

## Features

1. Ac inputs.
2. Opaque type, mini-flat package.
3. Subminiature type (The volume is smaller than that of our conventional DIP type by as far as 30%)
4. Isolation voltage between input and output (Viso:3750Vrms).

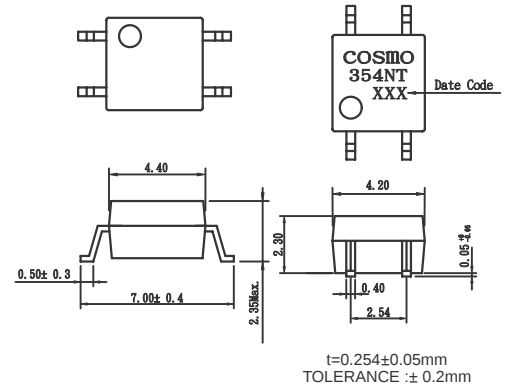
## Applications

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

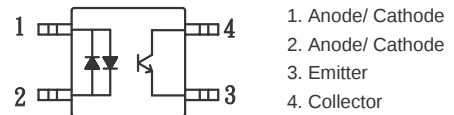
Classification table of current transfer ratio is shown below.

| RANK MARK | CTR(%)    |
|-----------|-----------|
| A         | 50 TO 150 |
| B         | 20 TO 400 |

## Outside Dimension : Unit (mm)



## Schematic : Top View



## Absolute Maximum Ratings

(Ta=25 °C)

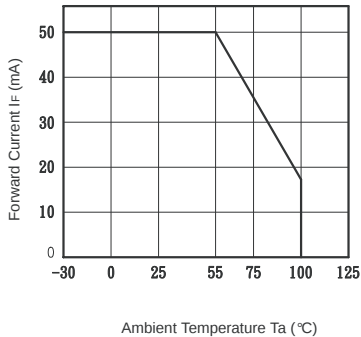
| Parameter                       | Symbol | Rating      | Unit |
|---------------------------------|--------|-------------|------|
| Input                           |        |             |      |
| Forward current                 | IF     | ± 50        | mA   |
| Peak forward current            | IFM    | ± 1         | A    |
| 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 second | Tsol   | 260         | °C   |

## Electro-optical Characteristics

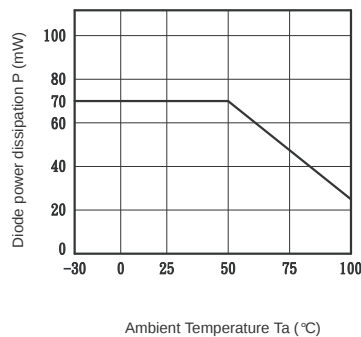
(Ta=25 °C)

| Parameter                            | Symbol    | Conditions                      | MIN.               | TYP.             | MAX. | Unit |
|--------------------------------------|-----------|---------------------------------|--------------------|------------------|------|------|
| Input                                |           |                                 |                    |                  |      |      |
| Forward voltage                      | VF        | IF = ± 20mA                     | —                  | 1.2              | 1.4  | V    |
| 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 characteristics             |           |                                 |                    |                  |      |      |
| Current transfer ratio               | CTR       | IF = ± 1mA, VCE = 5V            | 20                 | —                | 400  | %    |
| Collector-emitter saturation voltage | VCE (sat) | IF = ± 20mA, IC = 1mA           | —                  | 0.1              | 0.3  | V    |
| Isolation resistance                 | Riso      | DC500V, 40 to 60%RH             | 5X10 <sup>10</sup> | 10 <sup>11</sup> | —    | ohm  |
| Floating capacitance                 | Cf        | V = 0, f = 1MHz                 | —                  | 0.6              | 1.0  | pF   |
| Response time (Rise)                 | tr        | VCE = 2V, IC = 2mA, RL = 100ohm | —                  | 4                | 18   | us   |
| Response time (Fall)                 | tf        |                                 | —                  | 3                | 18   | us   |

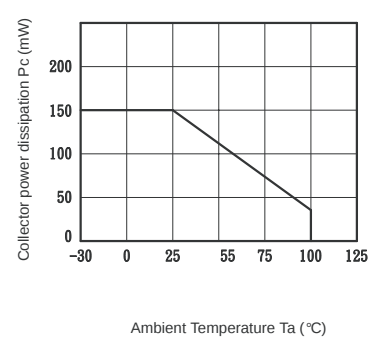
**Fig.1** Forward Current vs. Ambient Temperature



