# PRODUCT SPECIFICATION

DATE:04/24/2012

| cosmo ELECTRONICS CORPORATION | Photocoupler : KPS2802 | NO.61P25005 | REV. 3 |
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## High Isolation Voltage DC Input Response Type SSOP Photocoupler

## ●Features

1.Pb free and RoHS compliant.

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

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

4.High current transfer ratio (CTR=2000%TYP.@ IF=1 mA, VCE=2V )

5.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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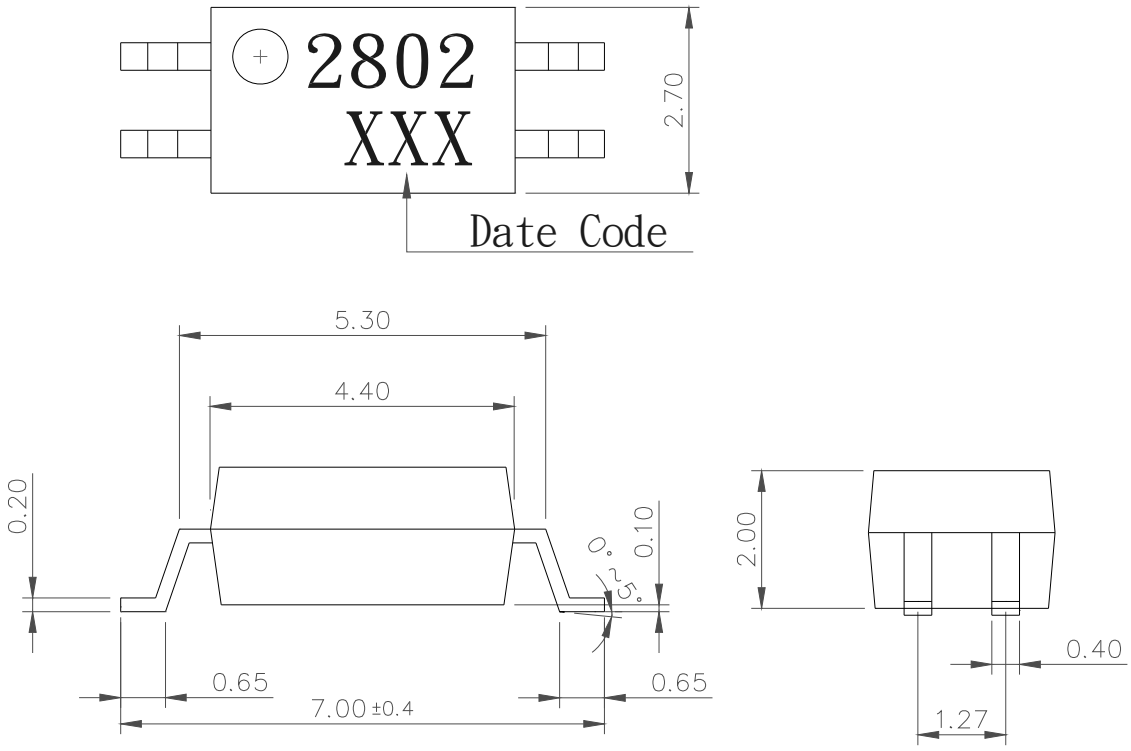
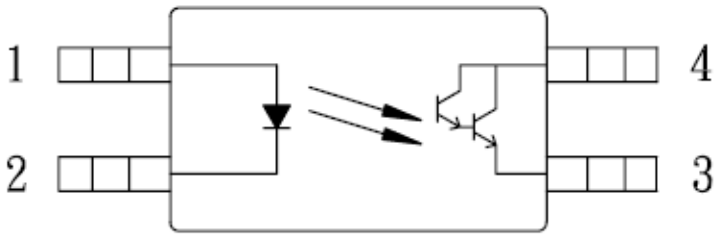
## 1. OUTSIDE DIMENSION : UNIT (mm)




TOLERANCE : ±0.2mm

## 2. SCHEMATIC : TOP VIEW




1.Anode
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 | $V_{CEO}$ | 40 | V |
| | Emitter-collector voltage | $V_{ECO}$ | 6 | V |
| | Collector current | $I_C$ | 90 | mA |
| | Collector power dissipation | $P_C$ | 120 | 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%.

