

# PC715V

## High Sensitivity Type Photocoupler

\* Lead forming type (I type) and taping reel type (P type) are also available. (PC715VI/PC715VP)

\*\* TÜV (VDE0884) approved type is also available as an option.

### ■ Features

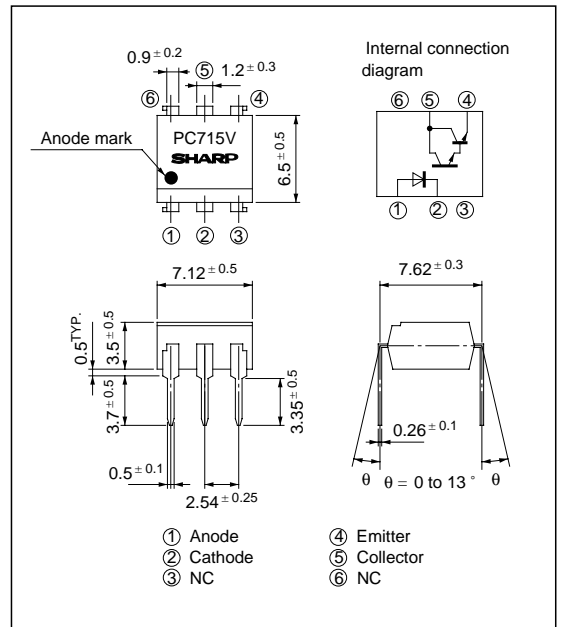
1. High current transfer ratio  
(CTR : MIN. 600% at  $I_F = 1\text{mA}$ ,  $V_{CE} = 2\text{V}$ )
2. High isolation voltage between input and output  
( $V_{iso}$  : 5 000V<sub>rms</sub>)
3. Recognized by UL, file No. E64380

### ■ Applications

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

### ■ Outline Dimensions

(Unit : mm)



### ■ Absolute Maximum Ratings

( $T_a = 25^\circ\text{C}$ )

	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		$P_{tot}$	170	mW
*2 Isolation voltage		$V_{iso}$	5 000	V <sub>rms</sub>
Operating temperature		$T_{opr}$	- 25 to + 100	$^\circ\text{C}$
Storage temperature		$T_{stg}$	- 40 to + 125	$^\circ\text{C}$
*3 Soldering temperature		$T_{sol}$	260	$^\circ\text{C}$

\*1 Pulse width  $\leq 100\mu\text{s}$ , Duty ratio : 0.001

\*2 40 to 60% RH, AC for 1 minutes

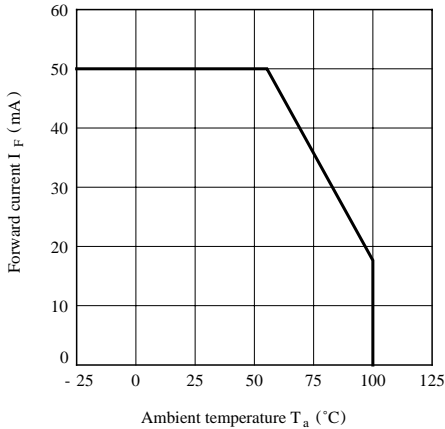
\*3 For 10 seconds

**■ Electro-optical Characteristics**

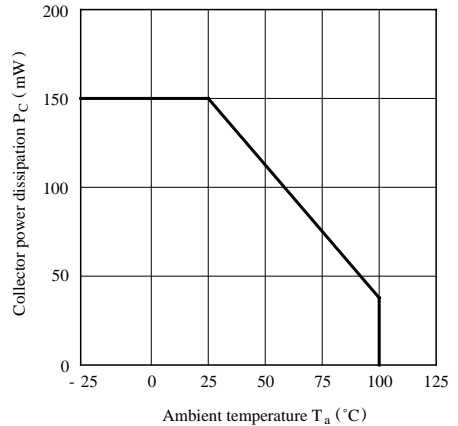
( $T_a = 25^\circ\text{C}$ )

