

PC815 Series

High Sensitivity, High Density Mounting Type Photocoupler

※ Lead forming type (I type) and taping reel type (P type) are also available. (PC815i/PC81 5P) (Page 656)
 ※ TÜV (VDE0884) approved type is also available as an option.

Features

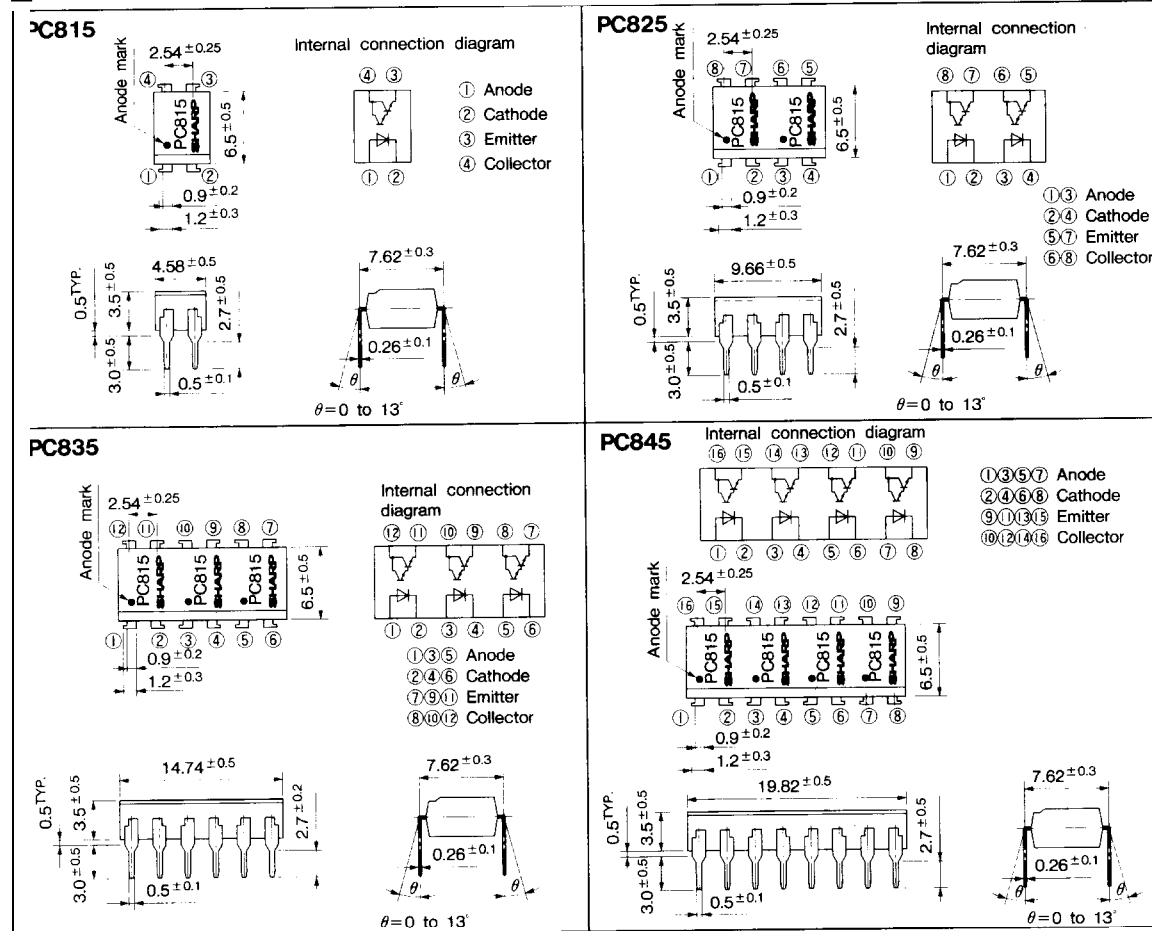
1. High current transfer ratio
(CTR: MIN. 600% at $I_F = 1\text{mA}$, $V_{CE} = 2\text{V}$)
2. High isolation voltage between input and output
($V_{iso} : 5\ 000V_{rms}$)
3. Compact dual-in-line package
PC815 : 1-channel type **PC825**: 2-channel type
PC835: 3-channel type **PC845**: 4-channel type
4. 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)