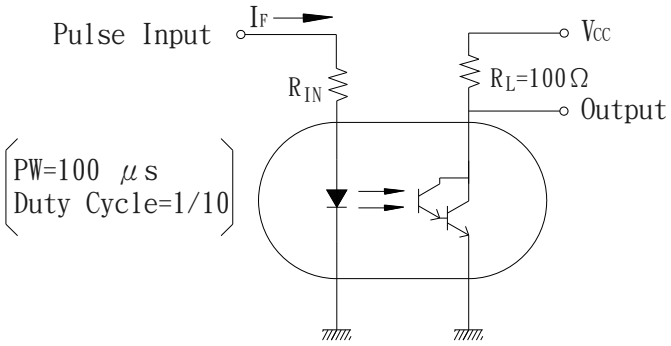
*2 AC voltage for 1minute at T =25℃,RH=60% between input and output.

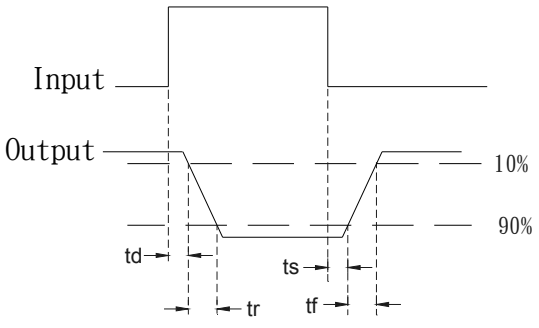
## ●Electro-optical Characteristics

Ta=25℃

| Parameter | | Symbol | Conditions | MIN. | TYP. | MAX. | Unit |
|---|---|---|---|---|---|---|---|
| Input | Forward voltage | $V_F$ | IF=5mA | - | 1.1 | 1.4 | V |
| | Reverse current | $I_R$ | VR=5V | - | - | 5 | μA |
| | Terminal capacitance | Ct | V=0, f=1MHz | - | 60 | - | pF |
| Output | Collector dark current | $I_{CEO}$ | $V_{CE}$=40V,IF=0mA | - | - | 400 | nA |
| Transfer characteristics | Current transfer | CTR | $I_F$=1mA, $V_{CE}$=2V | 200 | 2000 | | % |
| | Collector-emitter | $V_{CE}$(sat) | $I_F$=1mA, Ic=2mA | - | - | 1.0 | V |
| | Isolation resistance | Riso | DC500V | $5x10^{10}$ | $10^{11}$ | - | ohm |
| | Floating capacitance | $C_f$ | V=0, f=1MHz | - | 0.4 | | pF |
| | Response time (Rise)(*1) | tr | Vce=5V,Ic=2mA,RL=100ohm | - | 200 | - | μs |
| | Response time (Fall) (*1) | tf | | - | 200 | - | μs |

*1 Test circuit for switching time




## ●Classification table of current transfer ratio is shown below.

| CTR RANK | CTR(%) |
|---|---|
| KPPS28020E | 200 TO |

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Fig.1 ForwardCurrent vs. Ambient Temperature

