PRODUCT SPECIFICATION

DATE:04/24/2012

cosmo ELECTRONICS CORPORATION	Photocoupler : KPS2805	NO.61P15006	REV. 4
		SHEET 1 OF 6	

High Isolation Voltage AC Input Response Type SSOP 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.High collector to emitter voltage(V_{CEO}=80V).

6.AC input response

7.High-speed switching tr=3μs(typ.),tf=5μs(typ.).

8.Agency Approvals

- UL approved：No.E169586
- CUL approved：No.E169586
- VDE approved：No.40010469
- FIMKO approved：EN 60065 , EN 60950-1 No.FI23460

●Applications

1. Programmable logic controllers.
2. Measuring instruments.
3. Hybrid IC.

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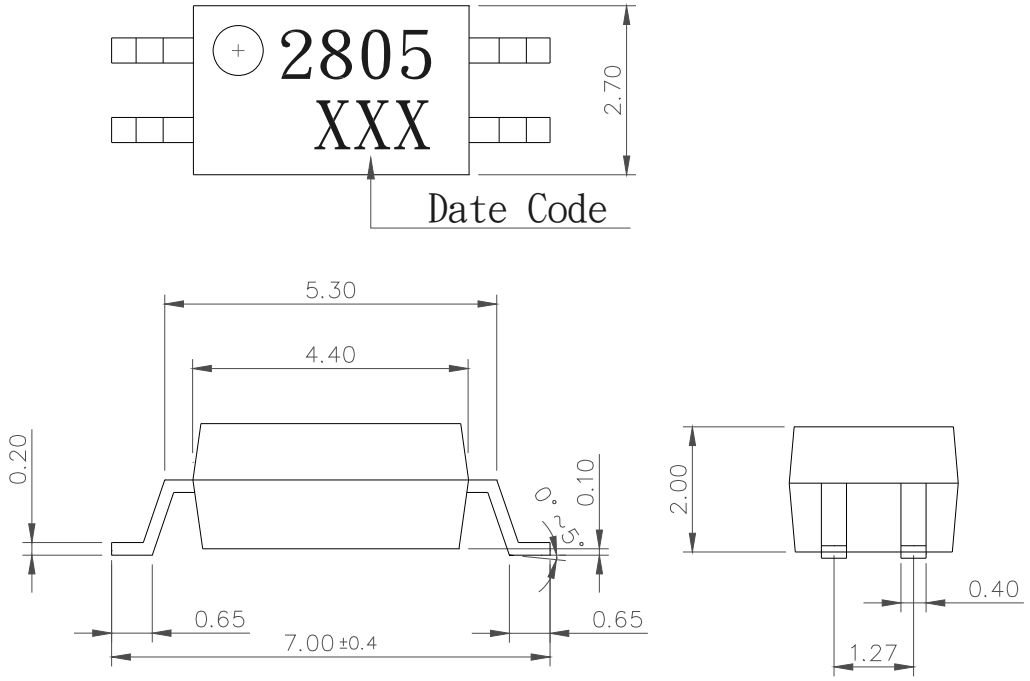
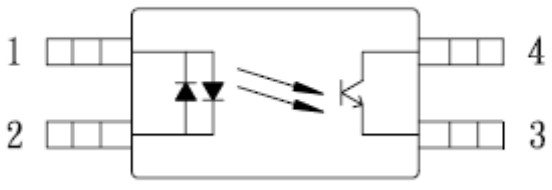
1. OUTSIDE DIMENSION : UNIT (mm)



TOLERANCE : ±0.2mm

2. SCHEMATIC : TOP VIEW



1.Anode/ Cathode
2.Anode/ 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
	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	-30 to +115	℃
Storage temperature		Tstg	-55 to +150	℃

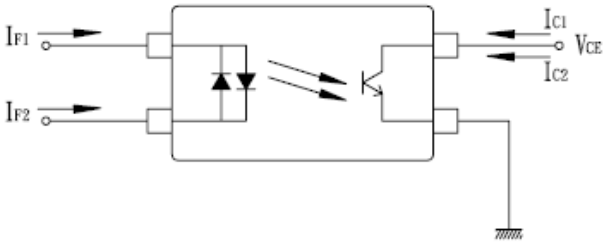
*1 PW=100μs,Duty Cycle=1%.
*2 AC voltage for 1minute at T =25℃,RH=60% between input and output.

