

PC713V/PC714V

* Lead forming type (I type) and taping reel type (P type) are also available. (PC713VI/PC714VI/PC713VP/PC714VP)

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

■ Features

1. TTL compatible output
2. Current transfer ratio
(CTR : MIN. 50% at $I_F = 5\text{mA}$, $V_{CE} = 5\text{V}$)
3. Low collector dark current
(I_{CEO} : MAX. 10^{-7}A at $V_{CE} = 20\text{V}$)
4. High isolation voltage between input and output (V_{iso} : 5 000V_{rms})
5. Recognized by UL, file No. E64380

■ Applications

1. System appliances, measuring instruments
2. Registers, copiers, automatic vending machines
3. Electric home appliances such as fan heaters
4. Signal transmission between circuits of different potentials and impedances

■ **Absolute Maximum Ratings** (Ta = 25°C)

	Parameter	Symbol	Rating	Unit
Input	Forward current	I_F	50	mA
	*1Peak 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
	*2Collector-base voltage	V_{CBO}	35	V
	*2Emitter-base voltage	V_{EBO}	6	V
	Collector current	I_C	50	mA
	Collector power dissipation	P_C	150	mW
	Total power dissipation	P_{tot}	170	mW
	*3Isolation voltage	V_{iso}	5 000	V_{rms}
	Operating temperature	T_{opr}	- 25 to+ 100	°C
	Storage temperature	T_{stg}	- 40 to+ 125	°C
	*4Soldering temperature	T_{sol}	260	°C

