PC356NT/PC358

Mini-Flat Package, High Collector-emitter Voltage Type Photocoupler

■ Features

1. High collector-emitter voltage
   (**PC358** ••• V_{CEO} : 120V, **PC356NT** ••• V_{CEO} : 80V)
2. Opaque type, mini-flat package
   PC356NT / PC358 (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
   PC356NT / PC358 ••• V_{iso} : 3 750V_{rms}
5. Recognized by UL (No. E64380)

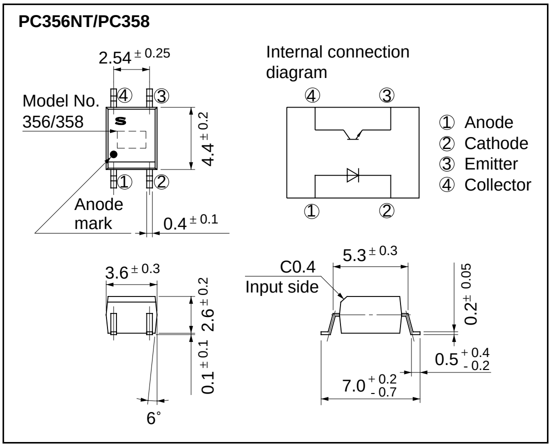
■ Applications

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

■ Package Specifications

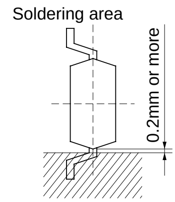
Model No.	Package specifications
PC356NT	Taping reel diameter 178mm (750pcs.)
PC358	Taping reel diameter 370mm (3000pcs.)

■ 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
	Reverse voltage		V_R	6	V
	Power dissipation		P	70	mW
Output	Collector-emitter voltage	**PC356NT**	V_{CEO}	80	V
		PC358		120	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 (Ta= 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		**PC356NT**	I_{CEO}	V_{CE} = 20V, I_F = 0	-	-	1 x 10^{-7}	A
			PC358		V_{CE} = 40V, I_F = 0				
	Collector-emitter breakdown voltage		**PC356NT**	BV_{CEO}	I_C = 0.1mA, I_F = 0	80	-	-	V
			PC358			120	-	-	
	Emitter-collector breakdown voltage			BV_{ECO}	I_E = 10 µA, I_F = 0	6	-	-	V
Transfer-charac-teristics	Current transfer ratio		**PC356NT**	CTR	I_F = 1mA, V_{CE} = 5V	100	-	400	%
			PC358		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 x 10^{10}	10^{11}	-	Ω
	Floating capacitance			C_f	V = 0, f = 1MHz	-	0.6	1.0	pF
	Response time	Rise time	**PC356NT**	t_r	V_{CE} = 2V, I_C = 2mA, R_L = 100Ω	-	6	-	µ s
			PC358			-	4	18	µ s
		Fall time	**PC356NT**	t_f		-	8	-	µ s
			PC358			-	3	18	µ s