●Electro-optical Characteristics

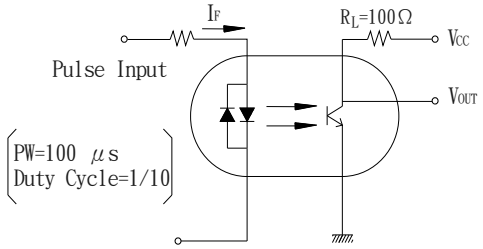
Ta=25℃

Parameter		Symbol	Conditions	MIN.	TYP.	MAX.	Unit
Input	Forward voltage	V_F	IF=±5mA	-	1.1	1.4	V
	Terminal capacitance	Ct	V=0, f=1MHz	-	60	-	pF
Output	Collector dark current	I_{CEO}	V_{CE}=80V,IF=0mA	-	-	100	nA
Transfer charac-teristics	Current transfer ratio(IC/IF)	CTR	IF=±5mA, V_{CE}=5V	50		600	%
	CTR ratio*1	CTR1/CTR2	IF=5mA, V_{CE}=5V	0.3	1.0	3.0	
	Collector-emitter saturation	V_{CE}(sat)	IF=±10mA, Ic=2mA	-	-	0.3	V
	Isolation resistance	Riso	DC500V	$5x10^{10}$	10^{11}	-	ohm
	Floating capacitance	C_f	V=0, f=1MHz	-	0.4		pF
	Response time (Rise)(*2)	tr	Vce=5V,Ic=2mA,RL=100ohm	-	3	18	μs
	Response time (Fall) (*2)	tf		-	5	18	μs

*1 CTR1=I_{C1}/I_{F1},CTR2=I_{C2}/I_{F2}



*2Test circuit for switching time



●Classification table of current transfer ratio is shown below.

CTR RANK	CTR(%)
KPS28050E	50 TO 600
KPS28050C	200 TO 400

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Fig.1 Current Transfer Ratio vs. Forward Current

