

# PC452

## Compact Surface Mount, High Collector-emitter Voltage Type Photocoupler

### Features

1. Opaque, mini-flat package
2. High collector-emitter voltage ( $V_{CE0} : 300V$ )
3. High current transfer ratio (CTR : MIN. 1 000% at  $I_F = 1mA, V_{CE} = 2V$ )
4. High isolation voltage between input and output ( $V_{iso} : 3750 V_{rms}$ )

### 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 : 3 000 pcs.)	4370mm	12mm
PC452T	Taping package (Net : 750pcs.)	4178mm	12mm
PC452Z	Sleeve package (Net : 100 Pcs.)		

### Absolute Maximum Ratings

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

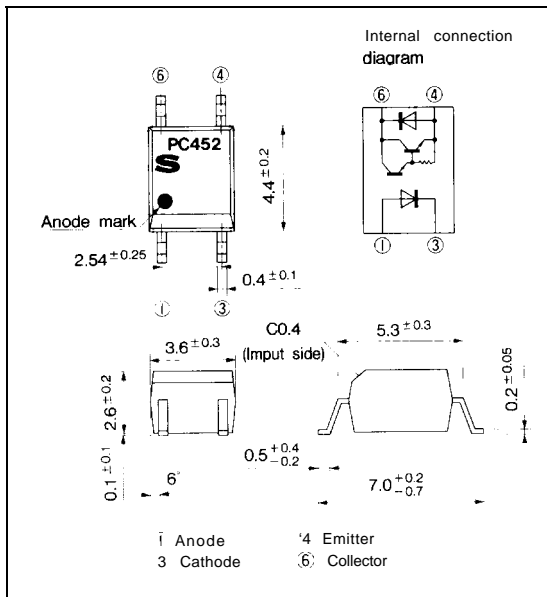
Parameter		Symbol	Rating	Unit
Input	Forward current	$I_F$	50	mA
	Reverse voltage	$V_R$	6	V
	Power dissipation	P	70	mW
output	Collector -emitter voltage	$V_{CE0}$	300	V
	Collector current (forward direction)	$I_C$	150	mA
	Emitter -collector voltage	$V_{ECO}$	0.1	V
	Collector power dissipation	$P_C$	150	mW
Total power dissipation		$P_{tot}$	170	mW
*1 Isolation voltage		$V_{iso}$	3 750	$V_{rms}$
Operating temperature		$T_{opr}$	-30 to +100	$^{\circ}C$
Storage temperature		$T_{stg}$	-40 to +125	$^{\circ}C$
*2 Soldering temperature		$T_{sol}$	260	$^{\circ}C$

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

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

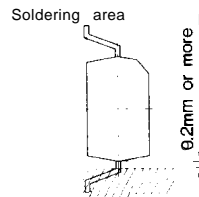
### Outline Dimensions

(Unit : mm)



6

rs

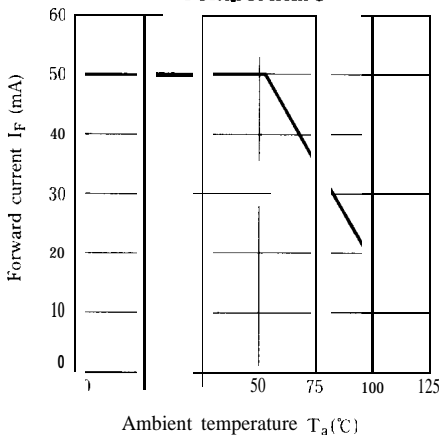


**Electro-optical Characteristics**

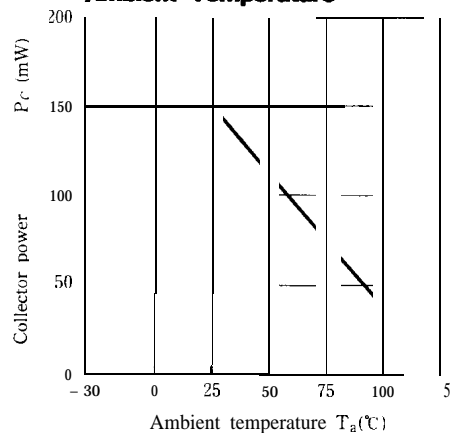
( $T_a = 25^\circ\text{C}$ )

