

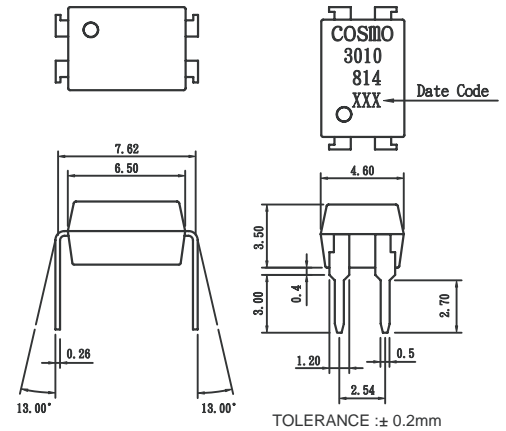
Features

1. Current transfer ratio
(CTR:MIN.60% at $I_F = \pm 1\text{mA}$ $V_{ce} = 5\text{V}$)
2. High isolation voltage between input and output
(Viso:5000Vrms).
3. Compact dual-in-line package.
4. Ac input.
5. Available package : DIP/ SMD/ H. (For Package Dimension please refer to page 82)

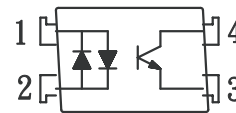
Applications

1. Programmable Controller Applications for Low Input Photocouplers and High Vceo Photocouplers.
2. Telephone sets, telephone exchangers.
3. System appliances, Limit Switches, Sensors Thermostats and Transducers etc.
4. Signal transmission between circuits of different potentials and impedances.

Outside Dimension : Unit (mm)



Schematic : Top View



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

Absolute Maximum Ratings

(Ta=25°C)

| Parameter | | Symbol | Rating | Unit |
|---------------------------------|-----------------------------|-----------|-------------|------|
| Input | Forward current | I_F | ± 60 | mA |
| | Peak forward current | I_{FM} | ± 1 | A |
| | Power dissipation | P_D | 70 | mW |
| Output | Collector-emitter voltage | V_{CEO} | 60 | V |
| | Emitter-collector voltage | V_{ECO} | 6 | V |
| | Collector current | I_C | 50 | mA |
| | Collector power dissipation | P_C | 150 | mW |
| Total power dissipation | | P_{tot} | 200 | mW |
| Isolation voltage 1 minute | | Viso | 5000 | Vrms |
| Operating temperature | | T_{opr} | -30 to +100 | °C |
| Storage temperature | | T_{stg} | -55 to +125 | °C |
| Soldering temperature 10 second | | T_{sol} | 260 | °C |

Electro-optical Characteristics

(Ta=25°C)

| Parameter | | Symbol | Conditions | MIN. | TYP. | MAX. | Unit |
|--------------------------|--------------------------------------|----------------------|---|--------------------|-----------|------|------|
| Input | Forward voltage | V_F | $I_F = \pm 20\text{mA}$ | — | 1.2 | 1.4 | V |
| | Peak forward voltage | V_{FM} | $I_{FM} = \pm 0.5\text{A}$ | — | — | 3.0 | V |
| | Terminal capacitance | C_t | $V=0, f=1\text{kHz}$ | — | 30 | — | pF |
| Output | Collector dark current | I_{CEO} | $V_{CE} = 20\text{V}, I_F = 0$ | — | — | 0.1 | uA |
| Transfer characteristics | Current transfer ratio | CTR | $I_F = \pm 1\text{mA}, V_{CE} = 5\text{V}$ | 60 | — | 600 | % |
| | Collector-emitter saturation voltage | $V_{CE}(\text{sat})$ | $I_F = \pm 20\text{mA}, I_C = 1\text{mA}$ | — | 0.1 | 0.3 | V |
| | Isolation resistance | Riso | DC500V | 5×10^{10} | 10^{11} | — | ohm |
| | Floating capacitance | C_f | $V=0, f=1\text{MHz}$ | — | 0.6 | 1.0 | pF |
| | Cut-off frequency | f_c | $V_{CC} = 5\text{V}, I_C = 2\text{mA}, R_L = 100\text{ohm}$ | — | 80 | — | kHz |
| | Response time (Rise) | t_r | $V_{CE} = 2\text{V}, I_C = 2\text{mA}, R_L = 100\text{ohm}$ | — | 5 | 20 | us |
| | Response time (Fall) | t_f | | — | 4 | 20 | us |

Classification table of current transfer ratio is shown below.

| Model NO. | Rank mark | CTR (%) |
|-----------|-----------|-----------|
| K3010 | A | 60 TO 600 |
| K3010 | B | 60 TO 300 |

