PRODUCT SPECIFICATION

DATE:01/13/2013

cosmo ELECTRONICS CORPORATION	Photocoupler: KPS28010Z	No.61P05027	REV
		SHEET 1 OF 6	2

4 Pin SSOP Low Input Current Photocoupler

●Features

1.Halogen Free.

2.Pb free and RoHS compliant.

3.High isolation voltage(BV=3750Vrms).

4.Small and thin package(4pin SOP,Pin pitch 1.27mm).

5. Low input current type (IF=0.1mA).

6.Current transfer ratio
(CTR : 100~600% at IF=0.1mA Vce=5V)

7.High collector to emitter voltage(VCEO=80V).

8.High-speed switching tr=4μs(typ.),tf=3μs(typ.).

9.Agency Approvals

- UL UL1577 / CUL C22.2 No.1 & NTC No.5
  File No. E169586
- VDE EN 60747
  File No.40010469
- FIMKO EN 60065 , EN 60950
  File No.NCS/FI24585 A1
- CQC GB4943 / GB8898-2011
  File No.CQC10001049555 / CQC08001023986

●Applications

1. Programmable logic controllers.

2. Measuring instruments.

3. Power supply.

4. Hybrid IC.

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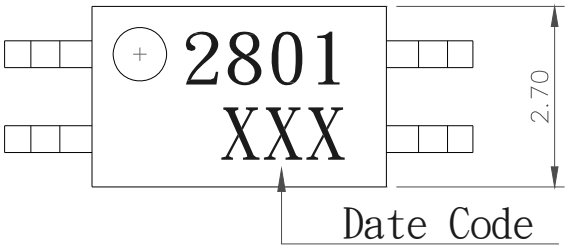
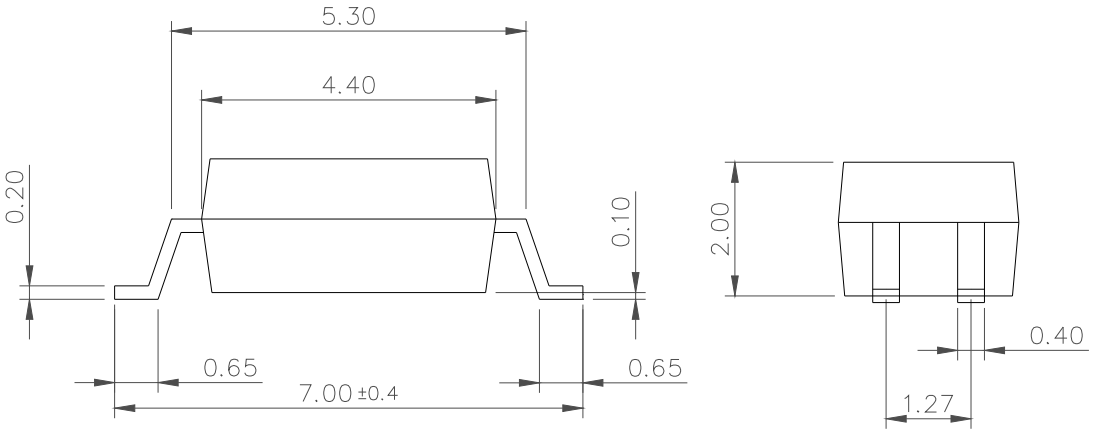
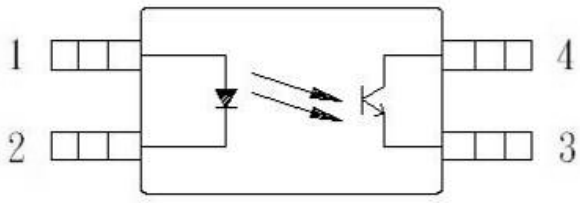
1. OUTSIDE DIMENSION : UNIT (mm)





TOLERANCE : ±0.2mm

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(*1)	I_{FP}	1	A
	Reverse voltage	V_R	6	V
	Power dissipation	P_D	60	mW
	Power dissipation derating	P_D/℃	0.6	mW/℃
Output	Collector-emitter voltage	V_{CEO}	80	V
	Emitter-collector voltage	V_{ECO}	6	V
	Collector current	I_C	50	mA
	Collector power dissipation	P_C	160	mW
	Collector power dissipation derating	P_C/℃	1.2	mW/℃
Isolation voltage 1 minute(*2)		Viso	3750	Vrms
Operating temperature		Topr	-55 to +115	℃
Storage temperature		Tstg	-55 to +125	℃

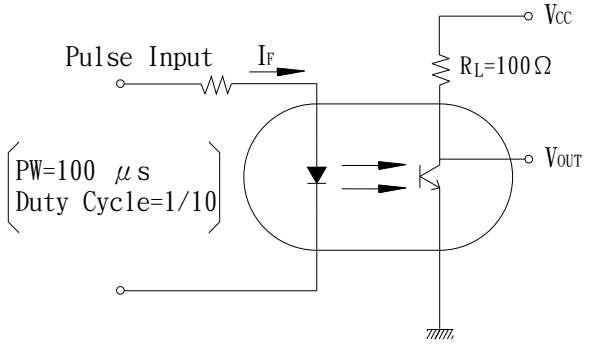
*1 PW=100μs,Duty Cycle=1%.
*2 AC voltage for 1minute at T =25℃,RH=60% between input and output.

