PC815 Series

High Sensitivity, High Density Mounting Type Photocoupler

※ Lead forming type (I type) and taping reel type (P type) are also available. (**PC815I/PC815P**) (Page 656)
※※TÜV (VDE0884) approved type is also available as an option.

■ Features

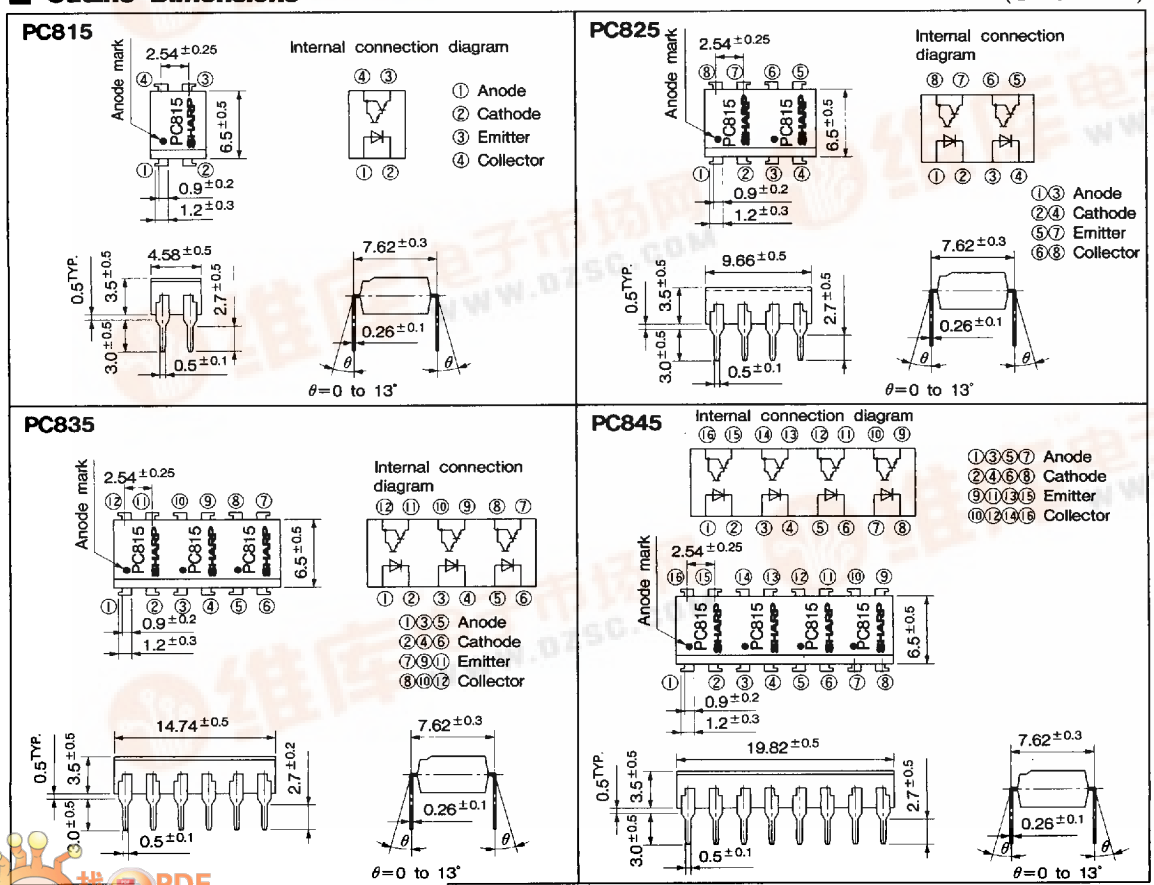
1. High current transfer ratio
   (CTR : MIN. 600% at I_F=1mA, V_{CE}=2V)
2. High isolation voltage between input and output
   (V_{iso} : 5 000V_{rms})
3. Compact dual-in-line package
   PC815 : 1-channel type **PC825** : 2-channel type
   PC835 : 3-channel type **PC845** : 4-channel type
4. Recognized by UL file No. E64380

