

# PRODUCT SPECIFICATION

DATE: 11/29/2012

<b>cosmo</b> ELECTRONICS CORPORATION	Photocoupler : <b>KPC355NT</b>	NO.61P04076	REV.
		SHEET 1 OF 6	6

## High Reliability Photocoupler

### ●Features

1. Halogen Free.
2. Pb free and RoHS compliant.
3. High current transfer ratio.  
(CTR : MIN.600% at  $I_F = 1\text{mA}$ ,  $V_{ce} = 2\text{V}$ )
4. High isolation voltage between input and output (Viso : 3750Vrms)
5. Mini-flat package:  
compact 4 pin SOP with a 2.0mm profile
6. 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

### ●Applications

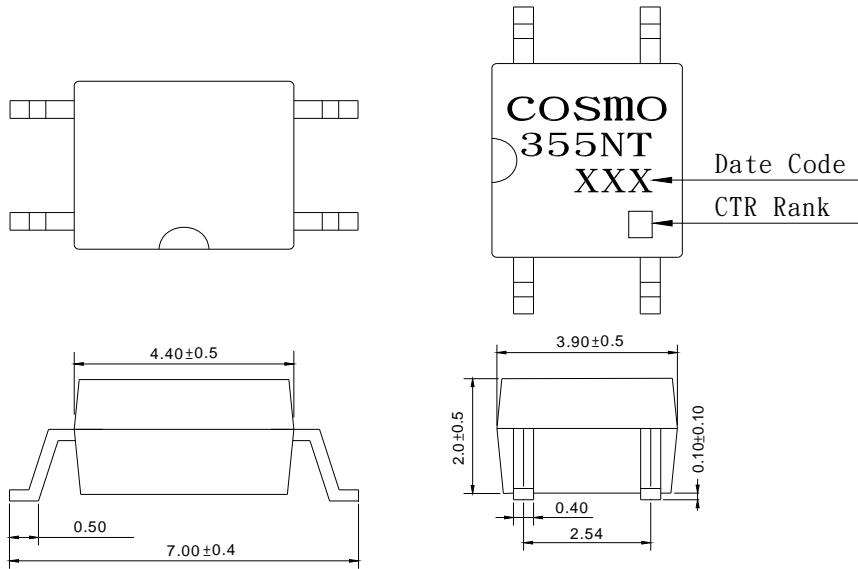
1. System appliances, measuring instruments.
2. Industrial robots.
3. Copiers, automatic vending machines.
4. Signal transmission between circuits of different potentials and impedances.
5. Telephone sets.
6. Copiers, facsimiles.
7. Interface with various power supply circuits, power distribution boards.
8. Numerical control machines.

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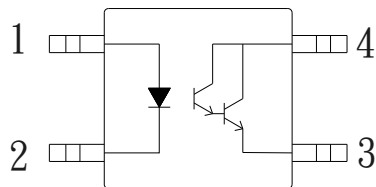
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## 1. OUTSIDE DIMENSION : UNIT (mm)



TOLERANCE :  $\pm 0.2$ 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	$P_D$	70	mW
Output	Collector-emitter voltage	$V_{CEO}$	35	V
	Emitter-collector voltage	$V_{ECO}$	5	V
	Collector current	$I_c$	150	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	$V_F$	$I_F=20mA$	-	1.2	1.4	V
	Peak forward voltage	$V_{FM}$	$I_{FM}=0.5A$	-	-	3.5	V
	Reverse current	$I_R$	$V_R=4V$	-	-	10	uA
	Terminal capacitance	$C_t$	$V=0, f=1kHz$	-	30	-	pF
Output	Collector dark current	$I_{CEO}$	$V_{CE}=10V, I_F=0$	-	-	1.0	uA
Transfer characteristics	Current transfer ratio	$CTR$	$I_F=1mA, V_{CE}=2V$	600	1600	7500	%
	Collector-emitter saturation	$V_{CE(sat)}$	$I_F=20mA, I_c=1mA$	-	-	1.0	V
	Isolation resistance	$R_{iso}$	DC500V	$5 \times 10^{10}$	-	-	ohm
	Floating capacitance	$C_f$	$V=0, f=1MHz$	-	0.6	1.0	pF
	Cut-off frequency	$f_c$	$V_{cc}=5V, I_c=2mA, R_L=100ohm$	-	7	-	kHz
	Response time (Rise)	$t_r$	$V_{ce}=2V, I_c=2mA, R_L=100ohm$	-	60	300	us
Response time (Fall)	$t_f$	-		53	250	us	

●Classification table of current transfer ratio is shown below.

