

cosmo**Mini-flat package General purpose
Photo Coupler****KPC357NT**

UL 1577 (File No.E169586)

Features

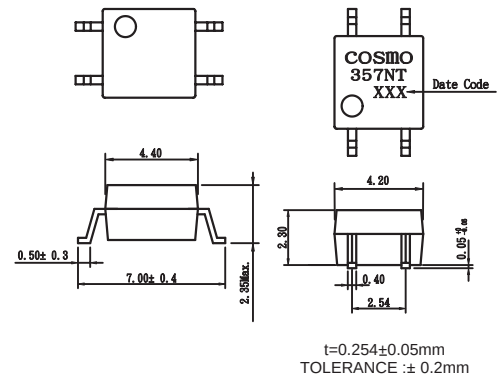
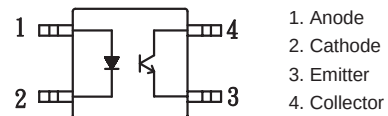
1. Opaque type, mini-flat package.
2. Subminiature type
(The volume is smaller than that of our conventional DIP type by as far as 30%).
3. Current transfer ratio
(CTR:MIN.50% at $I_F=5\text{mA}$, $V_{CE}=5\text{V}$)
4. Isolation voltage between input and output (Viso:3750Vrms).

Applications

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

Classification table of current transfer ratio is shown below.

Model NO.	CTR (%)
A	80 TO 160
B	130 TO 260
C	200 TO 400
D	300 TO 600
E	50 TO 600

Outside Dimension : Unit (mm)**Schematic : Top View****Absolute Maximum Ratings**

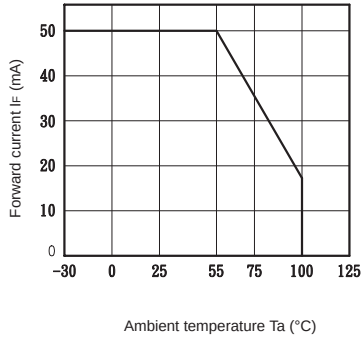
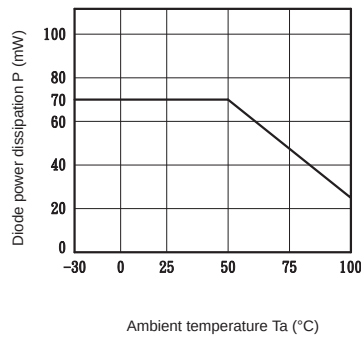
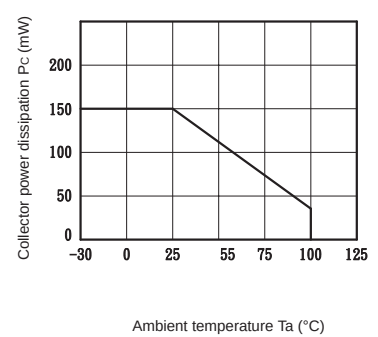
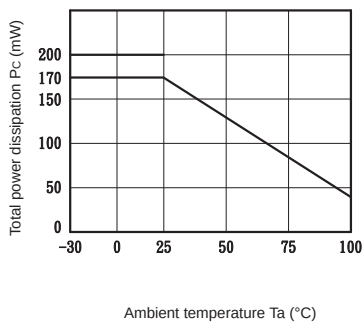
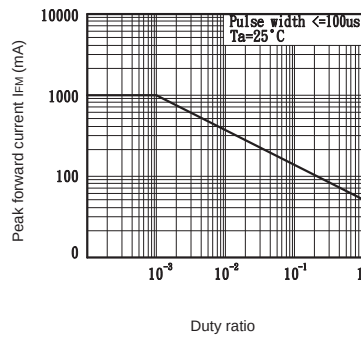
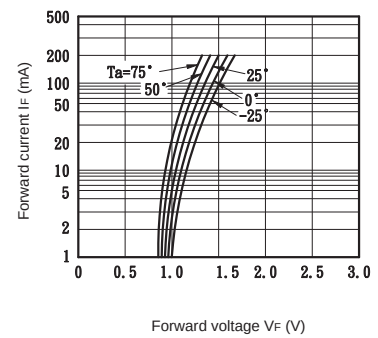
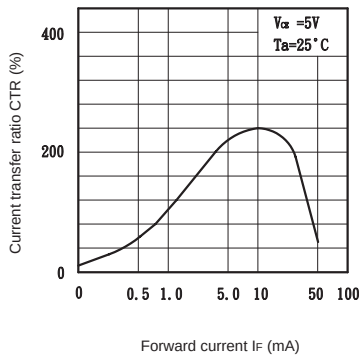
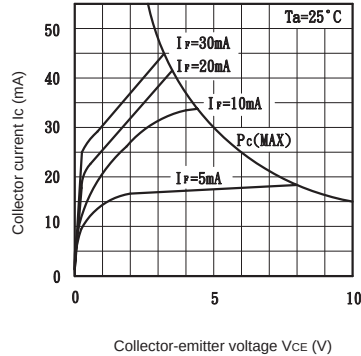
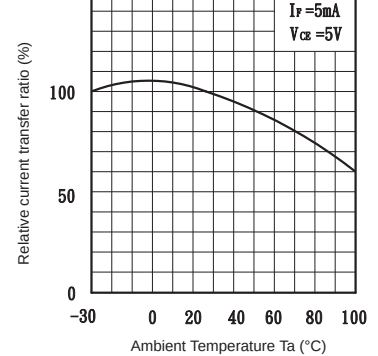
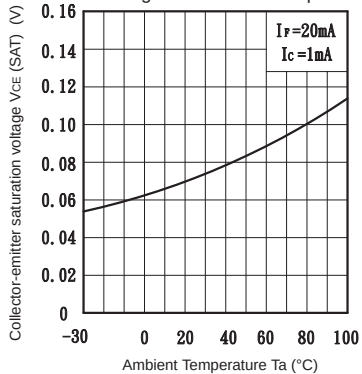
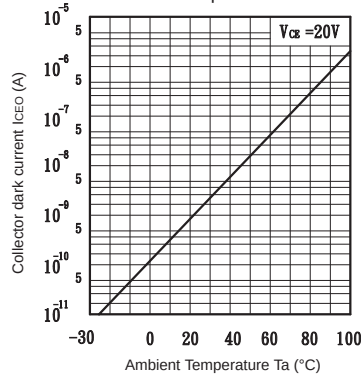
(Ta=25°C)