■ Applications

1. System appliances, measuring instruments
2. Industrial robots
3. Copiers, automatic vending machines
4. Signal transmission between circuits of different potentials and impedances

■ Outline Dimensions

(Unit : mm)



■ Absolute Maximum Ratings

(Ta=25℃)

Parameter		Symbol	Rating	Unit
Input	Forward current	I_F	50	mA
	*1 Peak forward current	I_{FM}	1	A
	Reverse voltage	V_R	6	V
	Power dissipation	P	70	mW
Output	Collector-emitter voltage	V_{CEO}	35	V
	Emitter-collector voltage	V_{ECO}	6	V
	Collector current	I_C	80	mA
	Collector power dissipation	P_C	150	mW
Total power dissipation		P_{tot}	200	mW
*2 Isolation voltage		V_{iso}	5 000	V_{rms}
Operating temperature		T_{opr}	−30 to +100	℃
Storage temperature		T_{stg}	−55 to +125	℃
*3 Soldering temperature		T_{sol}	260	℃

*1 Pulse width≦100 μs, Duty ratio=0.001
*2 40 to 60%RH, AC for 1 minute
*3 For 10 seconds

■ Electro-optical Characteristics

(Ta=25℃)

Parameter			Symbol	Conditions	MIN.	TYP.	MAX.	Unit
Input	Forward voltage		V_F	I_F=20mA	−	1.2	1.4	V
	Peak forward voltage		V_{FM}	I_{FM}=0.5A	−	−	3.0	V
	Reverse current		I_R	V_R=4V	−	−	10	μA
	Terminal capacitance		C_t	V=0, f=1kHz	−	30	250	pF
Output	Collector dark current		I_{CEO}	V_{CE}=10V, I_F=0	−	−	10^{-6}	A
Transfer characteristics	Current transfer ratio		CTR	I_F=1mA, V_{CE}=2V	600	1 600	7 500	%
	Collector-emitter saturation voltage		$V_{CE(sat)}$	I_F=20mA, I_C=5mA	−	0.8	1.0	V
	Isolation resistance		R_{ISO}	DC500V, 40 to 60%RH	5×10^{10}	10^{11}	−	Ω
	Floating capacitance		C_f	V=0, f=1MHz	−	0.6	1.0	pF
	Cut-off frequency		f_c	V_{CE}=2V, I_C=2mA, R_L=100Ω	1	6	−	kHz
	Response time	Rise time	t_r	V_{CE}=2V, I_C=10mA, R_L=100Ω	−	60	300	μs
		Fall time	t_f		−	53	250	μs

