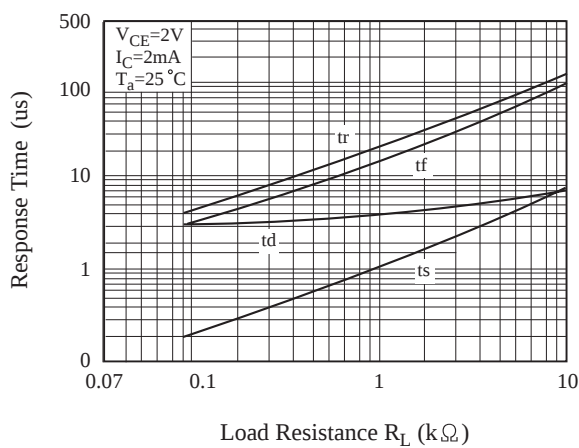
Collector-Emitter Saturation Voltage vs. Ambient Temperature



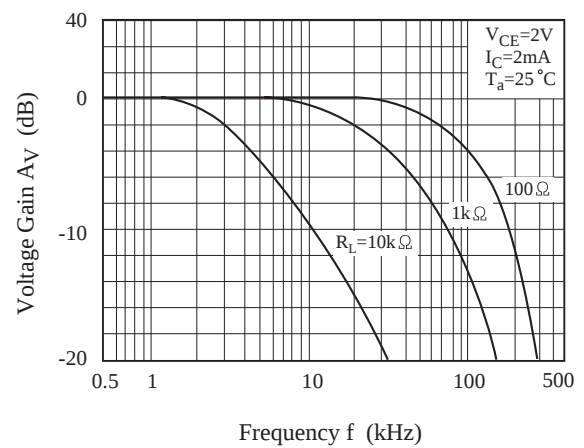
Collector Dark Current vs. Ambient Temperature



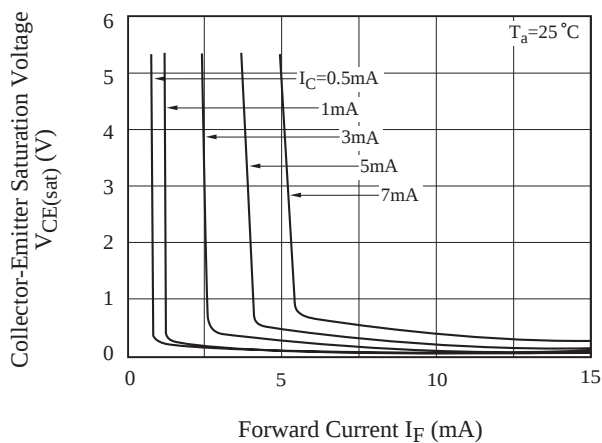
Response Time vs. Load Resistance



Frequency Response



Collector-Emitter Saturation Voltage vs. Forward Current



TEST Circuit for Response Time