CTR RANK	CTR(%)
KPC355NT0E	Min.600

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Fig.1 Forward Current vs. Ambient Temperature

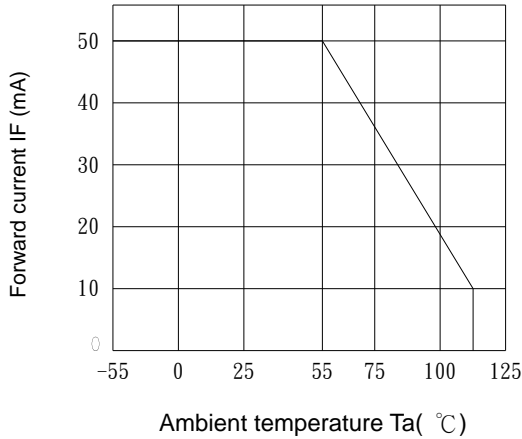


Fig.2 Diode Power Dissipation vs. Ambient Temperature

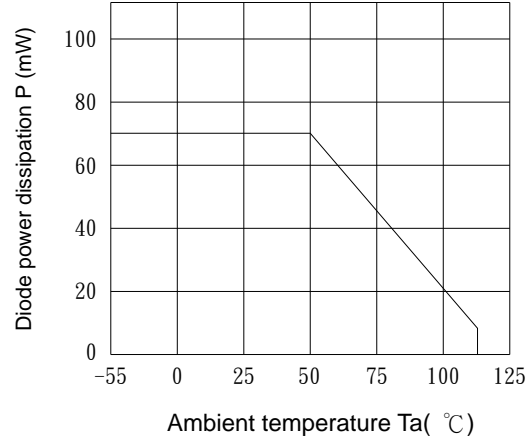


Fig.3 Peak Forward Current vs. Duty Ratio

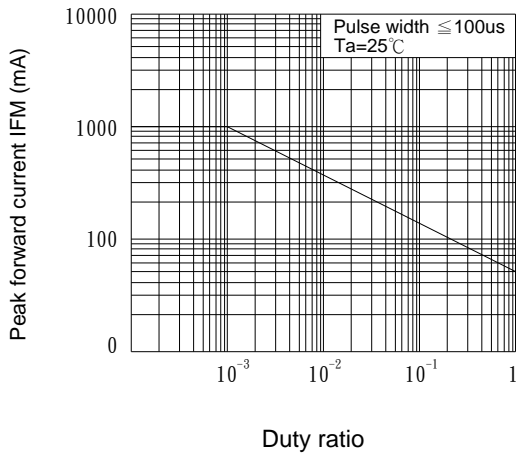


Fig.4 Forward Current vs. Forward Voltage

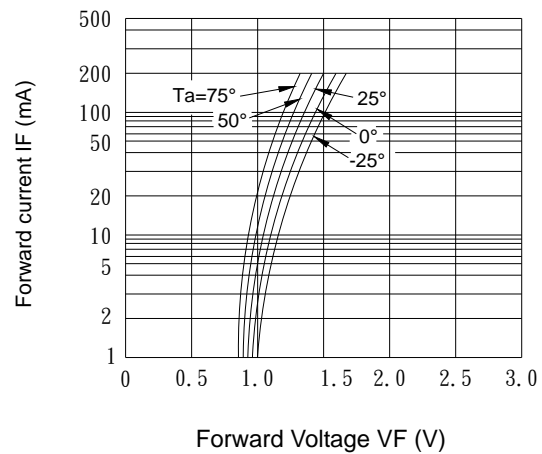


Fig.5 Current Transfer Ratio vs. Forward Current

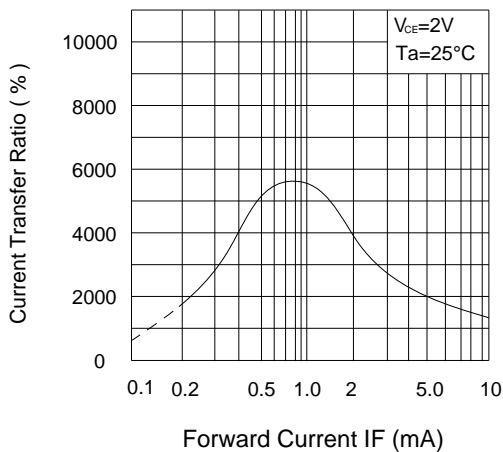
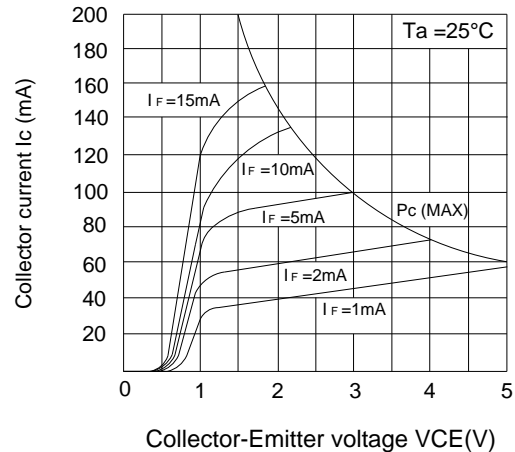


