

PC452

Compact Surface Mount, High Collector emitter Voltage Type Photocoupler

■ Features

1. Mini-flat package
2. High collector-emitter voltage
(V_{CEO} : 300V)
3. High current transfer ratio
(CTR : MIN. 1 000% at $I_F = 1\text{mA}$, $V_{CE} = 2\text{V}$)
4. High isolation voltage between input and output
(Viso : 3 750 V_{rms})

■ Applications

1. Telephone sets
2. Copiers, facsimiles
3. Interfaces with various power supply circuits, power distribution boards
4. Hybrid substrates which require high density mounting

■ Package Specifications

Model No.	Package specifications	Diameter of reel	Tape width
PC452	Taping package (Net : 3 000pcs.)	ϕ 370mm	12mm
PC452T	Taping package (Net : 750pcs.)	ϕ 178mm	12mm
PC452Z	Sleeve package (Net : 100pcs.)	-	-

■ Absolute Maximum Ratings

(Ta=25°C)

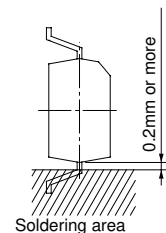
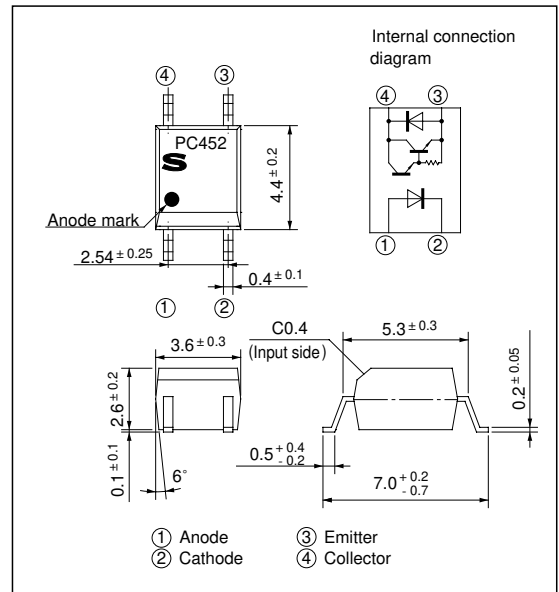
Parameter		Symbol	Rating	Unit
Input	Forward current	I_F	50	mA
	Reverse voltage	V_R	6	V
	Power dissipation	P	70	mW
Output	Collector-emitter voltage	V_{CEO}	300	V
	Collector current (forward direction)	I_C	150	mA
	Emitter-collector voltage	V_{ECO}	0.1	V
	Collector power dissipation	P_C	150	mW
Total power dissipation		P_{tot}	170	mW
*1 Isolation voltage		V_{iso}	3 750	V_{rms}
Operating temperature		T_{opr}	- 30 to + 100	°C
Storage temperature		T_{stg}	- 40 to + 125	°C
*2 Soldering temperature		T_{sol}	260	°C

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

*2 10 seconds or less, 0.2mm or more from the root of lead.

■ Outline Dimensions

(Unit : mm)



Electro-optical Characteristics

(Ta = 25°C)

Parameter		Symbol	Conditions	MIN.	TYP.	MAX.	Unit
Input	Forward voltage	V_F	$I_F = 10\text{mA}$	-	1.2	1.4	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-emitter breakdown voltage	BV_{CEO}	$I_F = 0,$ $I_C = 0.1\text{mA}$	300	-	-	V
	Collector dark current	I_{CEO}	$V_{CE} = 200\text{V}, I_F = 0$	-	-	2×10^{-7}	A
Transfer characteristics	Collector current	I_C	$I_F = 1\text{mA}, V_{CE} = 2\text{V}$	10	-	-	mA
	Collector-emitter saturation voltage	$V_{CE(sat)}$	$I_F = 20\text{mA}$ $I_C = 100\text{mA}$	-	-	1.2	V
	Isolation resistance	R_{ISO}	DC500V, 40 to 60% RH	5×10^{10}	10^{11}	-	Ω
	Floating capacitance	C_f	$V = 0, f = 1\text{MHz}$	-	0.6	1.0	pF
	Cut-off frequency	f_c	$V_{CE} = 2\text{V}, I_C = 20\text{mA}$ $R_L = 100\Omega, -3\text{dB}$	1	7	-	kHz
	Response time	Rise time	t_r	$V_{CE} = 2\text{V}, I_C = 20\text{mA}$ $R_L = 100\Omega$	-	100	300
Fall time	t_f	-	20		100	μs	

