

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)

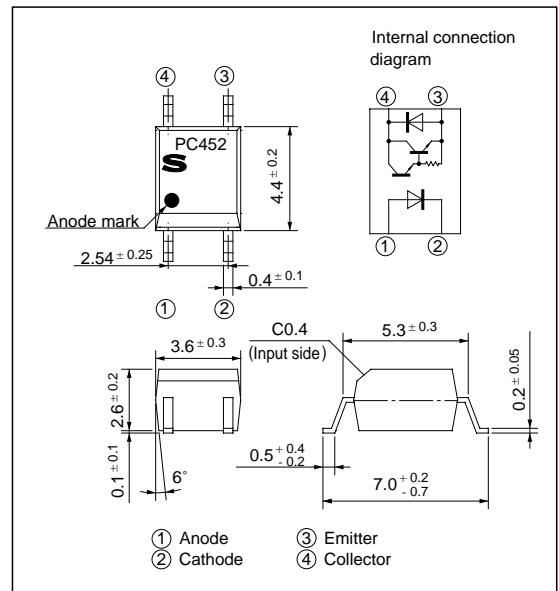
Parameter		Symbol	Rating	Unit
Input	Forward current	I_F	50	mA
	Reverse voltage	V_R	6	V
	Power dissipation	P	70	mW
Output	Collector-emitter voltage	V_{CEO}	300	V
	Collector current (forward direction)	I_C	150	mA
	Emitter-collector voltage	V_{ECO}	0.1	V
	Collector power dissipation	P_C	150	mW
Total power 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

(T_a = 25°C)

Parameter		Symbol	Conditions	MIN.	TYP.	MAX.	Unit	
Input	Forward voltage	V _F	I _F = 10mA	-	1.2	1.4	V	
	Reverse current	I _R	V _R = 4V	-	-	10	μA	
	Terminal capacitance	C _t	V = 0, f = 1kHz	-	30	250	pF	
Output	Collector-emitter breakdown voltage	BV _{CEO}	I _F = 0, I _C = 0.1mA	300	-	-	V	
	Collector dark current	I _{CEO}	V _{CE} = 200V, I _F = 0	-	-	2 x 10 ⁻⁷	A	
Transfer characteristics	Collector current	I _C	I _F = 1mA, V _{CE} = 2V	10	-	-	mA	
	Collector-emitter saturation voltage	V _{CE(sat)}	I _F = 20mA I _C = 100mA	-	-	1.2	V	
	Isolation resistance	R _{ISO}	DC500V, 40 to 60% RH	5 x 10 ¹⁰	10 ¹¹	-	Ω	
	Floating capacitance	C _f	V = 0, f = 1MHz	-	0.6	1.0	pF	
	Cut-off frequency	f _c	R _L = 100Ω, - 3dB	V _{CE} = 2V, I _C = 20mA	1	7	-	kHz
				V _{CE} = 2V, I _C = 20mA	-	100	300	μs
Response time	Rise time	t _r	R _L = 100Ω	-	100	300	μs	
	Fall time	t _f		-	20	100	μs	