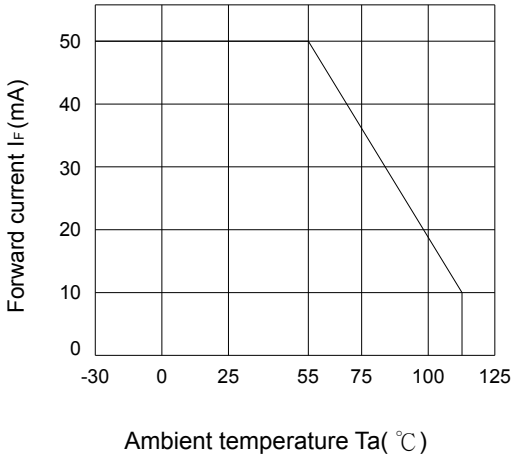


Fig.2 Collector Power Dissipation vs. Ambient Temperature

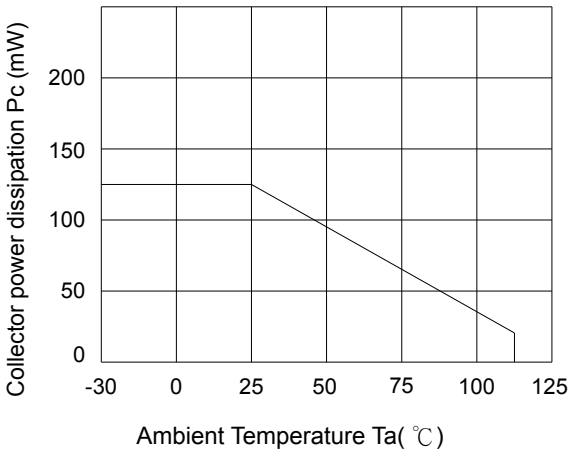


Fig.3 Peak Forward Current vs. Duty Ratio

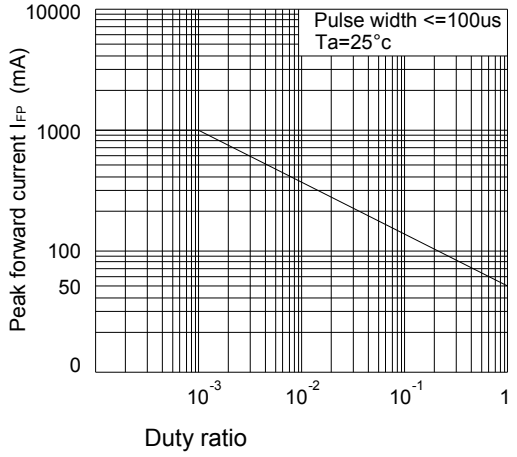


Fig.4 Forward Current vs. Forward Voltage

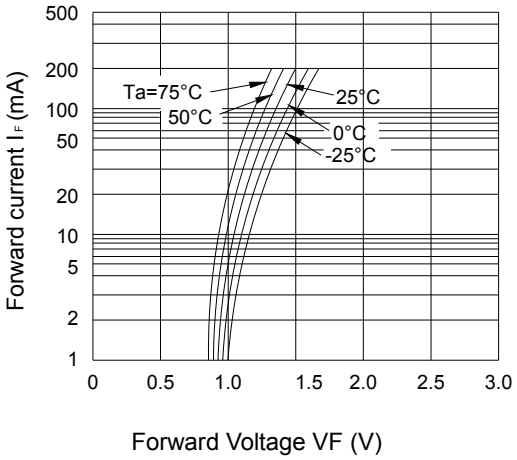


Fig.5 Current Transfer Ratio vs. Forward Current

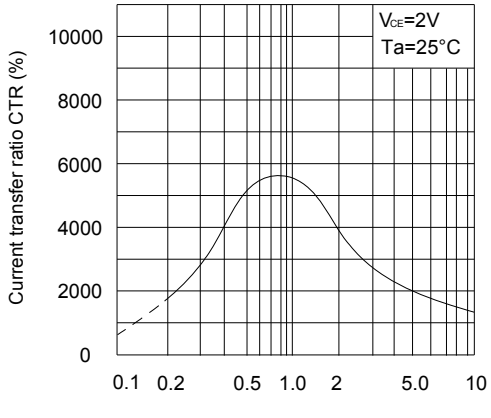


Fig.6 Collector Current vs. Collector-Emitter Voltage

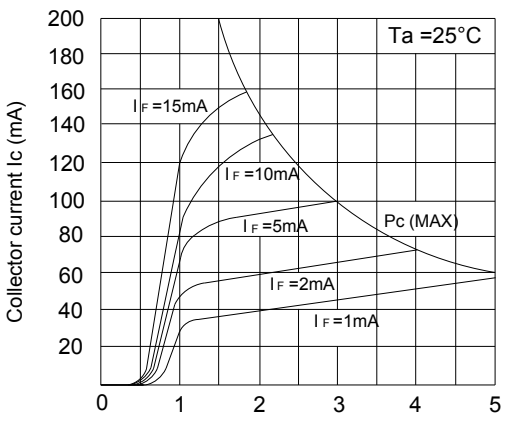

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Fig.7 Relative Current Transfer Ratio vs. Ambient Temperature