Fig. 1 Forward Current vs. Ambient Temperature

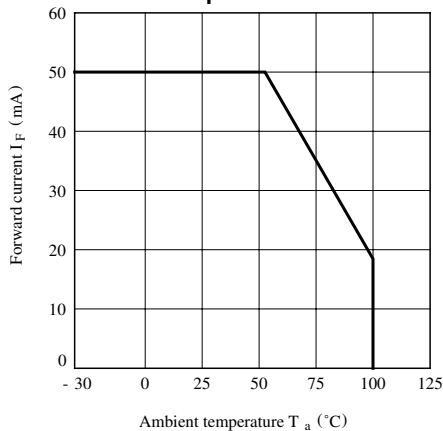


Fig. 2 Collector Power Dissipation vs. Ambient Temperature

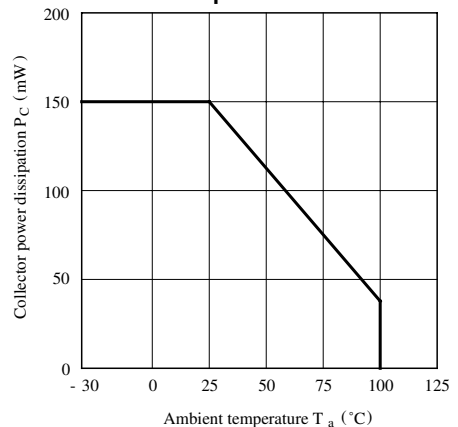


Fig. 3 Peak Forward Current vs. Duty Ratio

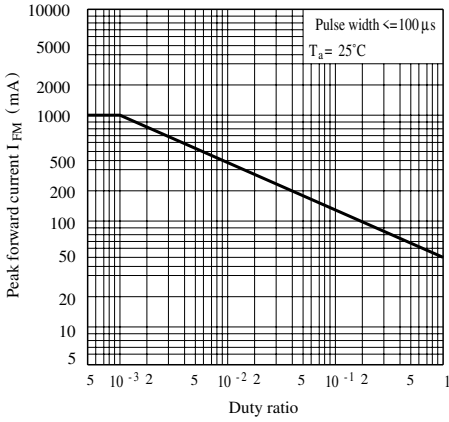


Fig. 4 Forward Current vs. Forward Voltage

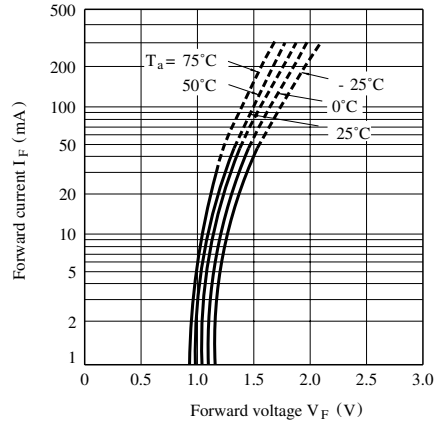


Fig. 5 Current Transfer Ratio vs. Forward Current

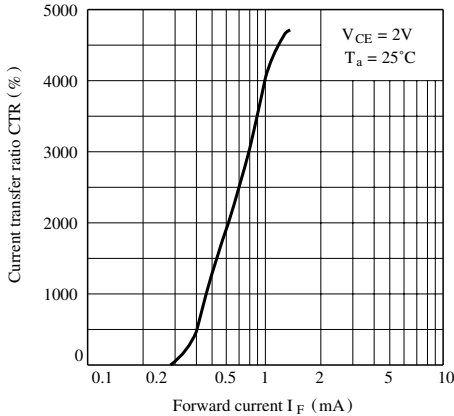


Fig. 6 Collector Current vs. Collector-emitter Voltage

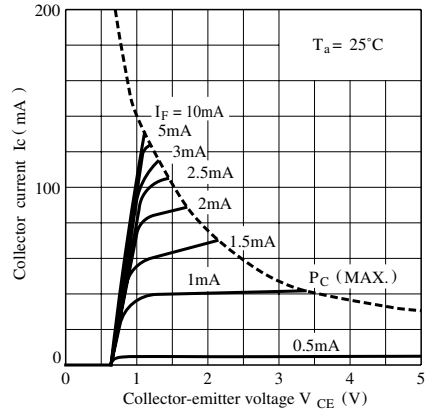


Fig. 7 Relative Current Transfer Ratio vs. Ambient Temperature