Parameter		Symbol	Conditions	MIN.	TYP.	MAX.	Unit
Input	Forward voltage	$V_F$	$I_F = 10\text{mA}$	-	1.2	1.4	V
	Peak forward voltage	$V_{FM}$	$I_{FM} = 0.5\text{A}$	-	-	3.0	V
	Reverse current	$I_R$	$V_R = 4\text{V}$	-	-	10	$\mu\text{A}$
	Terminal capacitance	$C_t$	$V = 0, f = 1\text{kHz}$	-	30	250	pF
Output	Collector dark current	$I_{CEO}$	$V_{CE} = 10\text{V}, I_F = 0$	-	-	$10^{-6}$	A
Transfer characteristics	Current transfer ratio	CTR	$I_F = 1\text{mA}, V_{CE} = 2\text{V}$	600	1 600	7 500	%
	Collector-emitter saturation voltage	$V_{CE(sat)}$	$I_F = 20\text{mA}, I_C = 5\text{mA}$	-	-	1.0	V
	Isolation resistance	$R_{ISO}$	DC500V, 40 to 60% RH	$5 \times 10^{10}$	$10^{11}$	-	$\Omega$
	Floating capacitance	$C_f$	$V = 0, f = 1\text{MHz}$	-	0.6	1.0	pF
	Cut-off frequency	$f_c$	$V_{CE} = 2\text{V}, I_C = 2\text{mA}, R_L = 100\Omega, -3\text{dB}$	-	6	-	kHz
	Response time	Rise time	$t_r$	$V_{CE} = 2\text{V}, I_C = 10\text{mA}, R_L = 100\Omega$	-	60	250
Fall time		$t_f$	-		53	250	$\mu\text{s}$

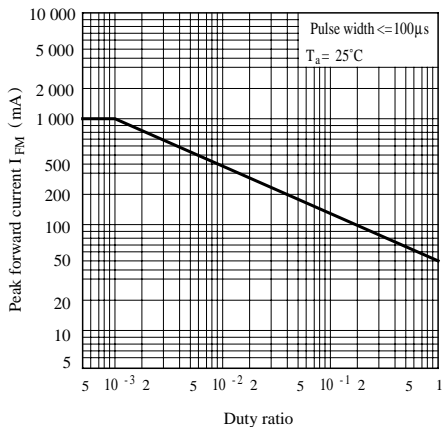
**Fig. 1 Forward Current vs. Ambient Temperature**



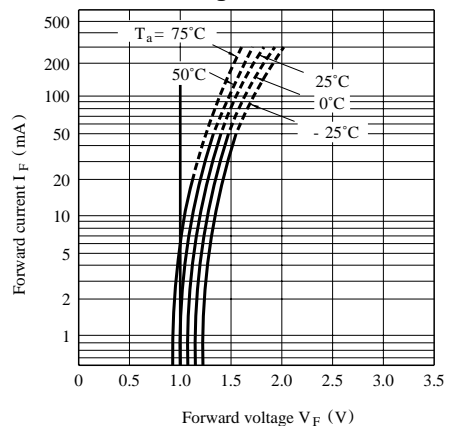
**Fig. 2 Collector Power Dissipation vs. Ambient Temperature**



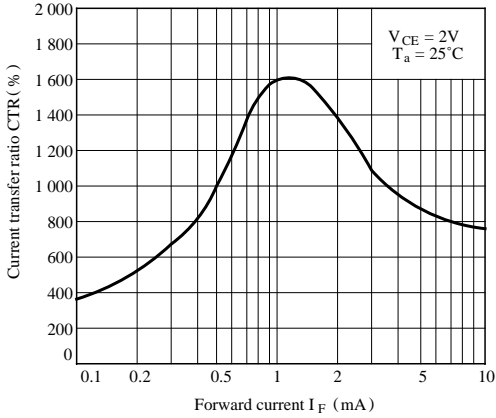
**Fig. 3 Peak Forward Current vs. Duty Ratio**



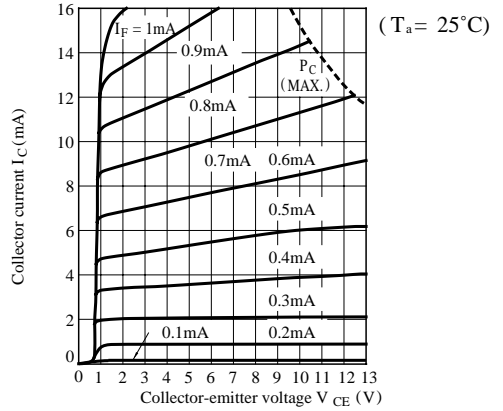
**Fig. 4 Forward Current vs. Forward Voltage**