*1 Pulse width $\leq$ 100 μ s, Duty ratio : 0.001

*2 Applies only to **PC713V**

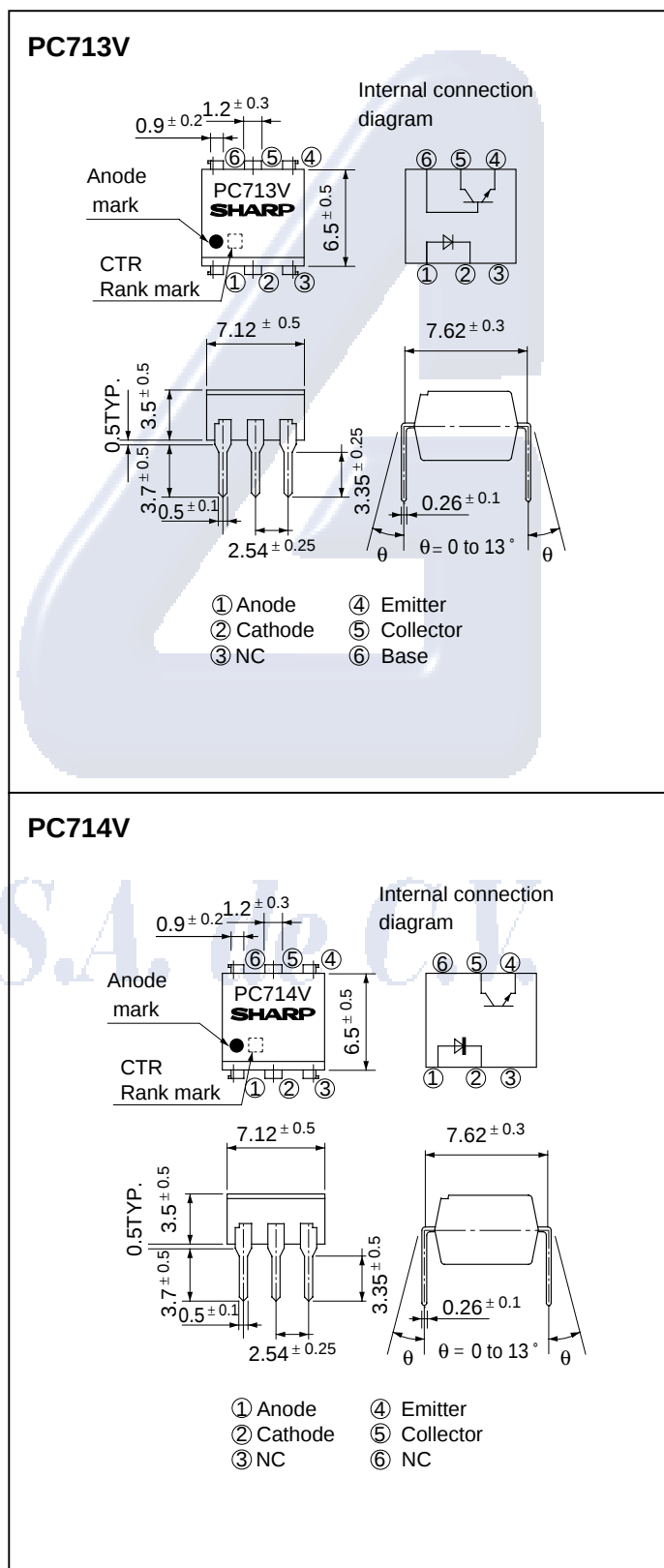
*3 40 to 60% RH, AC for 1 minute

*4 For 10 seconds

High Isolation Voltage Type, General Purpose Photocoupler

■ Outline Dimensions

(Unit : mm)



■ Electro-optical Characteristics

(Ta = 25°C)

Parameter		Symbol	Conditions	MIN.	TYP.	MAX.	Unit
Input	Forward voltage	V_F	$I_F = 20\text{mA}$	-	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	μA
	Terminal capacitance	C_t	$V = 0, f = 1\text{kHz}$	-	30	250	pF
Output	Collector dark current	I_{CEO}	$V_{CE} = 20\text{V}, I_F = 0, {}^{*5}R_{BE} = \infty$	-	-	10^{-7}	A
Transfer characteristics	^{*6} Current transfer ratio	CTR	$I_F = 5\text{mA}, V_{CE} = 5\text{V}, {}^{*5}R_{BE} = \infty$	50	-	600	%
	Collector-emitter saturation voltage	$V_{CE(sat)}$	$I_F = 20\text{mA}, I_C = 1\text{mA}, {}^{*5}R_{BE} = \infty$	-	0.1	0.2	V
	Isolation resistance	R_{ISO}	DC500V, 40 to 60% RH	5×10^{10}	10^{11}	-	Ω
	Floating capacitance	C_f	$V = 0, f = 1\text{MHz}$	-	0.6	1.0	pF
	Cut-off frequency	f_C	$V_{CE} = 5\text{V}, I_C = 2\text{mA}, R_L = 100\Omega, {}^{*5}R_{BE} = \infty$	-	80	-	kHz
	Response time						
		Rise time	t_r	$V_{CE} = 2\text{V}, I_C = 2\text{mA}$	-	4	μs
		Fall time	t_f	$R_L = 100\Omega, {}^{*5}R_{BE} = \infty$	-	3	μs

*5 Applies only to **PC713V**

*6 Classification table of current transfer ratio is shown below.

Model No.	Rank mark	CTR (%)
PC713V1/PC714V1	A	80 to 160
PC713V2/PC714V2	B	130 to 260
PC713V3/PC714V3	C	200 to 400
PC713V5/PC714V5	A or B	80 to 260
PC713V6/PC714V6	B or C	130 to 400
PC713V8/PC714V8	A, B or C	80 to 400
PC713V/PC714V	A, B, C or no marking	50 to 600

