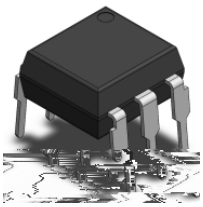
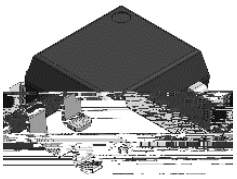
JOC307X Series

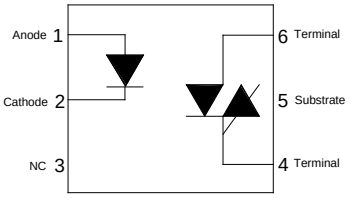
Rev.A.1.0

## DESCRIPTION:

The products are 6-pin thyristor opto-couplers. The device combines an AIGaAs infrared emitting diode as the emitter which is optically coupled to a monolithic silicon random-phase photo triac in a plastic DIP6 package with different lead forming options. With the robust coplanar double mold structure, the device provides the most stable isolation feature. The products are widely used in solenoid/valve controls, lighting controls, motor controls, temperature controls, static AC power switches, solid state relays, interfacing microprocessors up to 265 $V_{AC}$ peripherals.








## MAIN FEATURES

High isolation 5000 VRMS
DC input with random-phase photo triac output
Operating temperature range -55 - Z U -
REACH & RoHS compliance
HBM: H3A; MM: M4; CDM: C3
CQC approved
VDE approved
UL approved

## ABSOLUTE MAXIMUM RATINGS (Temperature=25°C)

| Parameter | | Symbol | Value | Unit |
|---|---|---|---|---|
| Input | Forward Current | $I_F$ | 50 | mA |
| | Peak Forward Current | $I_{FP}$ | 1 [7] | A |
| | Reverse Voltage | $V_R$ | 6 | V |
| | Power Dissipation | $P_D$ | 75 | mW |
| Output | Off-state Output Terminal Voltage | $V_{OFF}$ | 800 | V |
| | 3 H D N 2 Q í V W D W H & V S X O V H S S V | $I_{TP}$ | 2 | A |
| | On-state RMS Current | $I_{T(RMS)}$ | 100 | mA |
| | Peak Repetitive Surge Current ($P_W$=10 ms) | $I_{TSM}$ | 1.2 | A |
| | Output Power Dissipation | $P_O$ | 250 | mW |

| | | | |
|---|---|---|---|
| Total Power Dissipation | $P_{tot}$ | 325 | mW |
| Isolation Voltage | $V_{iso}$ | 5000 [8] | Vrms |
| Operating Temperature | $T_{opr}$ | -55~110 | |
| Junction Temperature | $T_j$ | 125 | |
| Storage Temperature | $T_{stg}$ | -55~125 | |
| Soldering Temperature | $T_{sol}$ | 260 | |
| Peak pulse voltage ($T_j$=25 ; non-repetitive,off-state) | $V_{pp}$ | 1 | kV |

NOTE1 100 s pulse, 100Hz frequency
NOTE2 AC for 1minute, R.H.=40~60%

## ELECTRICAL CHARACTERISTICS (Temperature=25°C)

| Parameter | | | Symbol | Condition | Min. | Typ. | Max. | Unit |
|---|---|---|---|---|---|---|---|---|
| Input | Forward Voltage | | $V_F$ | $I_F$=10mA | - | 1.2 | 1.5 | V |
| | Reverse Current | | $I_R$ | $V_R$=6V | - | - | 1 | A |
| | Input Capacitance | | $C_{in}$ | V=0, f=1kHz | - | 10 | - | pF |
| Output | Peak Off-state Current, Either Direction | | $I_{OFF}$ | $V_{OFF}$=Rated $V_{OFF}$ $I_F$=0 | - | - | 100 [9] | nA |
| | Peak On-state Voltage, Either Direction | | $V_{TM}$ | $I_{TM}$=100mA | - | 1.8 | 2.5 | V |
| | Critical Rate of Rise of Off-state voltage | | dV/dt | $V_{PEAK}$= Rated $V_{PEAK}$ $I_F$=0 | 2000 [3] | - | - | 9 V |
| Transfer Characteristics | LED Trigger Current | JOC3072 | $I_{FT}$ | Terminal Voltage=3V $I_{TM}$=100mA | - | - | 10 | mA |
| | | JOC3073 | | | - | - | 5 | |
| | | JOC3074 | | | - | - | 3 | |
| | Holding Current | | $I_H$ | $I_{TM}$=2mA, $I_F$=Rated $I_{FT}$ | - | 500 | - | A |
| | Isolation Resistance | | $R_{ISO}$ | DC500V 40~60%R.H. | $10^{12}$ | $10^{14}$ | - | |
| | Floating Capacitance | | $C_{IO}$ | V=0, f=1MHz | - | 5 | - | pF |
| | Response Time | | $t_{on}$ | $V_D$=6V, $R_L$ $I_F$=20mA | - | 15 | 50 | V |