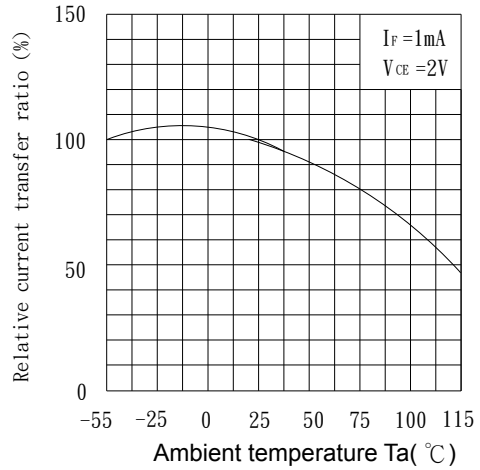



Fig.8 Collector-Emitter Saturation Voltage vs. Ambient Temperature

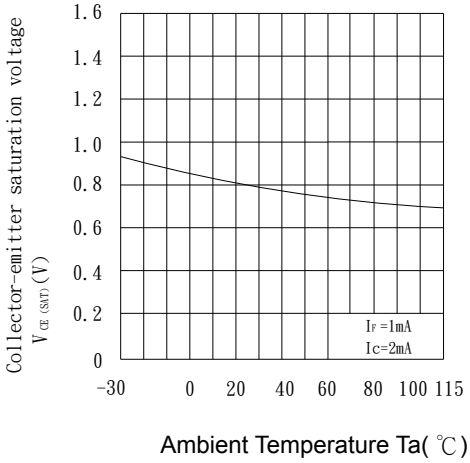



Fig.9 Collector Dark Current vs. Ambient Temperature

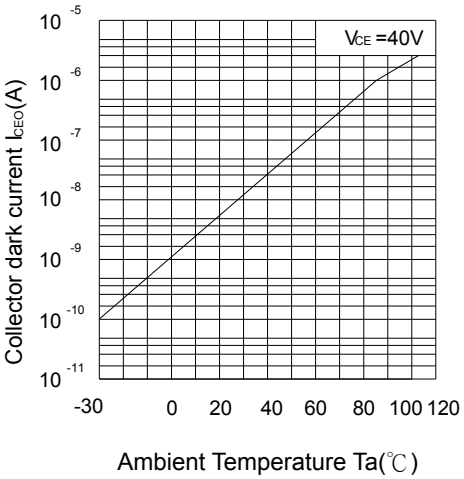



Fig.10 Response Time vs. Load Resistance

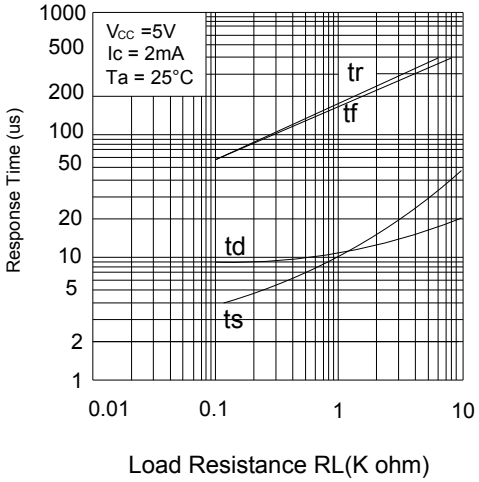
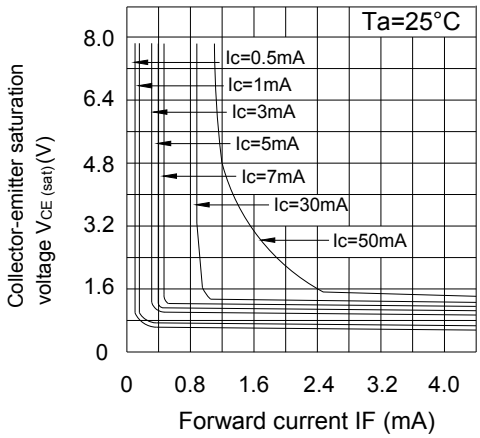



Fig.11 Collector-emitter Saturation Voltage vs.Forward Current



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