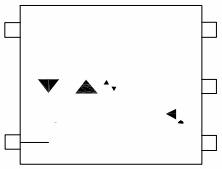
## JOCDE0CB-L5X Series

Rev.A.1.0

## DESCRIPTION:

The products are gate driver opto-couplers in LSOP5 and LSOP5W packages. The device consists of an infrared LED optically coupled to an integrated high-gain, high-speed photodetector IC chip. It provides guaranteed performance and specifications at temperature up to 110 . It is physically smaller and compliant with international safety standards for reinforced insulation. It thus provides a smaller footprint solution for applications that require safety standard certification. An internal noise shield provides a guaranteed common-mode transient immunity of ±35 kV/μs. It is ideal for small class IGBT and power MOSFET gate drive. The products are widely used in industrial inverters, IGBT gate drivers, MOSFET gate drivers, induction cooktop and home appliances.



## MAIN FEATURES

0.1A maximum peak output current
High isolation 5000 VRMS
Buffer logic type
Operating temperature range -40°C to 110°C
REACH & RoHS compliance
HBM: H3A; MM: M4; CDM: C3
CQC approved
VDE approved
UL approved

## Truth Table

| Input | LED | Output |
|---|---|---|
| H | ON | L |
| L | OFF | H |

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

| Parameter | | Symbol | Value | Unit |
|---|---|---|---|---|
| LED | Forward Current | $I_F$ | 50 | mA |
| | Peak Forward Current | $I_{FP}$ | 1 | A |
| | Reverse Voltage | $V_R$ | 6 | V |

| | | | | |
|---|---|---|---|---|
| | Power Dissipation | $P_D$ | 100 | mW |

## Recommended Operating Conditions

| Characteristics | Symbol | Min. | Typ. | Max. | Unit |
|---|---|---|---|---|---|
| Input On-state Current | $I_{F(ON)}$ | 7 | - | 15 | mA |
| Input Off-state Voltage | $V_{F(OFF)}$ | 0 | - | 0.8 | V |
| Supply Voltage | $V_{CC}$ | 4.5 | - | 30 | V |