NOTE3Test voltage must be applied within dV/dt ratings.
NOTE4Refer to Fig.14 & Fig.15

## ORDERING AND MARKING INFORMATION

### MARKING INFORMATION

## Characteristics Curves

FIG.1:

FIG.7: Normalized On-state Terminal Voltage vs. Ambient Temperature



FIG.8: On-state Terminal Voltage vs. On-state Terminal Current

## TEST CIRCUITS

FIG.12: Test Circuits of Turn On Time

FIG.13: Waveforms of Turn On Time

Fig.14: Test Circuits of dV/dt

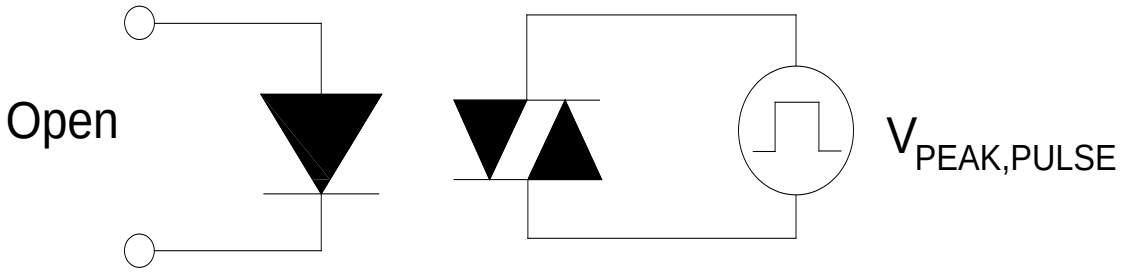



Fig.15: Waveforms of dV/dt

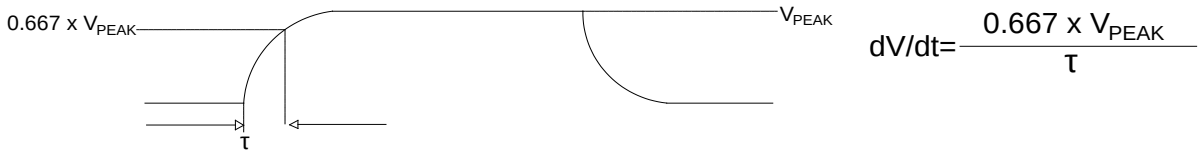
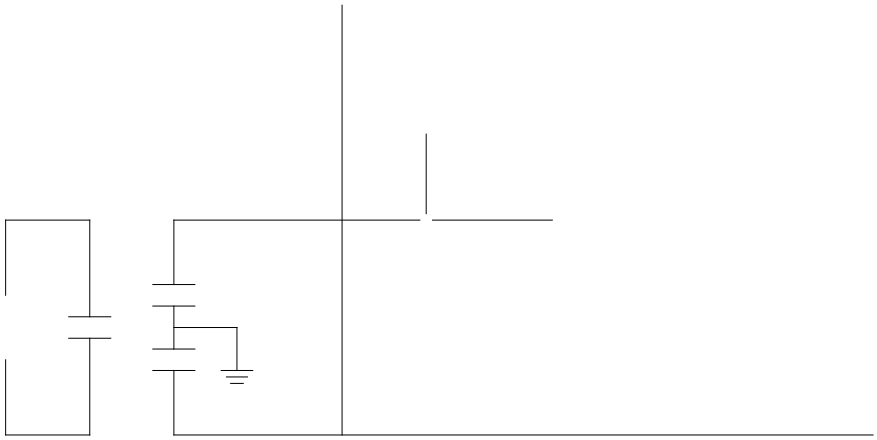
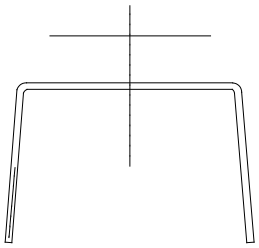


