PC725V

High Sensitivity, High Collector-emitter Voltage Type Photocoupler

※ Lead forming type (W type) and taping reel type (P type) are also available. (**PC725W/PC725VP**) (Page 656)
※※TÜV (VDE0884) approved type as an option is also available.

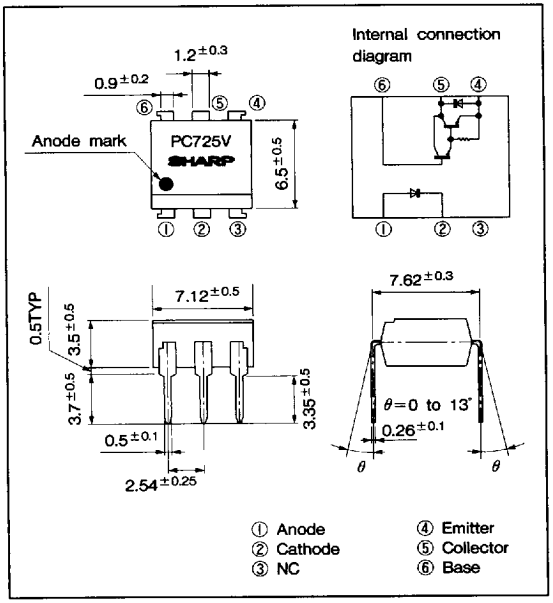
■ Features

1. High collector-emitter voltage (V_{CEO} : 300V)
2. High current transfer ratio (CTR : MIN. 1 000% at I_F=1mA, V_{CE}=2V)
3. High isolation voltage between input and output (V_{ISO} : 5 000V_{rms})
4. Low collector dark current (I_{CEO} : MAX. 10^{-6}A at V_{CE}=200V)
5. Recognized by UL, file No. E64380

■ Applications

1. Telephone sets, telephone exchangers
2. Power apparatus switchboards
3. Numerical control machines
4. DC-DC SSRs, DC motor controllers

■ Outline Dimensions (Unit : mm)



■ Absolute Maximum Ratings (T_a=25℃)

	Parameter	Symbol	Rating	Unit
Input	Forward voltage	I_F	50	mA
	*1Peak forward voltage	I_{FM}	1	A
	Reverse current	V_R	6	V
	Power dissipation	P	70	mW
Output	Collector-emitter voltage	V_{CEO}	300	V
	Collector-base voltage	V_{CBO}	300	V
	Emitter-base voltage	V_{EBO}	6	V
	Collector current	I_C	150	mA
	Collector current (reverse)	$-I_C$	10	mA
	Collector power dissipation	P_C	300	mW
Total power dissipation		P_{tot}	350	mW
*2Isolation voltage		V_{iso}	5 000	V_{rms}
Operating temperature		T_{opr}	−25 to +100	℃
Storage temperature		T_{stg}	−40 to +125	℃
*3Soldering 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 = 10mA	–	1.2	1.4	V
	Peak forward voltage		V_{FM}	I_{FM} = 0.5A	–	–	3	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} = 200V, I_F = 0, R_{BE} = ∞	–	–	10^{-6}	A
Transfer characteristics	Current transfer ratio		CTR	I_F = 1mA, V_{CE} = 2V, R_{BE} = ∞	1 000	4 000	15 000	%
	Collector-emitter saturation voltage		$V_{CE(sat)}$	I_F = 20mA, I_C = 100mA, R_{BE} = ∞	–	–	1.2	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 = 20mA, R_L = 100Ω, R_{BE} = ∞, −3dB	1	7	–	kHz
	Response time	Rise time	t_r	V_{CE} = 2V, I_C = 20mA	–	100	300	μs
		Fall time	t_f	R_L = 100Ω, R_{BE} = ∞	–	20	100	μs