	Parameter	Symbol	Rating	Unit
Input	Forward current	I_F	50	mA
	Peak forward current	I_{FM}	1	A
	Reverse voltage	V_R	6	V
	Power dissipation	P	70	mW
Output	Collector-emitter voltage	V_{CEO}	60	V
	Emitter-collector voltage	V_{ECO}	5	V
	Collector current	I_C	50	mA
	Collector power dissipation	P_C	150	mW
Total power dissipation		P_{tot}	170	mW
Isolation voltage 1 minute		Viso	3750	Vrms
Operating temperature		T_{opr}	-30 to +100	°C
Storage temperature		T_{stg}	-40 to +125	°C
Soldering temperature 10 seconds		T_{sol}	260	°C

Electro-optical Characteristics

(Ta=25°C)

	Parameter	Symbol	Conditions	MIN.	TYP.	MAX.	Unit
Input	Forward voltage	V_F	$I_F=20\text{mA}$	—	1.2	1.4	V
	Reverse current	I_R	$V_R=4\text{V}$	—	—	10	μA
	Terminal capacitance	C_t	$V=0$, $f=1\text{kHz}$	—	30	250	pF
Output	Collector dark current	I_{CEO}	$V_{CE}=20\text{V}$, $I_F=0$	—	—	0.1	μA
	Collector-emitter breakdown voltage	BV_{CEO}	$I_C=0.1\text{mA}$, $I_F=0$	60	—	—	V
	Emitter-collector breakdown voltage	BV_{ECO}	$I_E=100\mu\text{A}$, $I_F=0$	5	—	—	V
Transfer characteristics	Current transfer ratio	CTR	$I_F=5\text{mA}$, $V_{CE}=5\text{V}$	50	—	600	%
	Collector-emitter saturation voltage	$V_{CE(sat)}$	$I_F=20\text{mA}$, $I_C=1\text{mA}$	—	0.1	0.3	V
	Isolation resistance	Riso	DC500V, 40 to 60%RH	5×10^{10}	10^{11}	—	ohm
	Floating capacitance	C_f	$V=0$, $f=1\text{MHz}$	—	0.6	1.0	pF
	Response time (Rise)	t_r	$V_{CE}=2\text{V}$, $I_C=2\text{mA}$, $R_L=100\text{ohm}$	—	5	20	us
	Response time (Fall)	t_f		—	4	20	us

cosmo**KPC357NT****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