cosmo

# Mini-flat package General purpose Photo Coupler KPC357NT

**UL** 1577 (File No.E169586)

## Features

1. Opaque type, mini-flat package.
2. Subminiature type
   (The volume is smaller than that of our conventional DIP type by as far as 30%).
3. Current transfer ratio
   (CTR:MIN.50% at IF=5mA, Vce=5V)
4. Isolation voltage between input and output (Viso:3750Vrms).

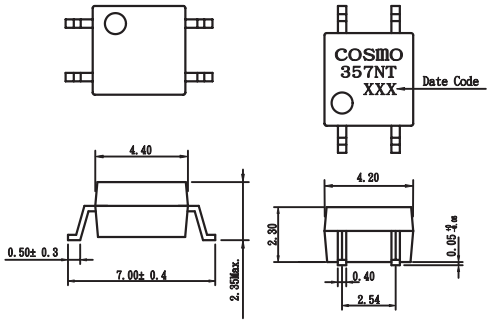
## Applications

1. Hybrid substrates that reguire high density mounting.
2. Programmable controllers.

Classification table of current transfer ratio is shown below.

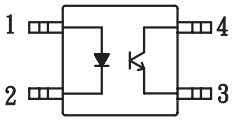
| Model NO. | CTR (%) |
|---|---|
| A | 80 TO 160 |
| B | 130 TO 260 |
| C | 200 TO 400 |
| D | 300 TO 600 |
| E | 50 TO 600 |

## Outside Dimension : Unit (mm)




t=0.254±0.05mm
TOLERANCE :± 0.2mm

## Schematic : Top View




1. Anode
2. Cathode
3. Emitter
4. Collector

## Absolute Maximum Ratings

(Ta=25°C)

| Parameter | | Symbol | Rating | Unit |
|---|---|---|---|---|
| Input | Forward current | IF | 50 | mA |
| | Peak forward current | IFM | 1 | A |
| | Reverse voltage | VR | 6 | V |
| | Power dissipation | P | 70 | mW |
| Output | Collector-emitter voltage | VCEO | 60 | V |
| | Emitter-collector voltage | VECO | 5 | V |
| | Collector current | IC | 50 | mA |
| | Collector power dissipation | PC | 150 | mW |
| Total power dissipation | | Ptot | 170 | mW |
| Isolation voltage 1 minute | | Viso | 3750 | Vrms |
| Operating temperature | | Topr | -30 to +100 | °C |
| Storage temperature | | Tstg | -40 to +125 | °C |
| Soldering temperature 10 seconds | | Tsol | 260 | °C |

## Electro-optical Characteristics

(Ta=25°C)

| Parameter | | Symbol | Conditions | MIN. | TYP. | MAX. | Unit |
|---|---|---|---|---|---|---|---|
| Input | Forward voltage | VF | IF =20mA | — | 1.2 | 1.4 | V |
| | Reverse current | IR | VR =4V | — | — | 10 | uA |
| | Terminal capacitance | Ct | V=0, f=1kHz | — | 30 | 250 | pF |
| Output | Collector dark current | ICEO | VCE =20V, IF=0 | — | — | 0.1 | uA |
| | Collector-emitter breakdown voltage | BVCEO | IC =0.1mA, IF=0 | 60 | — | — | V |
| | Emitter-collector breakdown voltage | BVECO | IE =100uA, IF=0 | 5 | — | — | V |
| Transfer charac-teristics | Current transfer ratio | CTR | IF =5mA, VCE=5V | 50 | — | 600 | % |
| | Collector-emitter saturation voltage | VCE (sat) | IF =20mA, IC=1mA | — | 0.1 | 0.3 | V |
| | Isolation resistance | Riso | DC500V, 40 to 60%RH | $5X10^{10}$ | $10^{11}$ | — | ohm |
| | Floating capacitance | Cf | V=0, f=1MHz | — | 0.6 | 1.0 | pF |
| | Respone time (Rise) | tr | VCE=2V, IC=2mA, RL=100ohm | — | 5 | 20 | us |
| | Respone time (Fall) | tf | | — | 4 | 20 | us |