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Photocouplers

Absolute Maximum Ratings

(Ta = 25°C)

Parameter		Symbol	Rating	Unit
Input	Forward current	IF	5(I)	mA
	*1 Peak forward current	IFM	1	A
	Reverse voltage	VR	6	v
	Power dissipation	P	70	mW
output	Collector -emitter voltage	VCEO	35	v
	Emitter collector voltage	VECO	6	v
	Collector current	IC	80	mA
	Collector power dissipation	PC	150	mW
	Total power dissipation	Ptot	200	mW
*2 Isolation voltage		Viso	5 000	Vrms
Operating temperature		Topr	-30 to +100	°c
Storage temperature		Tstg	-55 to +125	°C
*3 Soldering temperature		Tsol	260	°c

*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°C)

Parameter		Symbol	Conditions	MIN.	TYP.	MAX.	Unit
Input	Forward voltage	VF	IF=20mA		1.2	1.4	V
	Peak forward voltage	VFM	IFM = 0.5A		-	3.0	V
	Reverse current	IR	VR = 4V	-	-	10	μA
	Terminal capacitance	Ct	V=0, f = 1kHz		30	250	pF
output	Collector dark current	ICEO	VCE=10V, IF=0		-	10 ⁻⁶	A
Transfer characteristics	Current transfer ratio	CTR	IF=1mA, VCE=2V	600	1600	7 500	%
	Collector-emitter saturation voltage	VCE(sat)	IF = 20mA, IC = 5mA	-	0.8	1.0	v
	Isolation resistance	RISO	DC500V, 40 to 60%RH	5 × 10 ¹⁰	10 ¹¹	-	Ω
	Floating capacitance	Cf	V=0, f = 1MHz		0.6	1.0	pF
	Cut -off frequency	fc	VCE=2V, IC=2mA, RL=100Ω	1	6		kHz
	Response time	Rise time	tr	VCE=2V, IC=10mA, RL=100Ω		60	300
Fall time		tf			-	53	250

