

PC354NT

Mini-flat Package, AC Input Type Photocoupler

■ Features

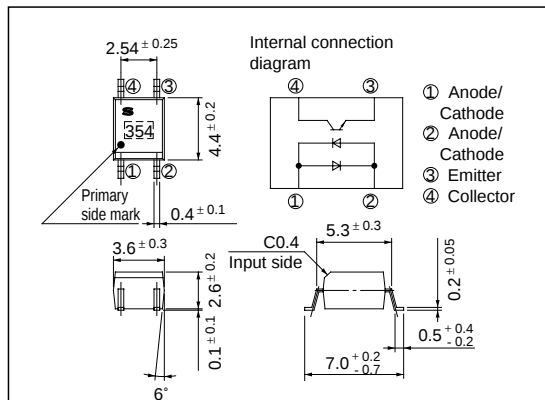
1. AC inputs
2. Opaque type, mini-flat package
PC354NT (1-channel)
3. Subminiature type
(The volume is smaller than that of our conventional DIP type by as far as 30 %.)
4. Isolation voltage between input and output
PC354NT... V_{iso} : 3 750V_{rms}

■ Applications

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

■ Outline Dimensions

(Unit : mm)



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
	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 $\leq 100 \mu s$, Duty ratio : 0.001

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

*3 For 10 seconds

Classification of current transfer ratio (CTR)

Model No.	Rank mark	CTR (%)
PC354N1T	A	50 to 150
PC354NT	A or No mark	20 to 400

☼ Conditions : $I_F = \pm 1mA$, $V_{CE} = 5V$, $T_a = 25^\circ C$

Electro-optical Characteristics

(Ta = 25°C)

	Parameter		Symbol	Conditions	MIN.	TYP.	MAX.	Unit
Input	Forward voltage		V_F	$I_F = \pm 20mA$	-	1.2	1.4	V
	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}	$I_E = 10 \mu A, I_F = 0$	6	-	-	V
	Current transfer ratio		CTR	$I_F = \pm 1mA, V_{CE} = 5V$	20	-	400	%
Transfer-characteristics	Collector-emitter saturation voltage		$V_{CE(sat)}$	$I_F = \pm 20mA, I_C = 1mA$	-	0.1	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	$V_{CE} = 2V, I_C = 2mA$ $R_L = 100\Omega$	-	4	18	μs
		Fall time	t_f		-	3	18	μs

