

PRODUCT SPECIFICATION

DATE:07/22/2008

cosmo ELECTRONICS CORPORATION	Photocoupler : KPC357NT	NO.61P04052	REV.
		SHEET 1 OF 7	2

Mini-Flat package General purpose Photocoupler

● 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

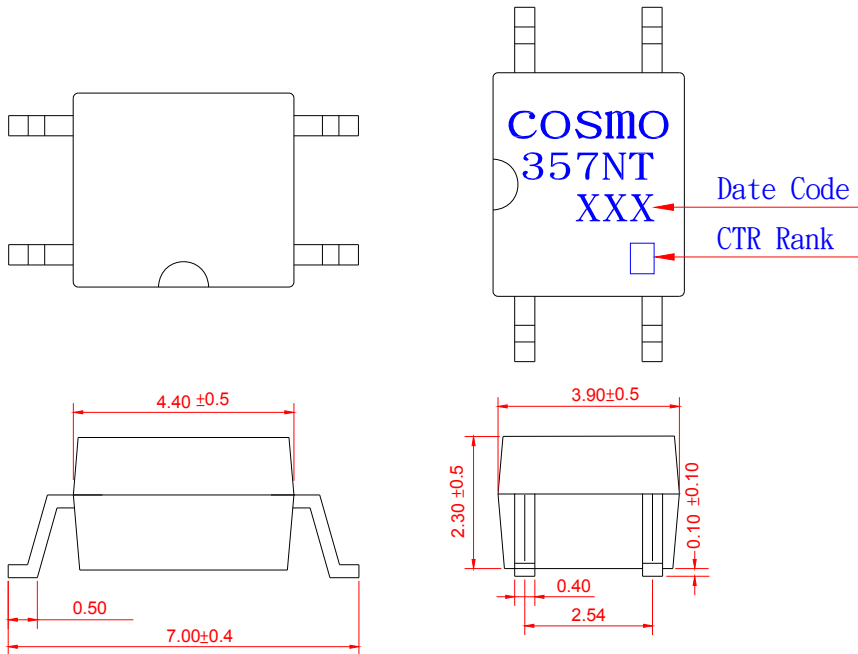
1. Hybrid substrates that require high density mounting.
2. Programmable controllers.

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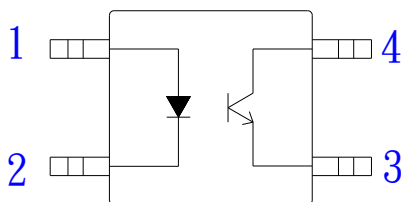
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1. OUTSIDE DIMENSION : UNIT (mm)



TOLERANCE : ± 0.2 mm

2. SCHEMATIC : TOP VIEW



1. Anode
2. Cathode
3. Emitter
4. Collector

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● Absolute Maximum Ratings

	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	V_{iso}	3750	V_{rms}
	Operating temperature	T_{opr}	-55 to +115	°C
	Storage temperature	T_{stg}	-55 to +125	°C
	Soldering temperature 10 second	T_{sol}	260	°C

● Electro-optical Characteristics

	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	uA
	Terminal capacitance	C_t	$V=0, f=1kHz$	-	30	250	pF
Output	Collector dark current	I_{CEO}	$V_{CE}=20V, I_F=0$	-	-	0.1	uA
	Collector-emitter breakdown voltage	BV_{CEO}	$I_C=0.1mA, I_F=0$	60	-	-	V
	Emitter-collector breakdown voltage	BV_{ECO}	$I_F=100uA, I_C=0$	5	-	-	V
Transfer characteristics	Current transfer ratio	CTR	$I_F=5mA, V_{CE}=5V$	50	-	600	%
	Collector-emitter saturation voltage	$V_{CE(sat)}$	$I_F=20mA, I_C=1mA$	-	0.1	0.3	V
	Isolation resistance	R_{iso}	DC500V, 40 to 60%RH	5×10^{10}	10^{11}	-	ohm
	Floating capacitance	C_f	$V=0, f=1MHz$	-	0.6	1.0	pF
	Response time (Rise)	t_r	$V_{ce}=2V, I_C=2mA, R_L=100ohm$	-	5	20	us
	Response time (Fall)	t_f		-	4	20	us
	Common mode rejection voltage	CMR	$T_a=25^\circ C, R_L=470\Omega,$ $V_{CM}=1.5kV(peak)$ $I_F=0, V_{CC}=9V, V_{np}=100mV$	10	-	-	kV/us

● Classification table of current transfer ratio is shown below.

