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PC4N35V/PC4N36V PC4N37V

General Purpose Type Photocoupler

※ Lead forming type (I type) is also available. (PC4N35VI/PC4N36VI/PC4N37VI) (Page 482)

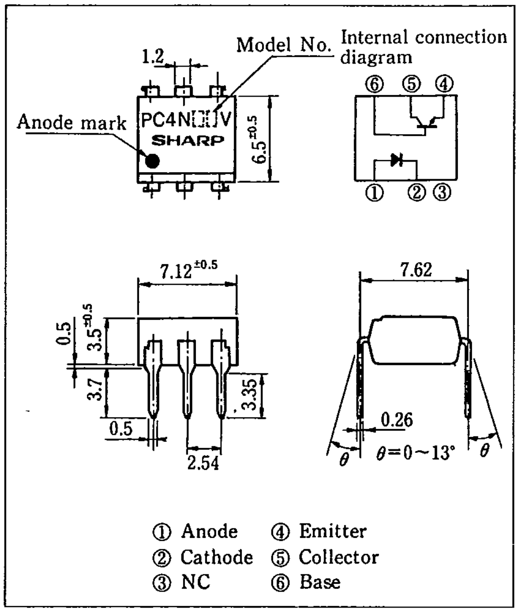
■ Features

1. High current transfer ratio (CTR : MIN. 100% at I_F=10mA, V_{CE}=10V)
2. Response time t_r, t_f: TYP. 3μs at Vcc=10V, Ic=2mA, R_L=100Ω
3. Isolation voltage between Input and Output PC4N35V (V_{iso}: 3,550Vrms), PC4N36V (V_{iso}: 2,500Vrms), PC4N37V (V_{iso}: 1,500Vrms)
4. UL recognized, file No. 64380 TÜV approved, PC4N35V/36V: No. R40182, PC4N37V: No. R40183

■ Applications

1. I/O interfaces for computers
2. System appliances, measuring instruments
3. Signal transmission between circuits of different potentials and impedances

■ Outline Dimensions (Unit : mm)



■ Absolute Maximum Ratings

(Ta=25°C)

Parameter		Symbol	Rating	Unit
Input	Forward current	I_F	60	mA
	*1Peak forward current	I_{FM}	3	A
	Reverse voltage	V_R	6	V
	Power dissipation	P	100	mW
Output	Collector-emitter voltage	V_{CEO}	30	V
	Emitter-collector voltage	V_{ECO}	7	V
	Collector-base voltage	V_{CBO}	70	V
	Collector current	I_C	100	mA
	Collector power dissipation	P_C	300	mW
Total power dissipation		P_{tot}	350	mW
*2Isolation voltage	PC4N35V	V_{iso}	3,550	Vrms
	PC4N36V		2,500	
	PC4N37V		1,500	
Operating temperature		T_{opr}	−55~+100	°C
Storage temperature		T_{stg}	−55~+150	°C
*3Soldering temperature		T_{sol}	260	°C

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

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■ **Electro-optical Characteristics**

(Ta=25°C)

Parameter		Symbol	Conditions	MIN.	TYP.	MAX.	Unit
Input	Forward voltage	V_F	I_F=10mA	—	1.2	1.5	V
	Reverse current	I_R	V_R=4V	—	—	10	μA
	Terminal capacitance	C_t	V=0, f=1MHz	—	50	—	pF
Output	Collector darkcurrent	I_{CEO}	V_{CE}=10V	—	—	5×10^{-8}	A
			Ta=100°C, V_{CE}=30V	—	—	5×10^{-4}	A
	Collector-emitter breakdown voltage	BV_{CEO}	I_C=0.1mA, I_F=0	30	—	—	V
	Emitter-collector breakdown voltage	BV_{ECO}	I_E=10μA, I_F=0	7	—	—	V
	Collector-base breakdown voltage	BV_{CBO}	I_C=0.1mA, I_F=0	70	—	—	V
Transfer characteristics	*4Current transfer ratio	CTR	I_F=10mA, V_{CE}=10V	100	—	—	%
			Ta=−55°C, I_F=10mA, V_{CE}=10V	40	—	—	
			Ta=100°C, I_F=10mA, V_{CE}=10V	40	—	—	
	Collector-emitter saturation voltage	$V_{CE(sat)}$	I_F=50mA, I_C=2mA	—	—	0.3	V
	Isolation resistance	R_{ISO}	DC500V, HR=40~60%	5×10^{10}	10^{11}	—	Ω
	Floating capacitance	C_f	V=0, f=1MHz	—	1.0	2.5	pF
	Response time (Rise)	t_r	V_{CC}=10V, I_C=2mA	—	3	10	μs
	Response time (Fall)	t_f	R_L=100Ω, R_{BE}=∞	—	3	10	μs

