

PRODUCT SPECIFICATION

DATE 12/11/2012

cosmo ELECTRONICS CORPORATION	Photocoupler : KPC357NT0W	NO.61P04124	REV. 2
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High Reliability Photocoupler

● Features

1. Halogen Free.
2. Pb free and RoHS compliant.
3. Low input current type ($I_F=0.5\text{mA}$).
4. Current transfer ratio (CTR : 100~600% at $I_F=0.5\text{mA}$ $V_{ce}=5\text{V}$).
5. High collector-emitter voltage ($V_{ceo}:80\text{V}$).
6. High isolation voltage between input and output ($V_{iso}:3750\text{Vrms}$).
7. Mini-flat package:
compact 4 pin SOP with a 2.0mm profile
8. Agency Approvals
 - UL approved : No.E169586
 - VDE approved : No.40014684
 - FIMKO approved : EN 60065 No. FI 23147 A1
EN 60950 No. FI 24583 A1
 - CQC approved : No. CQC04001010530

● Application :

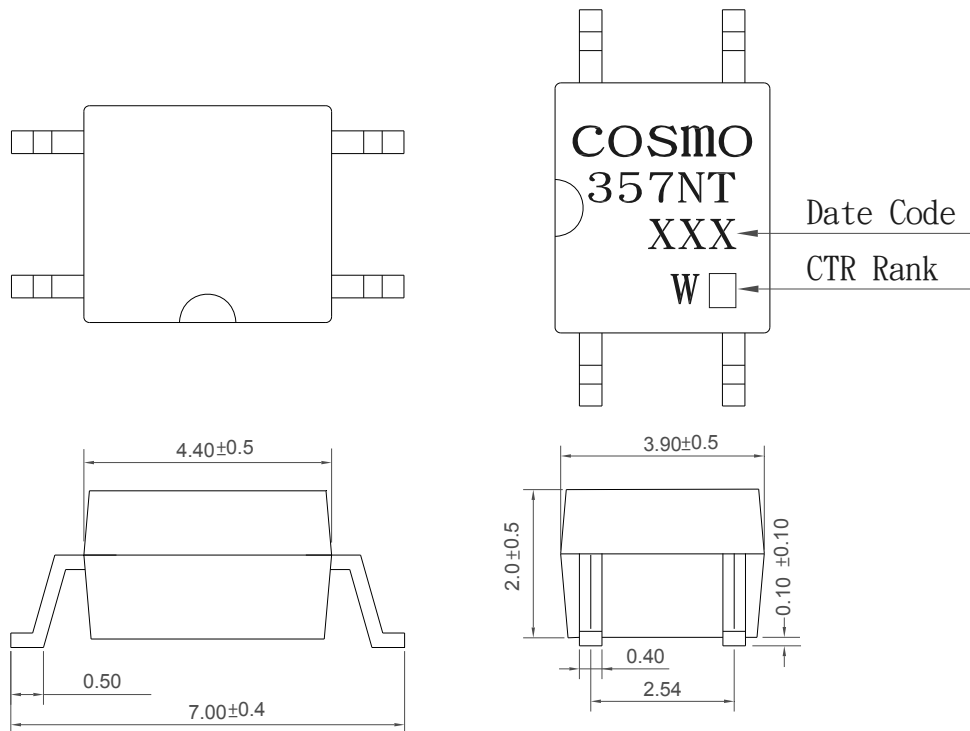
1. Computer terminals, programmable controllers.
2. Facsimile equipment, Audio, Video.
3. Communications, telephone, etc..

