

## FEATURES

1. This specification shall be applied to photocoupler. Model No. MOC3063 as an option.

2. Applicable Models (Business dealing name)

\* Dual-in-line package :

MOC3063-V : 1-channel type

\* Wide lead spacing package :

MOC3063M-V : 1-channel type

\* Surface mounting package :

MOC3063S-V : 1-channel type

\* Tape and reel packaging :

MOC3063S TA1-V

3. The relevant models are the models Approved by VDE

according to DIN VDE 0884:1992-06

Approved Model No.: MOC3063 / MOC3063M / MOC3063S /

VDE approved No.: 094722

(According to the specification DIN VDE 0884:1992-06)

\* Operating isolation voltage  $V_{IORM}$  : 850V (Peak)

\* Transient voltage  $V_{TR}$  : 6000V (Peak)

\* Pollution : 2 (According to VDE 0110-1 : 1997-04)

\* Clearances distance (Between input and output) : 7.0mm (MIN.)

\* Creepage distance (Between input and output) : 7.0mm (MIN.)

\* Isolation thickness between input and output : 0.4mm (MIN.)

\* Safety limit values Current (Isi) : 400mA (Diode side)

Power (Psi) : 700mW (Phototransistor side)

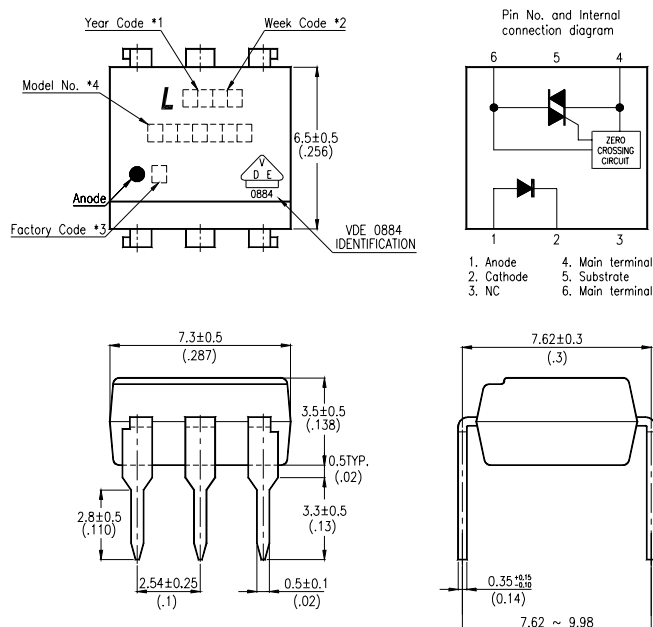
Temperature(Tsi) : 175°C

In order to keep safety electric isolation of photocoupler, please set the protective circuit to keep within safety limit values when the actual application equipment troubled.

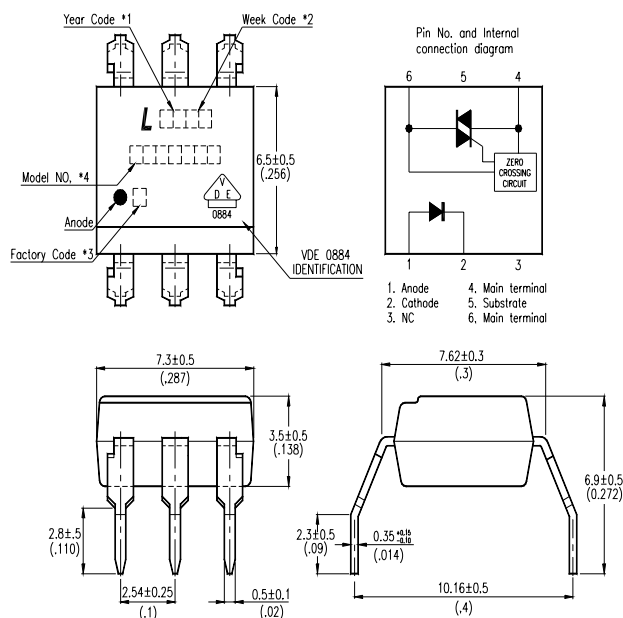
\* Indication of VDE 0884 approval prints "  " on sleeve package.

