PC357NT

■ Features

1. Opaque type, mini-flat package PC357NT (1-channel)

2. Subminiature type

(The volume is smaller than that of our conventional DIP type by as far as 30 %.)

3. Current transfer ratio

(CTR: MIN. 50% at I $_{\rm F}$ = 5mA, V $_{\rm CE}$ = 5V)

4. Isolation voltage between input and output

PC357NT ••• V_{iso} : 3 750 V_{rms} 5. Recognized by UL (No. E64380)

■ Applications

- 1. Hybrid substrates that require high density mounting
- 2. Programmable controllers

■ Package Specifications

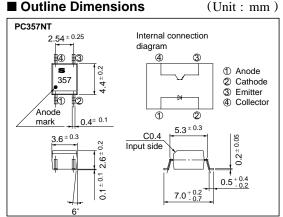
Model	Package specifications	
PC357NT	Taping reel diameter 178mm (750pcs.)	

General Purpose Photocoupler

■ Outline Dimensions

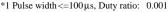
 $(Ta = 25^{\circ}C)$

Mini-flat Package,

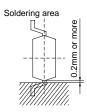


■ Absolute Maximum Ratings

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	Parameter	Symbol	Rating	Unit
	Forward current	I_F	50	mA
Input	*1 Peak 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
	Collector current	Ic	50	mA
	Collector power dissipation	Pc	150	mW
	Total power dissipation	P tot	170	mW
*2 Isolation voltage		V iso	3 750	V _{rms}
Operating temperature		T opr	- 30 to + 100	°C
Storage temperature		T stg	- 40 to + 125	°C
*3 Soldering temperature		T sol	260	°C



^{*2 40} to 60% RH, AC for 1 minute



^{*3} For 10 senconds

■ Electro-optical Characteristics

(Ta= 25°C)

Parameter		Symbol	Conditions	MIN.	TYP.	MAX.	Unit	
Input	Forward voltage		VF	$I_F = 20mA$	-	1.2	1.4	V
	Reverse current		I_R	$V_R = 4V$	-	-	10	μΑ
	Terminal capacitance		Ct	V=0, $f=1kHz$	-	30	250	pF
Output	Collector dark current		I _{CEO}	$V_{CE} = 20V, I_{F} = 0$	-	-	10 - 7	Α
	Collector-emitter breakdown voltage		BV _{CEO}	$I_C = 0.1 \text{mA}, I_F = 0$	35	-	-	V
	Emitter-collector breakdown voltage		BV _{ECO}	$I_E = 10 \mu A, I_F = 0$	6	-	-	V
Transfer- charac- teristics	*4 Current transfer ratio		CTR	$I_F = 5mA$, $V_{CE} = 5V$	50	-	600	%
	Collector-emitter saturation voltage		V _{CE(sat)}	$I_F = 20$ mA, $I_C = 1$ mA	-	-	0.2	V
	Isolation resistance		R _{ISO}	DC500V, 40 to 60% RH	5 x 10 ¹⁰	1011	-	Ω
	Floating capacitance		$C_{\rm f}$	V = 0, $f = 1MHz$	-	0.6	1.0	pF
	Response time	Rise time	t _r	$V_{CE} = 2V$, $I_{C} = 2mA$	-	4	18	μs
		Fall time	$t_{\rm f}$	$R_L = 100\Omega$	-	3	18	μs

^{*4} Classification table of current transfer ratio is shown below.

■ Current Transfer Ratio (CTR) Line-ups

Model No.	Rank mark	CTR (%)
PC357N1T	A	80 to 160
PC357N2T	В	130 to 260
PC357N3T	C	200 to 400
PC357N4T	D	300 to 600
PC357N5T	A or B	80 to 260
PC357N6T	B or C	130 to 400
PC357N7T	C or D	200 to 600
PC357N8T	A, B or C	80 to 400
PC357N9T	B, C or D	130 to 600
PC357N0T	A, B, C or D	80 to 600
PC357NT	A, B, C, D or No mark	50 to 600