●Electro-optical Characteristics

Ta=25℃

Parameter		Symbol	Conditions	MIN.	TYP.	MAX.	Unit
Input	Forward voltage	V_F	IF=5mA	-	1.1	1.8	V
	Reverse current	I_R	VR=5V	-	-	5	μA
	Terminal capacitance	Ct	V=0, f=1MHz	-	60	-	pF
Output	Collector dark current	I_{CEO}	V_{CE}=50V,IF=0mA	-	-	100	nA
Transfer characteristics	Current transfer ratio(IC/IF)	CTR	IF=0.1mA, V_{CE}=5V	100	-	600	%
	Collector-emitter saturation	V_{CE}(sat)	IF=10mA, Ic=2mA	-	0.1	0.2	V
	Isolation resistance	Riso	DC500V	$5x10^{10}$	10^{11}	-	ohm
	Floating capacitance	C_f	V=0, f=1MHz	-	0.4		pF
	Response time (Rise)(*3)	tr	Vce=5V,Ic=2mA,RL=100ohm	-	4	18	μs
	Response time (Fall) (*3)	tf		-	3	18	μs

*3 Test circuit for switching time



Classification table of current transfer ratio is shown below.

Model NO.	CTR(%)
KPS28010ZA	100 TO 600
KPS28010ZB	200 TO 500
KPS28010ZC	160 TO 400
KPS28010ZD	120 TO 300
KPS28010ZE	100 TO 200

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Fig.1 Current Transfer Ratio vs. Forward Current