## OUTLINE DIMENSIONS

### Dual-in-line package :



### Wide lead spacing package:



\*1. Year date code.

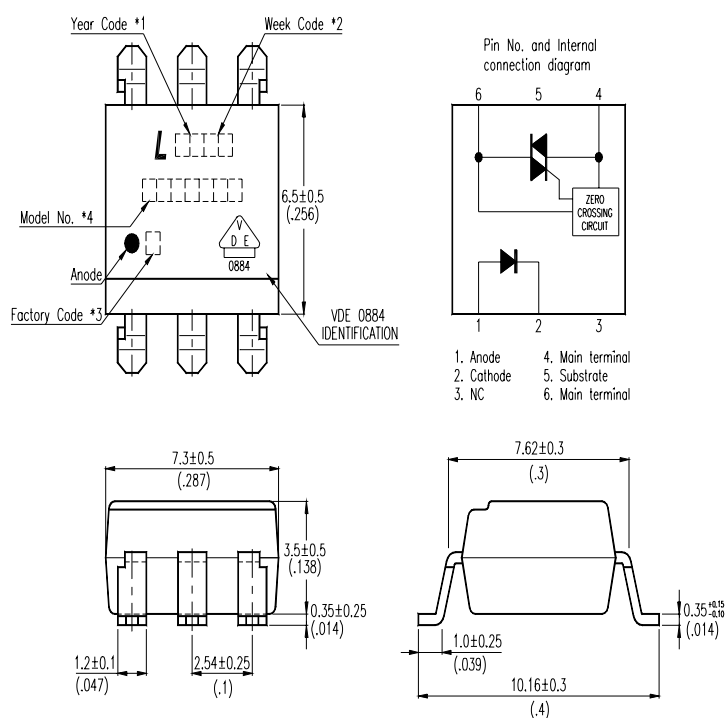
\*2. 2-digit work week.

\*3. Factory identification mark shall be marked (Z : Taiwan, Y : Thailand, X : China).

\*4. Model No.: MOC3063

## OUTLINE DIMENSIONS

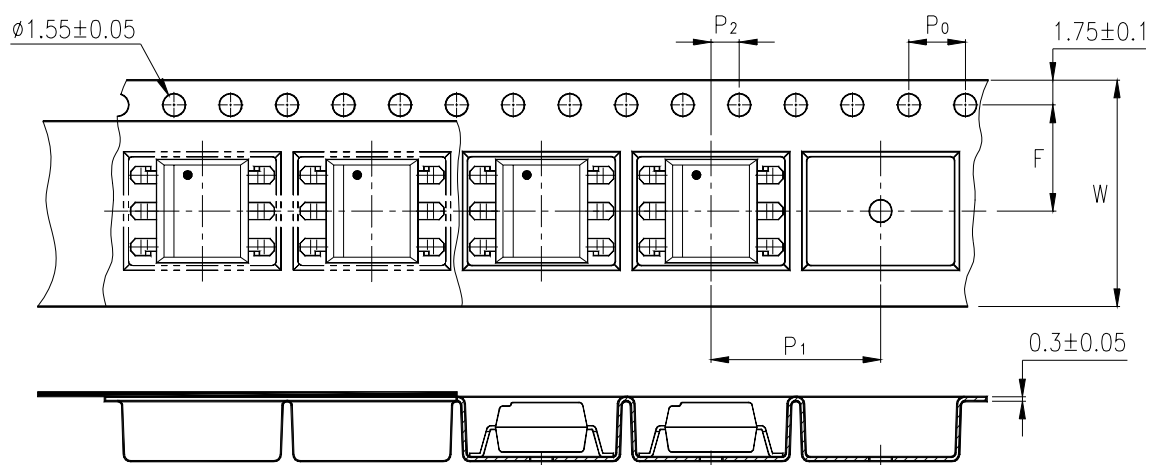
Surface mounting package :



- \*1. Year date code.
- \*2. 2-digit work week.
- \*3. Factory identification mark shall be marked (Z : Taiwan, Y : Thailand, X : China).
- \*4. Model MOC3063