Fig. 1 Forward Current vs. Ambient Temperature

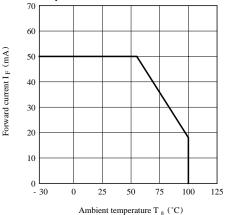


Fig. 3 Collector Power Dissipation vs.
Ambient Temperature

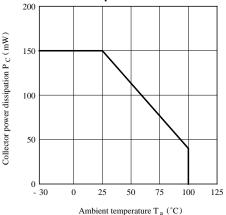


Fig. 5 Peak Forward Current vs. Duty Ratio

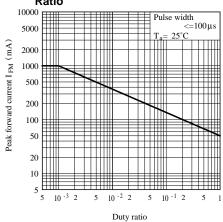


Fig. 2 Diode Power Dissipation vs.
Ambient Temperature

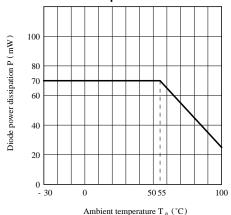


Fig. 4 Total Power Dissipation vs.
Ambient Temperature

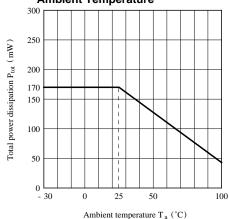


Fig. 6 Forward Current vs. Forward Voltage

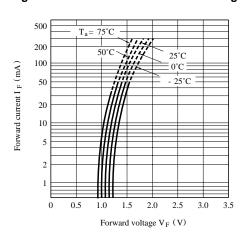


Fig. 7 Current Transfer Ratio vs. Forward Current

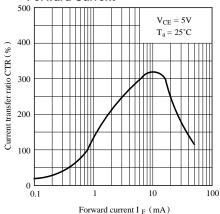


Fig. 9 Relative Current Transfer Ratio vs.
Ambient Temperature

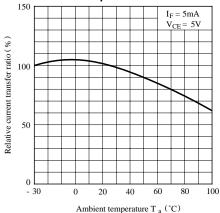


Fig.11 Collector Dark Current vs.

Ambient Temperature

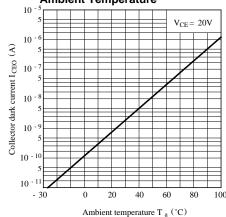


Fig. 8 Collector Current vs.
Collector-emitter Voltage

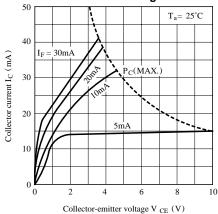


Fig.10 Collector-emitter Saturation Voltage vs. Ambient Temperature

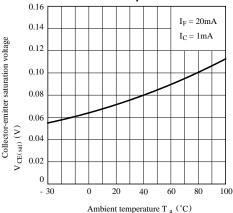
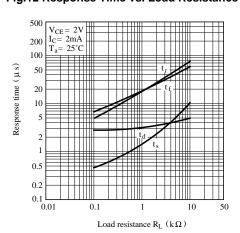


Fig.12 Response Time vs. Load Resistance



Test Circuit for Response Time

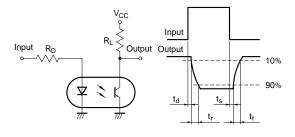
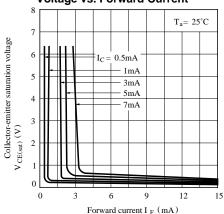
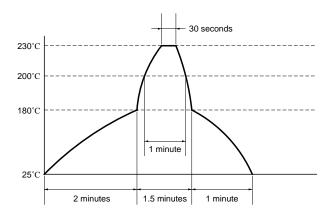


Fig.13 Collector-emitter Saturation Voltage vs. Forward Current



■ Temperature Profile of Soldering Reflow

(1) One time soldering reflow is recommended within the condition of temperature and time profile shown below.



- (2) When using another soldering method such as infrared ray lamp, the temperature may rise partially in the mold of the device.
 - Keep the temperature on the package of the device within the condition of above (1).
- (3) As for other general cautions, refer to the chapter "Precautions for Use"

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