Fig. 1 Forward Current vs. Ambient Temperature

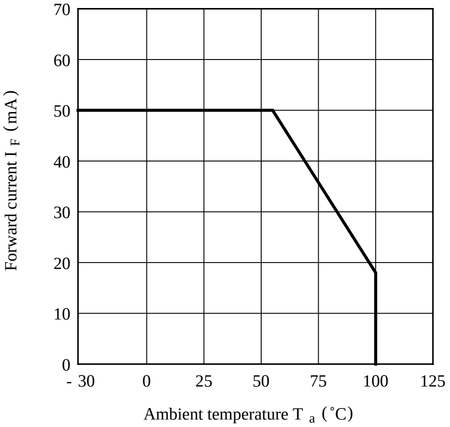


Fig. 2 Diode Power Dissipation vs. Ambient Temperature

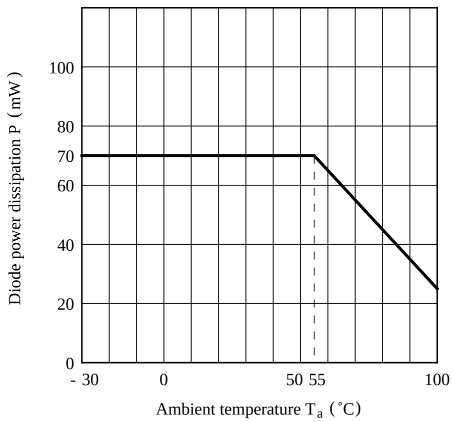


Fig. 3 Collector Power Dissipation vs. Ambient Temperature

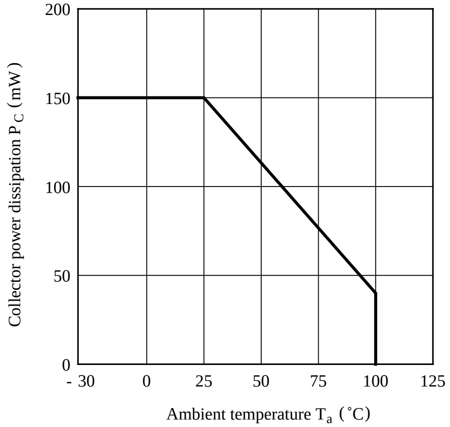


Fig. 4 Total Power Dissipation vs. Ambient Temperature

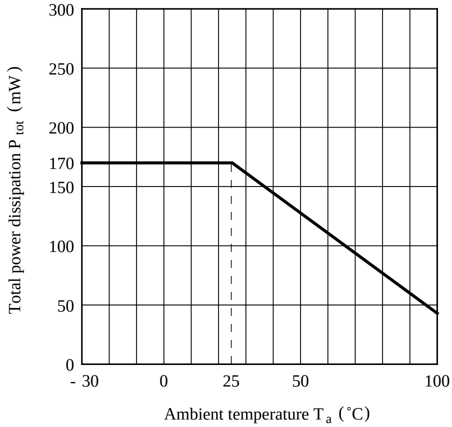


Fig. 5 Peak Forward Current vs. Duty Ratio

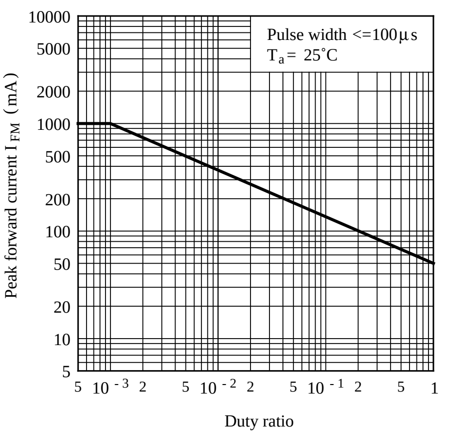


Fig. 6 Forward Current vs. Forward Voltage

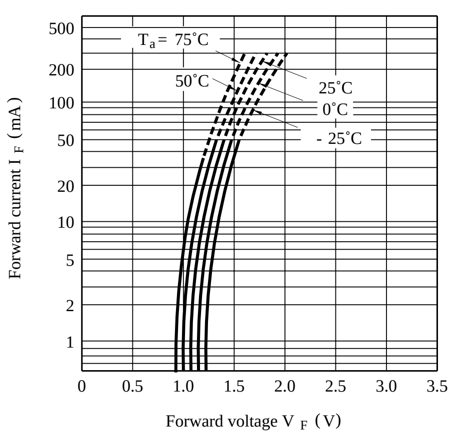


Fig. 7-a Current Transfer Ratio vs. Forward Current (PC356NT)

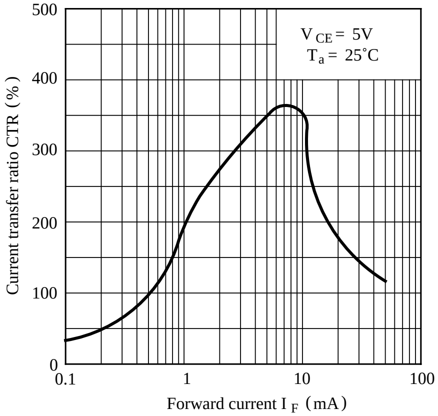


Fig. 7-b Current Transfer Ratio vs. Forward Current (PC358)

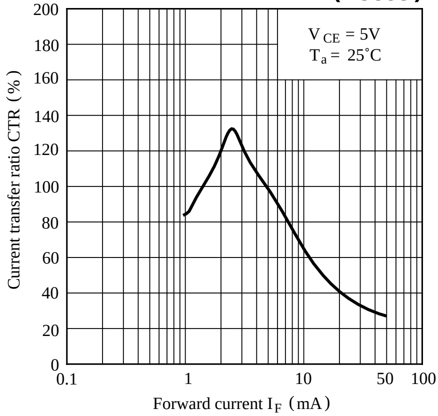


Fig. 8-a Collector Current vs. Collector-emitter Voltage (PC356NT)

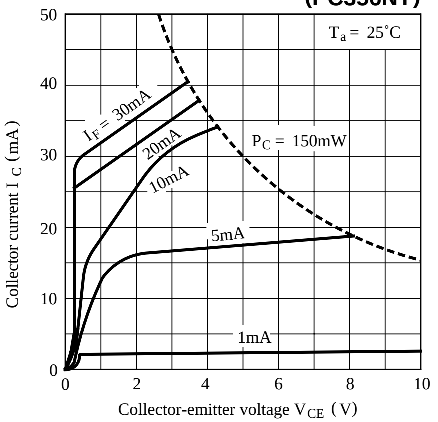


Fig. 8-b Collector Current vs. Collector-emitter Voltage (PC358)

