## MOS FET Relays

New Analog-switching MOS FET Relays with 2 Output channels. Dielectric Strength of 2.5 kVAC between I/O.

- New 2-channel model included in the 60-V load voltage series.
- Switches minute analog signals.
- Dielectric strength of $2,500 \mathrm{Vrms}$ between I/O.
- Surface-mounting models included in series.


## Application Examples



## NEW TI

Note: The actual product is marked differently from the image shown here.

- Measurement devices
- Security systems


## List of Models

| Contact form | Terminals | Load voltage (peak value) | Model | Number per stick | Number per tape |
| :--- | :--- | :--- | :--- | :--- | :--- |
| DPST-NO | PCB terminals | 60 VAC | G3VM-62C1 | 50 | --- |
|  | Surface-mounting <br> terminals |  | G3VM-62F1 |  | 1,500 |
|  |  | G3VM-62F1(TR) | --- |  |  |

## Dimensions

Note: All units are in millimeters unless otherwise indicated.

G3VM-62C1


Note: The actual product is marked differently from the image shown here.


G3VM-62F1



Note: $\begin{aligned} & \text { The actual product } \\ & \text { is marked different- } \\ & \text { ly from the image }\end{aligned}$ shown here.


Terminal Arrangement/Internal Connections (Top View)

G3VM-62C1


PCB Dimensions (Bottom View) G3VM-62C1


G3VM-62F1


## ■ Actual Mounting Pad Dimensions

(Recommended Value, Top View)
G3VM-62F1


■ Absolute Maximum Ratings ( $\mathrm{Ta}=25^{\circ} \mathrm{C}$ )

| Item |  | Symbol | Rating | Unit | Measurement Conditions |
| :---: | :---: | :---: | :---: | :---: | :---: |
| Input | LED forward current | $\mathrm{I}_{\mathrm{F}}$ | 50 | mA |  |
|  | Repetitive peak LED forward current | $I_{\text {FP }}$ | 1 | A | $100 \mu$ s pulses, 100 pps |
|  | LED forward current reduction rate | $\Delta \mathrm{I}_{\mathrm{F}} /{ }^{\circ} \mathrm{C}$ | -0.5 | $\mathrm{mA}^{\circ}{ }^{\circ} \mathrm{C}$ | $\mathrm{Ta} \geq 25^{\circ} \mathrm{C}$ |
|  | LED reverse voltage | $\mathrm{V}_{\mathrm{R}}$ | 5 | V |  |
|  | Connection temperature | $\mathrm{T}_{\mathrm{j}}$ | 125 | ${ }^{\circ} \mathrm{C}$ |  |
| Output | Output dielectric strength | $\mathrm{V}_{\text {OFF }}$ | 60 | V |  |
|  | Continuous load current | $\mathrm{I}_{0}$ | 500 | mA |  |
|  | ON current reduction rate | $\Delta \mathrm{I}_{\mathrm{ON}}{ }^{1} \mathrm{C}$ | -5.0 | $\mathrm{mA}^{\circ}{ }^{\circ} \mathrm{C}$ | $\mathrm{Ta} \geq 25^{\circ} \mathrm{C}$ |
|  | Connection temperature | $\mathrm{T}_{\mathrm{j}}$ | 125 | ${ }^{\circ} \mathrm{C}$ |  |
| Dielectric strength between input and output (See note 1.) |  | $\mathrm{V}_{\text {- }}$ | 2,500 | Vrms | AC for 1 min |
| Operating temperature |  | $\mathrm{T}_{\mathrm{a}}$ | -40 to +85 | ${ }^{\circ} \mathrm{C}$ | With no icing or condensation |
| Storage temperature |  | $\mathrm{T}_{\text {stg }}$ | -55 to +125 | ${ }^{\circ} \mathrm{C}$ | With no icing or condensation |
| Soldering temperature (10 s) |  | --- | 260 | ${ }^{\circ} \mathrm{C}$ | 10 s |