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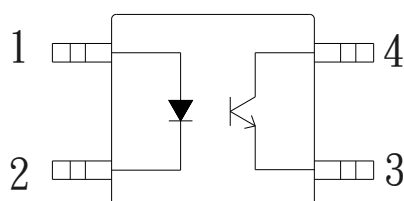
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1. OUTSIDE DIMENSION : UNIT (mm)



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	10	mA
	Peak forward current	I_{FM}	200	mA
	Reverse voltage	V_R	6	V
	Power dissipation	P_D	15	mW
Output	Collector-emitter voltage	V_{CEO}	80	V
	Emitter-collector voltage	V_{ECO}	7	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	Vrms
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	$I_F=10\text{mA}$	-	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}	$V_{CE}=50\text{V}$	-	-	0.1	μA
Transfer characteristics	Current transfer ratio	CTR	$I_F=0.5\text{mA}, V_{CE}=5\text{V}$	100	-	600	%
	Collector-emitter saturation	$V_{CE(sat)}$	$I_F=10\text{mA}, I_C=1\text{mA}$	-	0.1	0.2	V
	Isolation resistance	R_{iso}	DC500V, 40% to 60%RH	5×10^{10}	10^{11}	-	Ω
	Floating capacitance	C_f	$V=0, f=1\text{MHz}$	-	0.6	1.0	pF
	Response time (Rise)	t_r	$V_{CE}=2\text{V}, I_C=2\text{mA}, R_L=100\Omega$	-	4	18	μs
	Response time (Fall)	t_f		-	3	18	μs
	Common mode rejection voltage	CMR	$T_a=25^\circ\text{C}, R_L=470\Omega,$ $V_{CM}=1.5\text{kV(peak)}$ $I_F=0, V_{CC}=9\text{V},$ $V_{np}=100\text{mV}$	10	-	-	kV/us

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Classification table of current transfer ratio is shown below.

