PC357NT

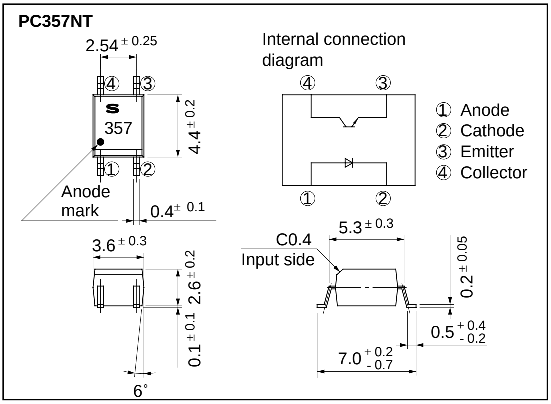
Mini-flat Package, General Purpose Photocoupler

■ 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_F = 5mA, V_{CE} = 5V)
4. Isolation voltage between input and output
   PC357NT ••• V_{iso} : 3 750V_{rms}
5. Recognized by UL (No. E64380)

■ Outline Dimensions

(Unit : mm)



■ Applications

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

■ Package Specifications

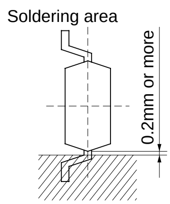
Model	Package specifications
PC357NT	Taping reel diameter 178mm (750pcs.)

■ Absolute Maximum Ratings

(Ta = 25˚C)

Parameter		Symbol	Rating	Unit
Input	Forward current	I_F	50	mA
	*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	I_C	50	mA
	Collector power dissipation	P_C	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

*1 Pulse width <=100μs, Duty ratio: 0.001
*2 40 to 60% RH, AC for 1 minute
*3 For 10 senconds



■ Electro-optical Characteristics

(T_a= 25˚C)

Parameter			Symbol	Conditions	MIN.	TYP.	MAX.	Unit
Input	Forward voltage		V_F	I_F = 20mA	-	1.2	1.4	V
	Reverse current		I_R	V_R = 4V	-	-	10	μ A
	Terminal capacitance		C_t	V = 0, f = 1kHz	-	30	250	pF
Output	Collector dark current		I_{CEO}	V_{CE} = 20V, I_F = 0	-	-	10^{-7}	A
	Collector-emitter breakdown voltage		BV_{CEO}	I_C = 0.1mA, I_F = 0	35	-	-	V
	Emitter-collector breakdown voltage		BV_{ECO}	I_E = 10μ 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 = 20mA, I_C = 1mA	-	-	0.2	V
	Isolation resistance		R_{ISO}	DC500V, 40 to 60% RH	5×10^{10}	10^{11}	-	Ω
	Floating capacitance		C_f	V = 0, f = 1MHz	-	0.6	1.0	pF
	Response time	Rise time	t_r	V_{CE} = 2V, I_C = 2mA	-	4	18	μ s
		Fall time	t_f	R_L = 100Ω	-	3	18	μ s

*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	B	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