FIG.16: Test circuit for inductive and resistive loads to IEC-61000-4-5 standards



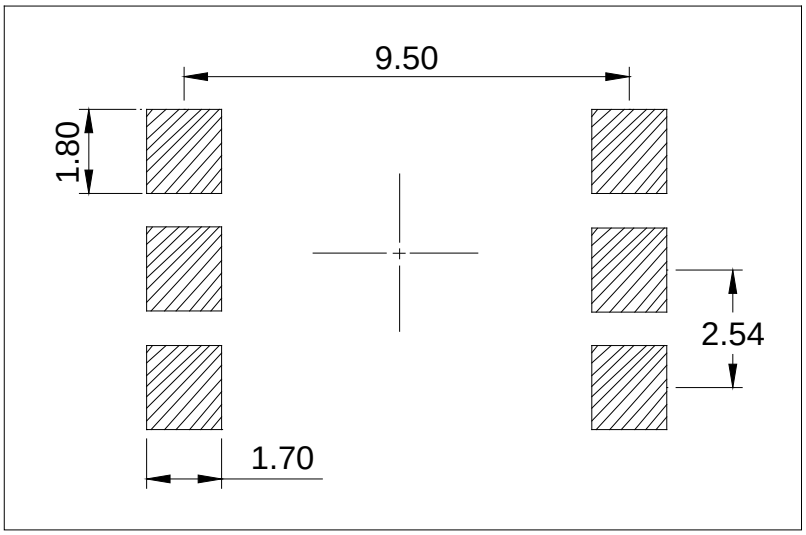
## Package Dimension (Unit: mm)

Standard DIP Type: A



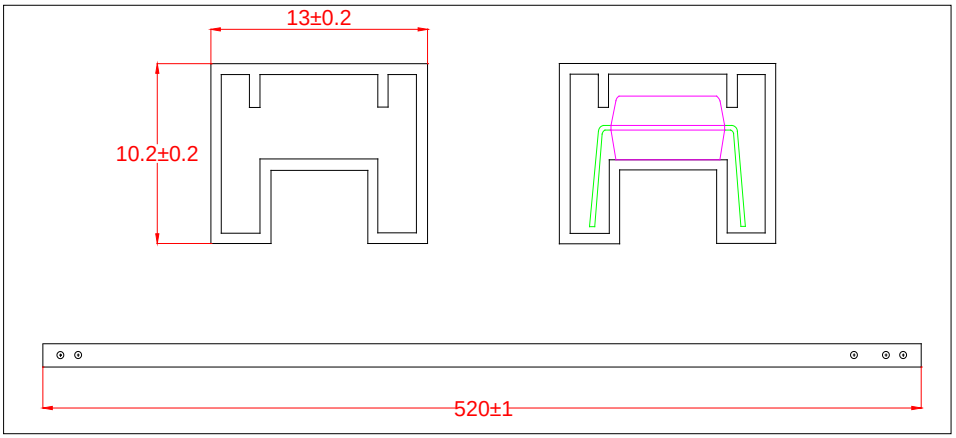
## RECOMMENDED SOLDER MASK (Dimensions in mm unless otherwise stated)