## TAPING DIMENSIONS

**Tape and reel package ( TYPE I ):**  
**MOC3063S-TA1**



| Description                            | Symbol | Dimensions in mm ( inches ) |
|----------------------------------------|--------|-----------------------------|
| Tape wide                              | W      | $16 \pm 0.3$ ( .63 )        |
| Pitch of sprocket holes                | $P_0$  | $4 \pm 0.1$ ( .15 )         |
| Distance of compartment                | F      | $7.5 \pm 0.1$ ( .295 )      |
| Distance of compartment to compartment | $P_1$  | $2 \pm 0.1$ ( .079 )        |
|                                        |        | $12 \pm 0.1$ ( .472 )       |

## ABSOLUTE MAXIMUM RATING

( Ta = 25°C )

| PARAMETER                           |                                                       | SYMBOL           | RATING     | UNIT             |
|-------------------------------------|-------------------------------------------------------|------------------|------------|------------------|
| INPUT                               | Forward Current                                       | I <sub>F</sub>   | 50         | mA               |
|                                     | Reverse Voltage                                       | V <sub>R</sub>   | 6          | V                |
|                                     | Power Dissipation                                     | P <sub>D</sub>   | 120        | mW               |
| OUTPUT                              | Off-State Output Terminal Voltage                     | V <sub>DRM</sub> | 600        | V                |
|                                     | Peak Repetitive Surge Current<br>( PW=100μs, 120pps ) | I <sub>TSM</sub> | 1          | A                |
|                                     | Collector Power Dissipation                           | P <sub>C</sub>   | 150        | mW               |
| Total Power Dissipation             |                                                       | P <sub>tot</sub> | 250        | mW               |
| *1                                  | Isolation Voltage                                     | V <sub>iso</sub> | 5,000      | V <sub>rms</sub> |
| Ambient Operating Temperature Range |                                                       | T <sub>A</sub>   | -40 ~ +100 | °C               |
| Storage Temperature Range           |                                                       | T <sub>stg</sub> | -55 ~ +150 | °C               |
| *2                                  | Soldering Temperature                                 | T <sub>L</sub>   | 260        | °C               |

\*1. AC For 1 Minute, R.H. = 40 ~ 60%

Isolation voltage shall be measured using the following method.

- (1) Short between anode and cathode on the primary side and between collector, emitter on the secondary side.
- (2) The isolation voltage tester with zero-cross circuit shall be used.
- (3) The waveform of applied voltage shall be a sine wave.

\*2. For 10 Seconds

**ELECTRICAL - OPTICAL CHARACTERISTICS**

( Ta = 25°C )

| PARAMETER     |                                                                            | SYMBOL            | MIN. | TYP. | MAX. | UNIT             | CONDITIONS                                                                               |
|---------------|----------------------------------------------------------------------------|-------------------|------|------|------|------------------|------------------------------------------------------------------------------------------|
| INPUT         | Forward Voltage                                                            | $V_F$             | —    | 1.2  | 1.4  | V                | $I_F=20\text{mA}$                                                                        |
|               | Reverse Current                                                            | $I_R$             | —    | 0.05 | 10   | $\mu\text{A}$    | $V_R=6\text{V}$                                                                          |
| OUTPUT        | *1 Peak Blocking Current, Either Direction                                 | $I_{\text{DRM1}}$ | —    | —    | 500  | nA               | $V_{\text{DRM}} = 600\text{V}$                                                           |
|               | Peak On-State Voltage, Either Direction                                    | $V_{\text{TM}}$   | —    | —    | 3.0  | V                | $I_{\text{TM}}=100\text{ mA Peak}$                                                       |
|               | *2 Critical rate of Rise of Off-State Voltage                              | $Dv/dt$           | 600  | 1500 | —    | V/ $\mu\text{s}$ |                                                                                          |
| COUPLED       | *3 Led Trigger Current, Current Required to Latch Output, Either Direction | $I_{\text{FT}}$   | —    | —    | 5    | mA               | Main Terminal Voltage = 3V                                                               |
|               | Holding Current, Either Direction                                          | $I_H$             | —    | 400  | —    | $\mu\text{A}$    |                                                                                          |
|               | Turn-On Time                                                               | $T_{\text{ON}}$   | —    | 8    | 20   | $\mu\text{s}$    | $V_P=9\text{V}$ , $I_F=20\text{mA}$<br>$R_L = 100\Omega$                                 |
| ZERO CROSSING | Inhibit Voltage                                                            | $V_{\text{INH}}$  | —    | 5    | 20   | Volts            | $I_F=\text{Rated } I_{\text{FT}}$ , MT1-MT2 Voltage above which device will not trigger. |
|               | Leakage in Inhibited State                                                 | $I_{\text{DRM2}}$ | —    | —    | 500  | $\mu\text{A}$    | $I_F = \text{Rated } I_{\text{FT}}$ , Rated $V_{\text{DRM}}$ , Off State                 |

\*1 Test voltage must be applied within dv/dt rating.