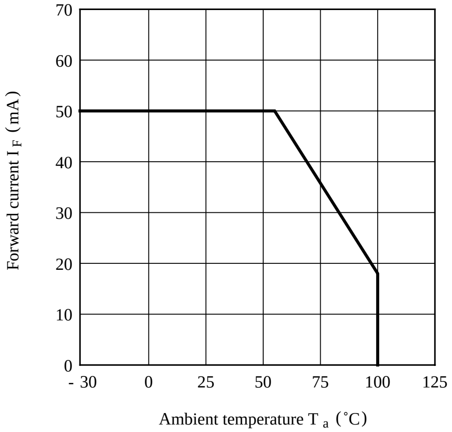


Fig. 2 Diode Power Dissipation vs. Ambient Temperature

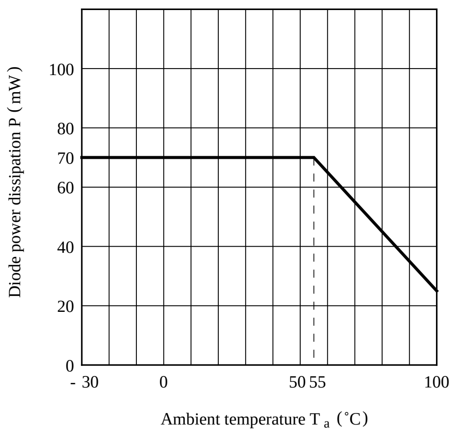


Fig. 3 Collector Power Dissipation vs. Ambient Temperature

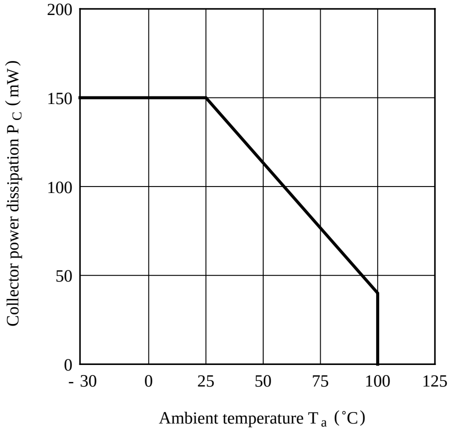


Fig. 4 Total Power Dissipation vs. Ambient Temperature

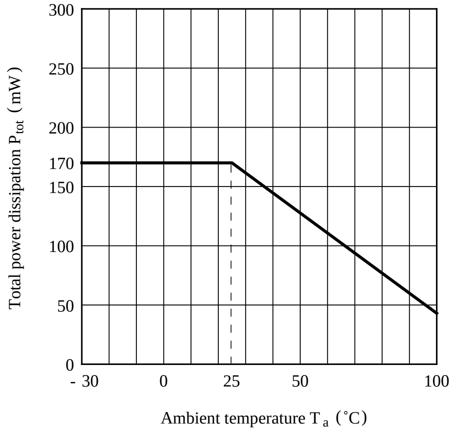


Fig. 5 Peak Forward Current vs. Duty Ratio

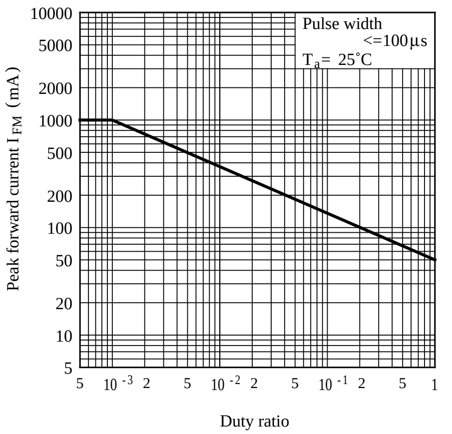


Fig. 6 Forward Current vs. Forward Voltage

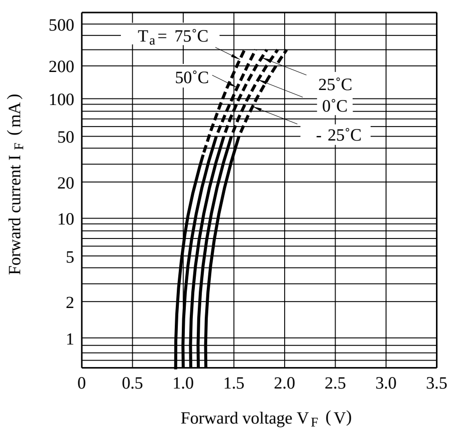


Fig. 7 Current Transfer Ratio vs. Forward Current

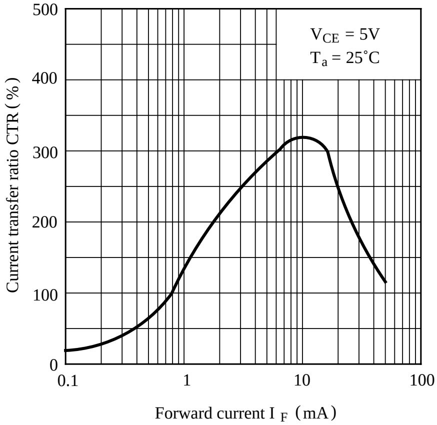


Fig. 8 Collector Current vs. Collector-emitter Voltage

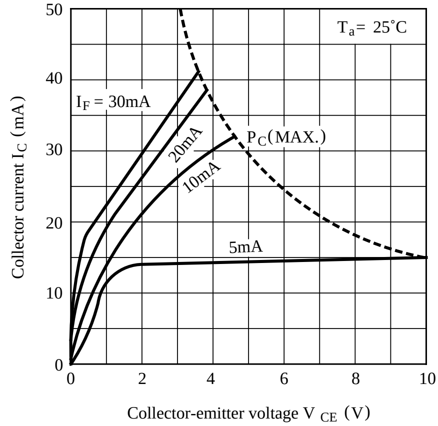


Fig. 9 Relative Current Transfer Ratio vs. Ambient Temperature

