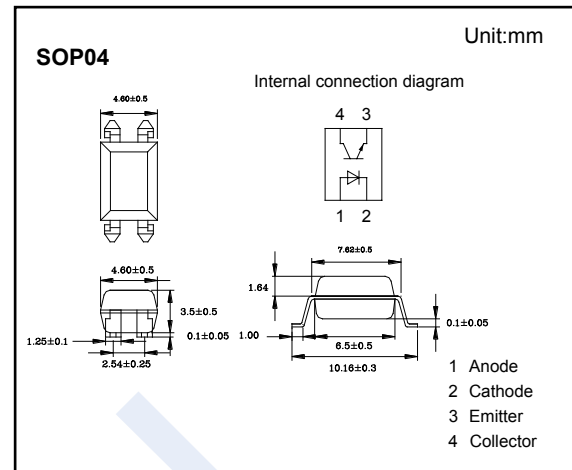


High Density Mounting Type Photocoupler

PC817 Series

■ Features

- Current transfer ratio
(CTR: MIN. 50% at $I_F = 5\text{mA}$, $V_{CE}=5\text{V}$)
- High isolation voltage between input and output



■ Absolute Maximum Ratings $T_a = 25^\circ\text{C}$

Parameter	Symbol	Rating	Unit
Input Reverse voltage	V_R	6	V
Collector - Emitter Output Voltage	V_{CEO}	35	
Emitter-Collector Output Voltage	V_{ECO}	6	
Isolation Voltage	V_{ISO}	5000	V_{rms}
Input Forward Current	I_F	50	mA
Input Peak Forward Current (Note.1)	I_{FM}	1	A
Collector Current - Continuous	I_C	50	mA
Input Power Dissipation	P	70	mW
Collector Output Power dissipation	P_C	150	
Total Power Dissipation	P_{tot}	200	
Junction Temperature	T_J	125	$^\circ\text{C}$
Soldering temperature	T_{sol}	260	
Operating Temperature	T_{opr}	-30 to 100	
Storage Temperature Range	T_{stg}	-55 to 125	

Note.1:Pulse width $\leq 100\text{ms}$, Duty ratio : 0.001

High Density Mounting Type Photocoupler PC817 Series

■ Electrical Characteristics Ta = 25°C

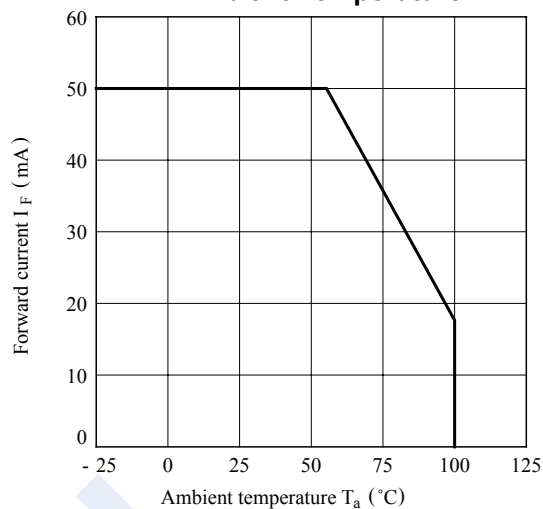
Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Input Forward Voltage	V _F	I _F = 20 mA			1.4	V
Input Peak Forward Voltage	V _{FM}	I _{FM} = 500 mA			3	
Input Reverse Current	I _R	V _R = 4 V			10	μA
Collector- emitter cut-off current	I _{CEO}	V _{CE} = 20 V , I _E = 0			10	
Collector-emitter saturation voltage	V _{CE(sat)}	I _F = 20mA, I _C = 1mA		0.1	0.2	V
Isolation resistance	R _{ISO}	DC 500V, 40 to 60% RH	5 x 10 ¹⁰	10 ¹¹		Ω
Current Transfer Ratio	CTR	V _{CE} = 5V, I _F = 5mA	50		600	%
Rise time	t _r	V _{CE} = 2V, I _C = 2mA, R _L = 100Ω		4	18	μS
Fall time	t _f			3	18	
Input Terminal Capacitance	C _i	V= 0V, f=1KHz		30	250	pF
Floating Capacitance	C _f			0.6	1	
Cut-off frequency	f _c	V _{CE} = 5V, I _C = 2mA, R _L =100Ω		80		KHz

■ Classification of CTR(%)

Type	PC817A	PC817B	PC817C	PC817D	PC817
Range	80-160	130-260	200-400	300-600	50-600

