



### DESCRIPTION:

The products are voltage opto-couplers in a VSON4 package. The device consists of a high-voltage output detector circuit. It is capable of directly driving gates of power MOSFETs or IGBTs. The products are widely used in supply for electronic circuit and drive solid state relay.

### MAIN FEATURES

High isolation 500 VRMS

Operating temperature range -40°C to 110°C

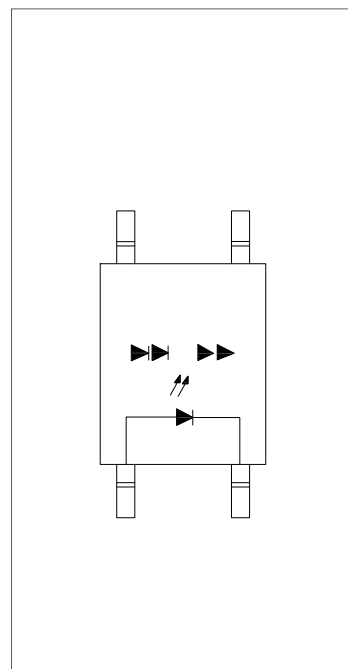
RoHS & REACH Compliance

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        | A    |
|                       | Reverse Voltage      | $V_R$     | 6        | V    |
|                       | Power Dissipation    | $P_D$     | 75       | mW   |
| Isolation Voltage     |                      | $V_{iso}$ | 500      | Vrms |
| Operating Temperature |                      | $T_{opr}$ | -40~+110 |      |
| Junction Temperature  |                      | $T_j$     | 125      |      |
| Storage Temperature   |                      | $T_{stg}$ | -55~+125 |      |
| Soldering Temperature |                      | $T_{sol}$ | 260      |      |

**NOTE1:** 100μs pulse, 100Hz frequency

**NOTE2:** AC for 1minute, R.H.=40~60%

**ELECTRICAL CHARACTERISTICS** (Temperature=25°C)

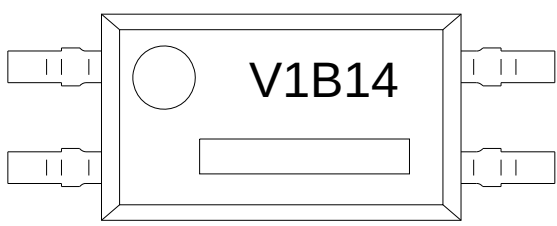
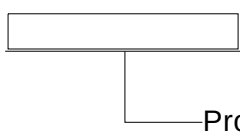
| Parameter                |                       | Symbol    | Condition                             | Min.      | Typ. | Max. | Unit          |
|--------------------------|-----------------------|-----------|---------------------------------------|-----------|------|------|---------------|
| Input                    | Forward Voltage       | $V_F$     | $I_F=10\text{mA}$                     | -         | 1.8  | 2.5  | V             |
|                          | Reverse Current       | $I_R$     | $V_R=6\text{V}$                       | -         | -    | 1    | $\mu\text{A}$ |
| Output                   | Open Circuit Voltage  | $V_{OC}$  | $I_F=10\text{mA}$<br>$I_O=0\text{mA}$ | 5         | -    | -    | V             |
|                          | Short Circuit Current | $I_{SC}$  | $I_F=10\text{mA}$<br>$V_O=0\text{V}$  | 20        | -    | -    | $\mu\text{A}$ |
| Transfer Characteristics | Isolation resistance  | $R_{IO}$  | DC500V<br>40~60%R.H.                  | $10^{12}$ | -    | -    | $\Omega$      |
|                          | Response Time         | $t_{on}$  | $I_F=10\text{mA}$                     | -         | 40   | -    | $\mu\text{s}$ |
|                          |                       | $t_{off}$ |                                       | -         | 50   | -    | $\mu\text{s}$ |

ORDERING INFORMATION

|                                   |              |         |                |        |                     |                       |       |                 |
|-----------------------------------|--------------|---------|----------------|--------|---------------------|-----------------------|-------|-----------------|
| J                                 | OC           | V       | 1              | B      | 1                   | 4                     | -VS4  | /               |
| JieJie Microelectronics Co., Ltd. | Opto Coupler | Voltage | Single Channel | >100μs | V <sub>OC</sub> :5V | I <sub>sc</sub> :20μA | VSON4 | None:T1<br>R:T2 |

| Packing Quantity |                 |
|------------------|-----------------|
| Option           | Quantity        |
| VSON4            | 3000 Units/Reel |

MARKING

|                                                                                     |                                                                                                                     |
|-------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------|
|  | <br>Production Information Code |
|-------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------|