Measurement conditions

 $I_F = 5\text{mA}$ $V_{CE} = 5\text{V}$ $T_a = 25^\circ\text{C}$

Fig. 1 Forward Current vs. Ambient Temperature

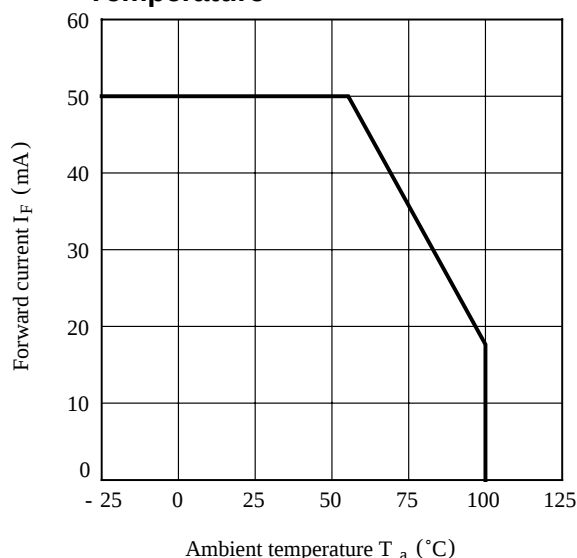


Fig. 2 Collector Power Dissipation vs. Ambient Temperature

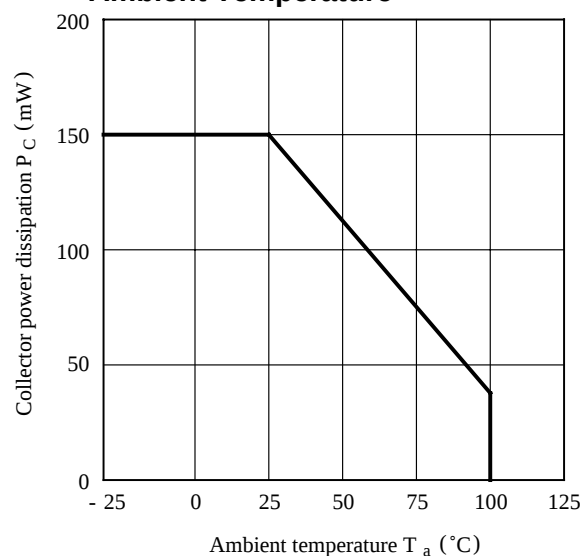


Fig. 3 Peak Forward Current vs. Duty Ratio

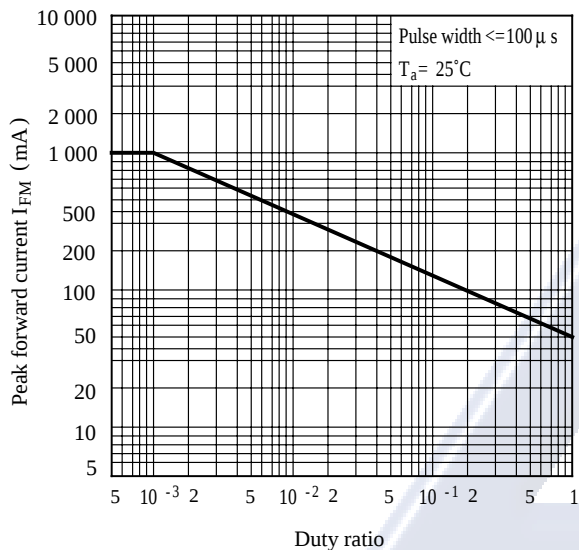


Fig. 4 Forward Current vs. Forward Voltage

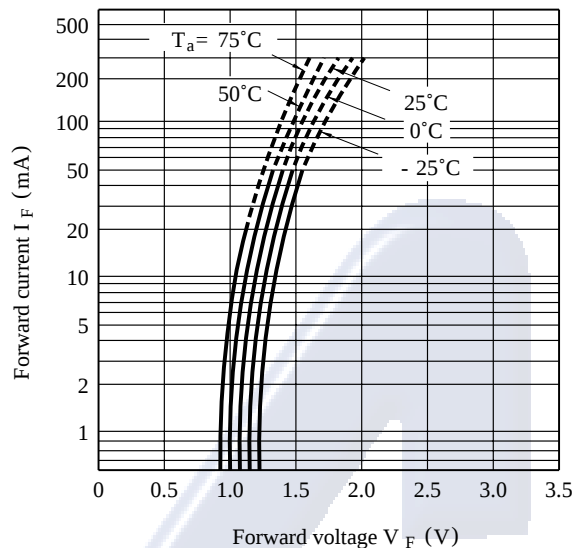


Fig. 5 Current Transfer Ratio vs. Forward Current