**Note1**

**Note2**

**Note3**

**Note4**

# JOCDE0CB

## Characteristics Curves

**FIG.1:** Forward Current vs. Forward Voltage

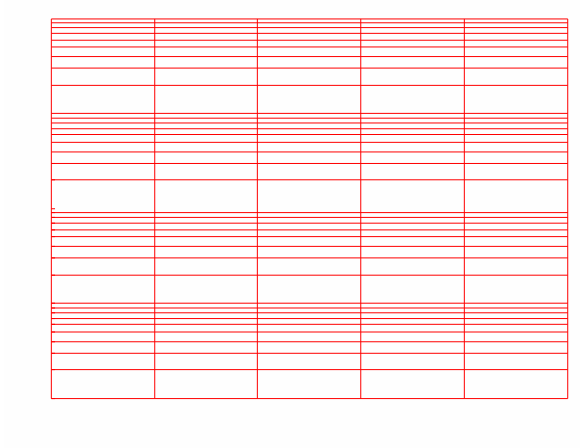


**FIG.2:** Max. Allowable LED Forward Current vs. Ambient Temperature

**FIG.7:** Low-level Output Voltage vs. Ambient Temperature

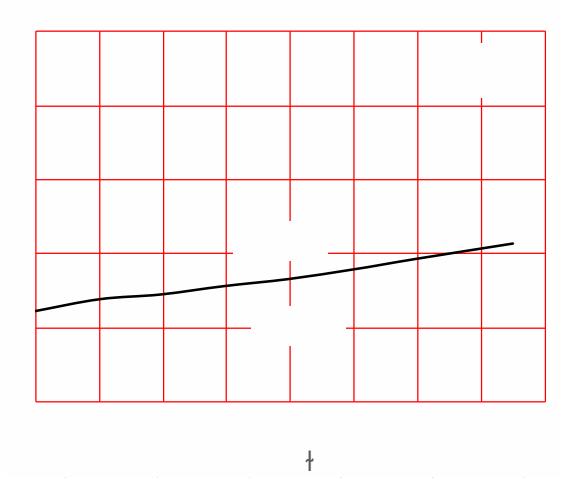


**FIG.8:** High-level Output Voltage vs. Ambient Temperature

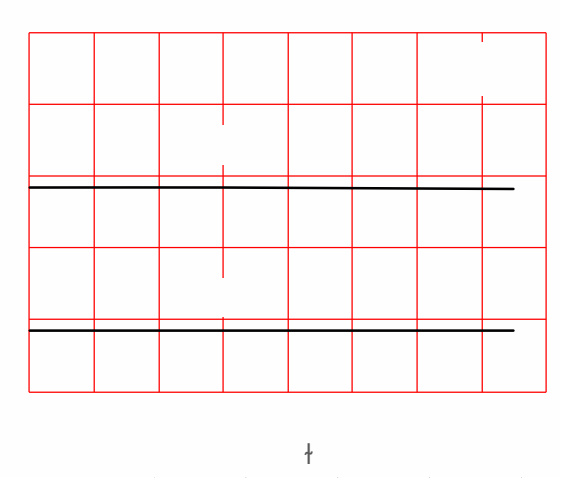
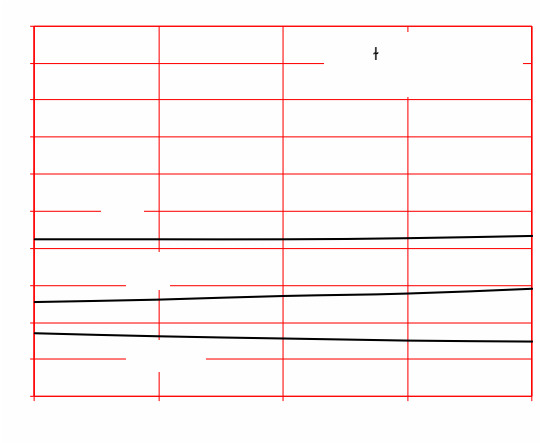
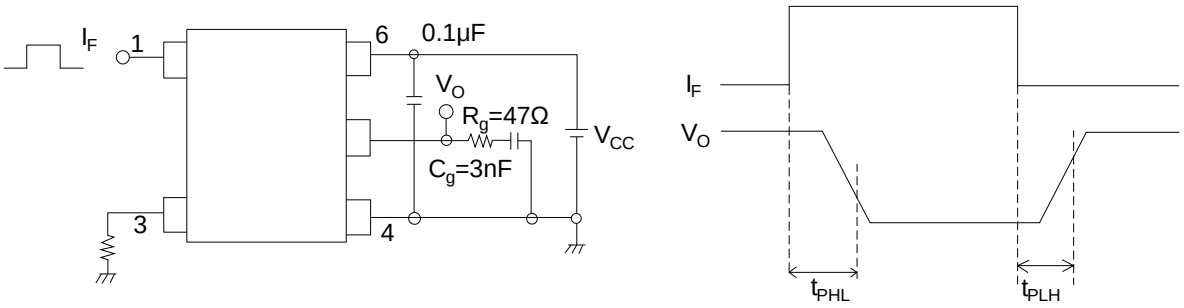


**FIG.13:** Propagation Delay Time,Pulse Width Distortion vs. Supply Voltage



## Test Circuits

**FIG.14:** Switching Time Test Circuit and Waveform



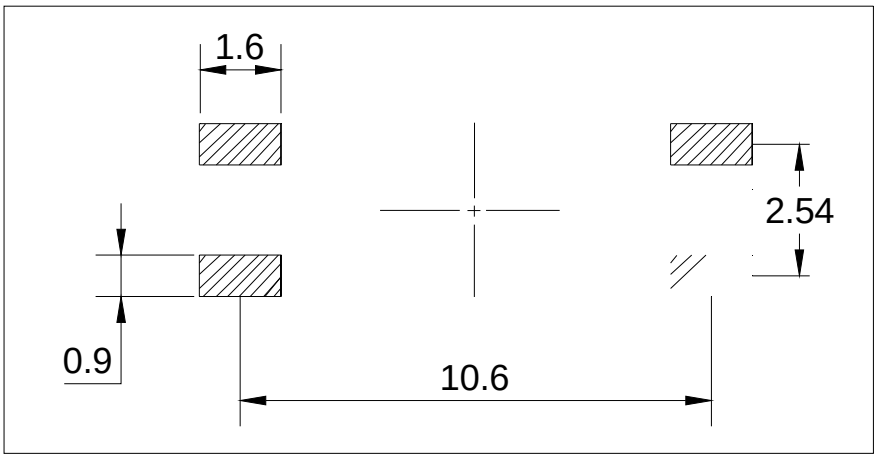
## Package Dimension (Unit: mm)

## LSOP5

| Ref. | Dimensions | | | | | |
|---|---|---|---|---|---|---|
| | Millimeters | | | Inches | | |
| | Min. | Typ. | Max. | Min. | Typ. | Max. |
| A | | | | | | |
| B | | | | | | |
| C | | | | | | |
| D | | | | | | |
| E | | | | | | |
| F | | | | | | |
| G | | | | | | |
| I | | | | | | |