Rank mark	CTR (%)
KPC357NT0WA	100 TO 600
KPC357NT0WB	200 TO 500
KPC357NT0WC	160 TO 400
KPC357NT0WD	120 TO 300

Fig.1 Current Transfer Ratio vs. Forward Current

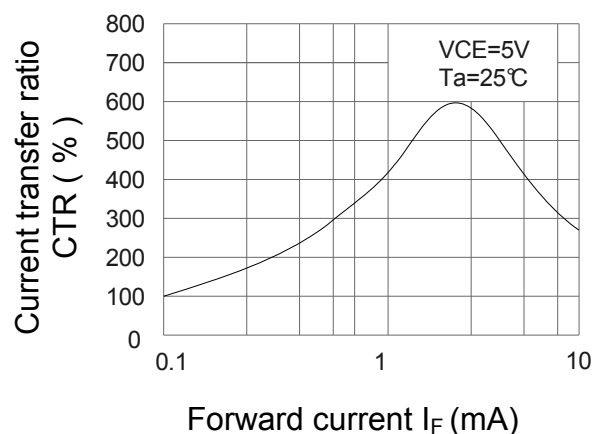


Fig.2 Collector Power Dissipation vs. Ambient Temperature

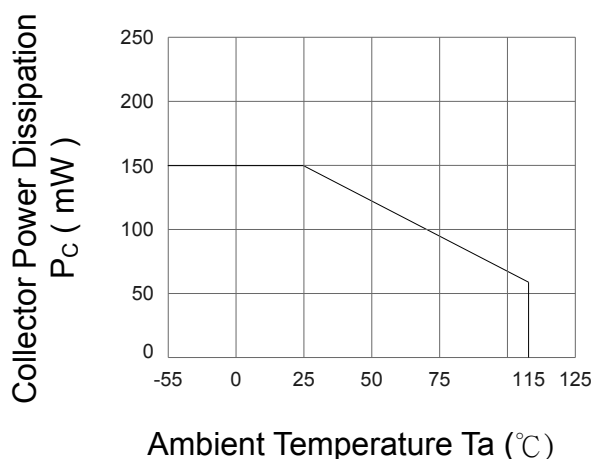


Fig.3 Collector Dark Current vs. Ambient Temperature

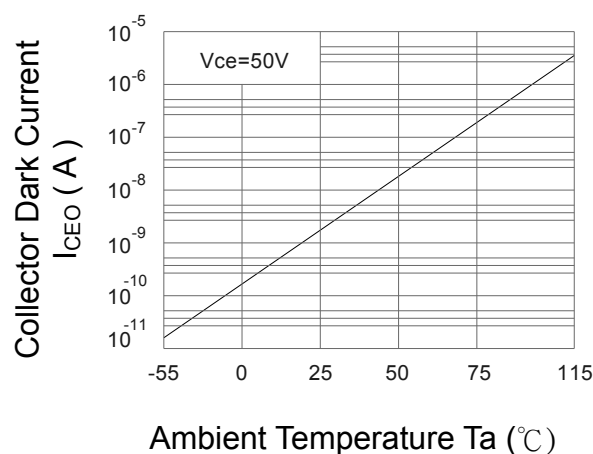


Fig.4 Forward Current vs. Ambient Temperature

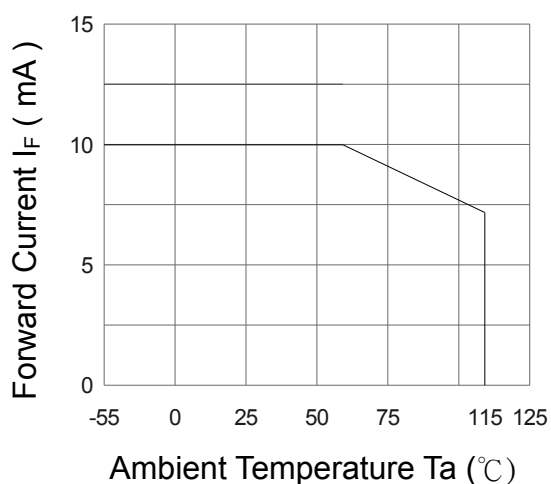
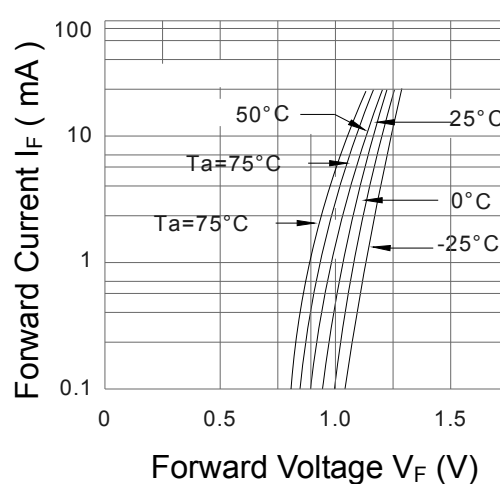


Fig.5 Forward Current vs. Forward Voltage



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Fig.6 Collector Current vs. Collector-Emitter Voltage

