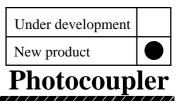
SHARP

PC851X series



4-pin DIP High Collector-emitter Voltage Type Photocoupler

Features

- (1) High collector-emitter voltage VCE0 : 350V
- (2) Single phototransistor output : **PC851X** Darlington phototransistor output : **PC852X/PC853X/ PC853HX**
- (3) Recognized by UL, file No.E64380 PC851X : recognized model No. PC851 PC852X : recognized model No. PC852 PC853X : recognized model No. PC853 PC853HX : recognized model No. PC853H
- (4) 4pin DIP package

Applications

- (1) Telephones
- (2) Modems
- (3) Facsimiles
- (4) Set top box

Absolute Maximum Ratings

x/	2.54 ± 0.25 (a) (b) (c) (c) (c) (c) (c) (c) (c) (c
	$\begin{array}{c} \begin{array}{c} \begin{array}{c} \begin{array}{c} \begin{array}{c} \\ \end{array} \end{array} \\ \end{array} \\ \end{array} \\ \begin{array}{c} \end{array} \\ \end{array} \\ \end{array} \\ \end{array} \\ \begin{array}{c} \end{array} \\ \end{array} $
	Internal connection diagram

Outline Dimensions

	-			(T	a=25°C)	
	Parameter		Symbol	Rating	Unit	•
	Forward current	I _F	50	mA	•	
Innut	*1Peak forward current		I _{FM}	1	А	-
Input	Reverse voltage		V _R	6	V	-
	Power dissipation	Р	70	mW	-	
	Collector-emitter voltage	V _{CEO}	350	V	-	
	Emitter-collector voltage	PC851X	17	6		-
_		PC852X/PC853X/PC853HX	V _{ECO}	0.1	V	
Output	Collector current	PC851X	т	50	mA	-
	Conector current	PC852X/PC853X/PC853HX	I _C	150		
	Collector power dissipation	PC851X/PC852X	D	150		
	Conector power dissipation	PC853X/PC853HX	P _C	300	mW	
	Total power dissipation	- P _{tot}	200			
	Total power dissipation		320	mW		
	^{*2} Isolation voltage			5	kV	*1 Pulse width $\leq 100 \mu s$,
	PC851X			-25 to +100	00	Duty ratio = 0.001
	Operating temperature	Topr	-30 to +100	°C	*2 40 to 60% RH,	
	Storage temperature	T _{stg}	-55 to +125	°C	- AC for 1 minute - *3 For 10 seconds	
	*3 Soldering temperature		T _{sol}	260	°C	
	Soldering temperature		T _{sol}	260	°C	-

(Notice)

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(Internet)

•Data for Sharp's optoelectronic/power devices is provided on internet. (Address http://www.sharp.co.jp/ecg/)

As of August 2000

D2-990401-A

SHARP

PC851X series

Photocoupler

Electro-optical Characteristics

PC851X Ta=25°C								
Parameter			Symbol	Conditions	MIN.	TYP.	MAX.	Unit
	Forward voltage		VF	IF=20mA	-	1.2	1.4	V
Input	Reverse current		IR	V _R =4V	-	-	10	μΑ
-	Terminal capacitance		Ct	V=0, f=1kHz	-	30	250	pF
Output	Collector dark current		ICEO	Vce=200V, If=0	-	-	1	μΑ
	Collector-emitter breakdown voltage		BVCEO	Ic=0.1mA, IF=0	350	-	-	V
	Emitter-collector breakdown voltage		BVECO	IE=10µA, IF=0	6		-	V
	Collector current		IC	IF=5mA, VCE=5V	2.0	4.0	-	mA
Input Output Fransfer characterisitcs	Collector-emitter saturation voltage		VCE(sat)	IF=20mA, Ic=1mA	-	0.1	0.3	V
Τ	Isolation resistance	e	IR VR=4V - Ct V=0, f=1kHz - ICE0 VCE=200V, IF=0 - wn voltage BVCE0 Ic=0.1mA, IF=0 350 wn voltage BVEC0 IE=10µA, IF=0 6 IC IF=5mA, VcE=5V 2.0 on voltage VCE(sat) IF=20mA, Ic=1mA - RISO DC500V, 40 to 60% RH 5×10 ¹ Cf V=0, f=1MHz - fc VCE=5V, Ic=2mA, RL=100Ω, -3dB -	5×10 ¹⁰	1×10 ¹¹	-	Ω	
characterisitcs	Floating capacitance		Cf	V=0, f=1MHz	-	0.6	1.0	pF
	Cut-off frequency		fc	VCE=5V, IC=2mA, RL= 100Ω , -3dB	-	50	-	kHz
	Response time	Rise time	tr	$V_{CE}=2V$ Ic=2m Δ RI=1000	-	4	10	μs
		Fall time	tf	VCE-2 V, IC-2IIIA, IC-10022	-	5	12	μs

PC825X/PC853X/PC853HX

PC825X/	PC853X/PC853	знх					г	a=25°C
	Parameter			Conditions	MIN.	TYP.	MAX.	Unit
Input H J Output C Transfer characterisitcs H	Forward voltage		VF	IF=10mA	-	1.2	1.4	V
	Reverse current		IR	V _R =4V	-	-	10	μA
	Terminal capacitance		Ct	V=0, f=1kHz	-	30	250	pF
Input R T Output C Transfer characterisites Fi	Collector dark current		ICEO	Vce=200V, If=0	-	-	200	nA
Output	Collector-emitter breakdown voltage		BVCEO	Ic=0.1mA, IF=0	350	-	-	V
	Collector current		IC	IF=1mA, VCE=2V	10	40	150	mA
	Collector-emitter saturation voltage		VCE(sat)	IF=20mA, Ic=100mA	-	-	1.2	V
Tuonofon	Isolation resistance		Riso	DC500V, 40 to 60%RH	5×10 ¹⁰	1×10 ¹¹	MAX. Unit 1.4 V 10 μA 250 pF 200 nA - V 150 mA	Ω
characterisitcs	Floating capacitar	nce	Cf	V=0, f=1MHz	-	IIN. TYP. MAX. Un - 1.2 1.4 V - - 10 μA - 30 250 pF - - 200 nA 50 - - V 100 40 150 mA - - 1.2 V 10^{10} 1×10^{11} - Ω - 0.6 1.0 pF 1 7 - kH - 100 300 μs	pF	
	Cut-off frequency		fc	VCE=2V, IC=20mA, RL=100 Ω , -3dB	1	7	-	kHz
	Response time	Rise time	tr	VCE=2V, IC=20mA, RL=100 Ω	-	100	300	μs
		Fall time	tf	VCE-2V, IC-2011A, KL-10032	-	20	100	μs

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 - Telecommunication equipment [terminal]
 - Test and measurement equipment
 - Industrial control
 - Audio visual equipment
 - Consumer electronics

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- Gas leakage sensor breakers
- Alarm equipment
- Various safety devices, etc.

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