*4 Pulse test : input pulse width=300μs, duty ratio≦0.02

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Fig. 1 Forward Current vs. Ambient Temperature

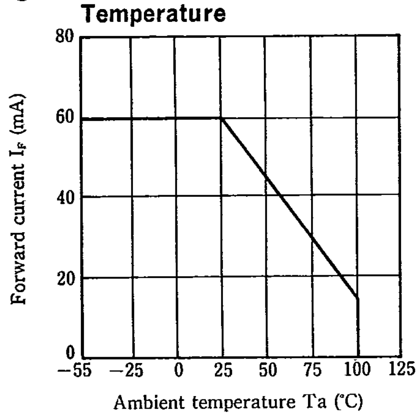

Fig. 2 Collector Power Dissipation vs. Ambient Temperature

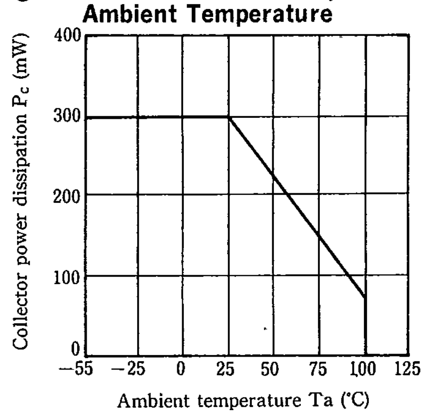

Fig. 3 Forward Current vs. Forward Voltage

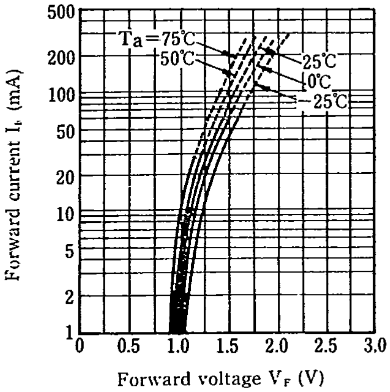

Fig. 4 Current Transfer Ratio vs. Forward Current

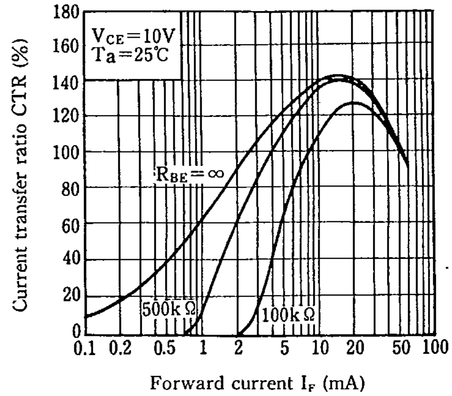

Fig. 5 Collector Current vs. Collector-emitter Voltage (Ta=25°C)

