LITEON®
OPTOELECTRONICS

# Photocoupler

## Product Data Sheet

## MOC3052 SERIES

**Spec No.: DS70-2001-025**

Effective Date: 04/28/2010

Revision: D

**LITE-ON DCC**

**RELEASE**

BNS-OD-FC001/A4

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**January 2010**

## FEATURES

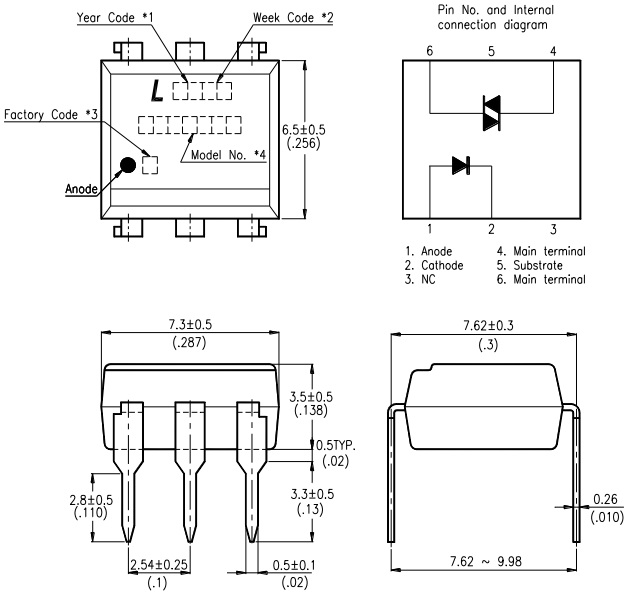
* Isolation voltage between input and output $V_{iso}$ : 5,000$V_{rms}$
* 6pin DIP photocoupler, triac driver output
* High repetitive peak off-state voltage $V_{DRM}$ : Min. 600V
* High critical rate of rise of off-state voltage
  ( dv/dt : MIN. 1000V / μs )
* Dual-in-line package :
  MOC3052
* Wide lead spacing package :
  MOC3052M
* Surface mounting package :
  MOC3052S
* Tape and reel packaging :
  MOC3052S-TA1
* Safety approval
  UL / CSA / FIMKO / VDE* approved
  *Required "V" ordering option

## APPLICATIONS

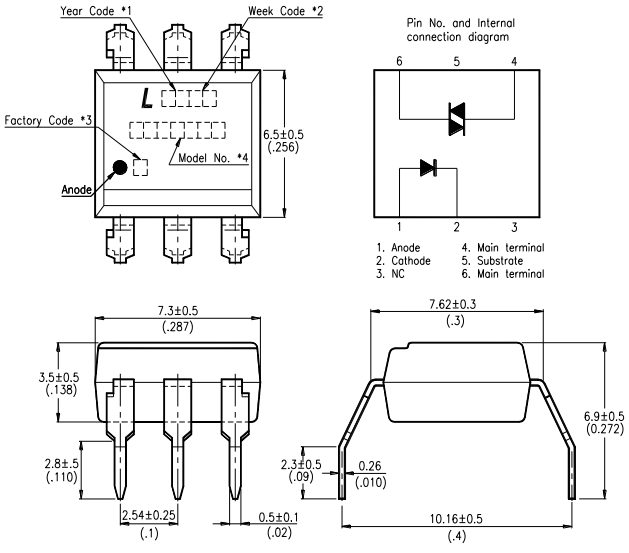
* Incandescent Lamp Dimmers
* Interfacing Microprocessors to 115 and 240 Vac Peripherals
* Lamp Ballasts
* Motor Controls
* Solid State Relays
* Static AC Power Switch
* Solenoid / Valve Controls
* Temperature Controls