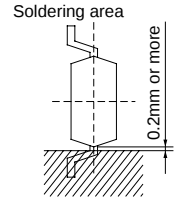


Fig. 1 Forward Current vs. Ambient Temperature

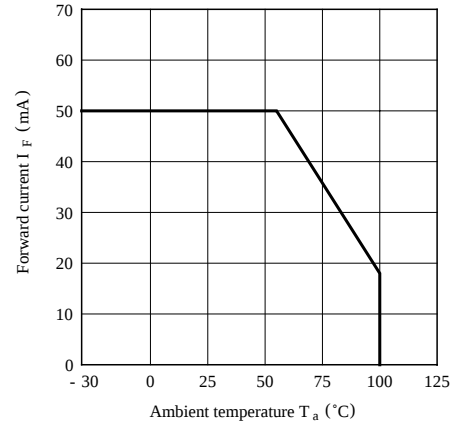


Fig. 2 Diode Power Dissipation vs. Ambient Temperature

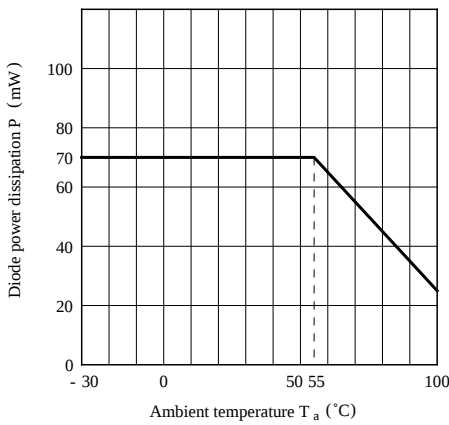


Fig. 3 Collector Power Dissipation vs. Ambient Temperature

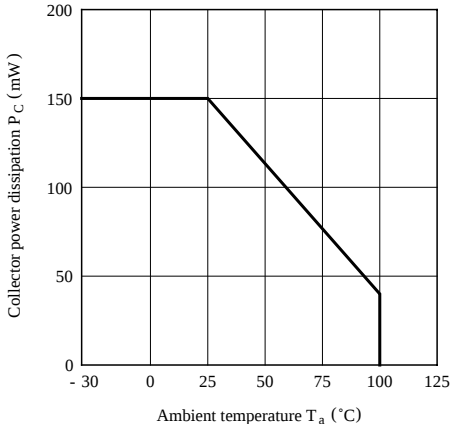


Fig. 4 Total Power Dissipation vs. Ambient Temperature

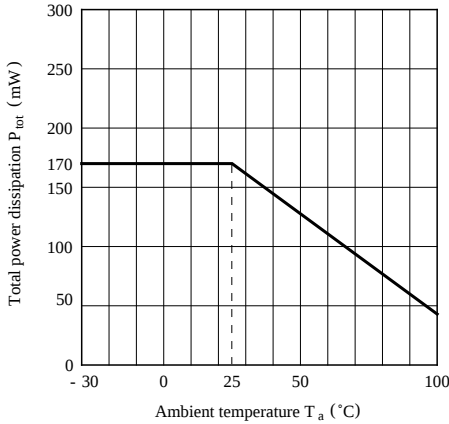


Fig. 5 Peak Forward Current vs. Duty Ratio

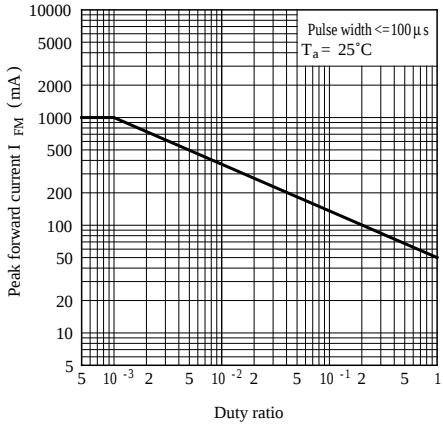


Fig. 6 Forward Current vs. Forward Voltage

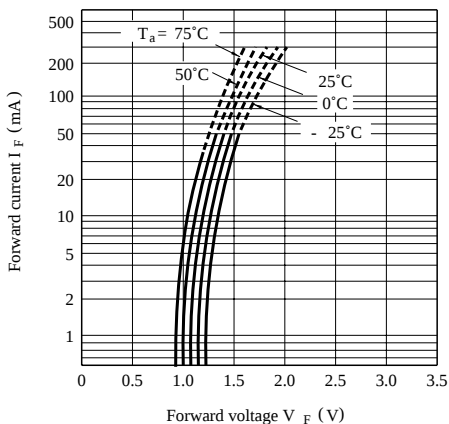


Fig. 7 Current Transfer Ratio vs. Forward Current

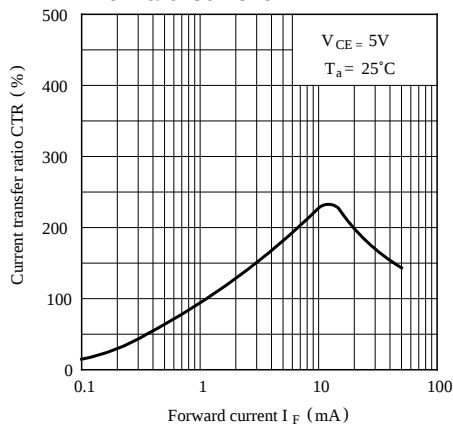


Fig. 8 Collector Current vs. Collector-emitter Voltage

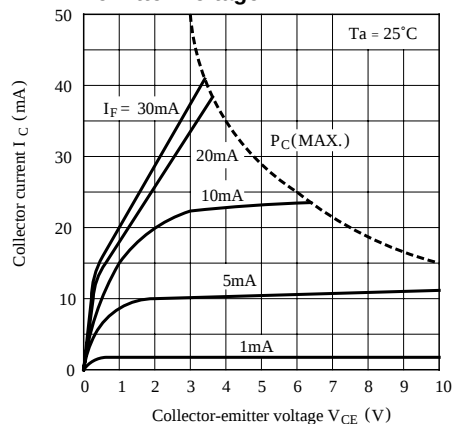