CTR RANK	CTR(%)
KPC357NT0A	80 TO 160
KPC357NT0B	130 TO 260
KPC357NT0C	200 TO 400
KPC357NT0D	300 TO 600
KPC357NT0E	50 TO 600

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Fig.1 Forward Current vs. Ambient Temperature

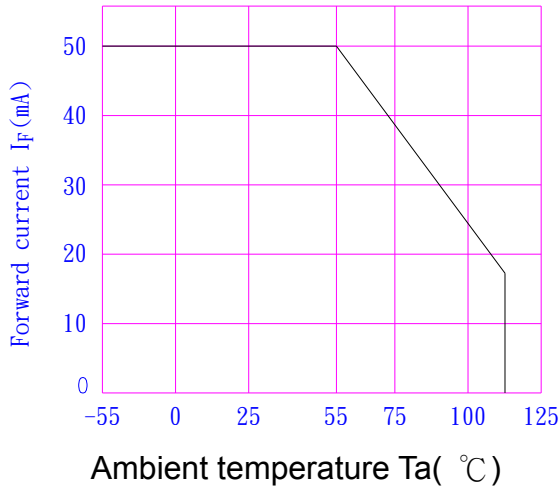


Fig.2 Diode Power Dissipation vs. Ambient Temperature

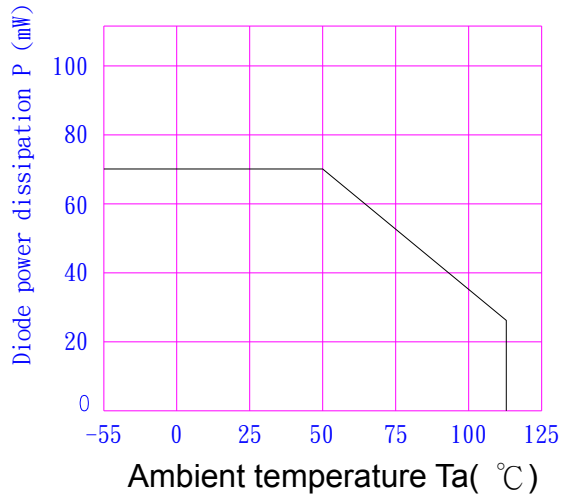


Fig.3 Collector Power Dissipation vs. Ambient Temperature

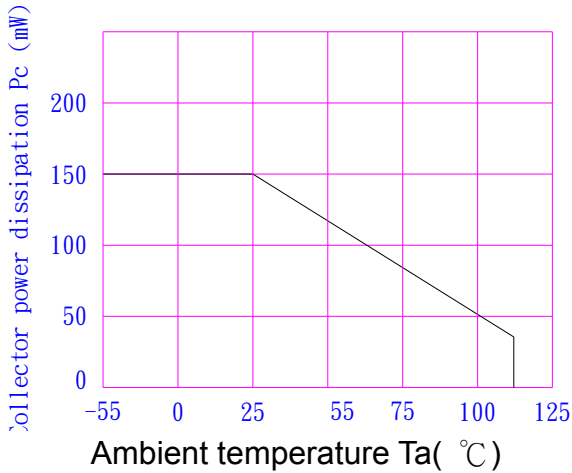


Fig.4 Total Power Dissipation vs. Ambient Temperature

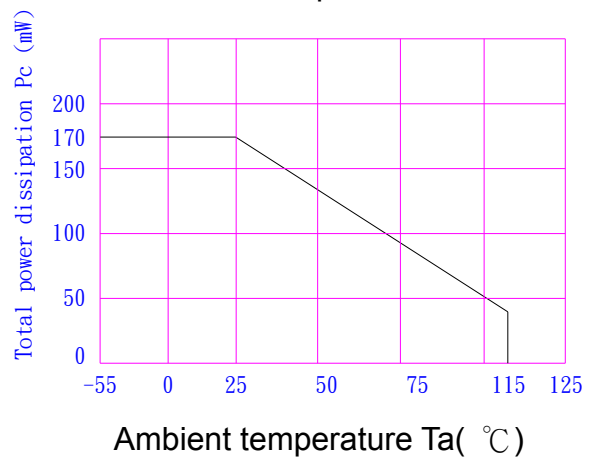


Fig.5 Peak Forward Current vs. Duty Ratio

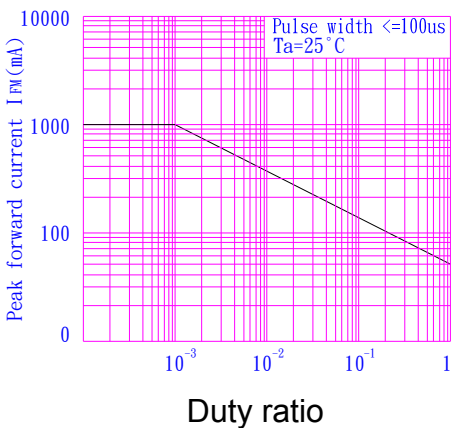
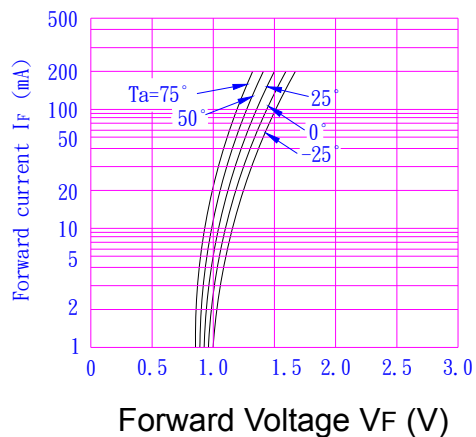


Fig.6 Forward Current vs. Forward Voltage



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Fig.7 Forward Current vs. Forward Voltage