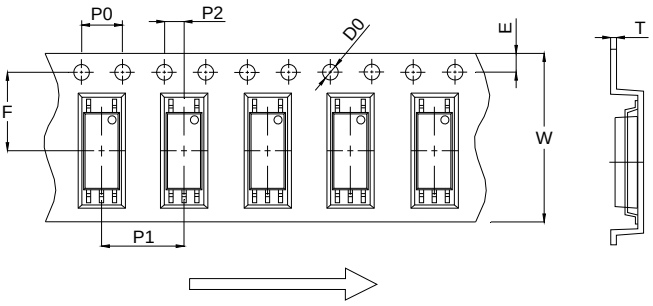
## RECOMMENDED SOLDER MASK (Dimensions in mm unless otherwise stated)

### LSOP5



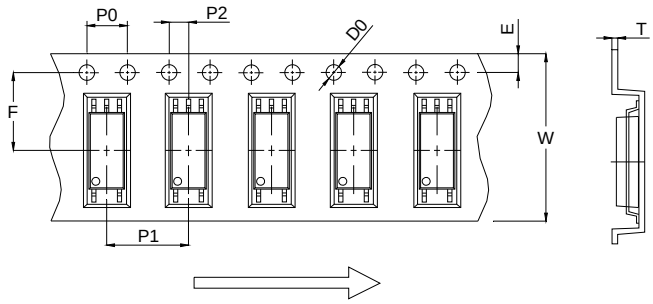
## CARRIER TAPE SPECIFICATIONS (Dimensions in mm unless otherwise stated)