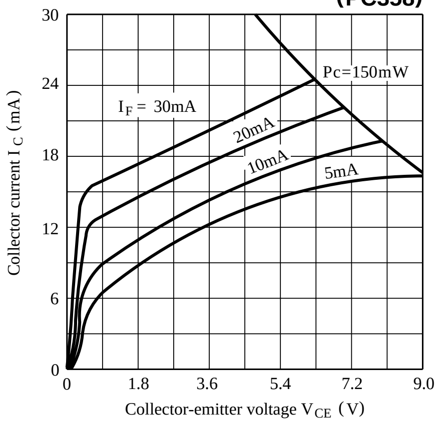


Fig. 9-a Relative Current Transfer Ratio vs. Ambient Temperature (PC356NT)

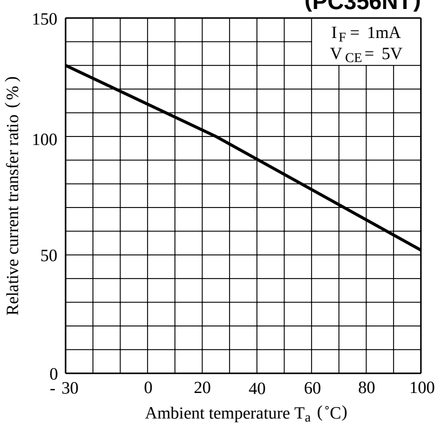


Fig. 9-b Relative Current Transfer Ratio vs. Ambient Temperature (PC358)

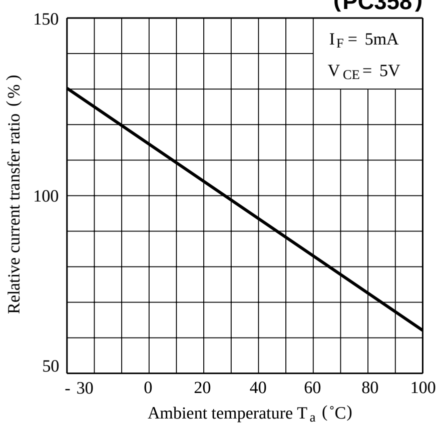


Fig.10-a Collector-emitter Saturation Voltage vs. Ambient Temperature (PC356NT)

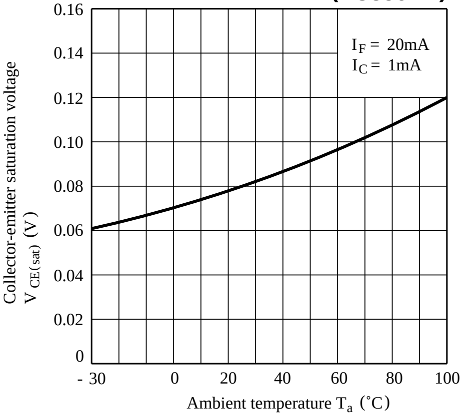


Fig.10-b Collector-emitter Saturation Voltage vs. Ambient Temperature (PC358)

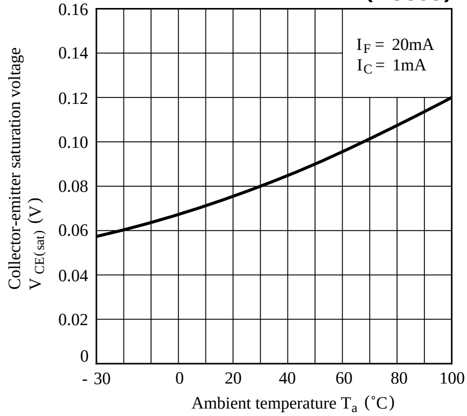


Fig.11-a Collector Dark Current vs. Ambient Temperature (PC356NT)

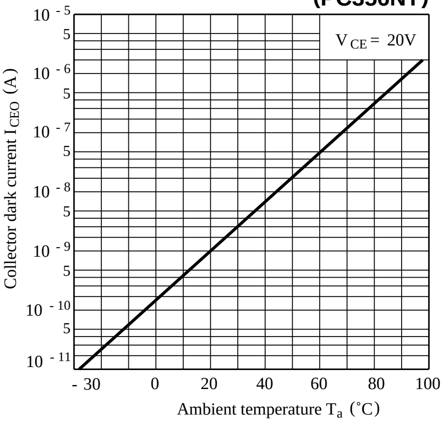


Fig.11-b Collector Dark Current vs. Ambient Temperature (PC358)

