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)

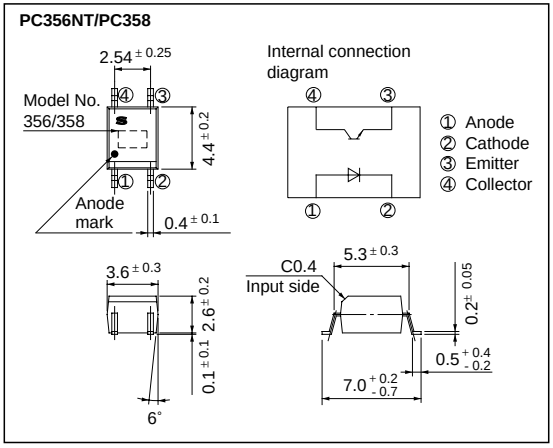
■ Applications

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

■ Package Specifications

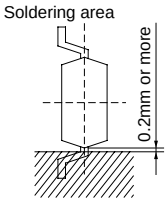
Model No.	Package specifications
PC356NT	Taping reel diameter 178mm (750pcs.)
PC358	Taping reel diameter 370mm (3000pcs.)

■ Outline Dimensions (Unit : mm)



■ Absolute Maximum Ratings (Ta= 25˚C)

Parameter			Symbol	Rating	Unit
Input	Forward current		I_F	50	mA
	*1Peak 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
*2Isolation 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	μA
	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 = 10μA, I_F = 0	6	-	-	V
Transfer-characteristics	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	-	μs
			PC358			-	4	18	μs
		Fall time	PC356NT	t_f		-	8	-	μs
			PC358			-	3	18	μs