Fig. 9 Relative Current Transfer Ratio vs. Ambient Temperature

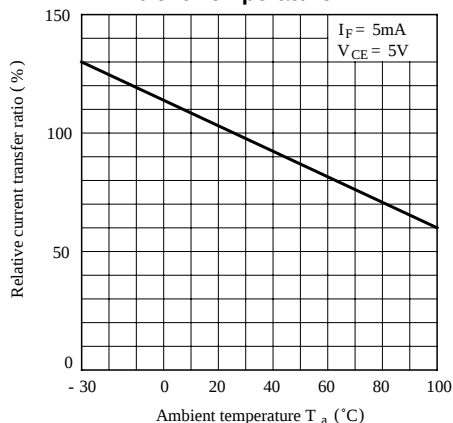


Fig.10 Collector-emitter Saturation Voltage vs. Ambient Temperature

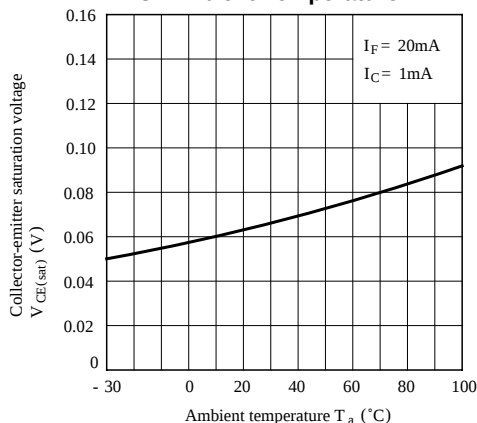


Fig.11 Collector Dark Current vs. Ambient Temperature

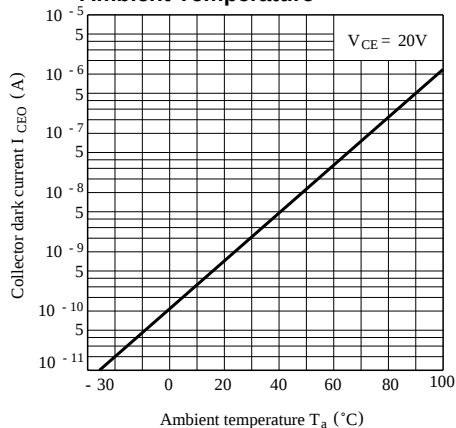
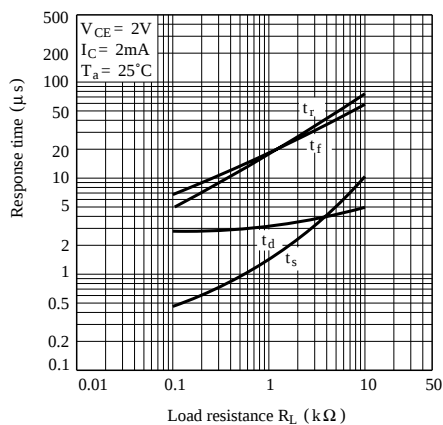


Fig.12 Response Time vs. Load Resistance



Test Circuit For Response Time

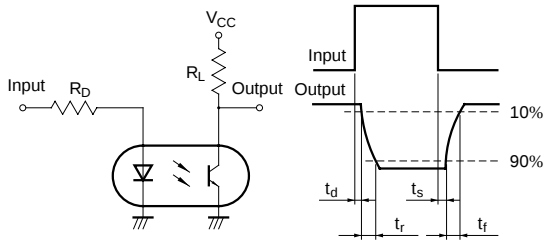
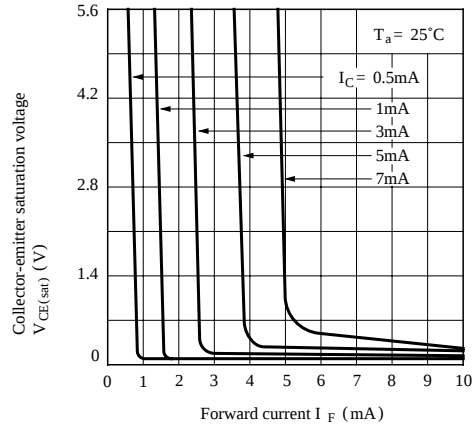
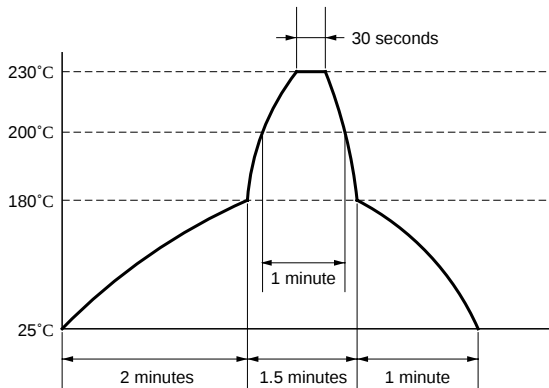


Fig.13 Collector-emitter Saturation Voltage vs. Forward Current



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).

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

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