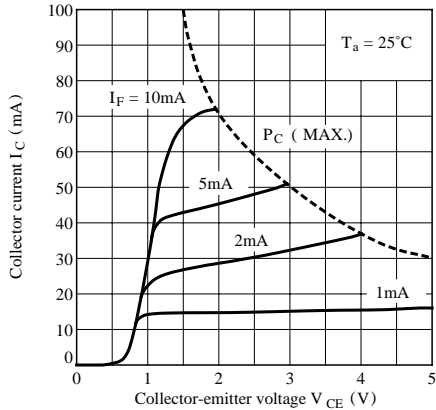
**Fig. 5 Current Transfer Ratio vs. Forward Current**



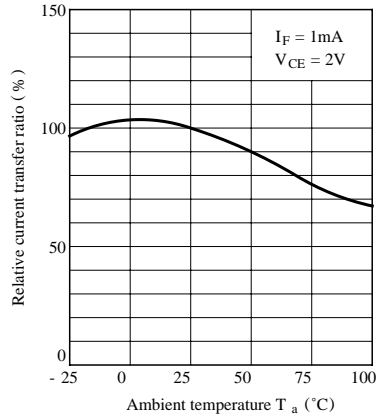
**Fig. 6-a Collector Current vs. Collector-emitter Voltage**



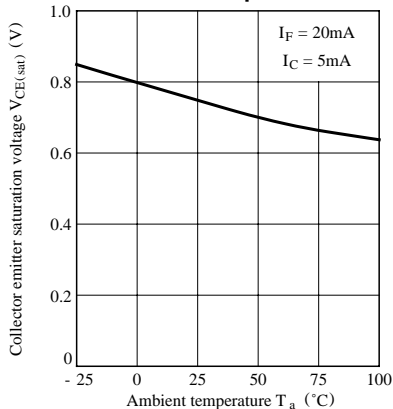
**Fig. 6-b Collector Current vs. Collector-emitter Voltage**



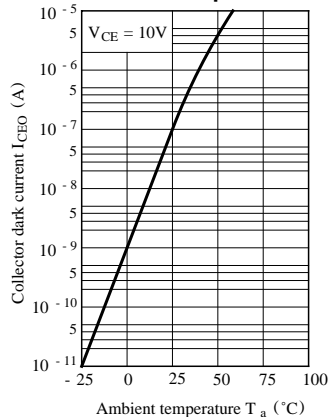
**Fig. 7 Relative Current Transfer Ratio vs. Ambient Temperature**



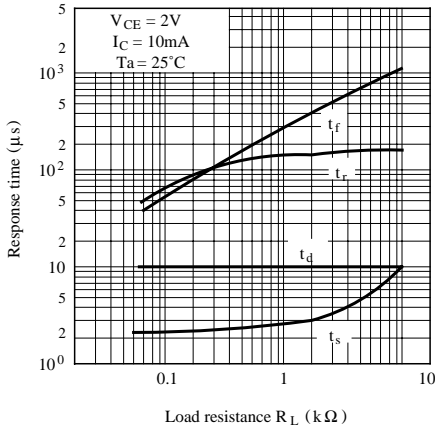
**Fig. 8 Collector-emitter Saturation Voltage vs. Ambient Temperature**



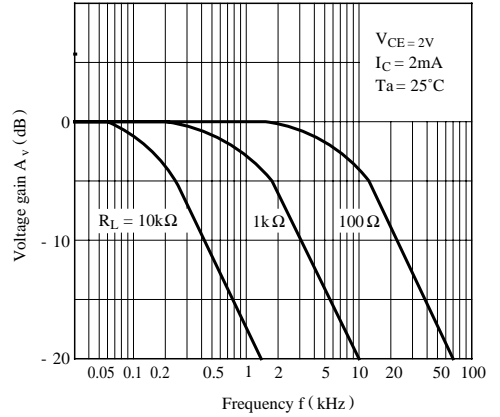
**Fig. 9 Collector Dark Current vs. Ambient Temperature**



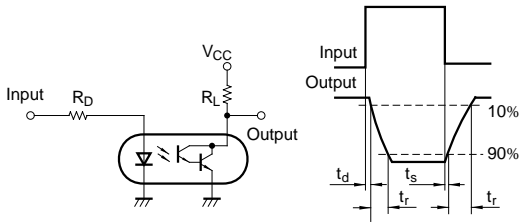
**Fig.10 Response Time vs. Load Resistance**



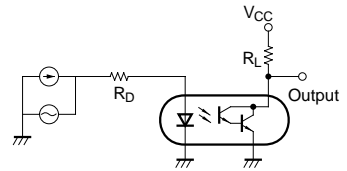
**Fig.11 Frequency Response**



**Test Circuit for Response Time**



**Test Circuit for Frequency Response**



● Please refer to the chapter “Precautions for Use”.