Fig. 1 Forward Current vs. Ambient Temperature

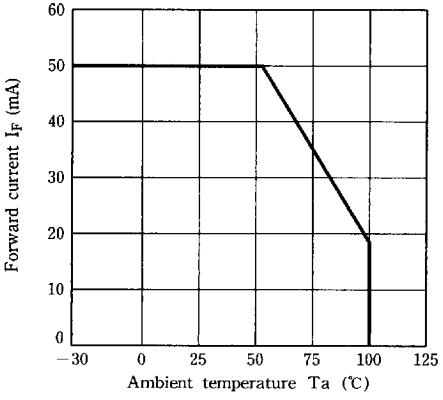


Fig. 2 Collector Power Dissipation vs. Ambient Temperature

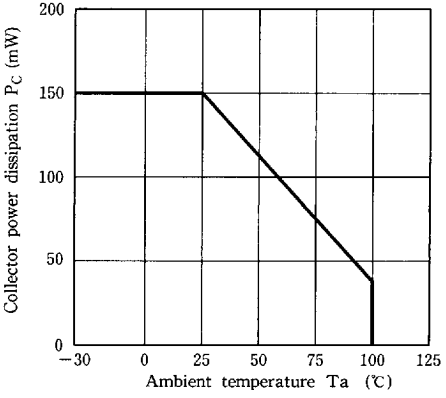


Fig. 3 Peak Forward Current vs. Duty Ratio

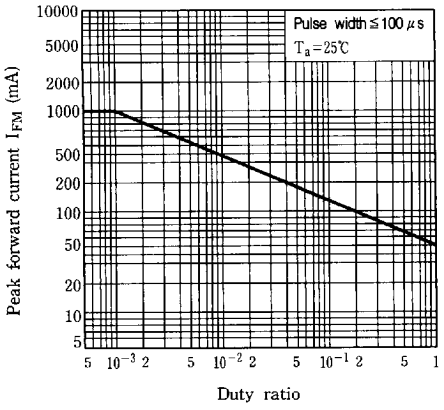


Fig. 4 Forward Current vs. Forward Voltage

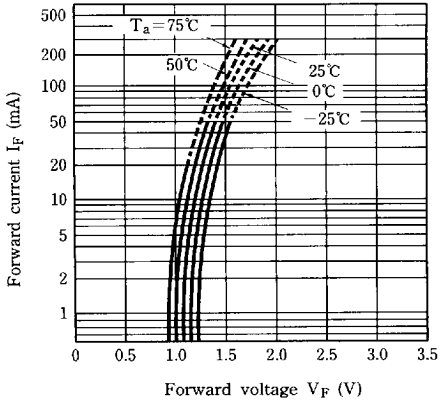


Fig. 5 Current Transfer Ratio vs. Forward Current

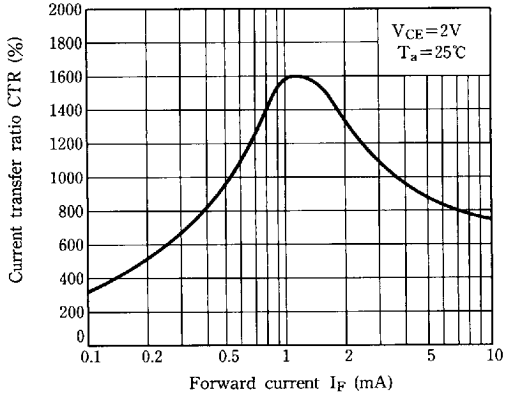


Fig. 6 Collector Current vs. Collector-emitter Voltage

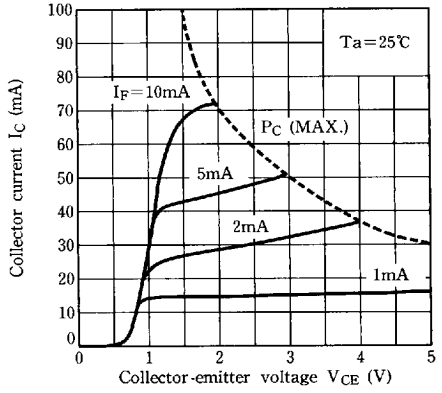


Fig. 7 Relative Current Transfer Ratio vs. Ambient Temperature

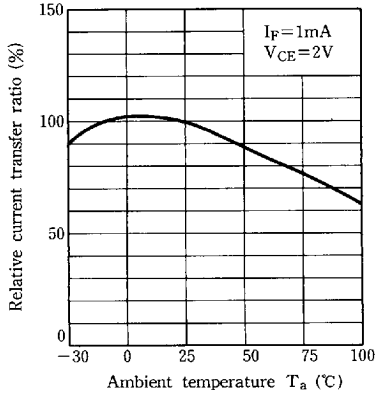