Fig. 1 Forward Current vs. Ambient Temperature

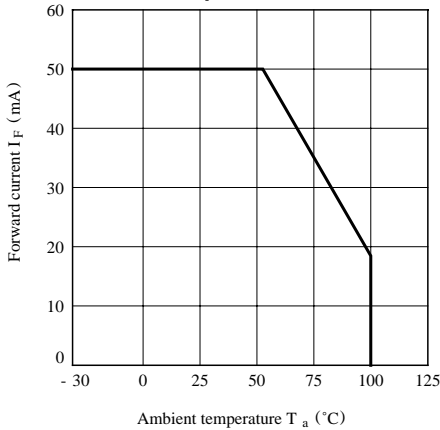


Fig. 2 Collector Power Dissipation vs. Ambient Temperature

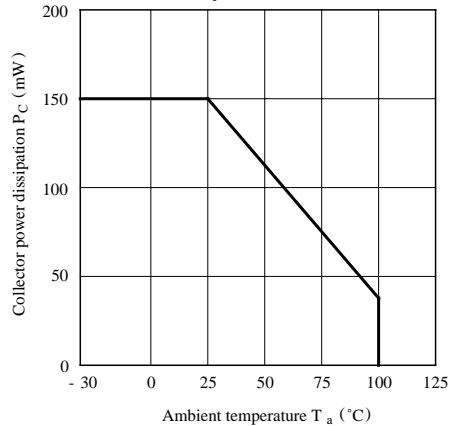


Fig. 3 Peak Forward Current vs. Duty Ratio

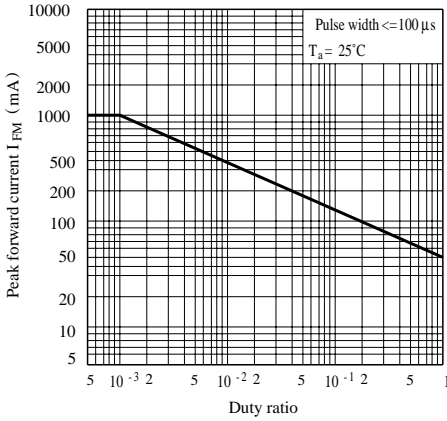


Fig. 4 Forward Current vs. Forward Voltage

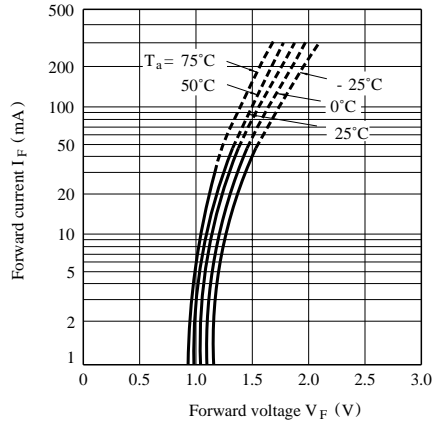


Fig. 5 Current Transfer Ratio vs. Forward Current

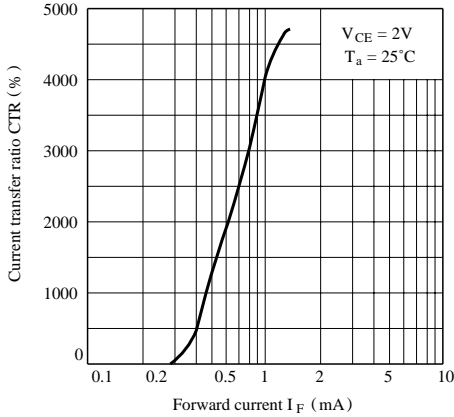


Fig. 6 Collector Current vs. Collector-emitter Voltage

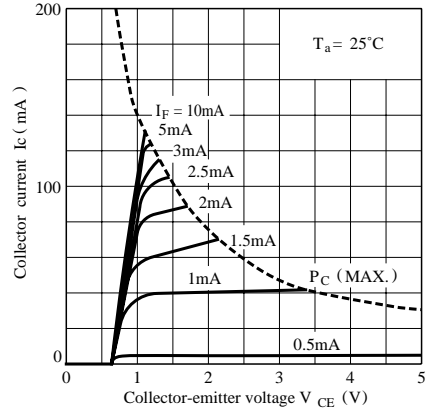


Fig. 7 Relative Current Transfer Ratio vs. Ambient Temperature