# OUTLINE DIMENSIONS

**Dual-in-line package :**



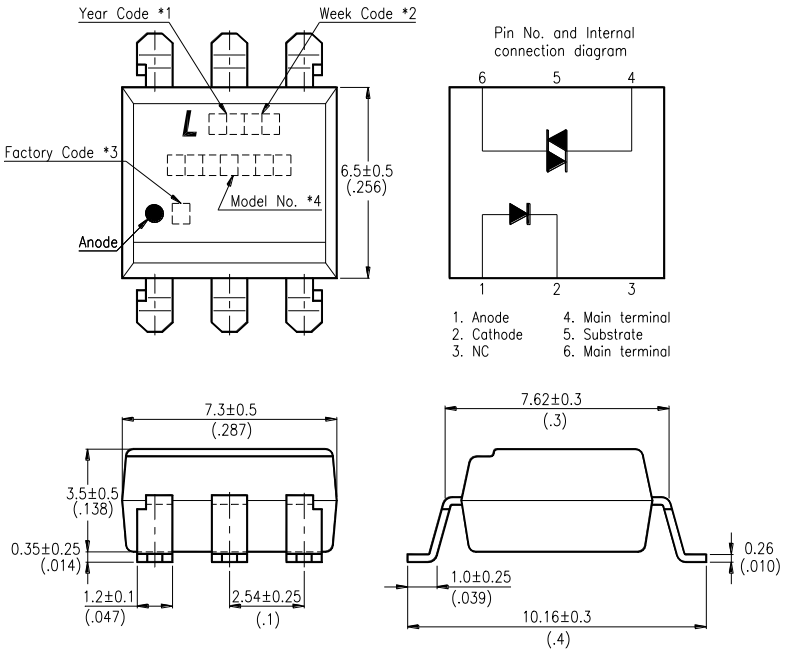

**Wide lead spacing package:**




*1. Year date code.
*2. 2-digit work week.
*3. Factory identification mark shall be marked.
(Z : Taiwan, Y : Thailand, X : China-TJ, W : China-CZ)
*4. Model No.: MOC3052

# OUTLINE DIMENSIONS

**Surface mounting package :**

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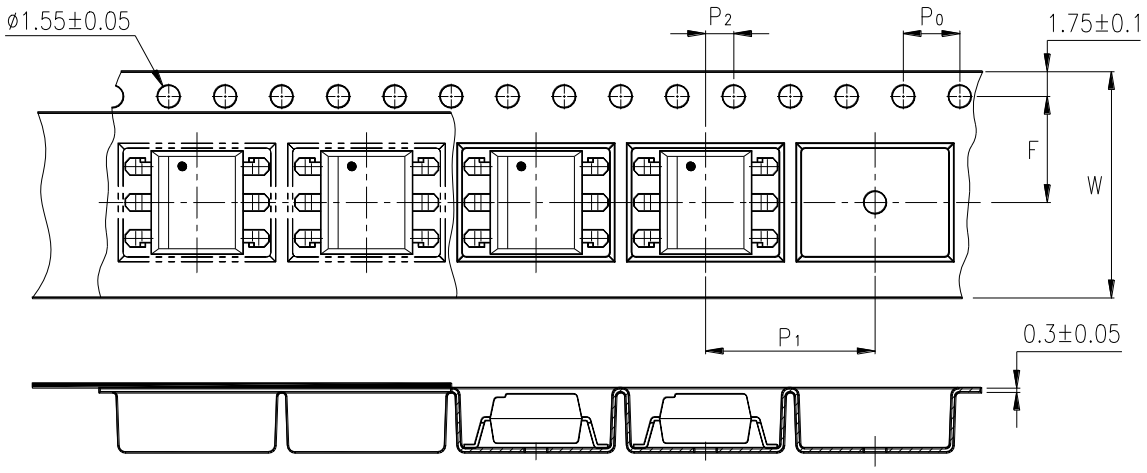
*4. Model No.: MOC3052

# TAPING DIMENSIONS

**Tape and reel package :**

**MOC3052S-TA1**




| Description | Symbol | Dimensions in mm ( inches ) |
|---|---|---|
| Tape wide | W | 16 ± 0.3 ( .63 ) |
| Pitch of sprocket holes | $P_0$ | 4 ± 0.1 ( .15 ) |
| Distance of compartment | F<br>$P_2$ | 7.5 ± 0.1 ( .295 )<br>2 ± 0.1 ( .079 ) |
| Distance of compartment to compartment | $P_1$ | 12 ± 0.1 ( .472 ) |