Option SMD




## TUBE SPECIFICATIONS (Dimensions in mm unless otherwise stated)

Standard DIP

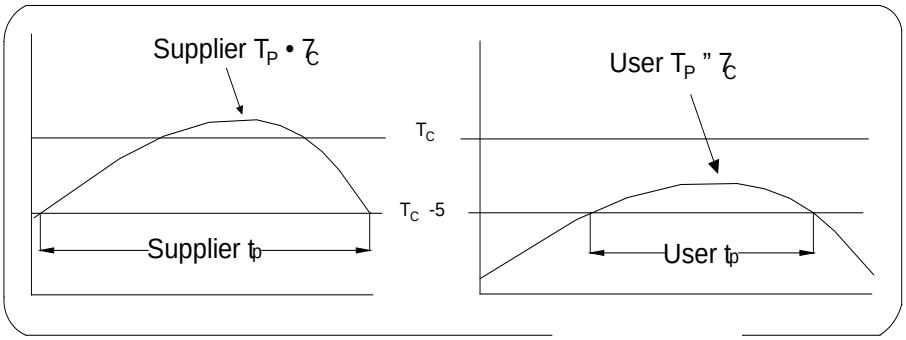


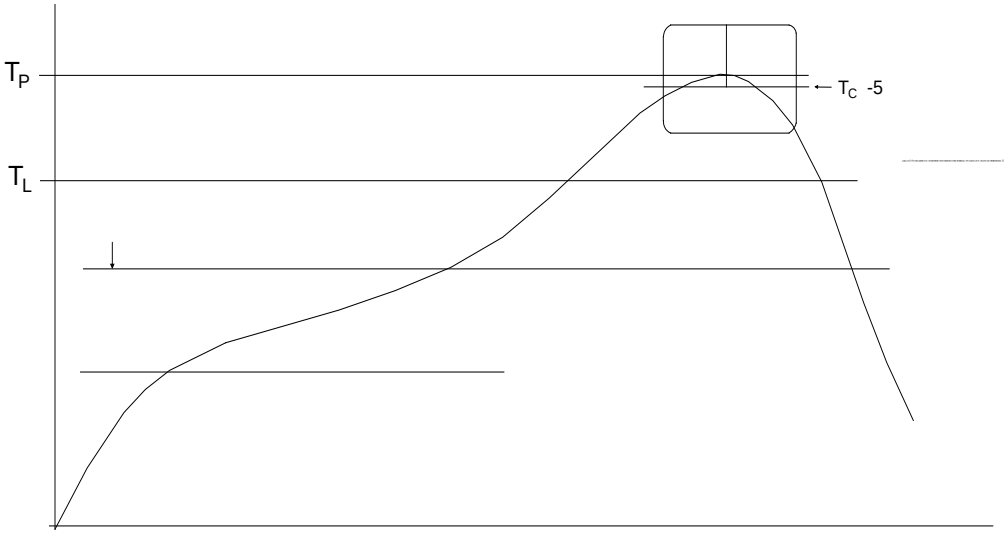
# CARRIER TAPE SPECIFICATIONS (Dimensions in mm unless otherwise stated)

Option T 1

| Ref. | Dimensions | | | | | |
|---|---|---|---|---|---|---|
| | Millimeters | | | Inches | | |
| | Min. | Typ. | Max. | Min. | Typ. | Max. |
| D0 | | | | | | |
| P0 | | | | | | |
| P1 | | | | | | |
| P2 | | | | | | |
| E | | | | | | |
| F | | | | | | |
| W | | 16.00 | | | /P/D0 | |

## REFLOW INFORMATION



## WAVE SOLDERING

| | |
|---|---|
| HAND SOLDERING BY SOLDERING IRON | |
| Soldering Temperature | 360 5 |
| Soldering Time | 3s max. |

Note:

1. Reflow soldering is recommended at the temperatures and times shown, no more than three times.

2. Avoid direct contact between the epoxy body and any tools or surfaces exceeding its maximum storage temperature.

3. Application of pressure on the epoxy body is prohibited at elevated temperatures. In specific scenarios, any applied force must not exceed 2.5N.

4. Ensure the component has cooled to ambient temperature before proceeding with any subsequent manufacturing steps.

5. The component has a shelf life of one year when stored under standard conditions.

6. Recommend storage Temp.: 0~40°C;

Recommend storage humidity: <60%;

MSL level: MSL 1

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