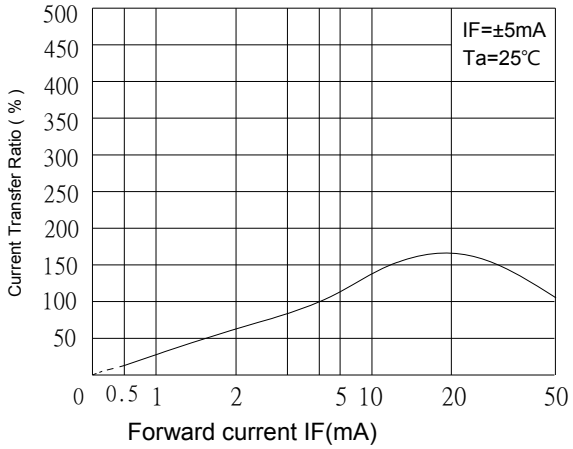

Fig.2 Collector Power Dissipation vs. Ambient Temperature

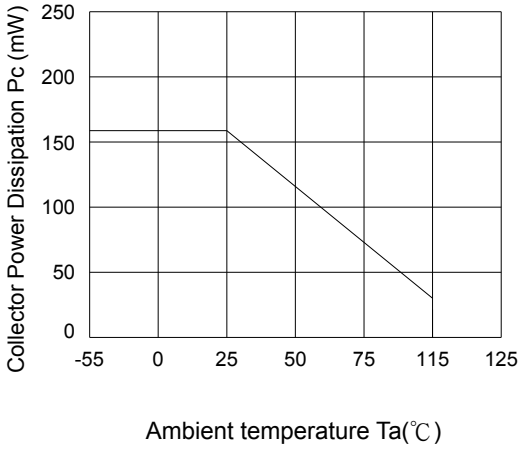

Fig.3 Collector Dark Current vs. Ambient Temperature

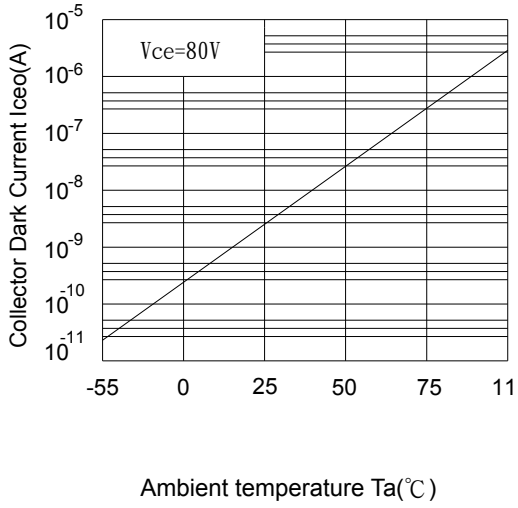

Fig.4 Forward Current vs. Ambient Temperature

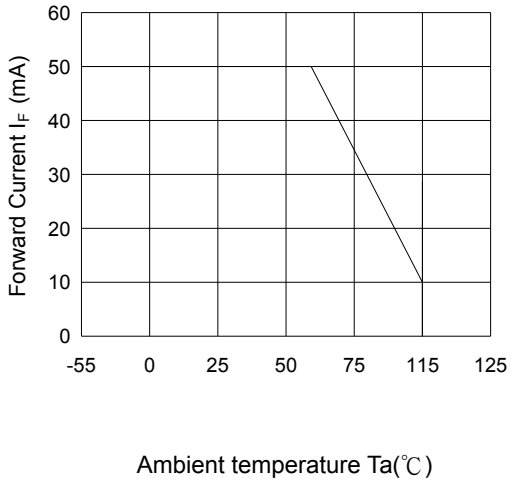

Fig.5 Forward Current vs. Forward Voltage

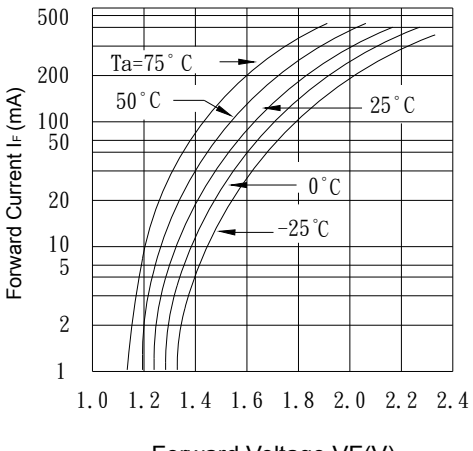

Fig.6 Collector Current vs. Collector-emitter Voltage

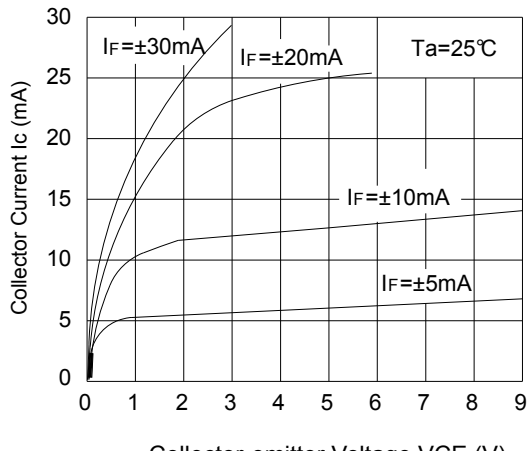

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Fig.7 Collector-emitter Saturation Voltage vs. Ambient Temperature