# ABSOLUTE MAXIMUM RATING

( Ta = 25°C )

| PARAMETER | | SYMBOL | RATING | UNIT |
|---|---|---|---|---|
| INPUT | Forward Current | $I_F$ | 50 | mA |
| | Reverse Voltage | $V_R$ | 6 | V |
| | Power Dissipation | $P_D$ | 100 | mW |
| OUTPUT | Off-State Output Terminal Voltage | $V_{DRM}$ | 600 | V |
| | Peak Repetitive Surge Current ( PW=100μs, 120pps ) | $I_{TSM}$ | 1 | A |
| | Collector Power Dissipation | $P_C$ | 300 | mW |
| Total Power Dissipation | | $P_{tot}$ | 330 | mW |
| *1 Isolation Voltage | | $V_{iso}$ | 5,000 | Vrms |
| Ambient Operating Temperature Range | | $T_A$ | -40 ~ +100 | °C |
| Storage Temperature Range | | $T_{stg}$ | -55 ~ +150 | °C |
| *2 Soldering Temperature | | $T_L$ | 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 | $I_F$=20mA |
| | Reverse Current | $I_R$ | — | 0.05 | 10 | μA | $V_R$=6V |
| OUTPUT | *1 Peak Blocking Current, Either Direction | $I_{DRM}$ | — | — | 100 | nA | $V_{DRM}$ = 600V |
| | Peak On-State Voltage, Either Direction | $V_{TM}$ | — | — | 3.0 | V | $I_{TM}$=100 mA Peak |
| | *2 Critical rate of Rise of Off-State Voltage | dv/dt | 1000 | — | — | V/μs | |
| COUPLED | *3 Led Trigger Current, Current Required to Latch Output, Either Direction | $I_{FT}$ | — | — | 10 | mA | Main Terminal Voltage = 3V |
| | Holding Current, Either Direction | $I_H$ | — | 400 | — | μA | |

*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 $I_{FT}$. Therefore, recommended operating $I_F$ lies between max 10mA for MOC3052 and absolute max $I_F$ (50mA)