Fig.6 Collector Current vs. Collector-Emittor Voltage



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Fig.7 Collector-emitter Saturation Voltage vs. Forward Current

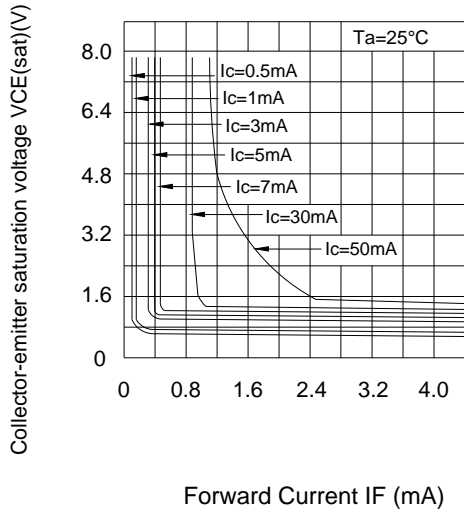


Fig.8 Collector-Emitter Saturation Voltage vs. Ambient Temperature

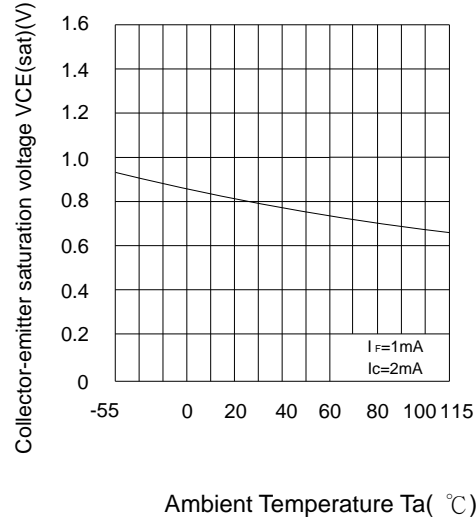


Fig.9 Collector Dark Current vs. Ambient Temperature

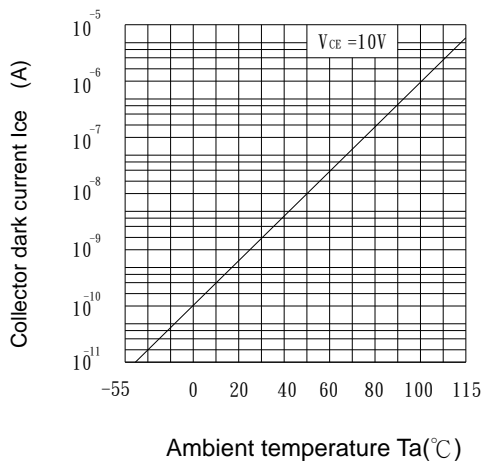


Fig.10 Response Time vs. Load Resistance

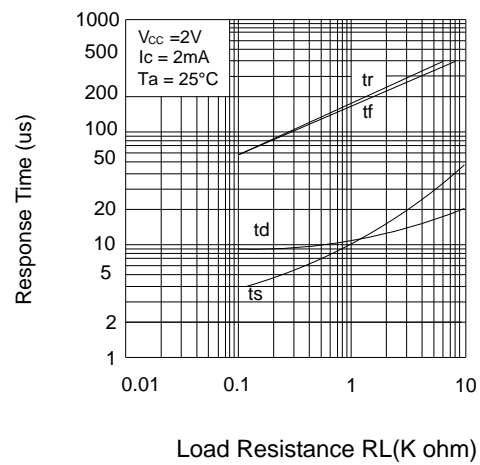
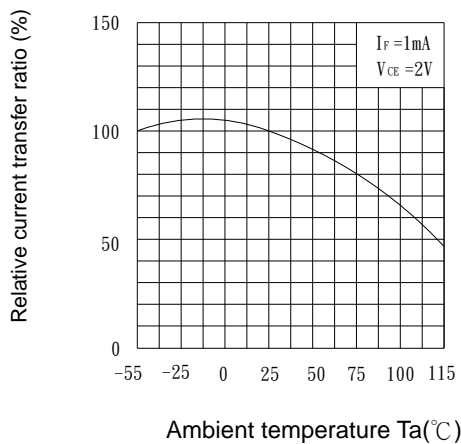


Fig.11 Relative Current Transfer Ratio vs. Ambient Temperature



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