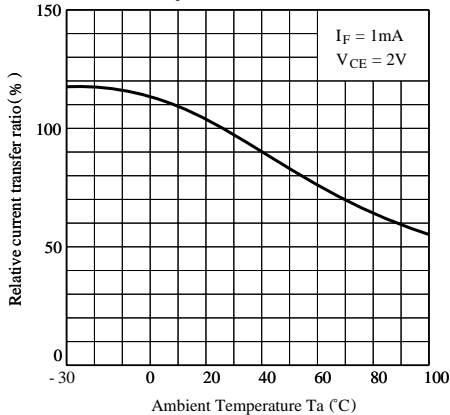


Fig. 8 Collector-emitter Saturation Voltage vs. Ambient Temperature

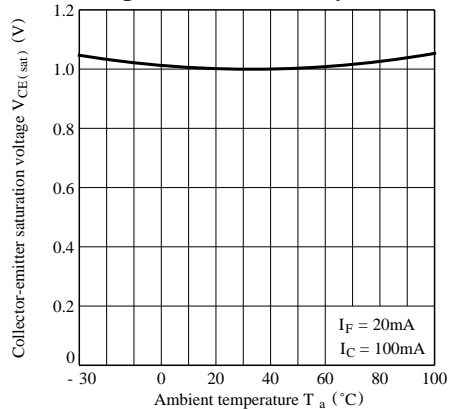


Fig. 9 Collector Dark Current vs. Ambient Temperature

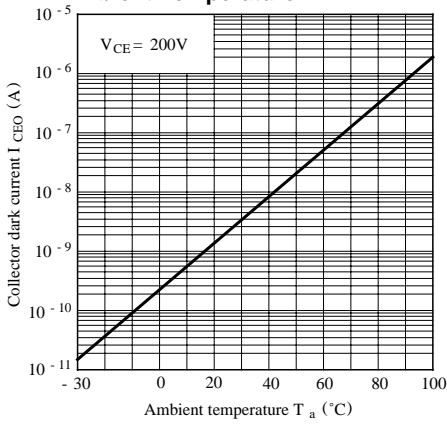


Fig.10 Response Time vs. Load Resistance

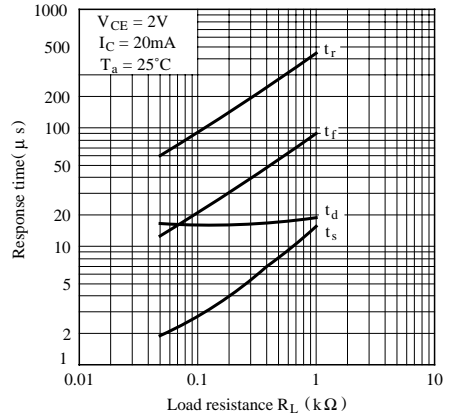


Fig.11 Frequency Response

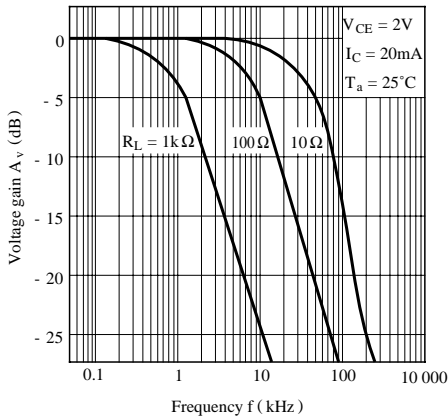
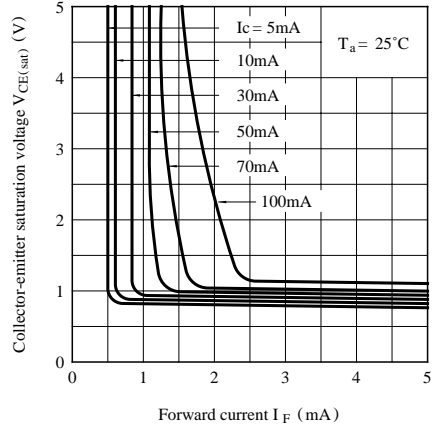


Fig.12 Collector-emitter Saturation Voltage vs. Forward Current



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