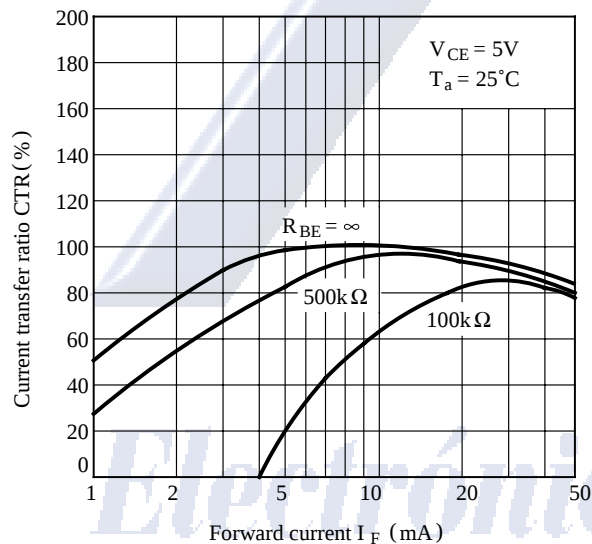


Fig. 6 Collector Current vs. Collector-emitter Voltage

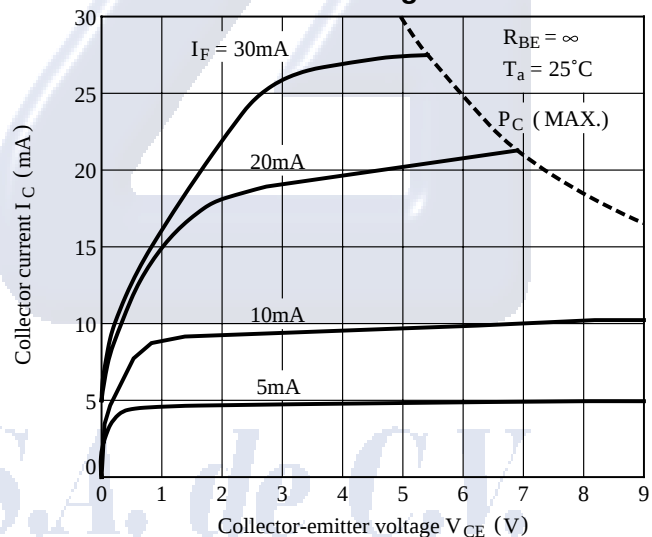


Fig. 7 Relative Current Transfer Ratio vs. Ambient Temperature

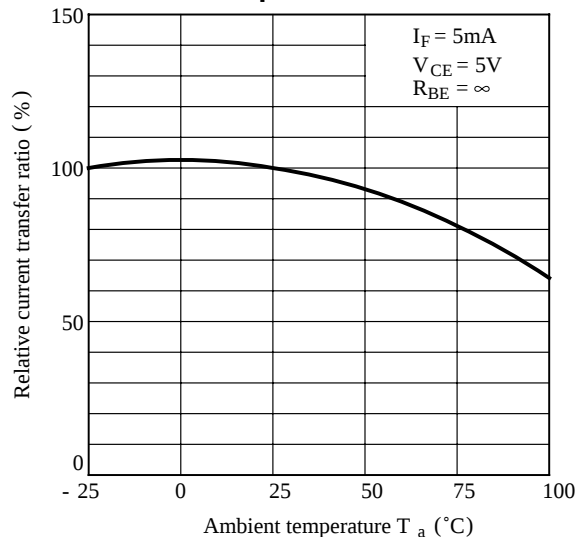


Fig. 8 Collector-emitter Saturation Voltage vs. Ambient Temperature

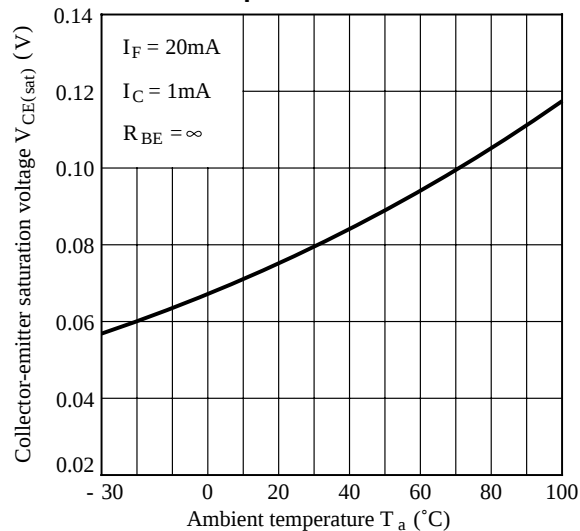


Fig. 9 Collector Dark Current vs. Ambient Temperature

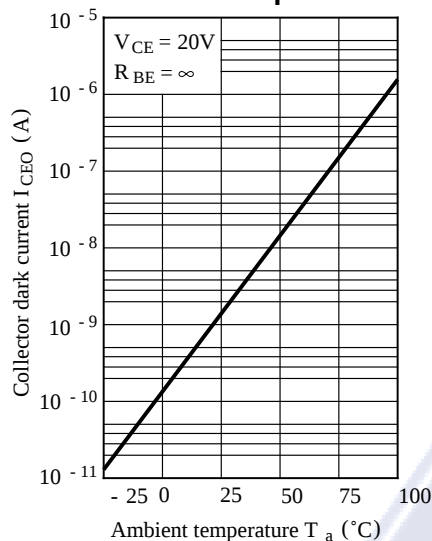


Fig.10 Collector-base Dark Current vs. Ambient Temperature(PC713V)