Parameter	Symbol	Conditions	MIN.	TYP.	MAX.	Unit	
Input	Forward voltage	$V_F$	$I_F = 10\text{mA}$		1.2	1.4	V
	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-emitter	$I_F = 0,$					
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	$5 \times 10^{10}$	$10^{11}$	—	$\Omega$
	Floating capacitance	$C_f$	$V = 0, f = 1\text{MHz}$		0.6	1.0	pF
	Cut-off frequency	$f_c$	$V_{CE} = 2\text{V}, I_C = 20\text{mA}$ $R_L = 100\Omega, -3\text{dB}$	1	7	—	kHz
	Response time	Rise time $t_r$ Falltime $t_f$	$V_{CE} = 2\text{V}, I_C = 20\text{mA}$ $R_L = 100\Omega$		100 20	300 100	$\mu\text{s}$ $\mu\text{s}$

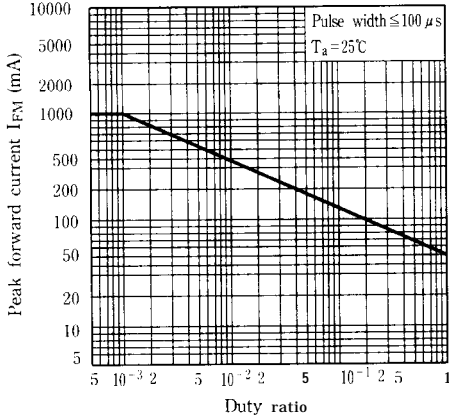
**Fig. 1 Forward Current vs. Ambient Temperature**



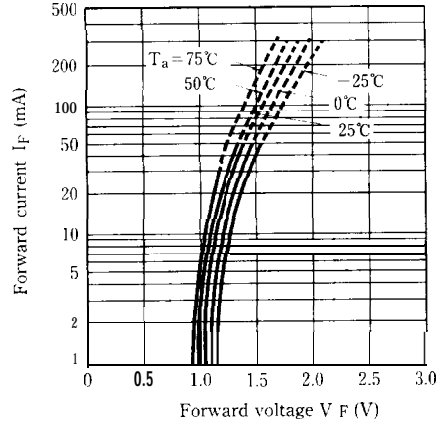
**Fig. 2 Collector Power Dissipation vs. Ambient Temperature**



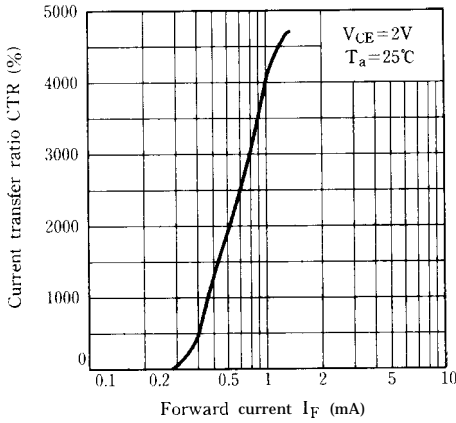
**Fig. 3 Peak Forward Current vs. Duty Ratio**



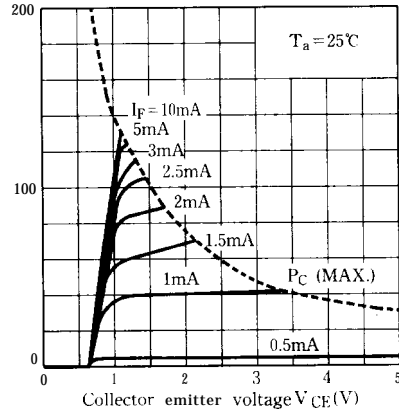
**Fig. 4 Forward Current vs. Forward Voltage**