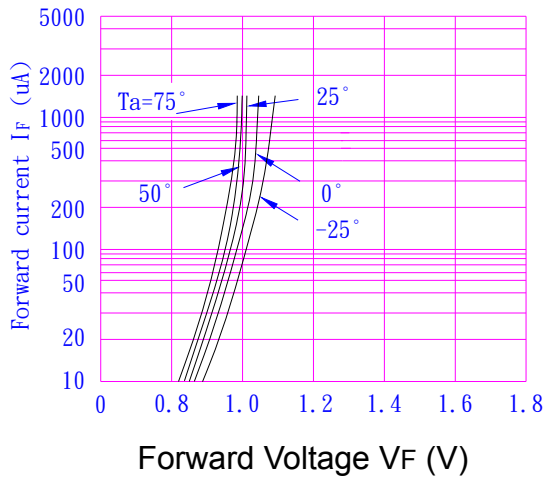


Fig.8 Current Transfer Ratio vs. Forward Current

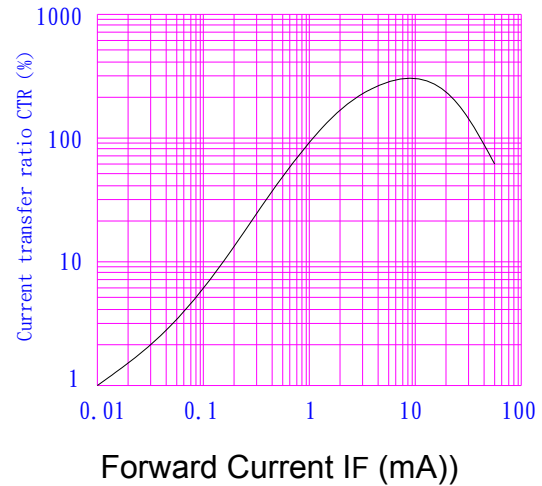


Fig.9 Collector Current vs. Collector-Emitter Voltage

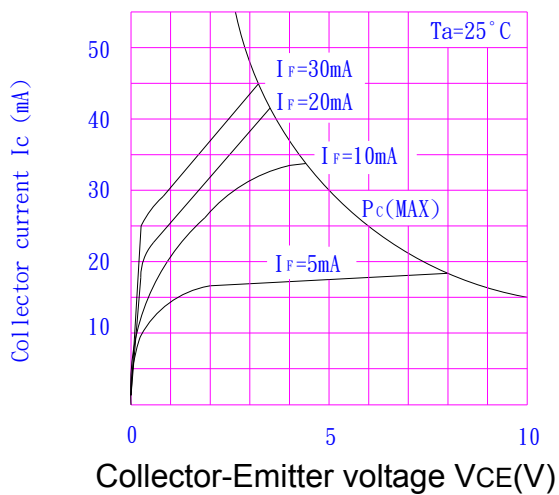
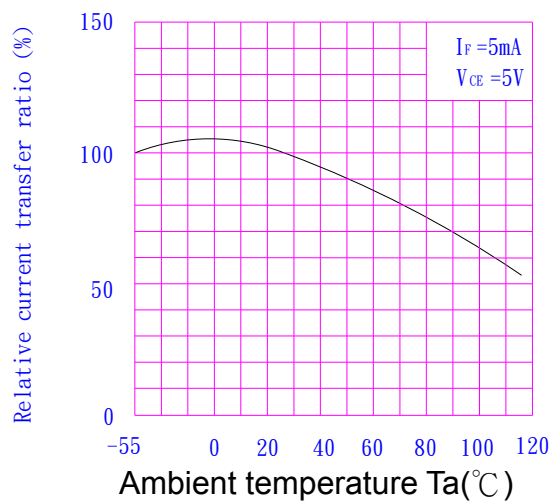


Fig.10 Relative Current Transfer Ratio vs. Ambient Temperature