Fig. 1 Forward Current vs. Ambient Temperature

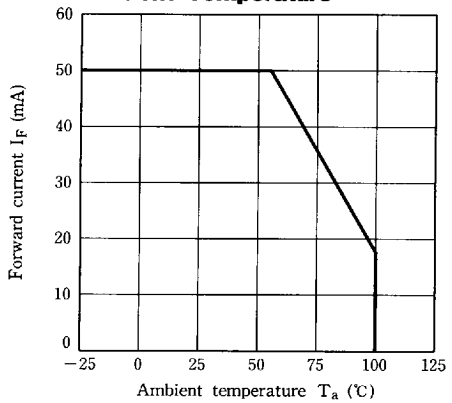


Fig. 2 Collector Power Dissipation vs. Ambient Temperature

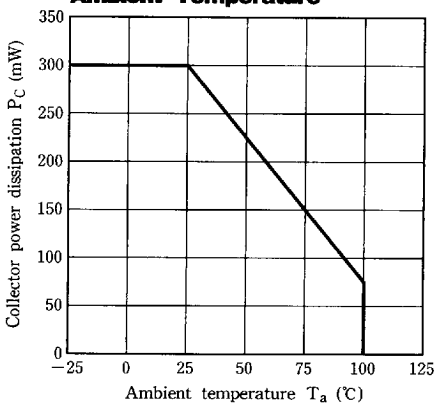


Fig. 3 Peak Forward Current vs. Duty Ratio

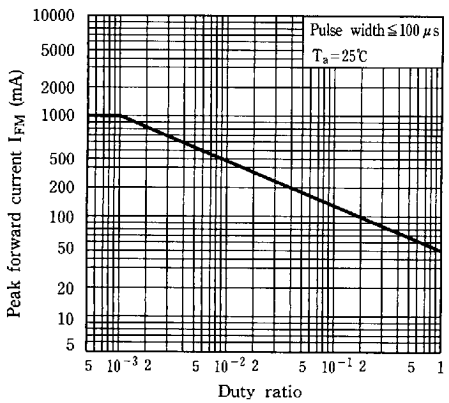


Fig. 4 Forward Current vs. Forward Voltage

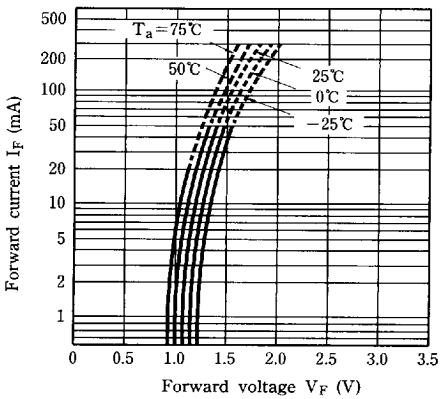


Fig. 5 Current Transfer Ratio vs. Forward Current

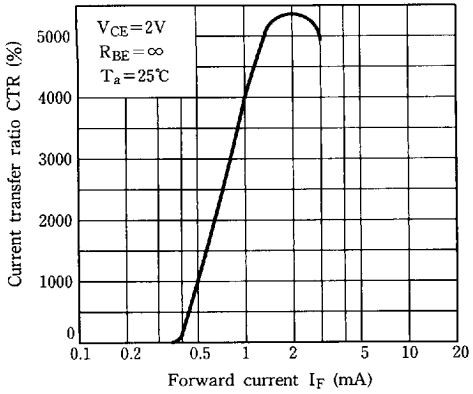


Fig. 6 Collector Current vs. Collector-emitter Voltage

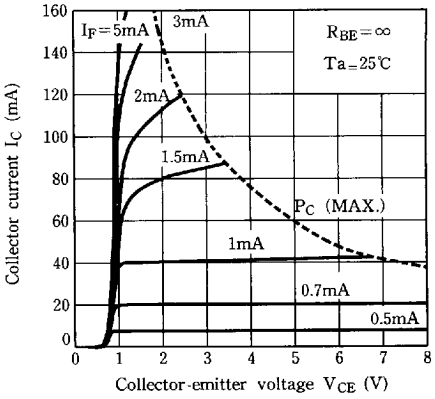


Fig. 7 Relative Current Transfer Ratio vs. Ambient Temperature