\*2 This is static dv/dt. Commutating dv/dt is a function of the load-driving thyristor(s) only.

\*3 All devices are guaranteed to trigger at an  $I_F$  value less than or equal to max  $I_{\text{FT}}$ . Therefore, recommended operating  $I_F$  lies between max  $I_{\text{FT}}$  ( 5mA for MOC3063-V) and absolute max  $I_F$  (50mA)

**ISOLATION SPECIFICATION ACCORDING TO VDE 0884**

| Parameter                                                             |           | Symbol        | Conditions          | Rating         | Unit        | Remark                    |
|-----------------------------------------------------------------------|-----------|---------------|---------------------|----------------|-------------|---------------------------|
| Class of environmental test                                           |           | -             | DIN IEC68           | 30/100/21      | -           |                           |
| Pollution                                                             |           | -             | DIN VDE0110         | 2              | -           |                           |
| Maximum Operating Isolation Voltage                                   |           | $V_{IORM}$    | -                   | 850            | $V_{PEAK}$  | Refer to the Diagram 1, 2 |
| Partial Discharge Test Voltage (Between Input and Output)             | Diagram 1 | $V_{pr}$      | $t_p=60s, q_c<5pC$  | 1275           | $V_{PEAK}$  |                           |
|                                                                       | Diagram 2 |               | $t_p=1s, q_c<5pC$   | 1594           | $V_{PEAK}$  |                           |
| Maximum Over-voltage                                                  |           | $V_{INITIAL}$ | $t_{INI} = 10s$     | 6000           | $V_{PEAK}$  |                           |
| Safety Maximum Ratings                                                |           |               |                     |                |             | Refer to the Figure 1, 3  |
| 1) Case Temperature                                                   |           | $T_{si}$      | $I_F = 0, P_c = 0$  | 130            | $^{\circ}C$ |                           |
| 2) Input Current                                                      |           | $I_{si}$      | $P_c=0$             | 55             | mA          |                           |
| 3) Electric Power (Output or Total Power Issipation)                  |           | $P_{si}$      | -                   | 160            | mW          |                           |
| Isolation Resistance (Test Voltage Between Input and Output : DC500V) |           | $R_{ISO}$     | $T_a=T_{si}$        | MIN. $10^9$    | $\Omega$    |                           |
|                                                                       |           |               | $T_a=T_{opr}(MAX.)$ | MIN. $10^{11}$ |             |                           |
|                                                                       |           |               | $T_a=25^{\circ}C$   | MIN. $10^{12}$ |             |                           |

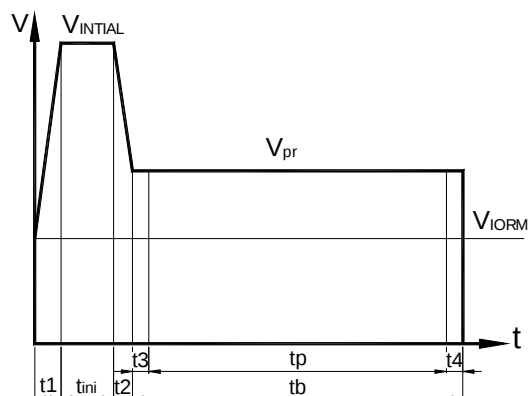
**Precautions in performing isolation test**

\* Partial discharge test methods shall be the ones according to the specifications of VDE 0884:1992-06

\* Please don't carry out isolation test ( $V_{iso}$ ) over  $V_{INITIAL}$  ,This product deteriorates isolation characteristics by partial discharge due to applying high voltage (ex.  $V_{INITIAL}$  ). And there is possibility that this product occurs partial discharge in operating isolation voltage ( $V_{IORM}$ )

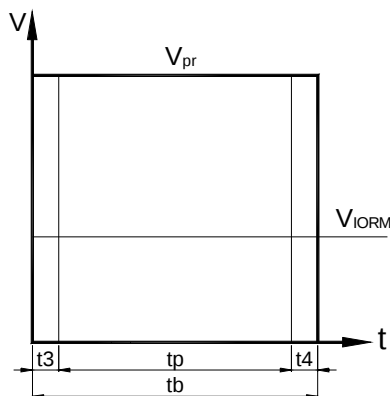
## PARTIAL DISCHARGE TEST METHOD

Method (A) for type testing and random testing.