Fig. 1 Forward Current vs. Ambient Temperature

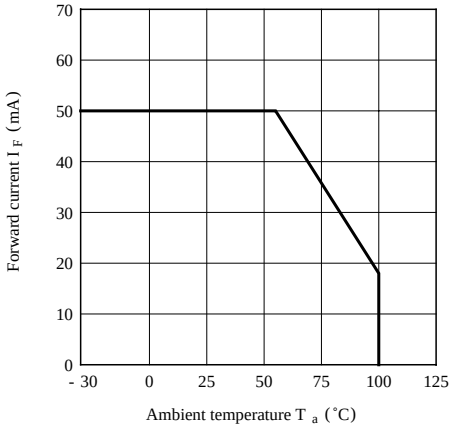


Fig. 2 Diode Power Dissipation vs. Ambient Temperature

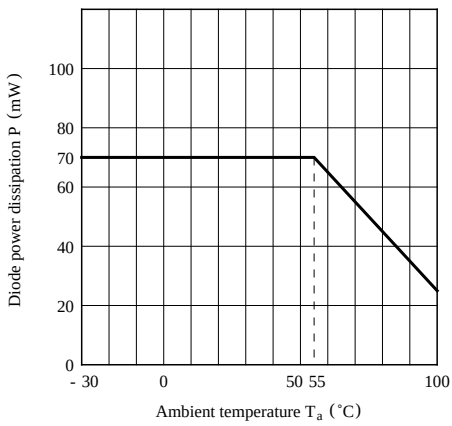


Fig. 3 Collector Power Dissipation vs. Ambient Temperature

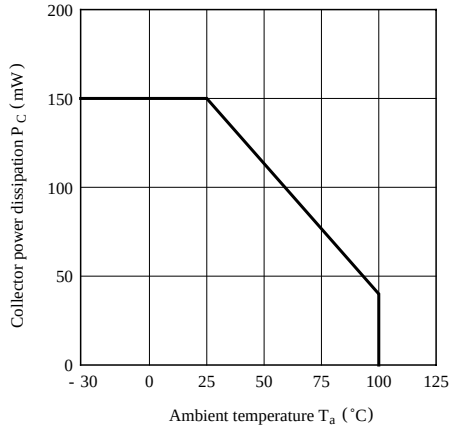


Fig. 4 Total Power Dissipation vs. Ambient Temperature

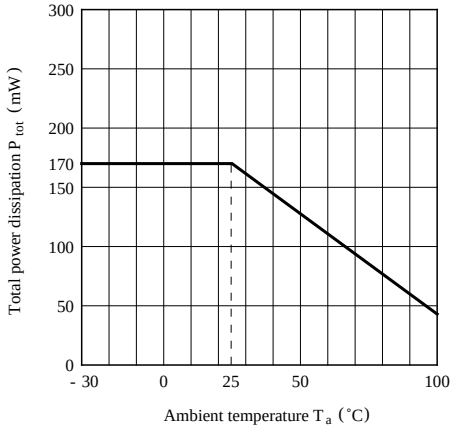


Fig. 5 Peak Forward Current vs. Duty Ratio

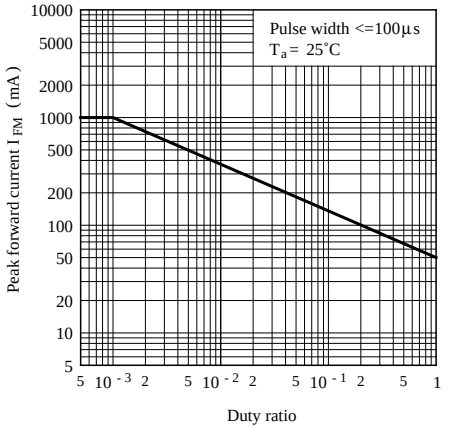


Fig. 6 Forward Current vs. Forward Voltage

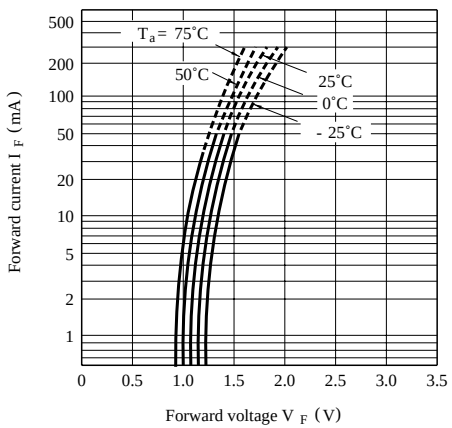


Fig. 7-a Current Transfer Ratio vs. Forward Current (PC356NT)

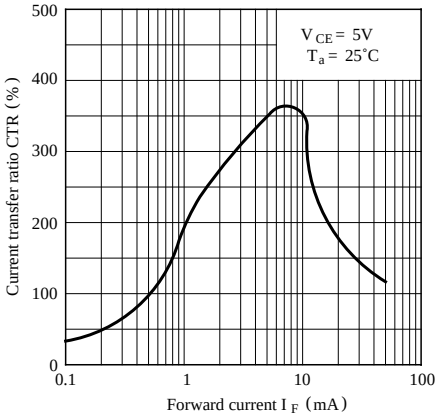


Fig. 7-b Current Transfer Ratio vs. Forward Current (PC358)

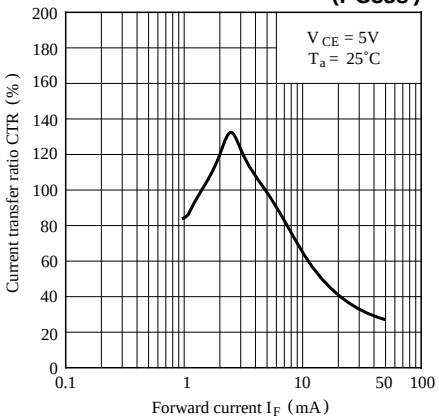


Fig. 8-a Collector Current vs. Collector-emitter Voltage (PC356NT)

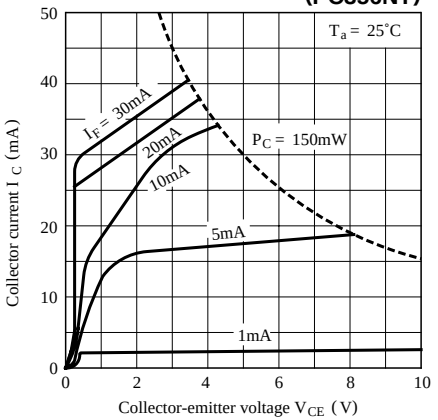


Fig. 8-b Collector Current vs. Collector-emitter Voltage (PC358)

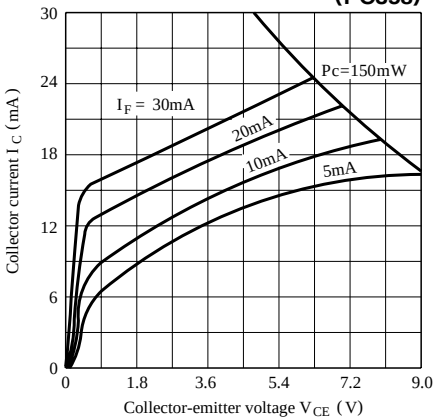


Fig. 9-a Relative Current Transfer Ratio vs. Ambient Temperature (PC356NT)