### Option None



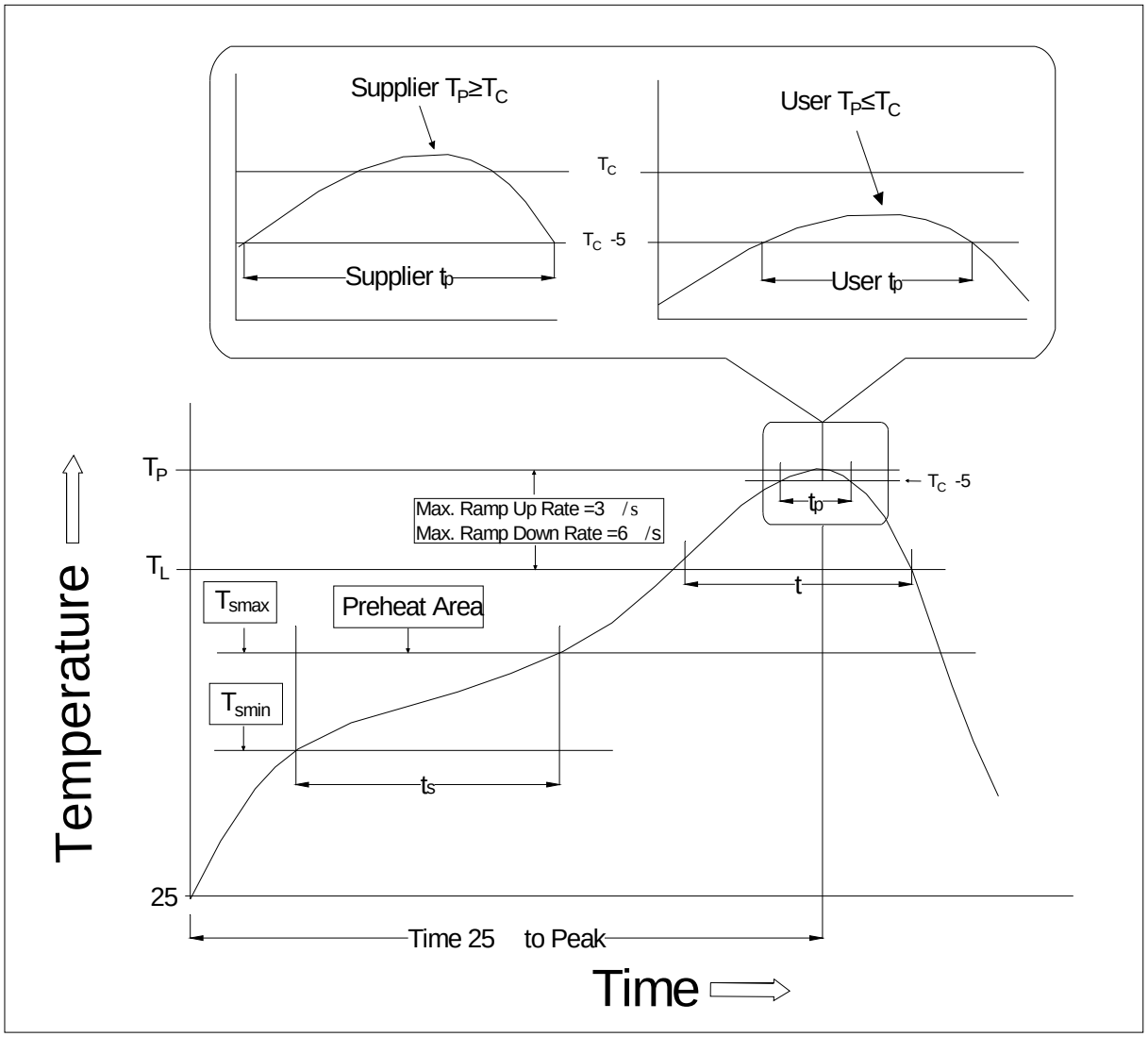

| Ref. | Dimensions | | | | | |
|---|---|---|---|---|---|---|
| | Millimeters | | | Inches | | |
| | Min. | Typ. | Max. | Min. | Typ. | Max. |
| D0 | 1.50 | 1.55 | 1.60 | 0.059 | 0.061 | 0.063 |
| P0 | 3.90 | 4.00 | 4.10 | 0.154 | 0.157 | 0.161 |
| P1 | 7.90 | 8.00 | 8.10 | 0.311 | 0.315 | 0.319 |
| P2 | 1.90 | 2.00 | 2.10 | 0.075 | 0.079 | 0.083 |
| E | 1.65 | 1.75 | 1.85 | 0.065 | 0.069 | 0.073 |
| F | 7.40 | 7.50 | 7.60 | 0.291 | 0.295 | 0.299 |
| T | 0.35 | 0.40 | 0.45 | 0.014 | 0.016 | 0.018 |
| W | 15.80 | 16.00 | 16.20 | 0.622 | 0.630 | 0.638 |

### Option R




| Ref. | Dimensions | | | | | |
|---|---|---|---|---|---|---|
| | Millimeters | | | Inches | | |
| | Min. | Typ. | Max. | Min. | Typ. | Max. |
| D0 | 1.50 | 1.55 | 1.60 | 0.059 | 0.061 | 0.063 |
| P0 | 3.90 | 4.00 | 4.10 | 0.154 | 0.157 | 0.161 |
| P1 | 7.90 | 8.00 | 8.10 | 0.311 | 0.315 | 0.319 |
| P2 | 1.90 | 2.00 | 2.10 | 0.075 | 0.079 | 0.083 |
| E | 1.65 | 1.75 | 1.85 | 0.065 | 0.069 | 0.073 |
| F | 7.40 | 7.50 | 7.60 | 0.291 | 0.295 | 0.299 |
| T | 0.35 | 0.40 | 0.45 | 0.014 | 0.016 | 0.018 |
| W | 15.80 | 16.00 | 16.20 | 0.622 | 0.630 | 0.638 |

## REFLOW INFORMATION




| Profile Feature | Sn-Pb Assembly Profile | Pb-Free Assembly Profile |
|---|---|---|
| Temperature Min. (Tsmin) | 100 | 150 |
| Temperature Max. (Tsmax) | 150 | 200 |
| Time (ts) from (Tsmin to Tsmax) | 60-120 seconds | 60-120 seconds |
| Ramp-up Rate (tL to tP) | 3 /second max. | 3 /second max. |
| Liquidus Temperature (TL) | 183 | 217 |
| Time (tL) Maintained Above (TL) | 60-150 seconds | 60-150 seconds |
| Peak Body Package Temperature | 235 +0 /-5 | 260 +0 /-5 |
| Time (tP) within 5 of 260 | 10 seconds | 10 seconds |
| Ramp-down Rate (TP to TL) | 3-6 /second | 3-6 /second |
| Time 25 to Peak Temperature | 6 minutes max. | 8 ! |

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

Information furnished in this document is believed to be accurate and reliable. However, Jiangsu JieJie Microelectronics Co., Ltd. assumes no responsibility for the consequences of use without consideration for such information nor use beyond it. Information mentioned in this document is subject to change without notice, apart from that when an agreement is signed, Jiangsu JieJie complies with the agreement.
Products and information provided in this document have no infringement of patents. Jiangsu JieJie assumes no responsibility for any infringement of other rights of third parties which may result from the use of such products and information. angsu Jie