**Fig.1** Forward Current vs. Ambient Temperature

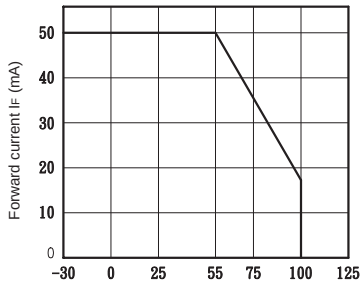



**Fig.2** Diode Power Dissipation vs. Ambient Temperature

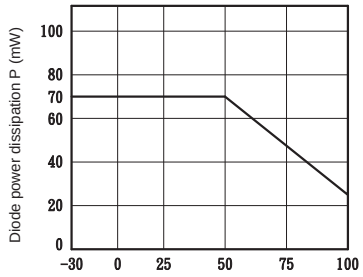



**Fig.3** Collector Power Dissipation vs. Ambient temperature

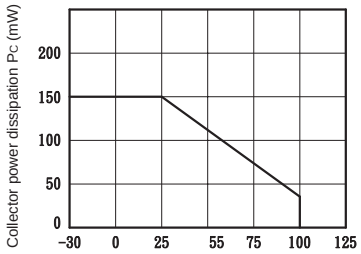



**Fig.4** Total Power Dissipation vs. Ambient temperature

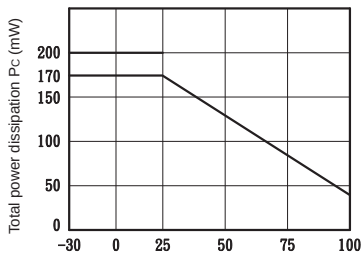



**Fig.5** Peak Forward Current vs. Duty Ratio

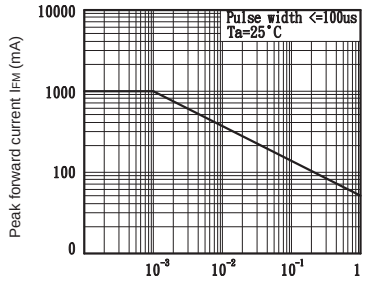



**Fig.6** Forward Current vs. Forward Voltage

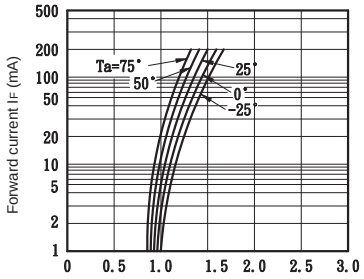



**Fig.7** Current Transfer Ratio vs. Forward Current

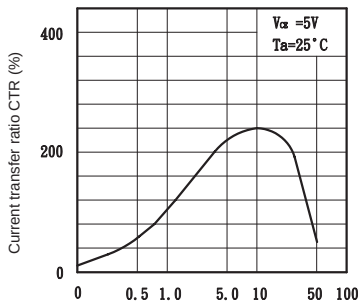



**Fig.8** Collector Current vs. Collector-emitter Voltage

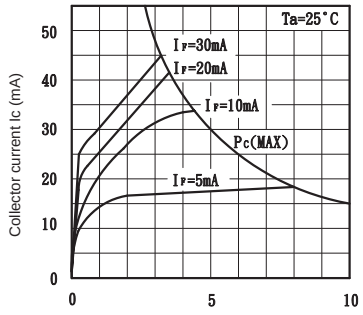



**Fig.9** Relative Current Transfer Ratio vs. Ambient Temperature

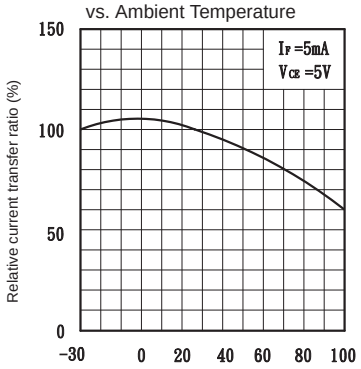



**Fig.10** Collector-emitter Saturation Voltage vs. Ambient Temperature

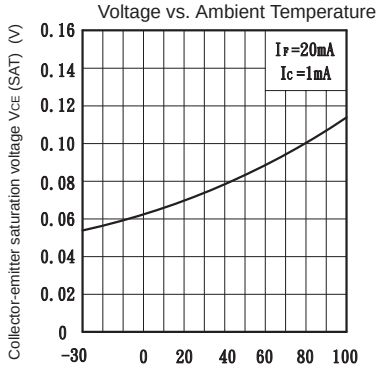



**Fig.11** Collector Dark Current vs. Ambient Temperature

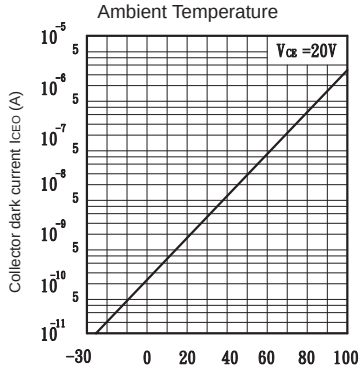



**Fig.12** Response Time vs. Load Resistance