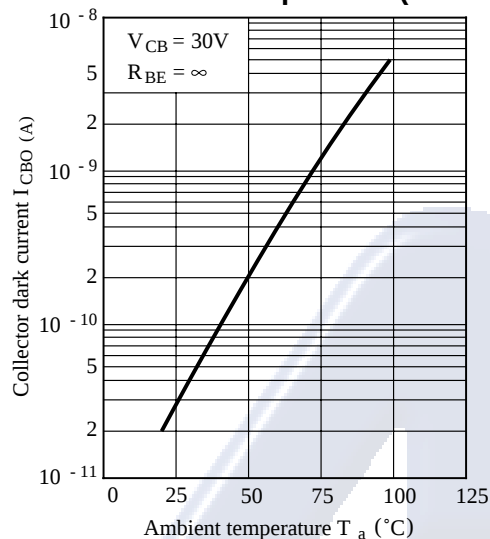


Fig.11 Response Time vs. Load Resistance

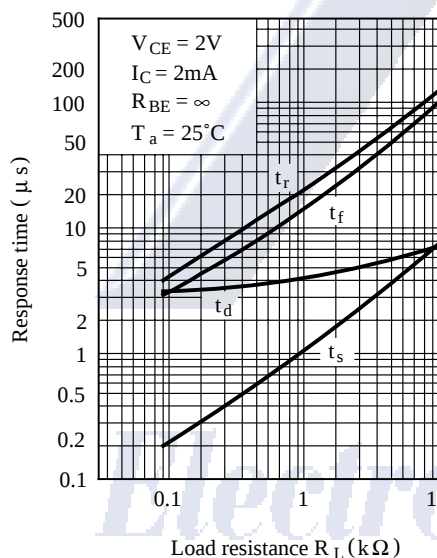
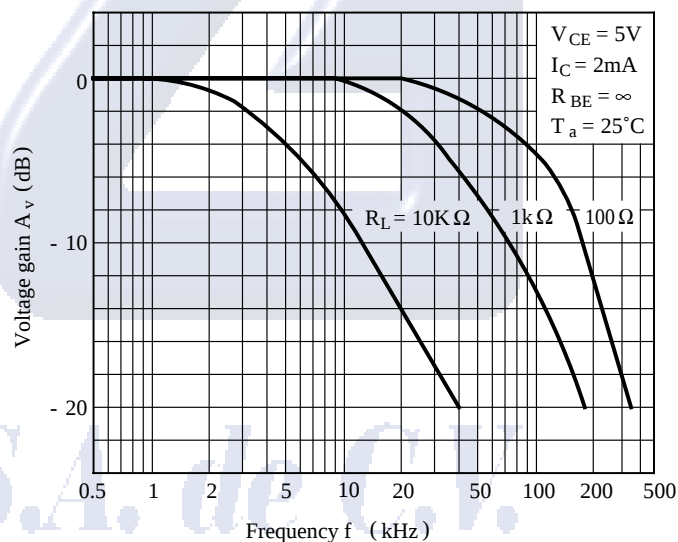
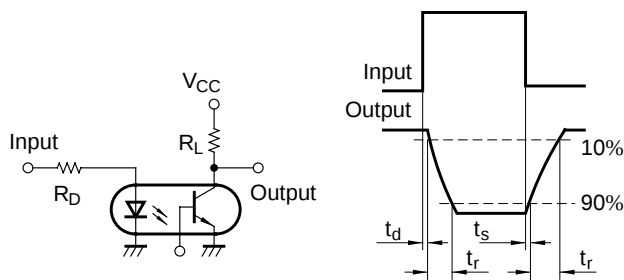


Fig.12 Frequency Response

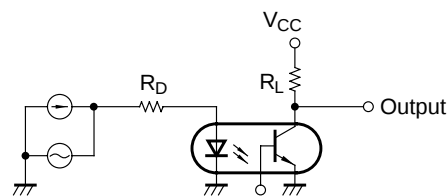


Test Circuit for Response Time



(PC714V has no base terminal.)

Test Circuit for Frequency Response



(PC714V has no base terminal.)