$t_1, t_2$  = 1 to 10s  
 $t_3, t_4$  = 1s  
 $t_p$  (Partial Discharge Measuring Time) = 60s  
 $t_b$  = 62s  
 $t_{ini}$  = 10s

Method (B) for routine testing.



$t_3, t_4$  = 0.1s  
 $t_p$  (Partial Discharge Measuring Time) = 1s  
 $t_b$  = 1.2s

The partial discharge level shall not exceed 5 pC during the partial discharge measuring time interval  $t_p$  under the test conditions shown above.

## CHARACTERISTICS CURVES

Fig.1 Forward Current vs. Ambient Temperature

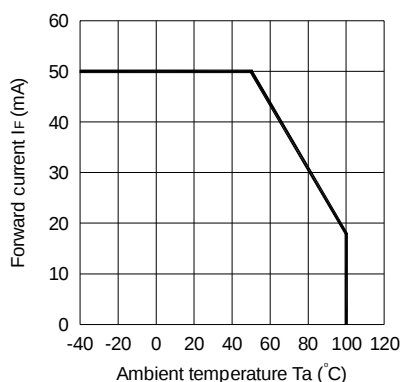


Fig.2 On-state Current vs. Ambient Temperature

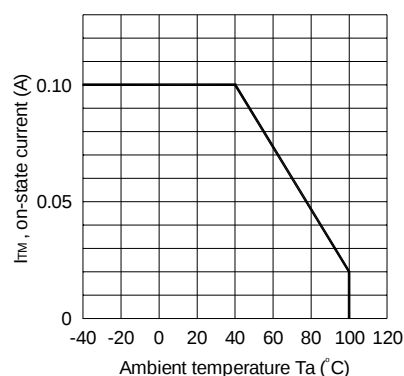


Fig.3 Minimum Trigger Current vs. Ambient Temperature

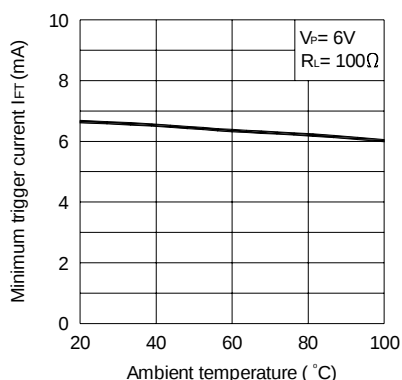


Fig.4 Forward Current vs. Forward Voltage

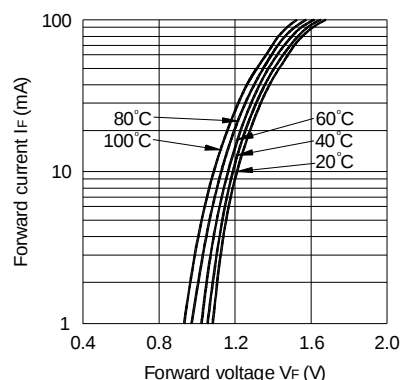


Fig.5 On-state Voltage vs. Ambient Temperature

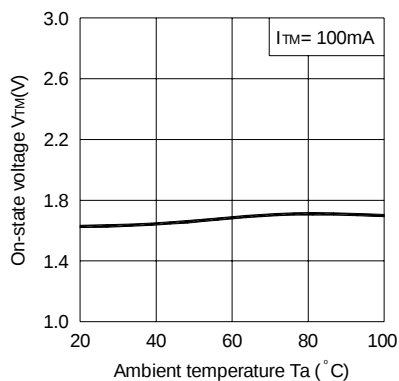
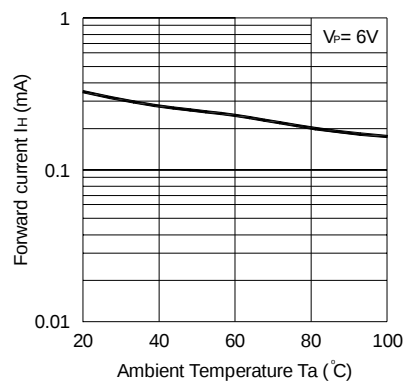