■ Typical Characteristics

Fig. 1 Forward Current vs. Ambient Temperature



High Density Mounting Type Photocoupler PC817 Series

■ Typical Characteristics

Fig. 2 Collector Power Dissipation vs. Ambient Temperature

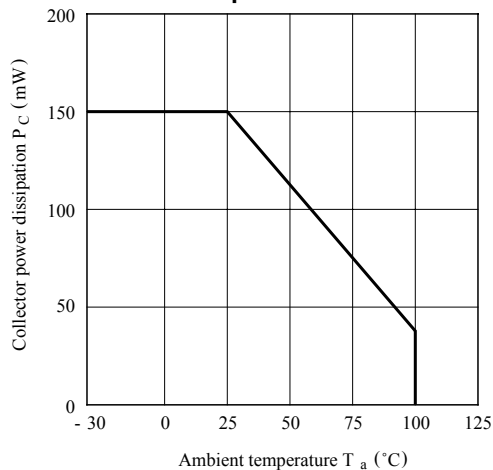


Fig. 3 Peak Forward Current vs. Duty Ratio

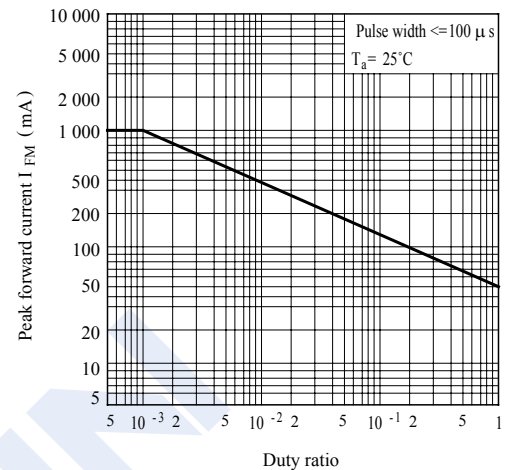


Fig. 4 Current Transfer Ratio vs. Forward Current

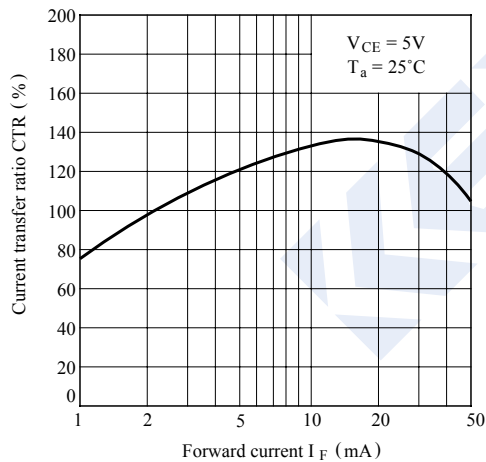


Fig. 5 Forward Current vs. Forward Voltage

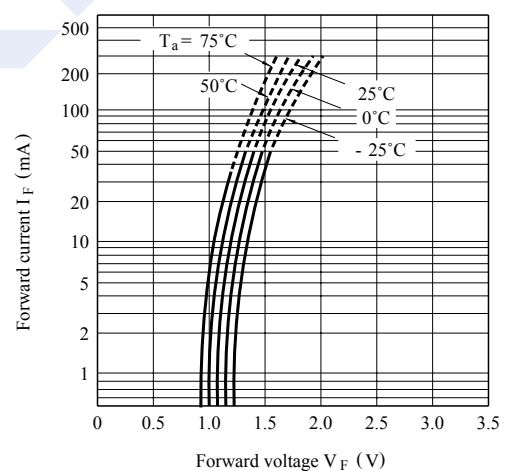


Fig. 6 Collector Current vs. Collector-emitter Voltage

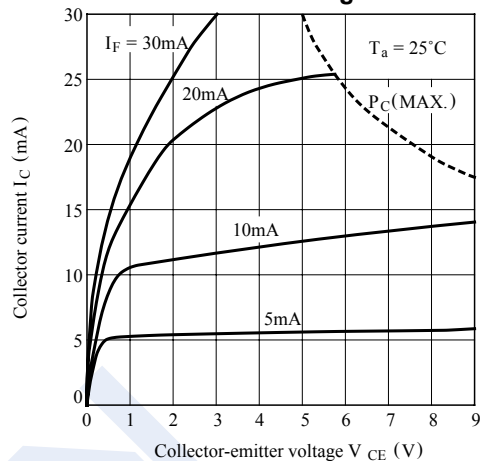
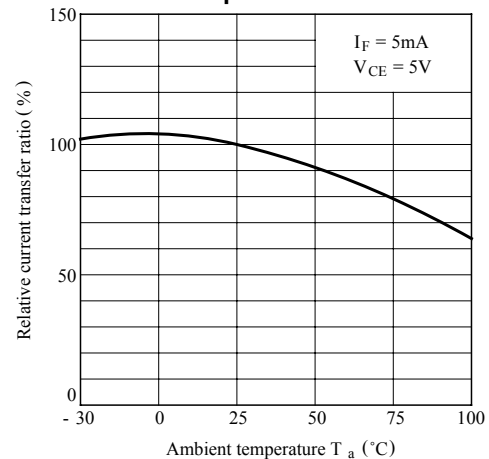