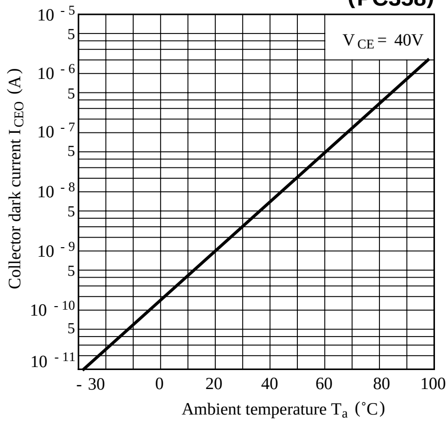


Fig.12-a Response Time vs. Load Resistance (PC356NT)

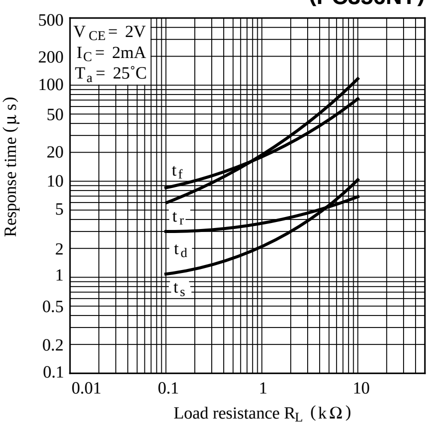
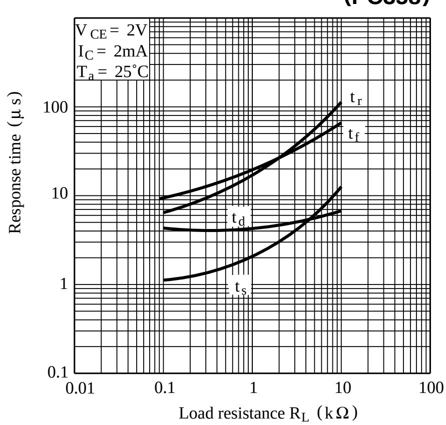


Fig.12-b Response Time vs. Load Resistance (PC358)



Test Circuit for Response Time

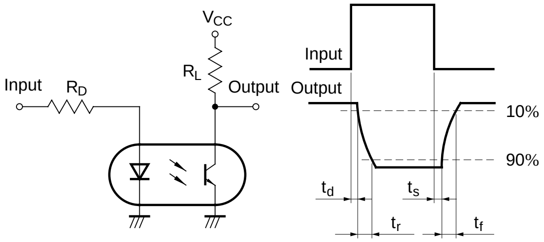


Fig.13-a Collector-emitter Saturation Voltage vs. Forward Current (PC356NT)

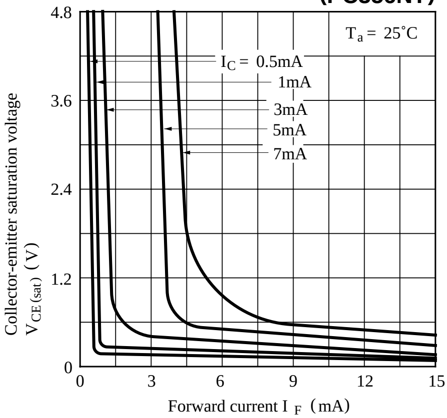
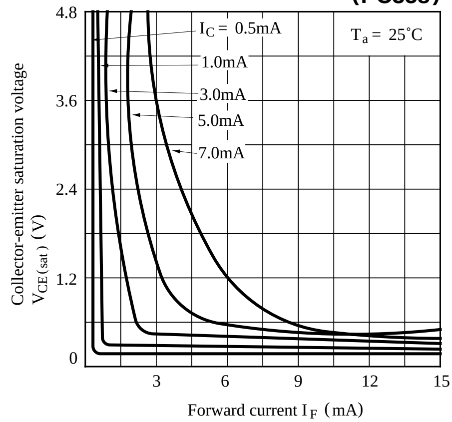
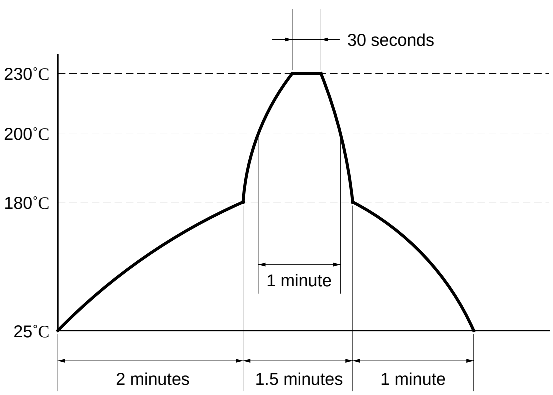


Fig.13-b Collector-emitter Saturation Voltage vs. Forward Current (PC358)



■ 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".

NOTICE