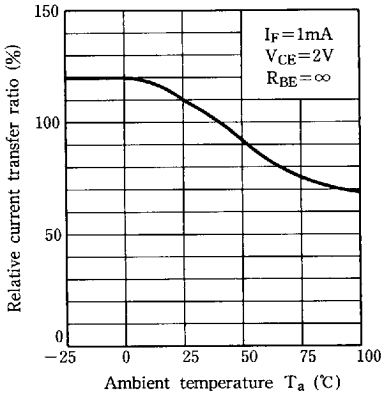


Fig. 8 Collector-emitter Saturation Voltage vs. Ambient Temperature

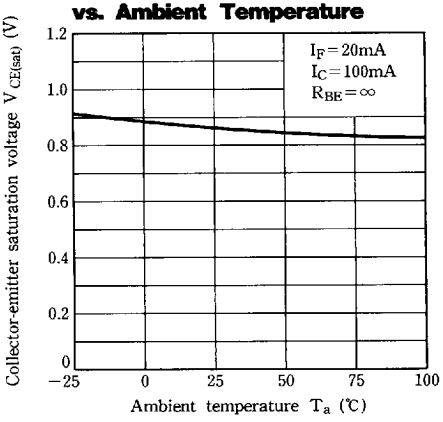


Fig. 9 Collector Dark Current vs. Ambient Temperature

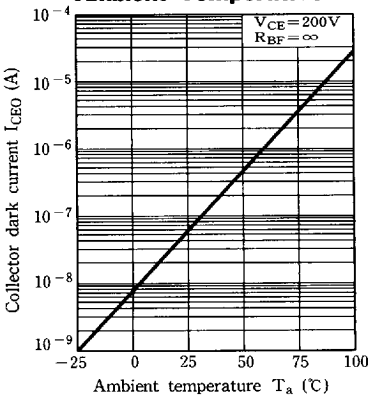
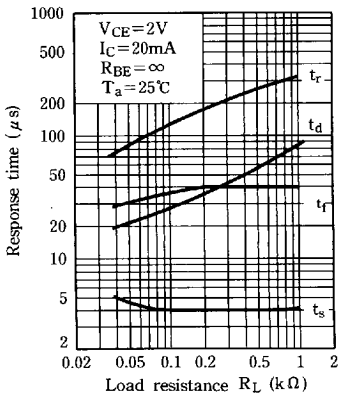


Fig.10 Response Time vs. Load Resistance



6 Photocouplers

Test Circuit for Response Time

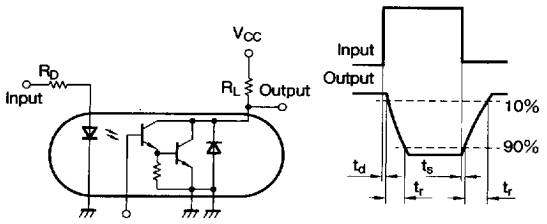
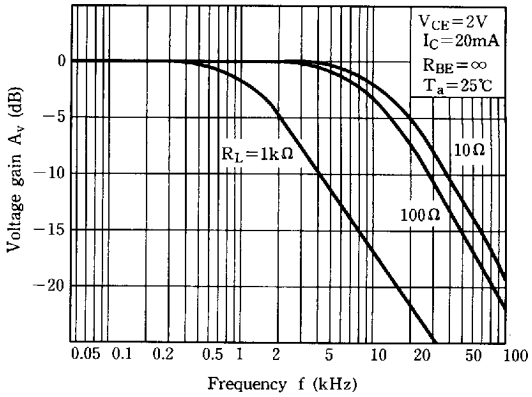
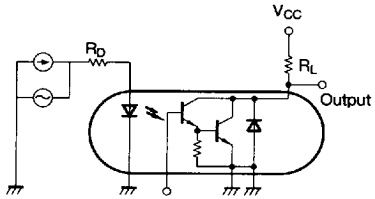


Fig.10 Frequency Response



Test Circuit for Frepuency Response



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