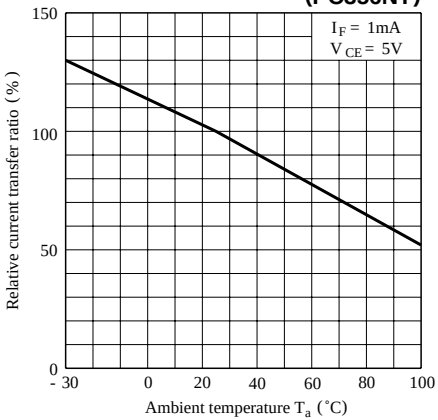


Fig. 9-b Relative Current Transfer Ratio vs. Ambient Temperature (PC358)

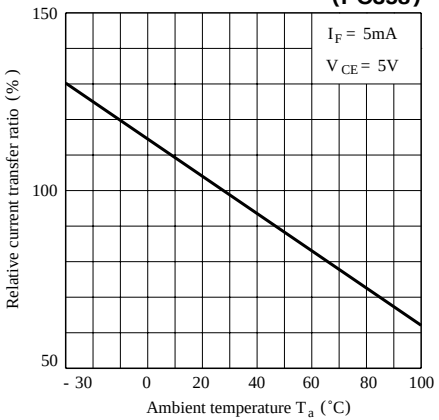


Fig.10-a Collector-emitter Saturation Voltage vs. Ambient Temperature (PC356NT)

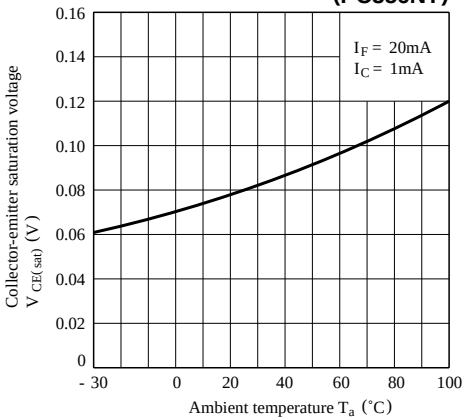


Fig.10-b Collector-emitter Saturation Voltage vs. Ambient Temperature (PC358)

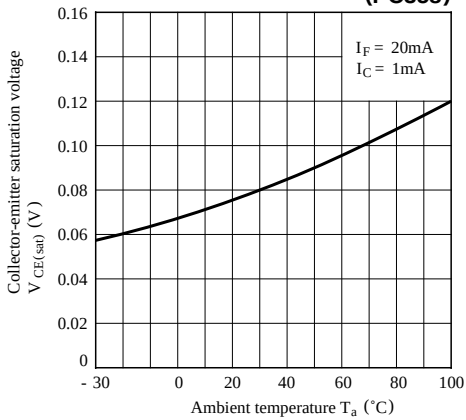


Fig.11-a Collector Dark Current vs. Ambient Temperature (PC356NT)

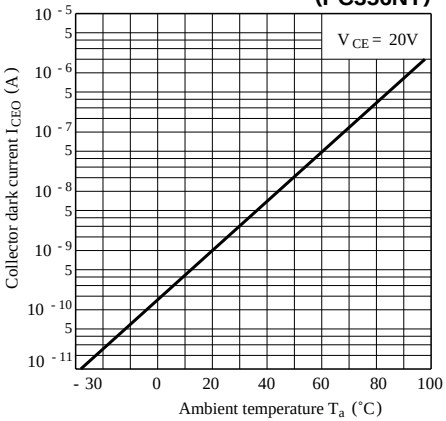


Fig.11-b Collector Dark Current vs. Ambient Temperature (PC358)

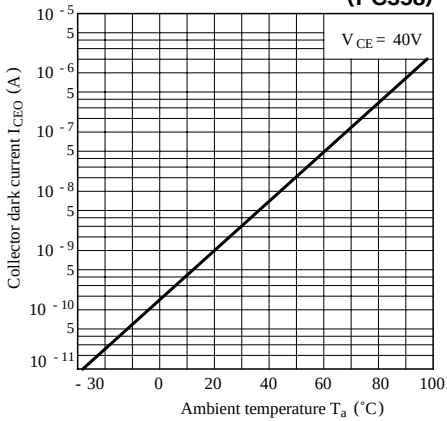


Fig.12-a Response Time vs. Load Resistance (PC356NT)

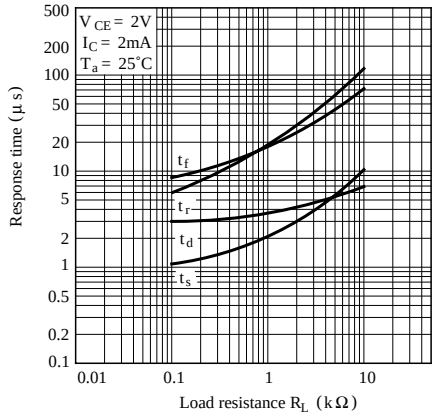


Fig.12-b Response Time vs. Load Resistance (PC358)