Fig. 8 Collector-emitter Saturation Voltage vs. Ambient Temperature

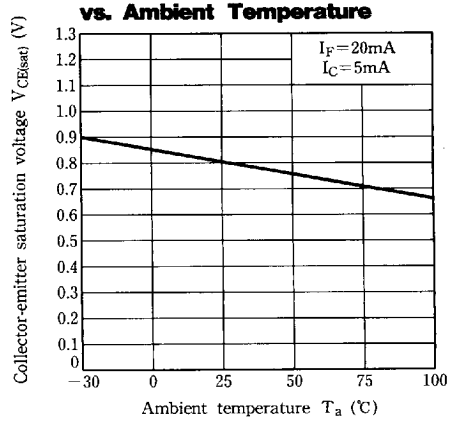


Fig. 9 Collector Dark Current vs. Ambient Temperature

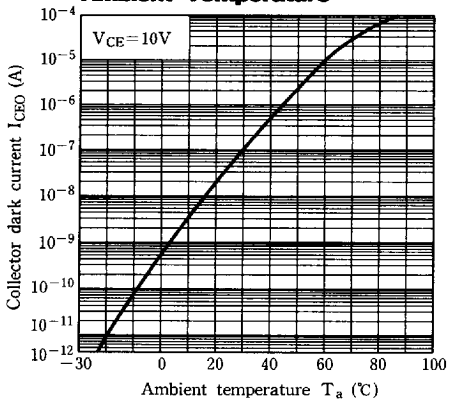


Fig.10 Response Time vs. Load Resistance

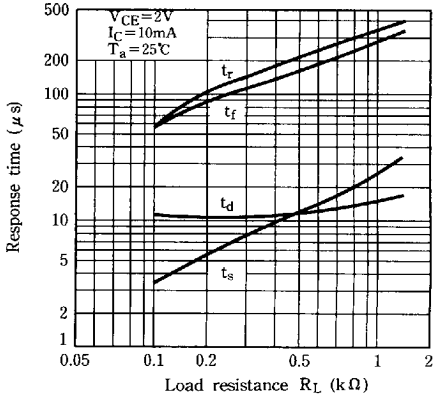
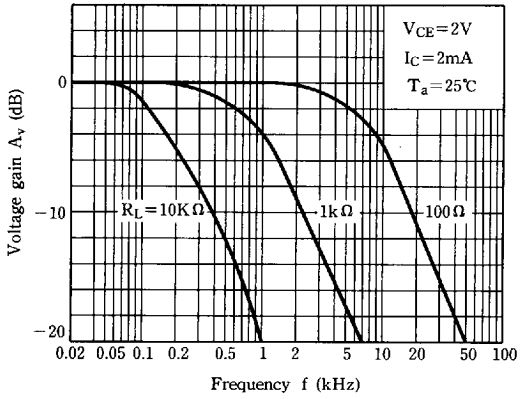


Fig.11 Frequency Response



Test Circuit for Response Time

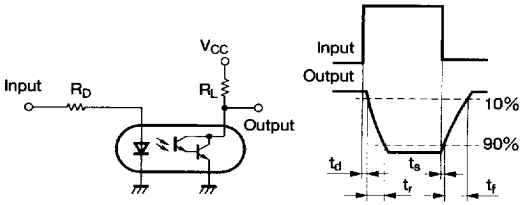
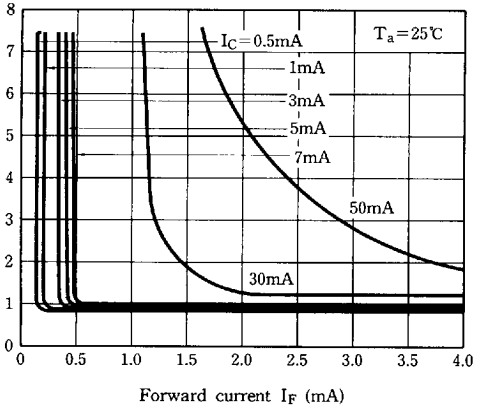
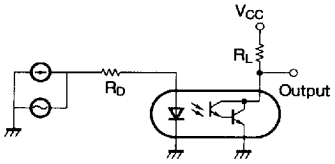


Fig.12 Collector-emitter Saturation Voltage vs. Forward Current



Test Circuit for Frepuency Response



· Please refer to the chapter "Precautions for Use" (Page 78 to 93)