cosmo

# High Reliability Photocoupler KPC825

**UL** 1577 (File No.E169586) **VD** EEN60747-5-2 /EN60950 / EN60065 (File No.40005500)

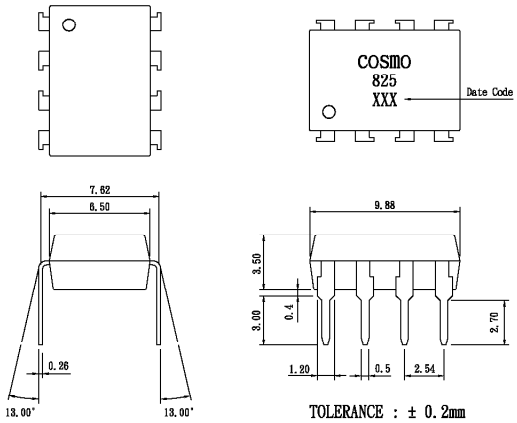
## Features

1. High current transfer ratio
   (CTR:MIN.600% at IF=1mA, Vce=2V)
2. High isolation voltage between input and output
   (Viso:5000Vrms).
3. Compact dual-in-line package.

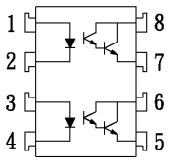
## Applications

1. System appliances, measuring instruments.
2. Industrial robots.
3. Copiers, automatic vending machines.
4. Signal transmission between circuits of different potentials and impedances.

## Outside Dimension:Unit (mm)




## Schematic:Top View




1,3 Anode
2,4 Cathode
5,7 Emitter
6,8 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 | PD | 70 | mW |
| Output | Collector-emitter voltage | VCEO | 35 | V |
| | Emitter-collector voltage | VECO | 6 | V |
| | Collector current | IC | 80 | mA |
| | Collector power dissipation | PC | 150 | mW |
| Total power dissipation | | Ptot | 200 | mW |
| Isolation voltage 1 minute | | Viso | 5000 | Vrms |
| Operating temperature | | Topr | -30 to +100 | °C |
| Storage temperature | | Tstg | -55 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 |
| | Peak forward voltage | VFM | IFM=0.5A | — | — | 3.0 | V |
| | Reverse current | IR | VR=4V | — | — | 10 | μA |
| | Terminal capacitance | Ct | V=0, f=1kHz | — | 30 | 250 | pF |
| Output | Collector dark current | ICEO | VCE=10V, IF=0 | — | — | 1.0 | μA |
| Transfer characteristics | Current transfer ratio | CTR | IF=1mA, VCE=2V | 600 | — | 7500 | % |
| | Collector-emitter saturation voltage | VCE(sat) | IF=20mA, IC=5mA | — | 0.8 | 1.0 | V |
| | Isolation resistance | Riso | DC500V, 40 to 60% RH | $5X10^{10}$ | — | — | ohm |
| | Floating capacitance | Cf | V=0, f=1MHZ | — | 0.6 | 1.0 | pF |
| | Cut-off frequency | fc | VCC=2V, IC=20mA, RL=100ohm | 1 | 6 | — | kHz |
| | Response time (Rise) | tr | VCE=2V, IC=20mA, RL=100ohm | | 80 | 300 | μs |
| | Response time (Fall) | tf | | — | 72 | 250 | μs |


© 2005-2006 COSMO ELECTRONICS CORPORATION

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

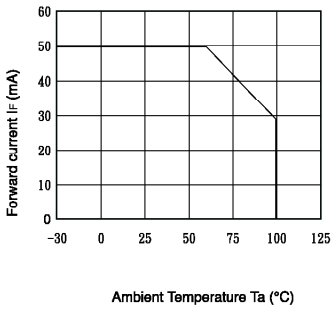



**Fig.2** Collector Power Dissipation vs. Ambient Temperature

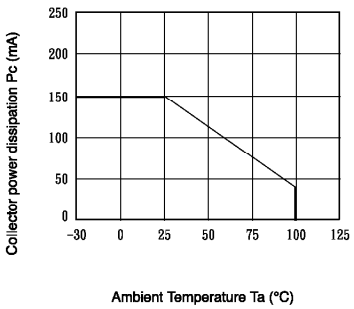



**Fig.3** Collector-emitter Saturation Voltage vs. Forward Current

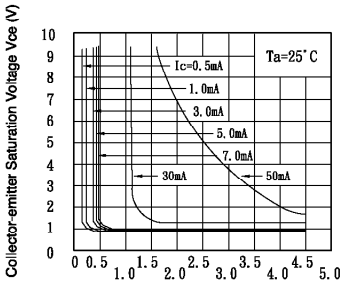



**Fig.4** Forward Current vs. Forward Voltage

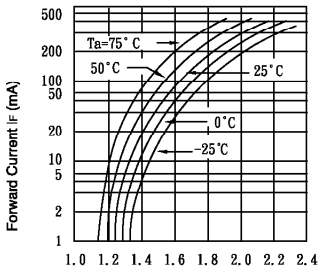



**Fig.5** Collector Transfer Ratio vs. Forward Current

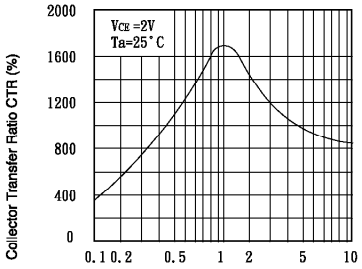



**Fig.6** Collector Current vs. Collector-emitter Voltage

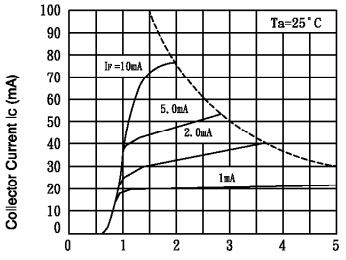



**Fig.7** Relative Transfer Ratio vs. Ambient Temperature

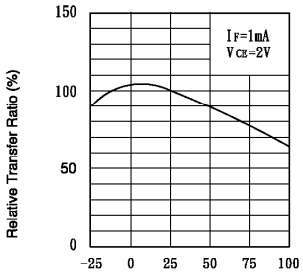



**Fig.8** Collector-emitter Saturation Voltage vs. Ambient Temperature

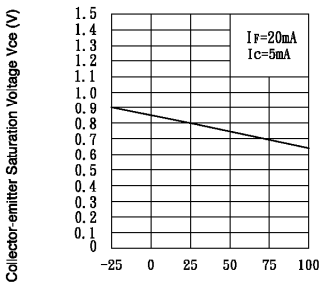



**Fig.9** Collector Dark Current vs. Ambient Temperature

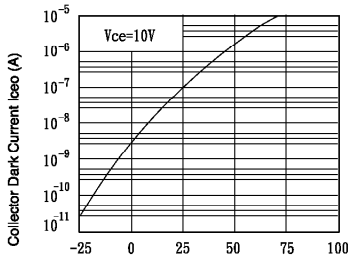
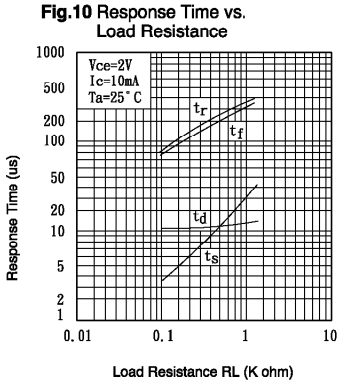



**Fig.10** Response Time vs. Load Resistance




© 2005-2006 cosmo ELECTRONICS CORPORATION