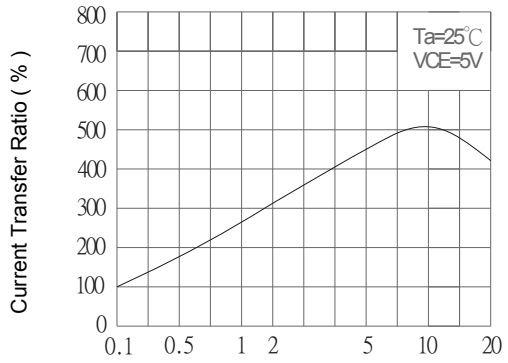

Fig.2 Collector Power Dissipation vs. Ambient Temperatur

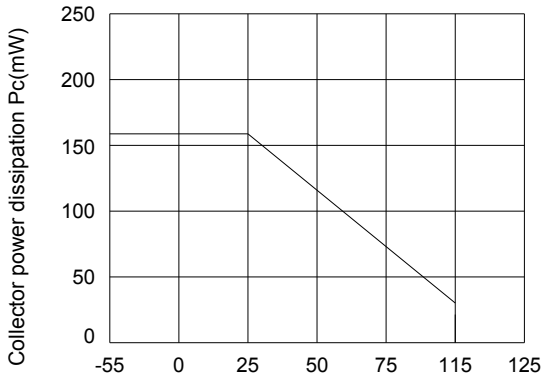

Fig.3 Collector Dark Current vs. Ambient Temperature

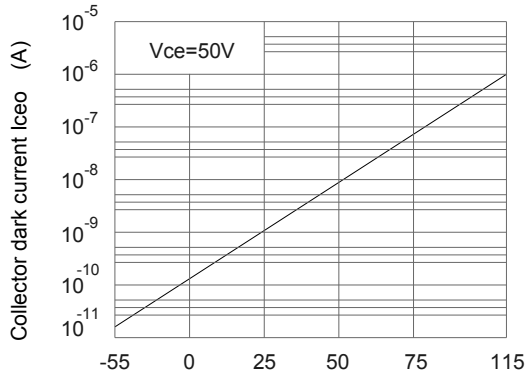

Fig.4 Forward Current vs. Ambient Temperature

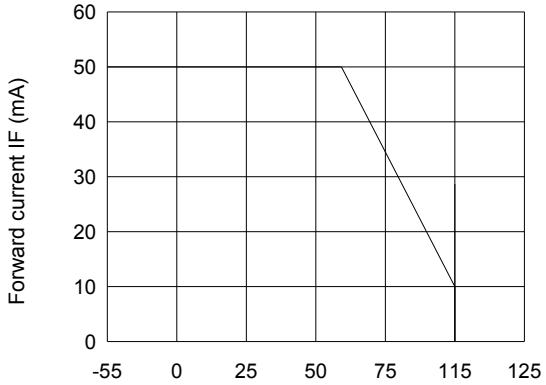

Fig.5 Forward Current vs. Forward Voltage

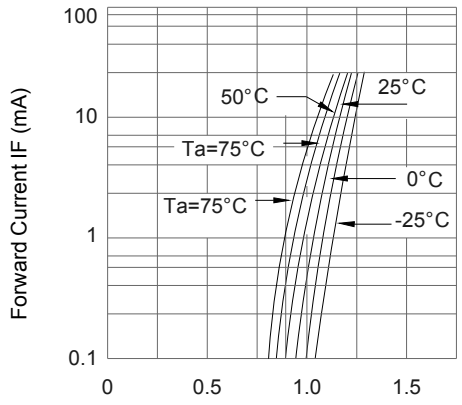

Fig.6 Collector Current vs. Collector-Emitter Voltage

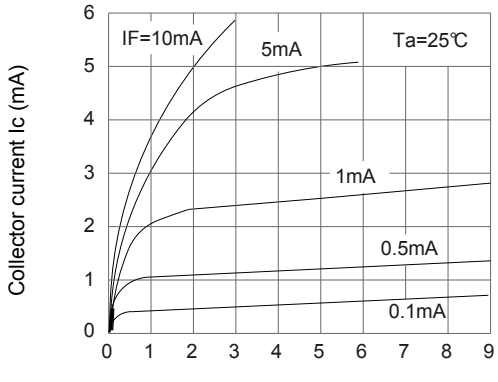

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Fig.7 Collector-Emitter Saturation Voltage vs. Ambient Temperature

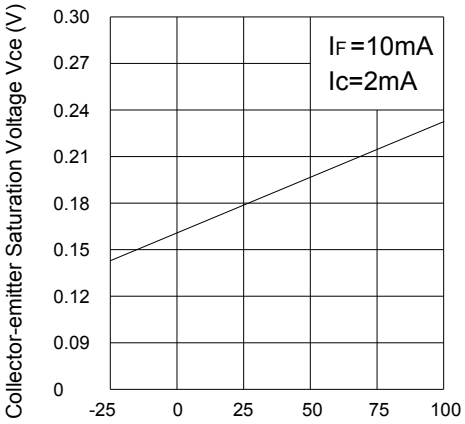


Fig.8 Collector-emitter Saturation Voltage vs. Forward Current

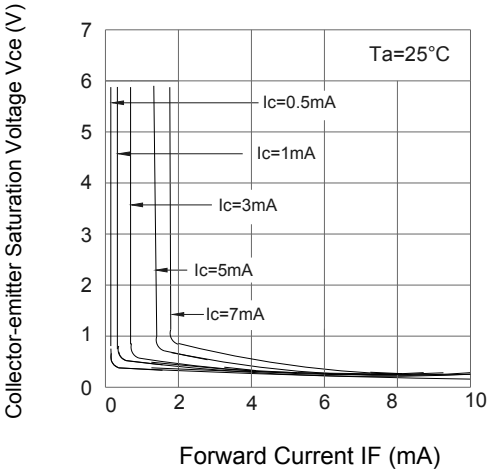


Fig.9 Response Time vs. Load Resistance

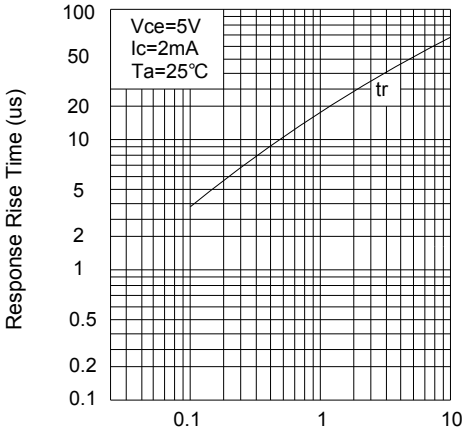


Fig.10 Response Time vs. Load Resistance

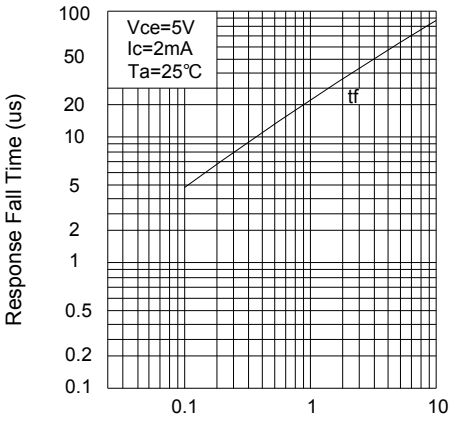
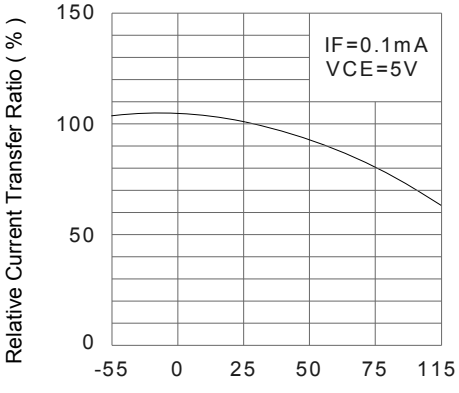


Fig.11 Relative Current Transfer Ratio vs. Ambient Temperature



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