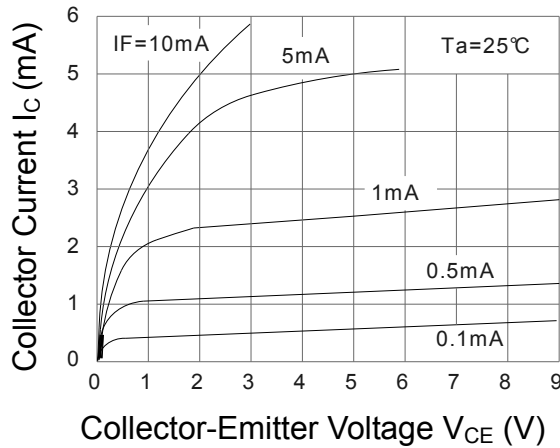


Fig.7 Relative Current Transfer Ratio vs. Ambient Temperature

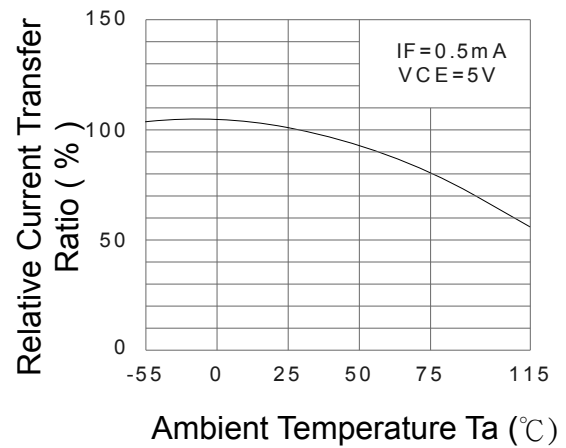


Fig.8 Collector-Emitter Saturation Voltage vs. Ambient Temperature

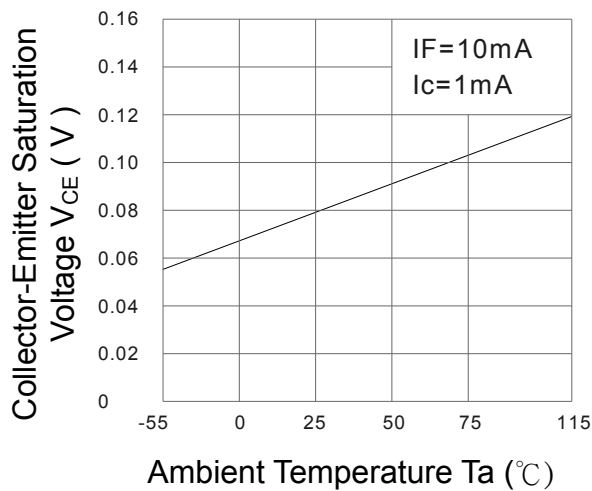


Fig.9 Collector-Emitter Saturation Voltage vs. Forward Current

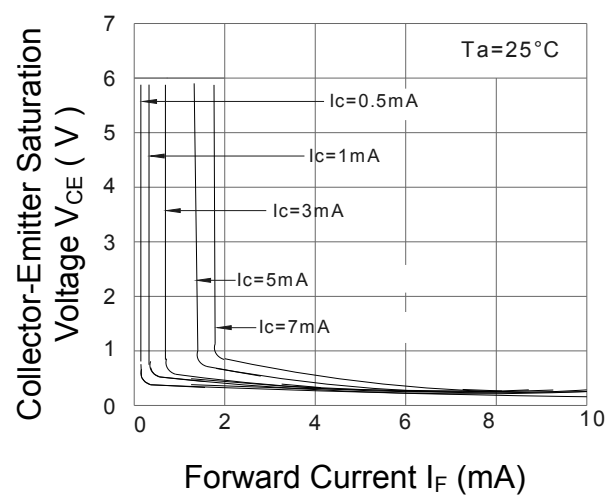


Fig.10 Response Time vs. Load Resistance

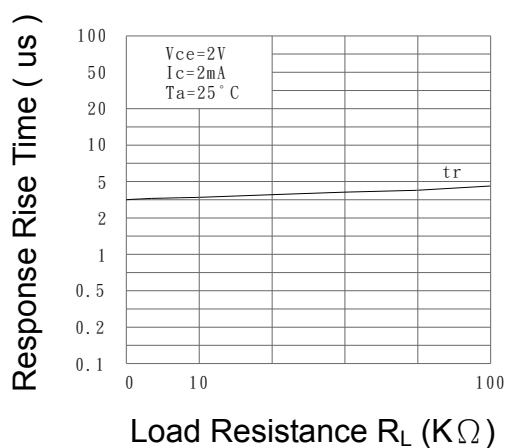
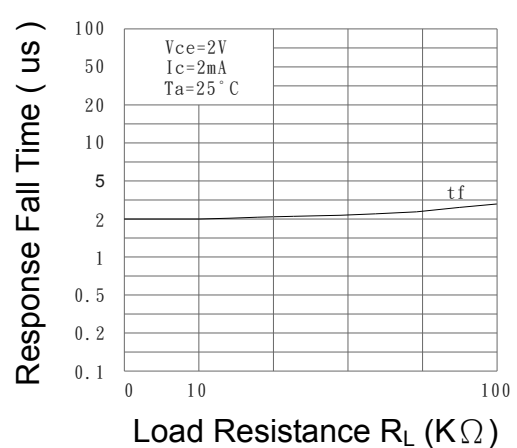


Fig.11 Response Time vs. Load Resistance



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