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Fig.11 Collector-emitter Saturation Voltage vs. Ambient Temperature

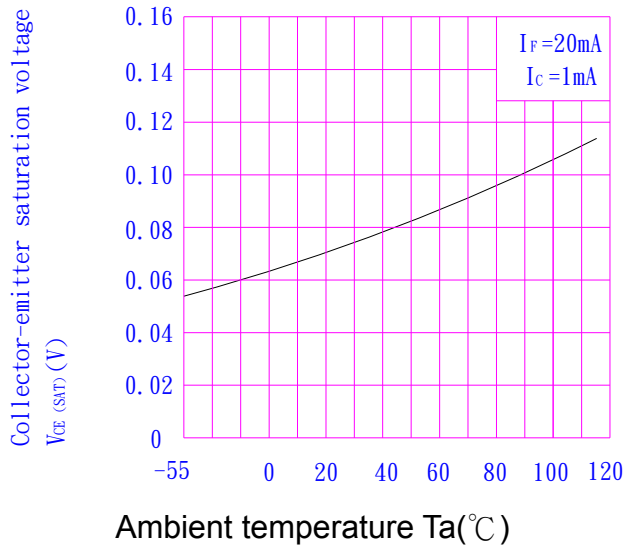


Fig.12 Collector Dark Current vs. Ambient Temperature

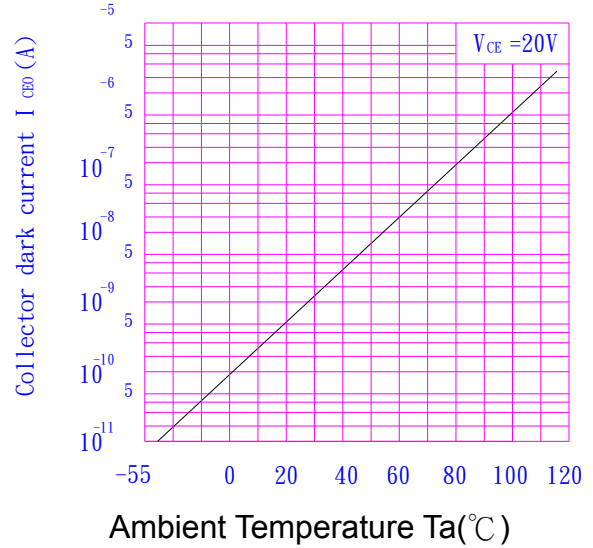
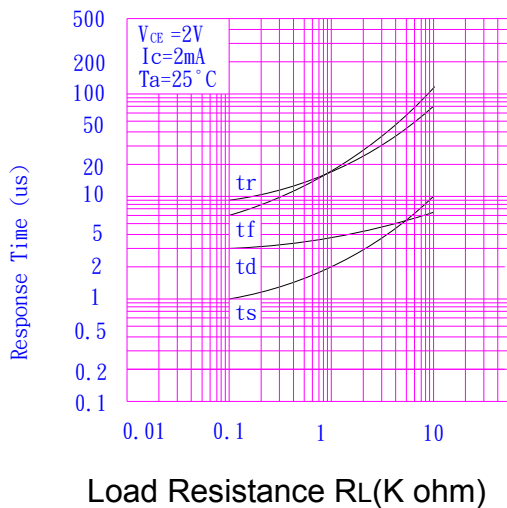


Fig.13 Response Time vs. Load Resistance



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