Note: 1. The dielectric strength between the input and output was checked by applying voltage between all pins as a group on the LED side and all pins as a group on the light-receiving side.
$\square$ Electrical Characteristics ( $\mathrm{Ta}=25^{\circ} \mathrm{C}$ )

| Item |  | Symbol | Minimum | Typical | Maximum | Unit | Measurement conditions |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Input | LED forward voltage | $\mathrm{V}_{\mathrm{F}}$ | 1.0 | 1.15 | 1.3 | V | $\mathrm{I}_{\mathrm{F}}=10 \mathrm{~mA}$ |
|  | Reverse current | $\mathrm{I}_{\mathrm{R}}$ | --- | --- | 10 | $\mu \mathrm{A}$ | $\mathrm{V}_{\mathrm{R}}=5 \mathrm{~V}$ |
|  | Capacity between terminals | $\mathrm{C}_{\text {T }}$ | --- | 30 | --- | pF | $\mathrm{V}=0, \mathrm{f}=1 \mathrm{MHz}$ |
|  | Trigger LED forward current | $\mathrm{I}_{\text {FT }}$ | --- | 1.6 | 3 | mA | $\mathrm{I}_{\mathrm{O}}=500 \mathrm{~mA}$ |
| Output | Maximum resistance with output ON | $\mathrm{R}_{\mathrm{ON}}$ | --- | 1.0 | 2.0 | $\Omega$ | $\begin{aligned} & \mathrm{I}_{\mathrm{F}}=5 \mathrm{~mA}, \\ & \mathrm{I}_{\mathrm{O}}=500 \mathrm{~mA} \end{aligned}$ |
|  | Current leakage when the relay is open | $l_{\text {LEAK }}$ | -- | --- | 1.0 | $\mu \mathrm{A}$ | $\mathrm{V}_{\text {OFF }}=60 \mathrm{~V}$ |
| Capacity between I/O terminals |  | $\mathrm{C}_{1-\mathrm{O}}$ | --- | 0.8 | --- | pF | $\mathrm{f}=1 \mathrm{MHz}, \mathrm{Vs}=0 \mathrm{~V}$ |
| Insulation resistance |  | $\mathrm{R}_{\text {l-O }}$ | 1,000 | --- | --- | $\mathrm{M} \Omega$ | $\begin{aligned} & \hline \mathrm{V}_{\mathrm{I}-\mathrm{O}}=500 \mathrm{VDC}, \\ & \mathrm{RoH} \leq 60 \% \end{aligned}$ |
| Turn-ON time |  | tON | --- | 0.8 | 2.0 | ms | $\mathrm{I}_{\mathrm{F}}=5 \mathrm{~mA}, \mathrm{R}_{\mathrm{L}}=200 \Omega$, |
| Turn-OFF time |  | tOFF | --- | 0.1 | 0.5 | ms | $\mathrm{V}_{\mathrm{DD}}=20 \mathrm{~V}$ (See note 2.) |

Note: 2. Turn-ON and Turn-OFF Times


## Recommended Operating Conditions

Use the G3VM under the following conditions so that the Relay will operate properly.

| Item | Symbol | Minimum | Typical | Maximum | Unit |
| :--- | :--- | :--- | :--- | :--- | :--- |
| Output dielectric strength | $\mathrm{V}_{\mathrm{DD}}$ | -- | --- | 48 | V |
| Operating LED forward current | $\mathrm{I}_{\mathrm{F}}$ | 5 | 7.5 | 25 | mA |
| Continuous load current | $\mathrm{I}_{\mathrm{O}}$ | -- | --- | mA |  |
| Operating temperature | $\mathrm{T}_{\mathrm{a}}$ | -20 | --- | 65 | ${ }^{\circ} \mathrm{C}$ |

## Engineering Data

Load Current vs. Ambient Temperature G3VM-62C1(F1)