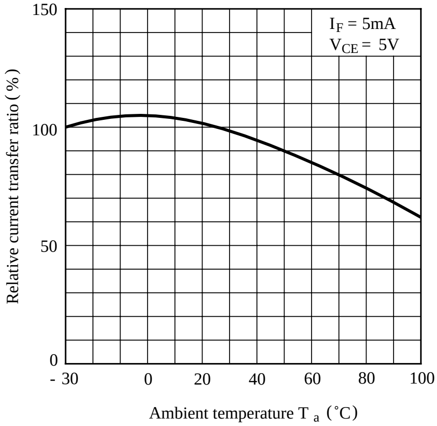


Fig.10 Collector-emitter Saturation Voltage vs. Ambient Temperature

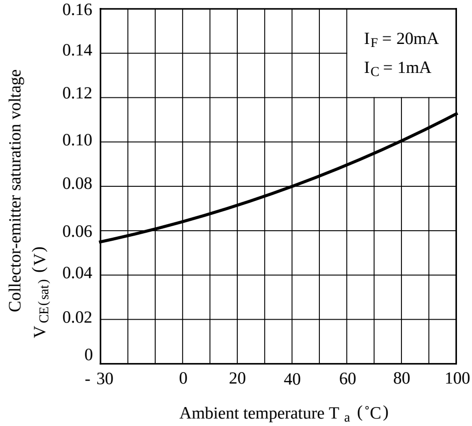


Fig.11 Collector Dark Current vs. Ambient Temperature

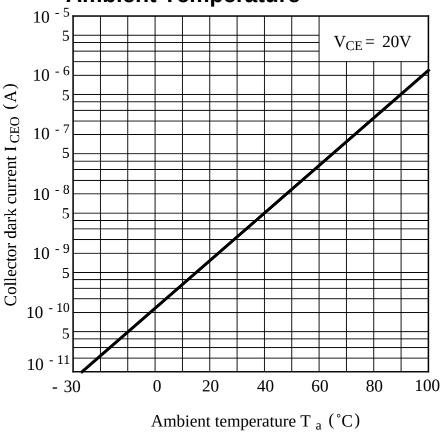
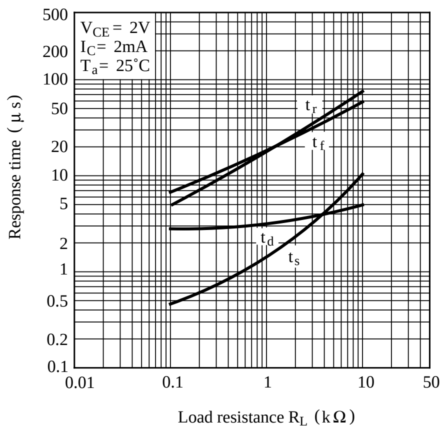


Fig.12 Response Time vs. Load Resistance



Test Circuit for Response Time

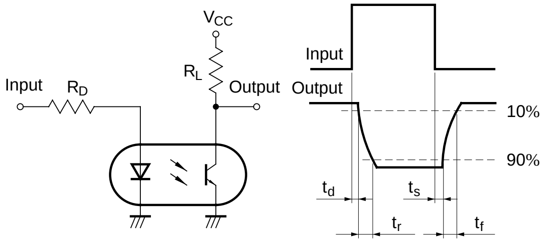
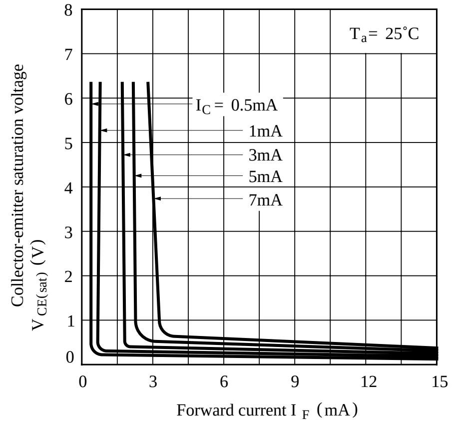
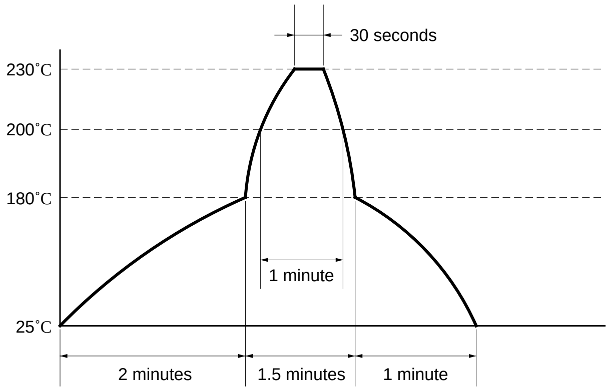


Fig.13 Collector-emitter Saturation Voltage vs. Forward Current



■ 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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— Industrial control
— Audio visual equipment
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