Characteristics Curves

FIG.1: Max. Allowable LED Forward Current vs. Ambient Temperature

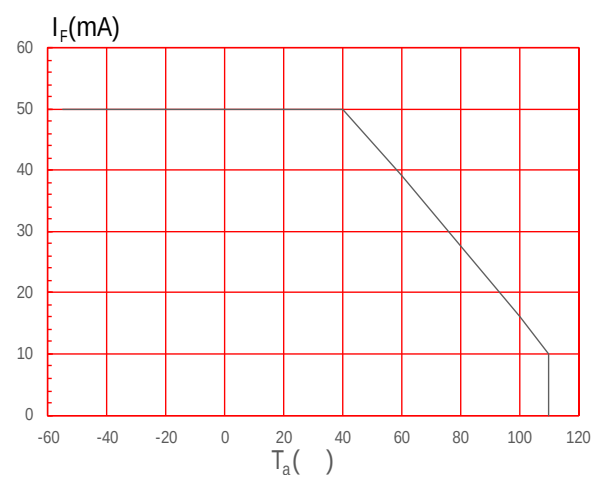
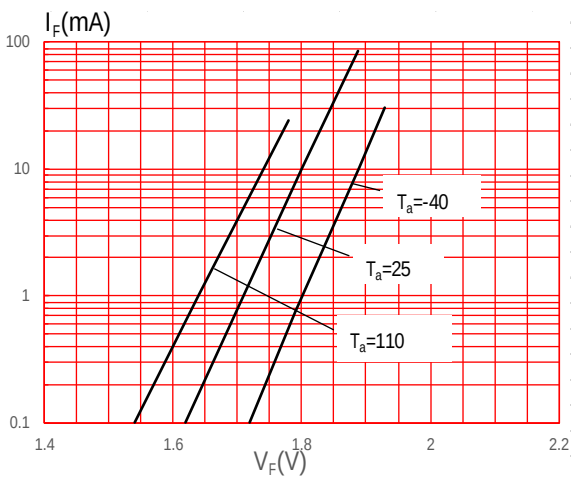


FIG.3: Open Circuit Voltage vs. Forward Current

FIG.2: Forward Current vs. Forward Voltage



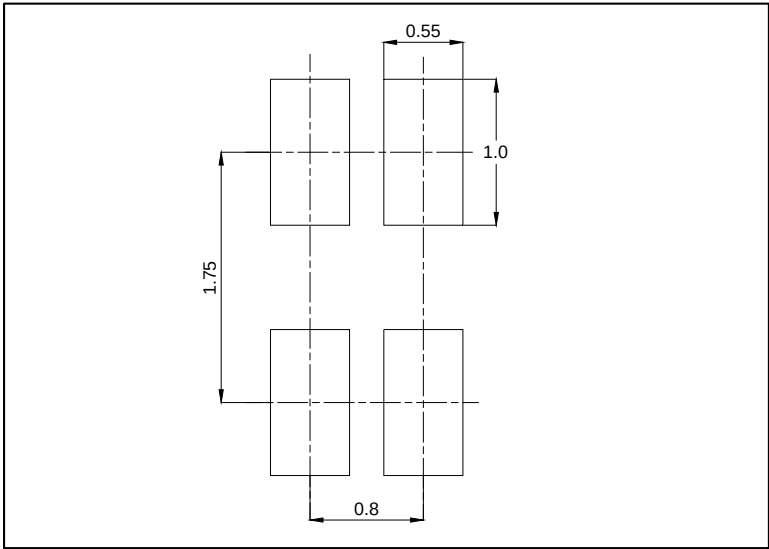
Op n Cir

Test Circuits

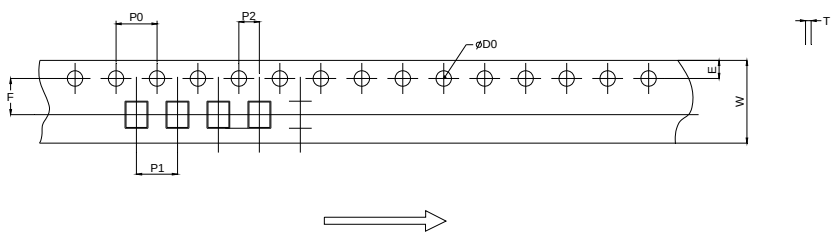
FIG.7: Response Time Test Circuit, Waveform



RECOMMENDED SOLDER MASK (Dimensions in mm unless otherwise stated)