# CHARACTERISTICS CURVES

Fig.1 Forward Current vs. Ambient Temperature

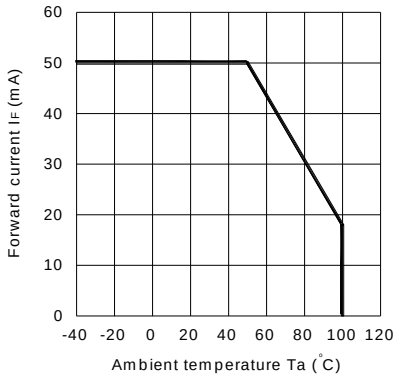



Fig.2 On-state Current vs. Ambient Temperature

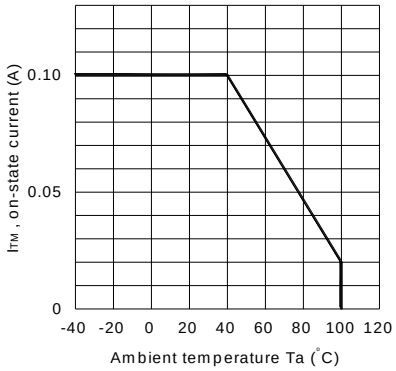



Fig.3 Minimum Trigger Current vs. Ambient Temperature

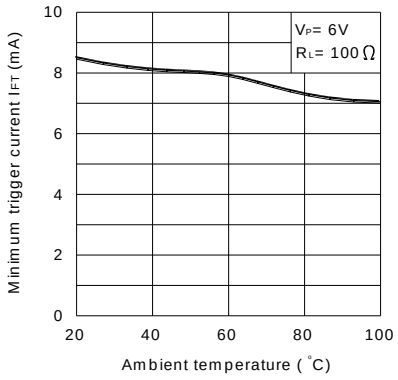



Fig.4 Forward Current vs. Forward Voltage

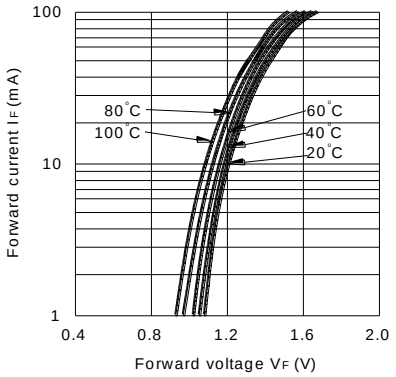



Fig.5 On-state Voltage vs. Ambient Temperature

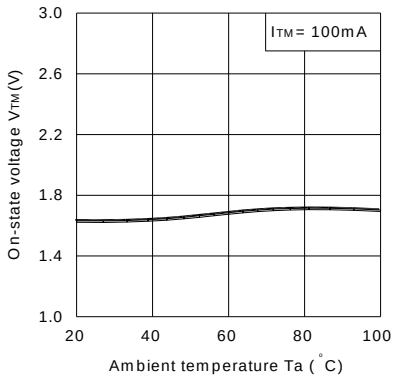
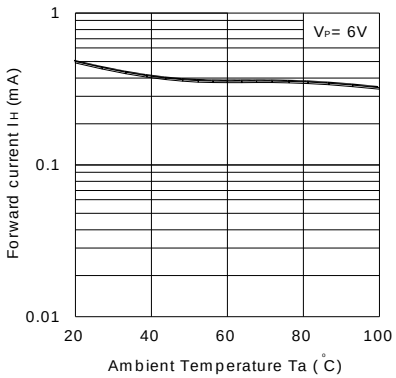



Fig.6 Holding Current vs. Ambient Temperature



## CHARACTERISTICS CURVES

Fig.7 Repetitive Peak Off-state Current vs. Temperature

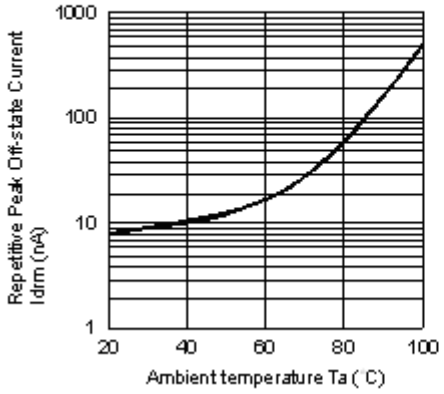
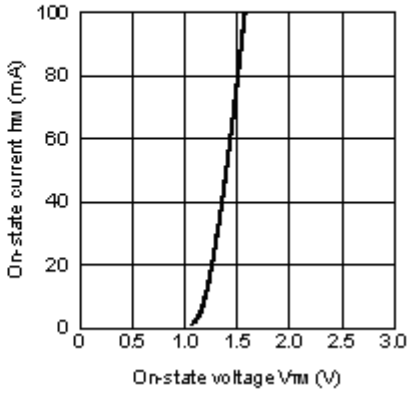
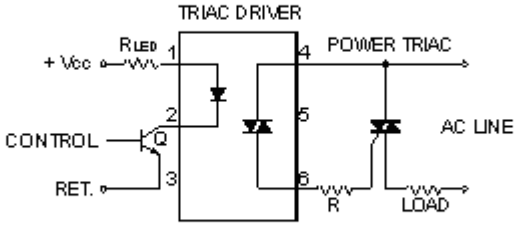



Fig.8 On-state Current vs. On-state Voltage



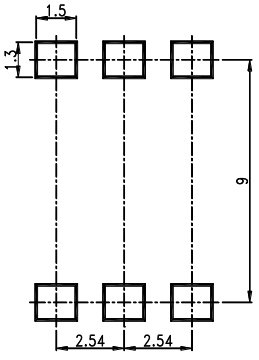

Basic Driver Circuit




$R_{LED} = (V_{CC} - V_F\ LED - V_{TM}Q) / I_{FT}$

$R = V_P\ AC\ line / I_{TSM}$

## RECOMMENDED FOOT PRINT PATTERNS (MOUNT PAD)




Unit : mm

# Mouser Electronics

Authorized Distributor

Click to View Pricing, Inventory, Delivery & Lifecycle Information:

Lite-On:

MOC3052M MOC3052S-TA1 MOC3052S MOC3052

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Наши преимущества:

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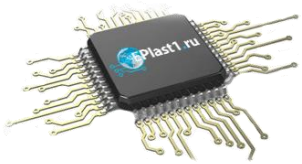
- Подбор оптимального решения, техническое обоснование при выборе компонента;
- Подбор аналогов;
- Консультации по применению компонента;
- Поставка образцов и прототипов;
- Техническая поддержка проекта;
- Защита от снятия компонента с производства.




**Как с нами связаться**

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