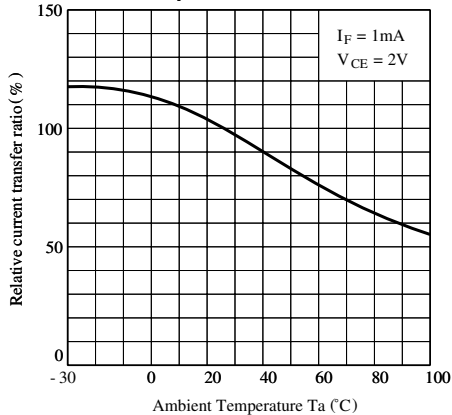


Fig. 8 Collector-emitter Saturation Voltage vs. Ambient Temperature

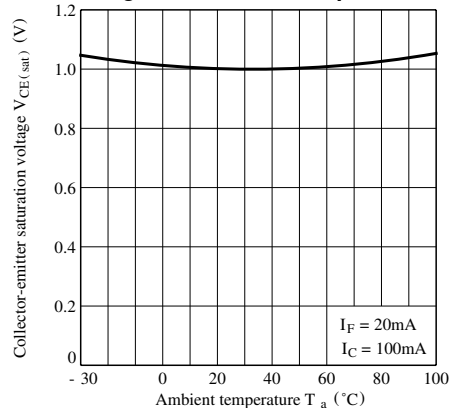


Fig. 9 Collector Dark Current vs. Ambient Temperature

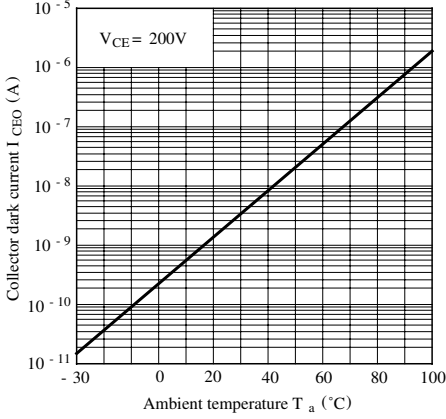


Fig.10 Response Time vs. Load Resistance

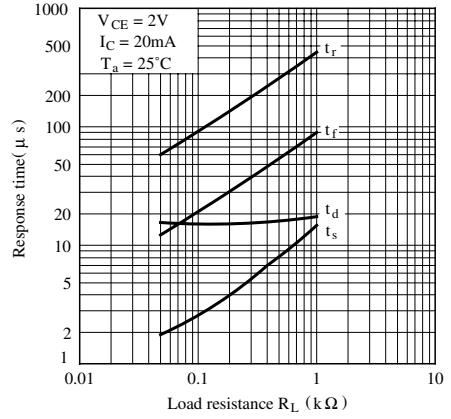


Fig.11 Frequency Response

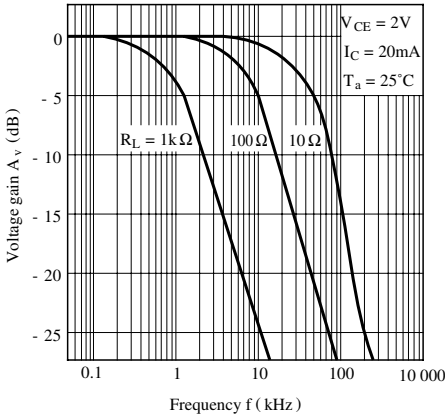
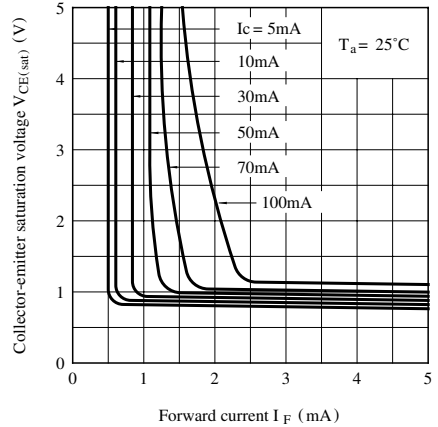


Fig.12 Collector-emitter Saturation Voltage vs. Forward Current



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