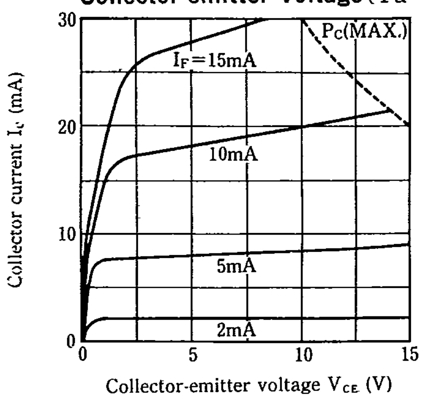

Fig. 6 Relative Current Transfer Ratio vs. Ambient Temperature

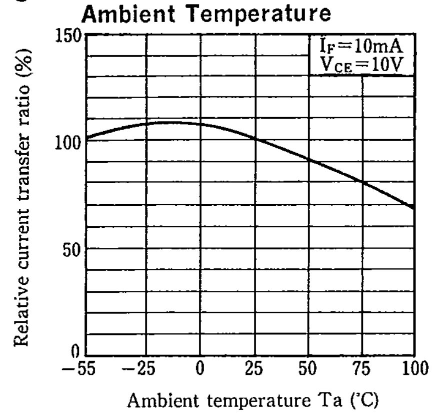

Fig. 7 Collector-emitter Saturation Voltage vs. Ambient Temperature

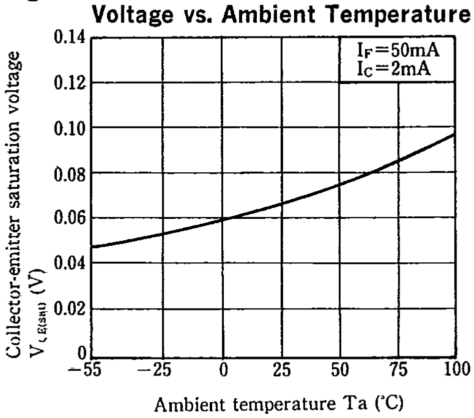

Fig. 8 Collector Dark Current vs. Ambient Temperature

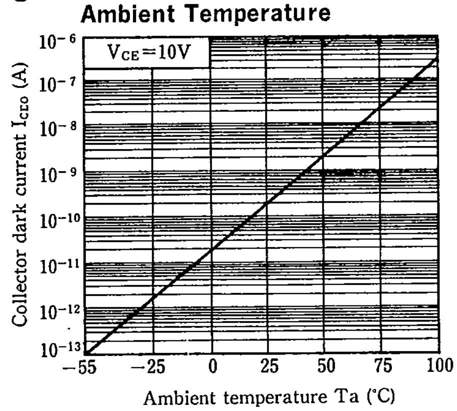

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Fig. 9 Response Time vs. Load Resistance

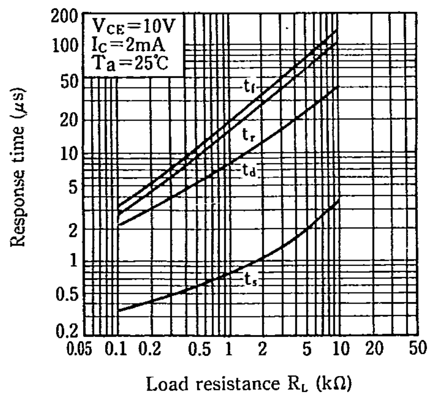


Fig. 10 Frequency Response

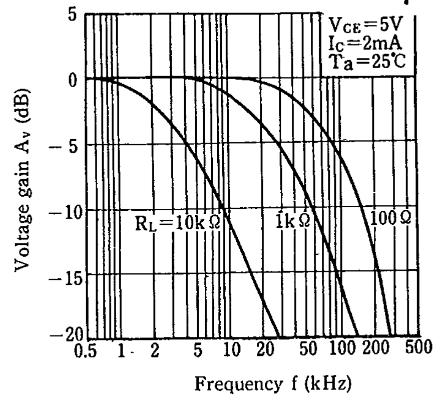
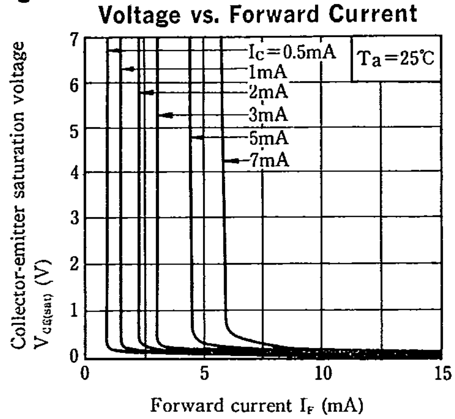


Fig. 11 Collector-emitter Saturation Voltage vs. Forward Current



Test Circuit for Response Time

Test Circuit for Frequency Response