



## HIGH DENSITY MOUNTING PHOTOTRANSISTOR OPTICALLY COUPLED ISOLATORS

### APPROVALS

- UL recognised, File No. E91231

### 'X' SPECIFICATION APPROVALS

- VDE 0884 pending
- Certified to EN60950 by the following Test Bodies :-  
Nemko - Certificate No. P96102022  
Fimko - Registration No. 192313-01..25  
Semko - Reference No. 9639052 01  
Demko - Reference No. 305969

### DESCRIPTION

The PS2501-1, PS2501-2, PS2501-4 series of optically coupled isolators consist of infrared light emitting diodes and NPN silicon photo transistors in space efficient dual in line plastic packages.

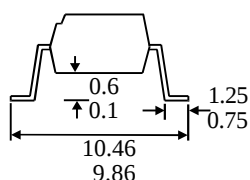
### FEATURES

- Options :-  
10mm lead spread - add G after part no.  
Surface mount - add SM after part no.  
Tape&reel - add SMT&R after part no.
- High Current Transfer Ratio ( 80% min )
- High Isolation Voltage (5.3kV<sub>RMS</sub>, 7.5kV<sub>PK</sub>)
- High BV<sub>CEO</sub> ( 80Vmin )
- All electrical parameters 100% tested
- Custom electrical selections available

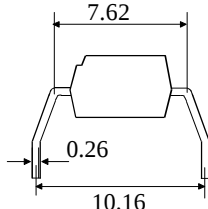
### APPLICATIONS

- Computer terminals
- Industrial systems controllers
- Measuring instruments
- Signal transmission between systems of different potentials and impedances

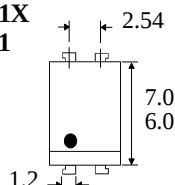
#### OPTION SM SURFACE MOUNT



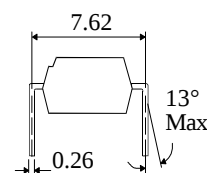
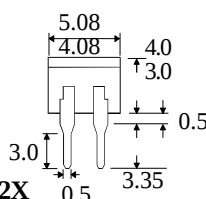
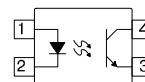
#### OPTION G



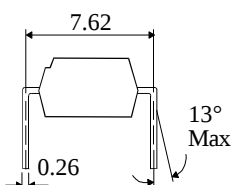
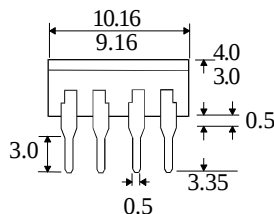
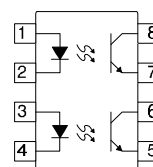
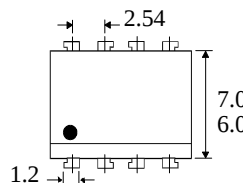
#### PS2501-1X PS2501-1



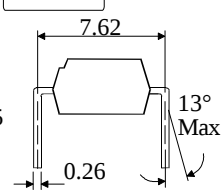
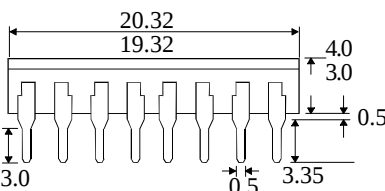
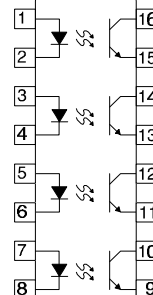
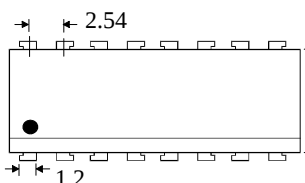
#### Dimensions in mm



#### PS2501-2X PS2501-2



#### PS2501-4X PS2501-4



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**ABSOLUTE MAXIMUM RATINGS**  
(25°C unless otherwise specified)

Storage Temperature \_\_\_\_\_ -55°C to + 125°C  
Operating Temperature \_\_\_\_\_ -55°C to + 100°C  
Lead Soldering Temperature  
(1/16 inch (1.6mm) from case for 10 secs) 260°C

**INPUT DIODE**

Forward Current \_\_\_\_\_ 50mA  
Reverse Voltage \_\_\_\_\_ 6V  
Power Dissipation \_\_\_\_\_ 70mW

**OUTPUT TRANSISTOR**

Collector-emitter Voltage  $BV_{CEO}$  \_\_\_\_\_ 80V  
Emitter-collector Voltage  $BV_{ECO}$  \_\_\_\_\_ 6V  
Power Dissipation \_\_\_\_\_ 150mW

**POWER DISSIPATION**

Total Power Dissipation \_\_\_\_\_ 200mW  
(derate linearly 2.67mW/°C above 25°C)

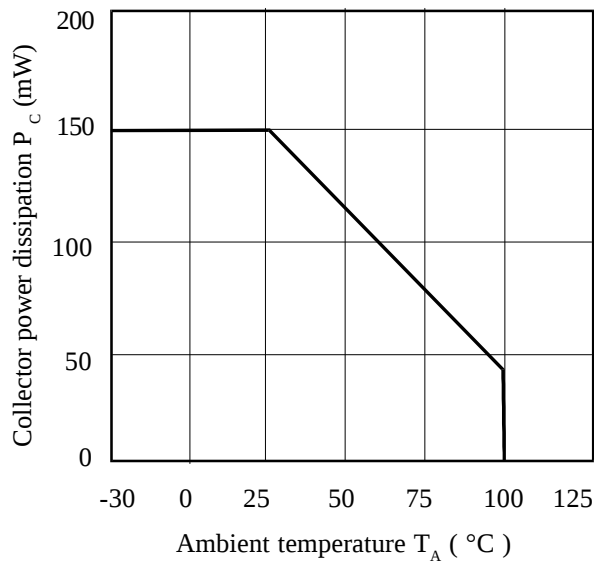
**ELECTRICAL CHARACTERISTICS (  $T_A = 25^\circ\text{C}$  Unless otherwise noted )**