Fig. 1 Forward Current vs. Ambient Temperature

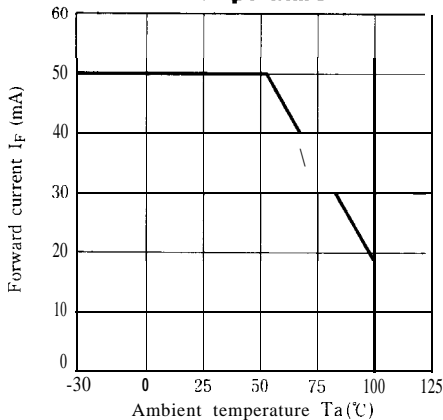


Fig. 2 Collector Power Dissipation vs. Ambient Temperature

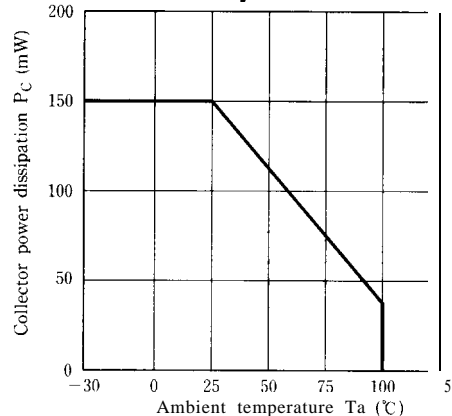


Fig. 3 Peak Forward Current vs. Duty Ratio

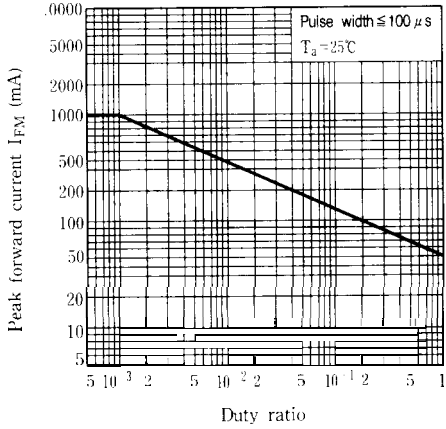


Fig. 5 Current Transfer Ratio vs. Forward Current

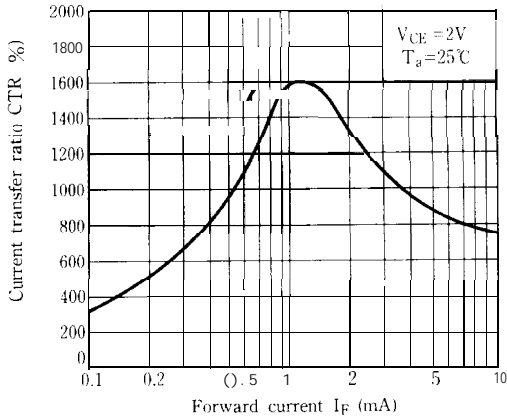


Fig. 7 Relative Current Transfer Ratio vs. Ambient Temperature

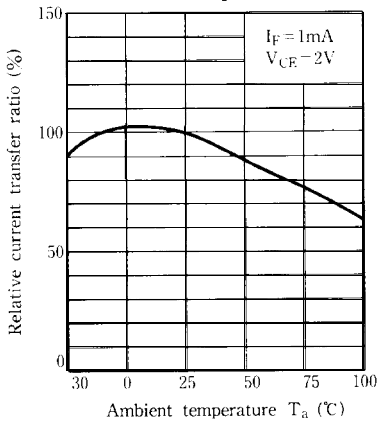


Fig. 4 Forward Current vs. Forward Voltage

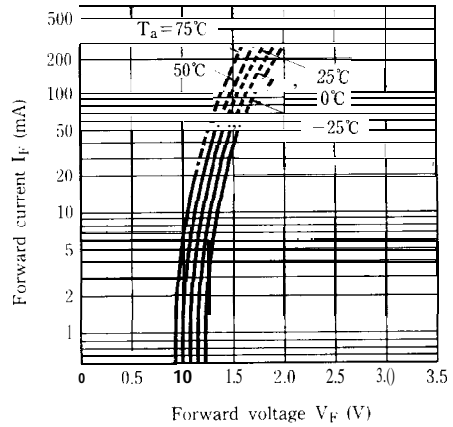


Fig. 6 Collector Current vs. Collector-emitter Voltage

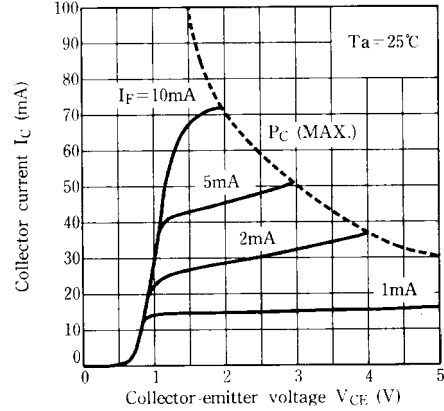
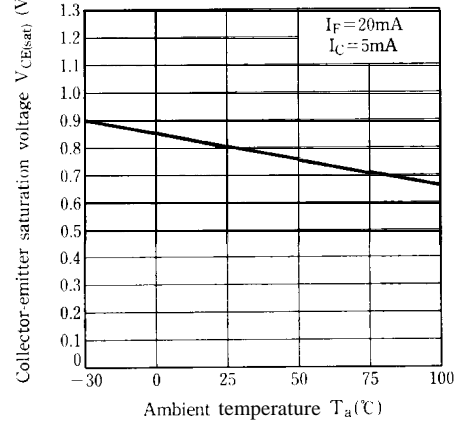