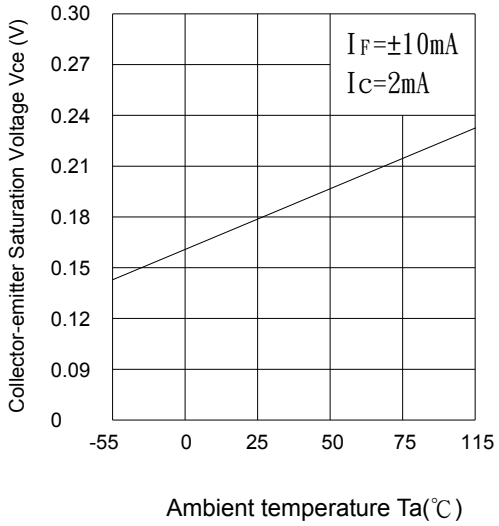


Fig.8 Collector-emitter Saturation Voltage vs. Forward Current

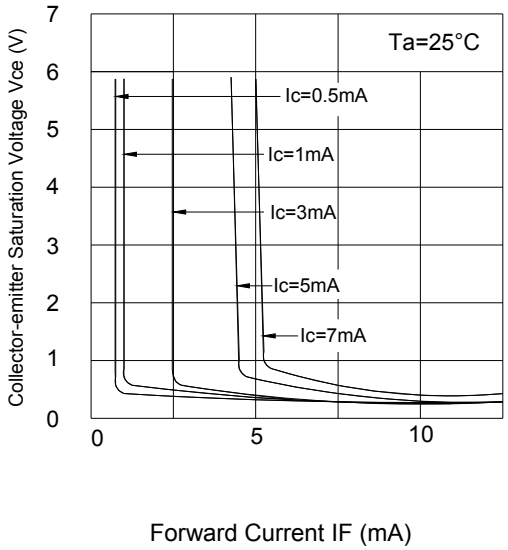


Fig.9 Response Time vs. Load Resistance

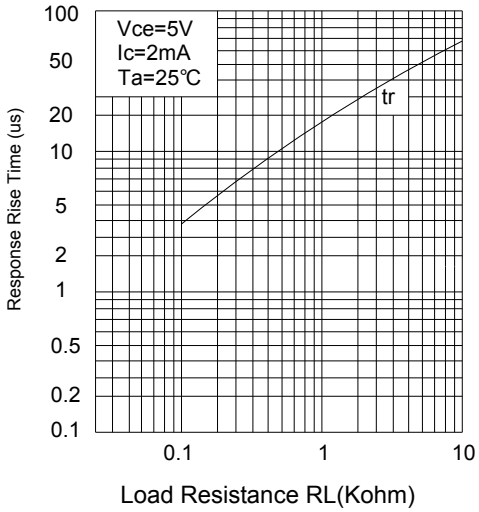


Fig.10 Response Time vs. Load Resistance

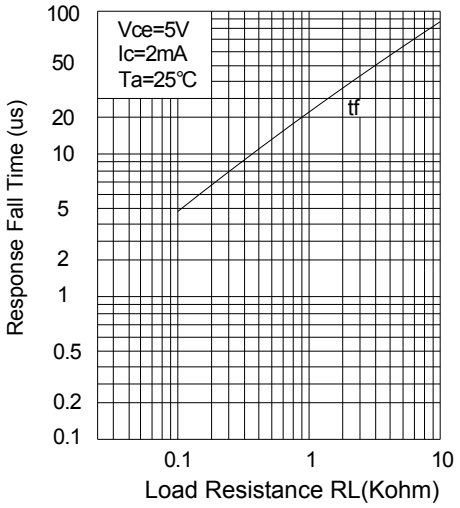
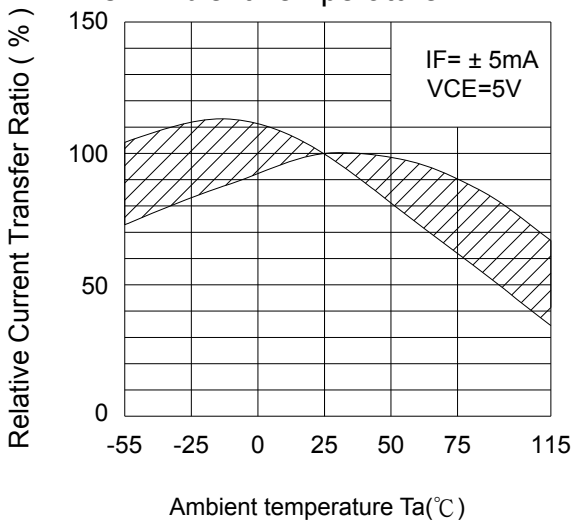


Fig.11 Relative Current Transfer Ratio vs. Ambient Temperature



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