Fig.1 Current Transfer Ratio vs. Forward Current

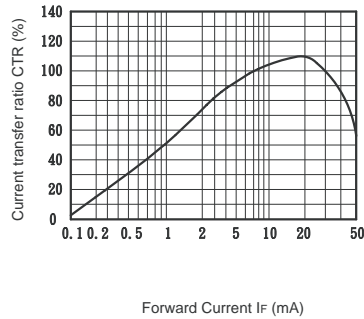


Fig.2 Collector Power Dissipation vs. Ambient Temperature

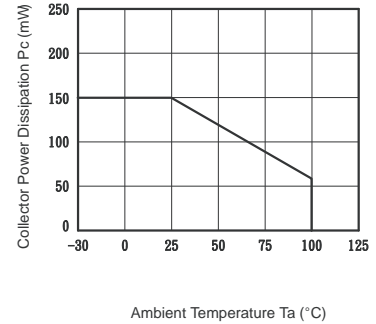


Fig.3 Collector Dark Current vs. Ambient Temperature

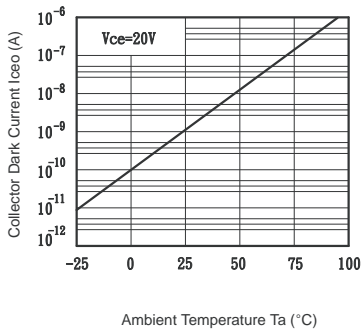


Fig.4 Forward Current vs. Ambient Temperature

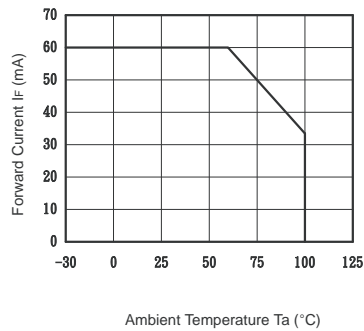


Fig.5 Forward Current vs. Forward Voltage

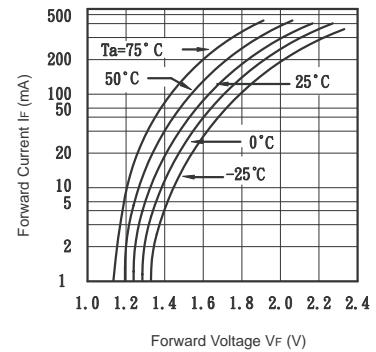


Fig.6 Collector Current vs. Collector-emitter Voltage

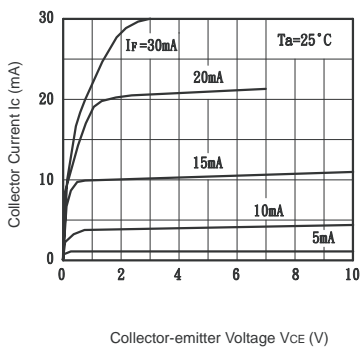


Fig.7 Relative Current Transfer Ratio vs. Ambient Temperature

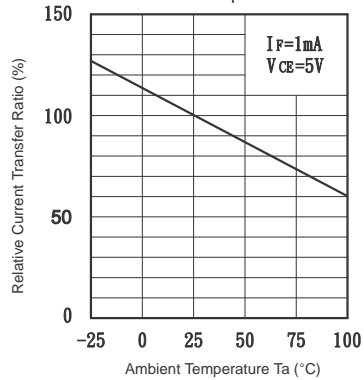


Fig.8 Collector-emitter Saturation Voltage vs. Ambient Temperature

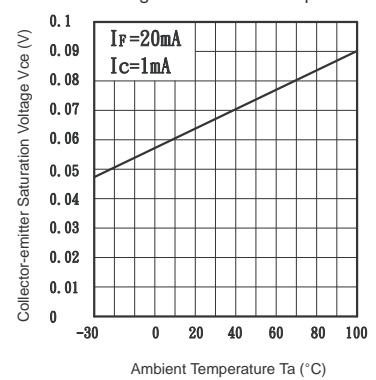


Fig.9 Collector-emitter Saturation Voltage vs. Forward Current

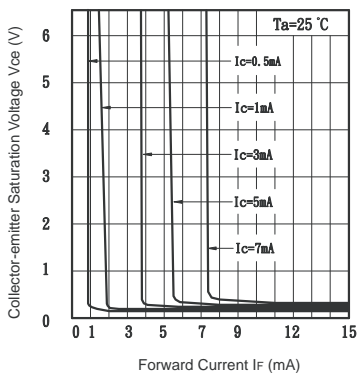


Fig.10 Response Time vs. Load Resistance

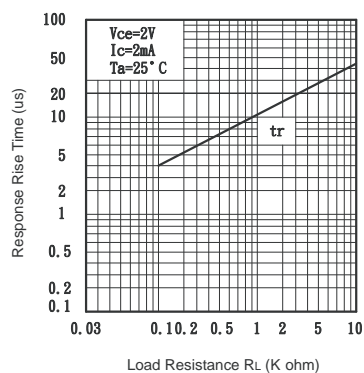
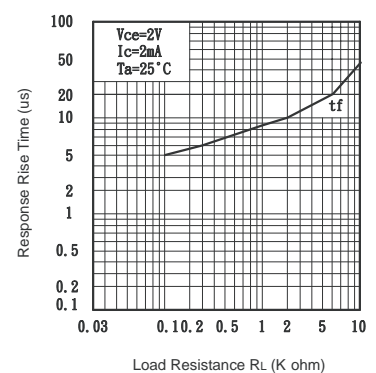


Fig.11 Response Time vs. Load Resistance





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