| PARAMETER |                                                                           | MIN                | TYP | MAX        | UNITS                 | TEST CONDITION                                                               |
|-----------|---------------------------------------------------------------------------|--------------------|-----|------------|-----------------------|------------------------------------------------------------------------------|
| Input     | Forward Voltage ( $V_F$ )                                                 |                    | 1.2 | 1.4        | V                     | $I_F = 20\text{mA}$                                                          |
|           | Reverse Voltage ( $V_R$ )                                                 | 5                  |     |            | V                     | $I_R = 5\mu\text{A}$                                                         |
|           | Reverse Current ( $I_R$ )                                                 |                    |     | 5          | $\mu\text{A}$         | $V_R = 5\text{V}$                                                            |
| Output    | Collector-emitter Breakdown ( $BV_{CEO}$ )<br>( Note 2 )                  | 80                 |     |            | V                     | $I_C = 1\text{mA}$                                                           |
|           | Emitter-collector Breakdown ( $BV_{ECO}$ )                                | 6                  |     |            | V                     | $I_E = 100\mu\text{A}$                                                       |
|           | Collector-emitter Dark Current ( $I_{CEO}$ )                              |                    |     | 100        | nA                    | $V_{CE} = 40\text{V}$                                                        |
| Coupled   | Current Transfer Ratio (CTR) (Note 2)<br>PS2501-1,PS2501-2,PS2501-4<br>GR | 80<br>100          |     | 600<br>300 | %<br>%                | $5\text{mA } I_F, 5\text{V } V_{CE}$<br>$5\text{mA } I_F, 5\text{V } V_{CE}$ |
|           | Collector-emitter Saturation Voltage $V_{CE(SAT)}$                        |                    |     | 0.3        | V                     | $10\text{mA } I_F, 2\text{mA } I_C$                                          |
|           | Input to Output Isolation Voltage $V_{ISO}$                               | 5300<br>7500       |     |            | $V_{RMS}$<br>$V_{PK}$ | See note 1<br>See note 1                                                     |
|           | Input-output Isolation Resistance $R_{ISO}$                               | $5 \times 10^{10}$ |     |            | $\Omega$              | $V_{IO} = 500\text{V}$ (note 1)                                              |
|           | Output Rise Time $t_r$                                                    |                    | 4   |            | $\mu\text{s}$         | $V_{CE} = 2\text{V}$ ,                                                       |
|           | Output Fall Time $t_f$                                                    |                    | 3   |            | $\mu\text{s}$         | $I_C = 2\text{mA}, R_L = 100\Omega$                                          |
|           |                                                                           |                    |     |            |                       |                                                                              |

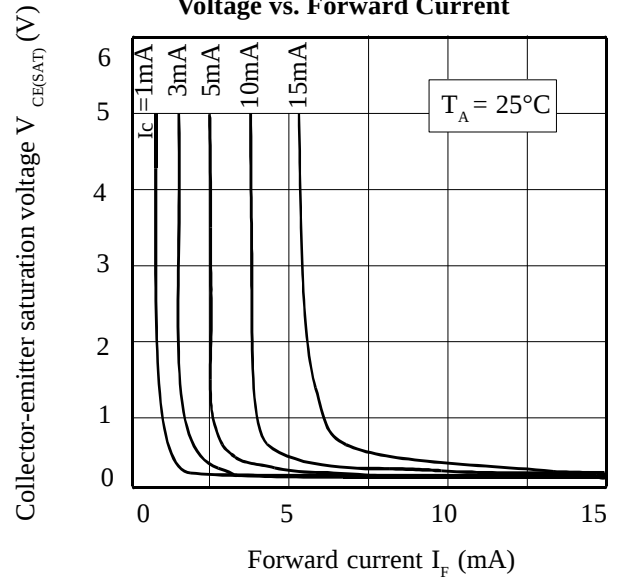
Note 1 Measured with input leads shorted together and output leads shorted together.

Note 2 Special Selections are available on request. Please consult the factory.

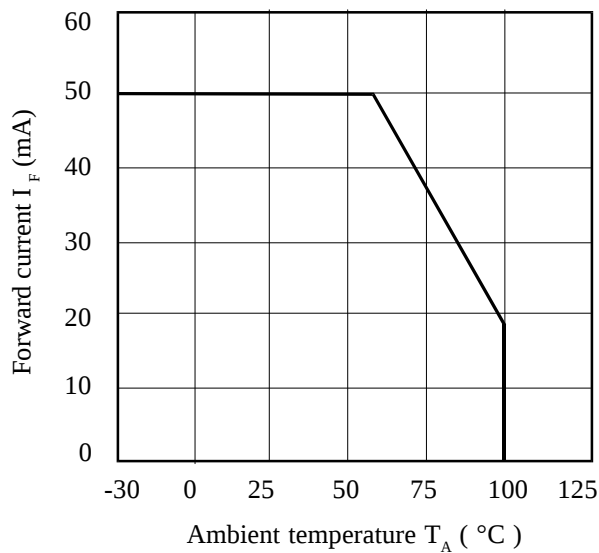
**Collector Power Dissipation vs. Ambient Temperature**



**Collector-emitter Saturation Voltage vs. Forward Current**



**Forward Current vs. Ambient Temperature**



**Collector Current vs. Collector-emitter Voltage**