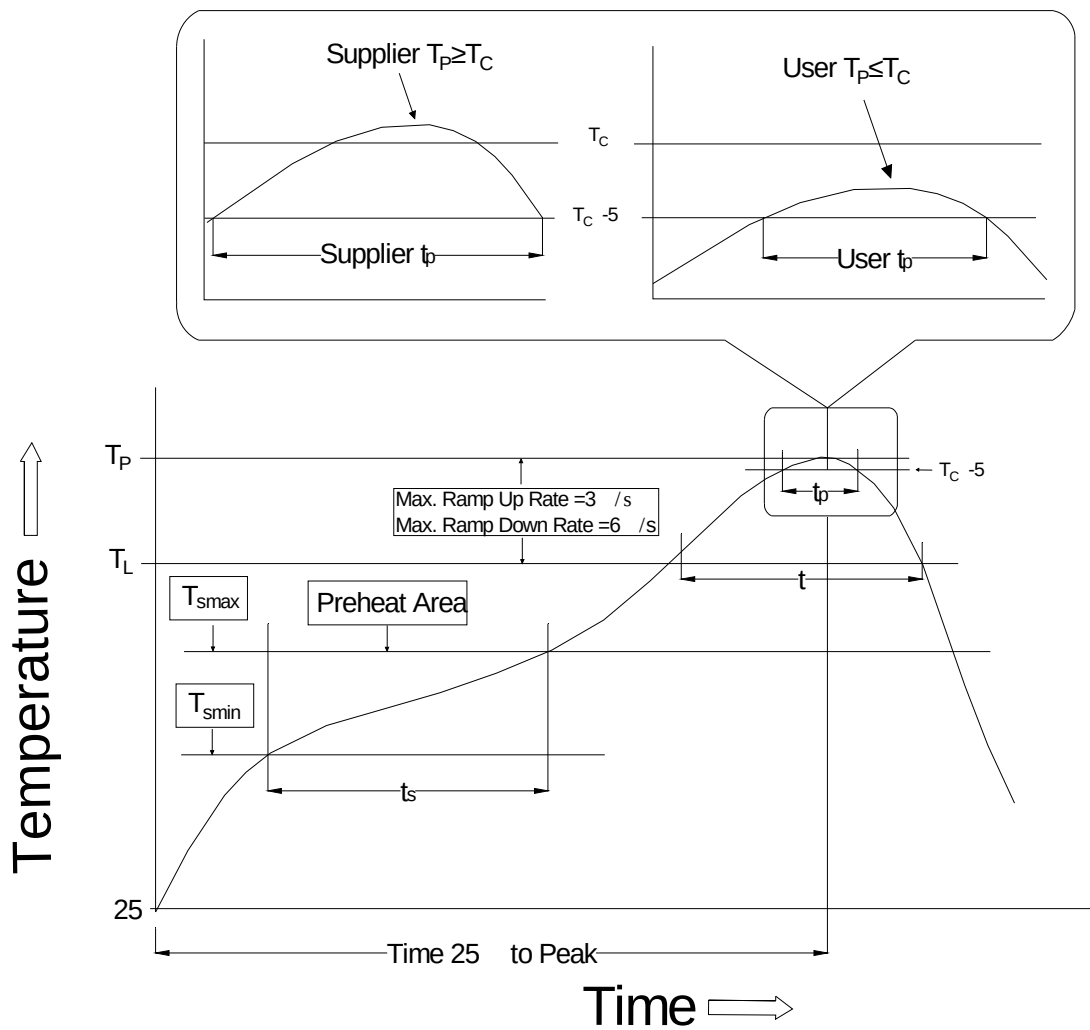


CARRIER TAPE SPECIFICATIONS (Dimensions in mm unless otherwise stated)



| Ref. | Dimensions  |      |      |        |       |       |
|------|-------------|------|------|--------|-------|-------|
|      | Millimeters |      |      | Inches |       |       |
|      | Min.        | Typ. | Max. | Min.   | Typ.  | Max.  |
| D0   |             | 1.50 | 1.60 |        | 0.059 | 0.063 |
| P0   | 3.90        | 4.00 | 4.10 | 0.154  | 0.157 | 0.161 |
| P1   | 3.90        | 4.00 | 4.10 | 0.154  | 0.157 | 0.161 |
| 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    | 3.40        | 3.50 | 3.60 | 0.134  | 0.138 | 0.142 |
| T    | 0.20        | 0.25 | 0.30 | 0.008  | 0.010 | 0.012 |
| W    | 7.70        | 8.00 | 8.30 | 0.303  | 0.315 | 0.327 |

## REFLOW INFORMATION



| Profile Feature                                  | Sn-Pb Assembly Profile | Pb-Free Assembly Profile |
|--------------------------------------------------|------------------------|--------------------------|
| Temperature Min. ( $T_{smin}$ )                  | 100                    | 150                      |
| Temperature Max. ( $T_{smax}$ )                  | 150                    | 200                      |
| Time ( $t_s$ ) from ( $T_{smin}$ to $T_{smax}$ ) | 60-120 seconds         | 60-120 seconds           |
| Ramp-up Rate ( $t_L$ to $t_P$ )                  | 3 °C/second max.       | 3 °C/second max.         |
| Liquidus Temperature ( $T_L$ )                   | 183                    | 217                      |
| Time ( $t_L$ ) Maintained Above ( $T_L$ )        | 60-150 seconds         | 60-150 seconds           |
| Peak Body Package Temperature                    | 235 +0 /-5             | 260 +0 /-5               |
| Time ( $t_P$ ) within 5 °C of 260                | 10 seconds             | 10 seconds               |
| Ramp-down Rate ( $T_P$ to $T_L$ )                | 3-6 °C/second          | 3-6 °C/second            |
| Time 25 °C to Peak Temperature                   | 6 minutes max.         | 8 minutes 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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