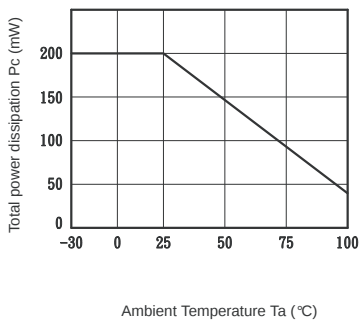
**Fig.2** Diode Power Dissipation vs. Ambient Temperature



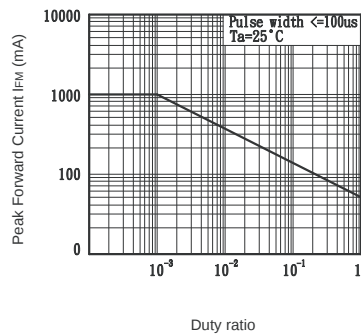
**Fig.3** Collector Power Dissipation vs. Ambient Temperature



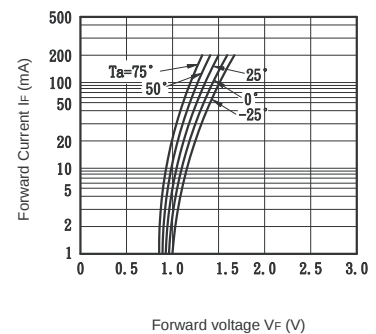
**Fig.4** Total Power Dissipation vs. Ambient Temperature



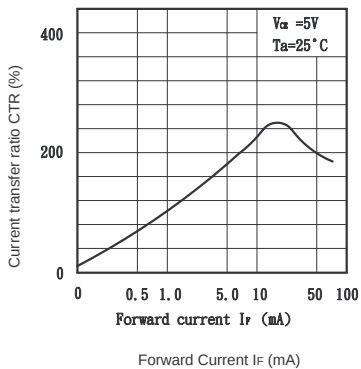
**Fig.5** Peak Forward Current vs. Duty Ratio



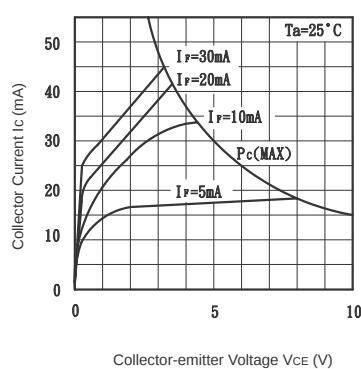
**Fig.6** Forward Current vs. Forward Voltage



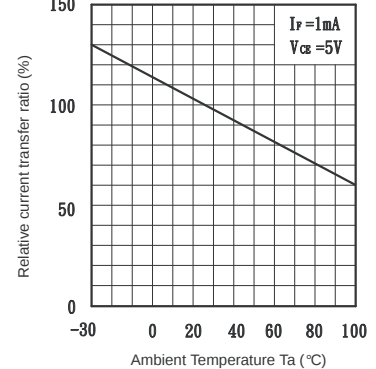
**Fig.7** Current Transfer Ratio vs. Forward Current



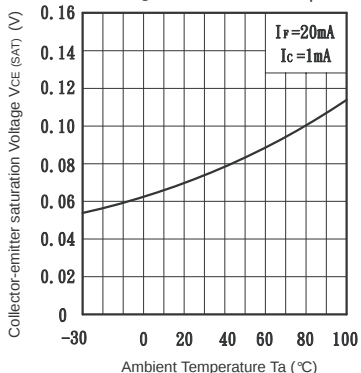
**Fig.8** Collector Current vs. Collector-emitter Voltage



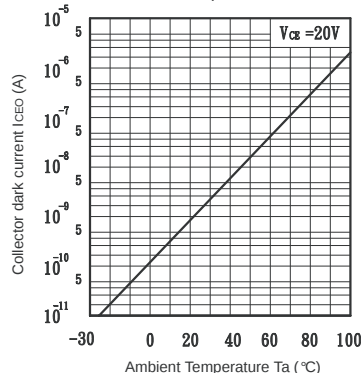
**Fig.9** Relative Current Transfer Ratio vs. Ambient Temperature



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



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



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