Fig.6 Holding Current vs. Ambient Temperature



## CHARACTERISTICS CURVES

Fig.7 Turn-on Time vs. Forward Current

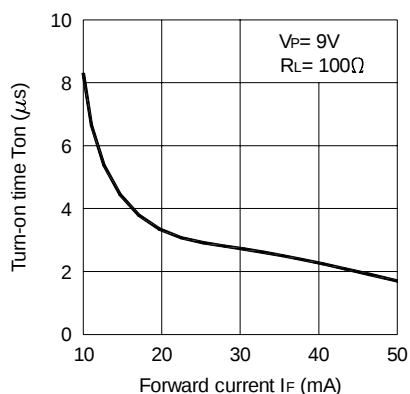


Fig.8 Repetitive Peak Off-state Current vs. Temperature

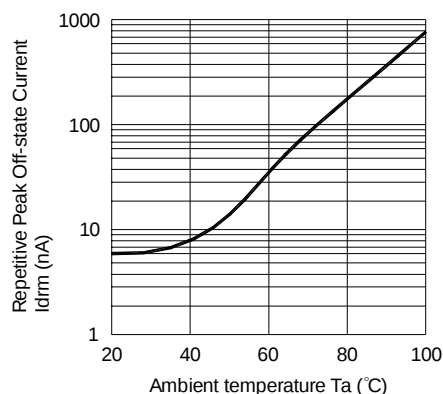
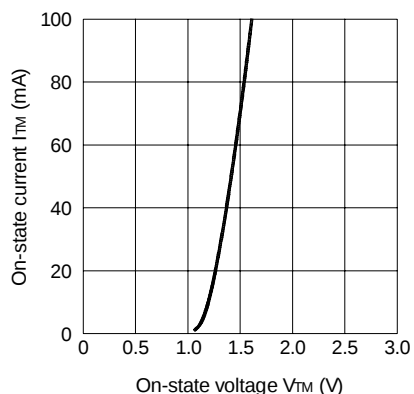
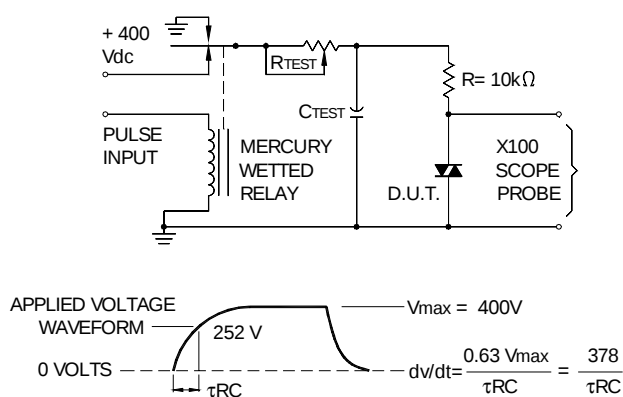


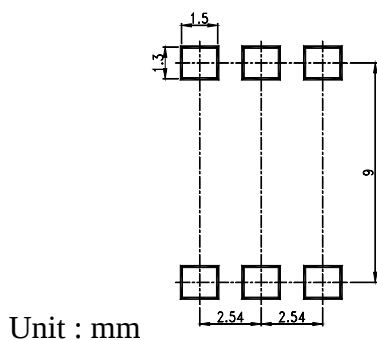
Fig.9 On-state Current vs. On-state Voltage



Static dv/dt Test Circuit



## RECOMMENDED FOOT PRINT PATTERNS (MOUNT PAD)





**Стандарт  
Электрон  
Связь**

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**Телефон:** +7 812 627 14 35

**Электронная почта:** [sales@st-electron.ru](mailto:sales@st-electron.ru)

**Адрес:** 198099, Санкт-Петербург,  
Промышленная ул, дом № 19, литера Н,  
помещение 100-Н Офис 331