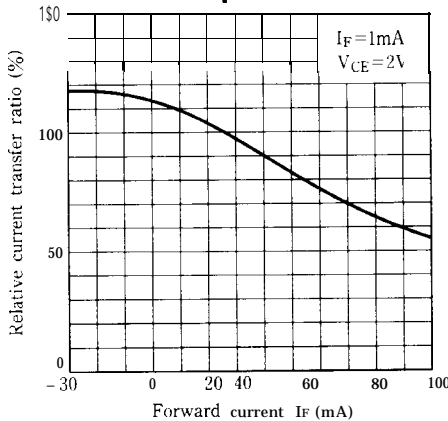
**Fig. 5 Current Transfer Ratio vs. Forward Current**



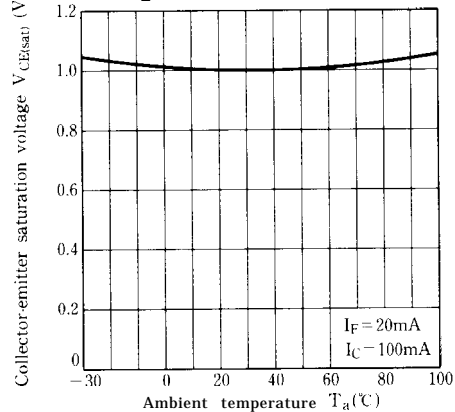
**Fig. 6 Collector Current vs. Collector-emitter Voltage**



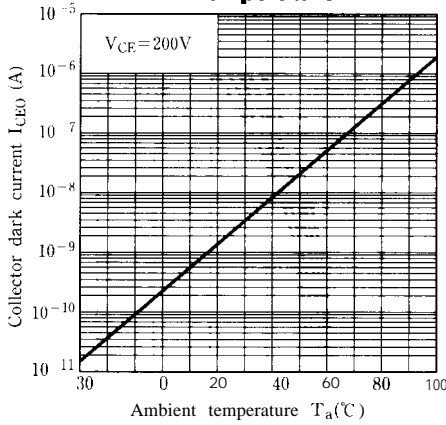
**Fig. 7 Relative Current Transfer Ratio vs. Ambient Temperature**



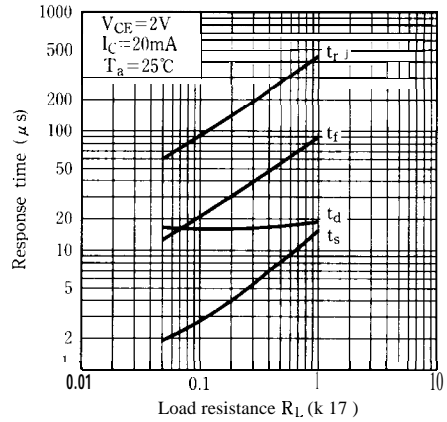
**Fig. 8 Collector-emitter Saturation Voltage vs. Ambient Temperature**



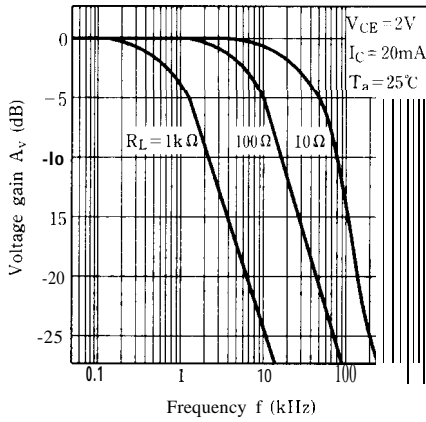
**Fig. 9 Collector Dark Current vs. Ambient Temperature**



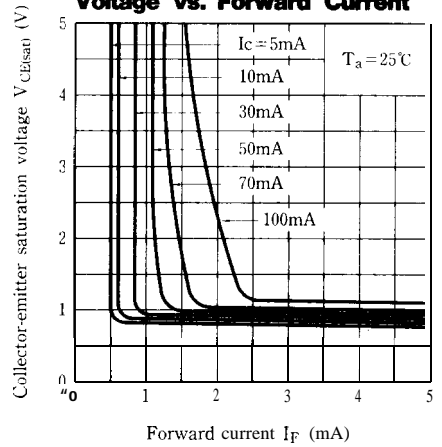
**Fig.10 Response Time vs. Load Resistance**



**Fig.11 Frequency Response**



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



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