Fig. 7 Relative Current Transfer Ratio vs. Ambient Temperature



High Density Mounting Type Photocoupler PC817 Series

■ Typical Characteristics

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

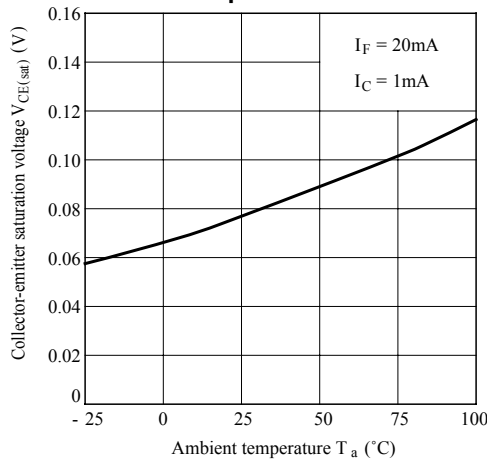


Fig. 9 Collector Dark Current vs. Ambient Temperature

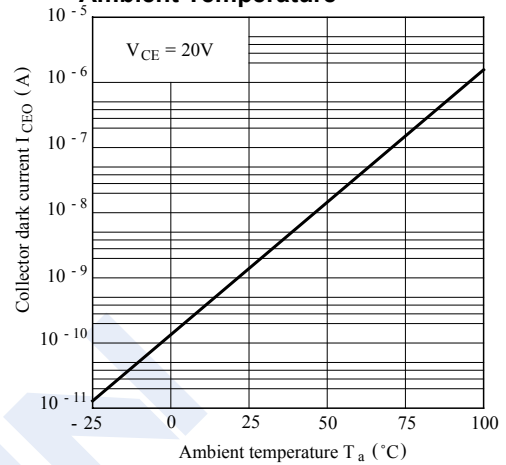


Fig.10 Response Time vs. Load Resistance

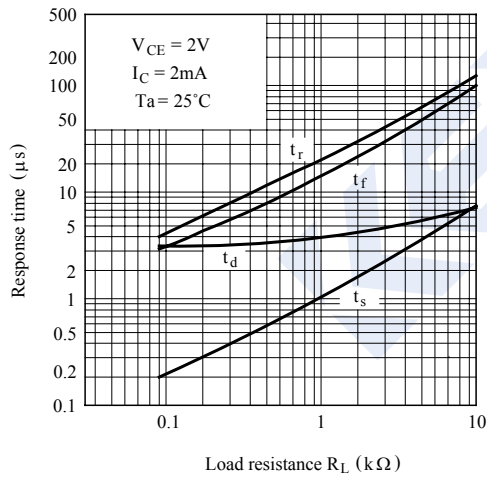
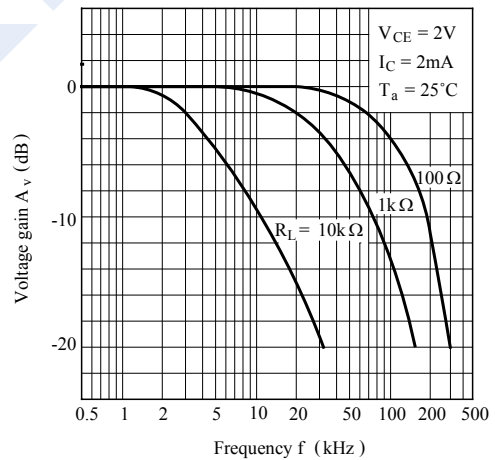
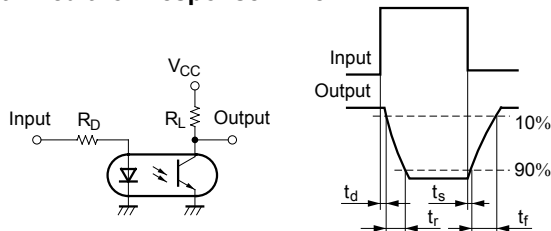


Fig.11 Frequency Response



Test Circuit for Response Time



Test Circuit for Frequency Response

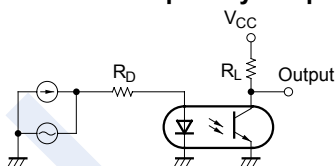


Fig.12 Collector-emitter Saturation Voltage vs. Forward Current