Fig. 8 Collector-emitter Saturation Voltage vs. Ambient Temperature



9 Collector Dark Current vs. Ambient Temperature

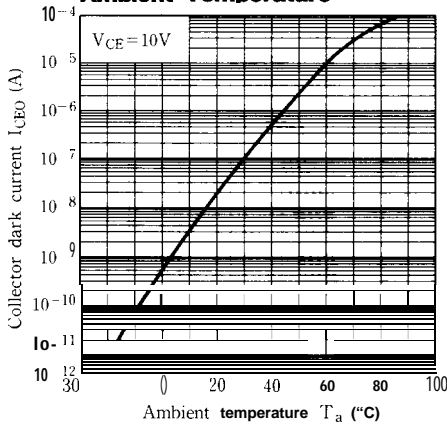


Fig.11 Frequency Response

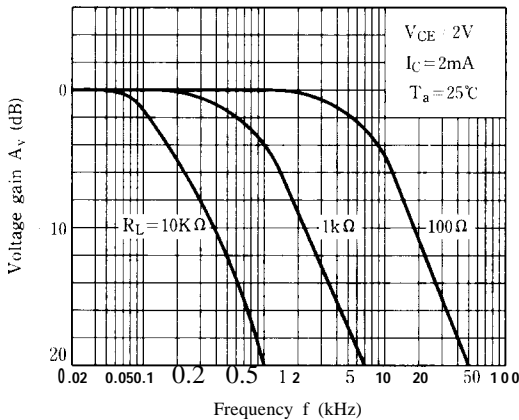


Fig.12 Collector-emitter Saturation Voltage vs. Forward Current

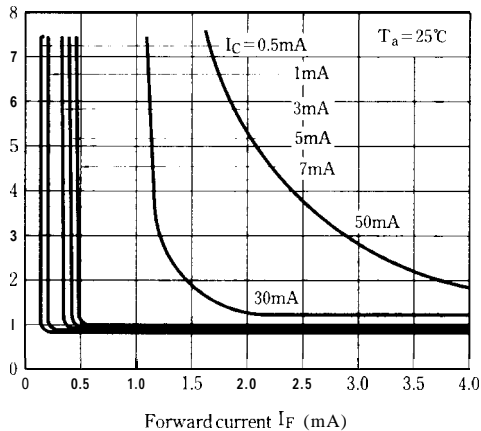
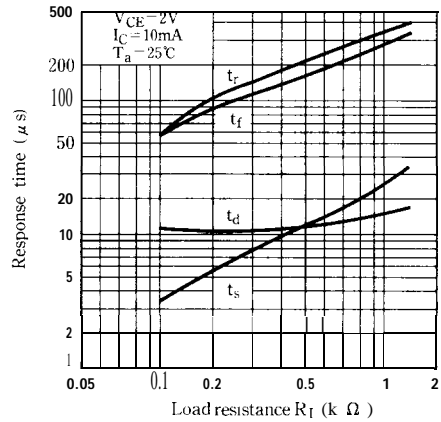
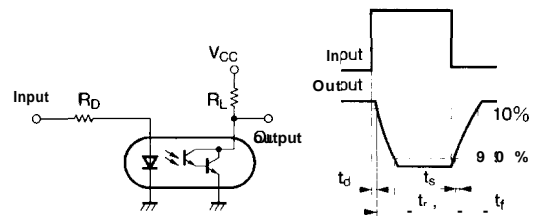


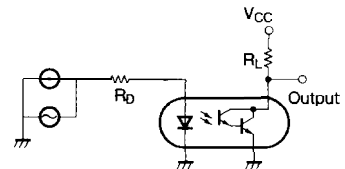
Fig.10 Response Time vs. Load Resistance



Test Circuit for Response Time



Test Circuit for Frequency Response



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