



## HIGH DENSITY A.C. INPUT PHOTOTRANSISTOR OPTICALLY COUPLED ISOLATORS

### APPROVALS

- UL recognised, File No. E91231

### 'X' SPECIFICATION APPROVALS

- VDE 0884 approval pending
- PS2505-1X - 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  
PS2505-2X, PS2505-4X - EN60950 pending

### DESCRIPTION

The PS2505-1, PS2505-2, PS2505-4 series of optically coupled isolators consist of two infrared light emitting diodes connected in inverse parallel and NPN silicon photo transistors in space efficient dual in line plastic packages.

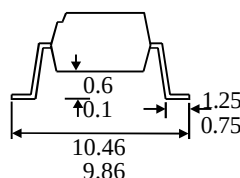
### FEATURES

- 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 Isolation Voltage (5.3kV<sub>RMS</sub>, 7.5kV<sub>PK</sub>)
- AC or polarity insensitive input
- All electrical parameters 100% tested
- Custom electrical selections available

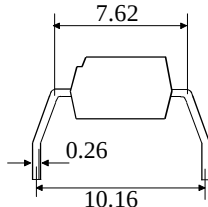
### APPLICATIONS

- Computer terminals
- Industrial systems controllers
- Telephone sets, Telephone exchangers
- Signal transmission between systems of different potentials and impedances

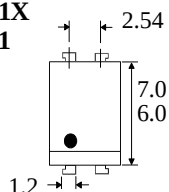
**OPTION SM  
SURFACE MOUNT**



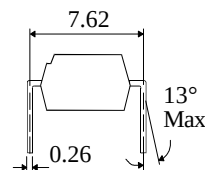
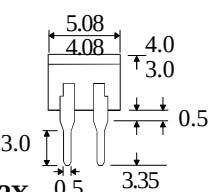
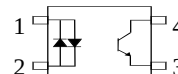
**OPTION G**



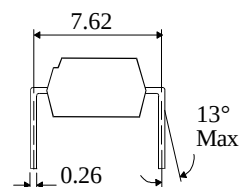
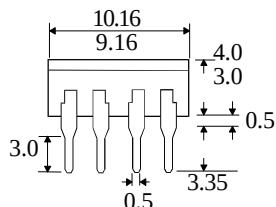
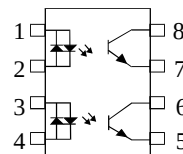
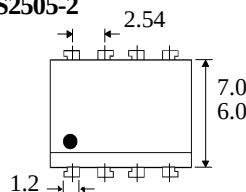
**PS2505-1X  
PS2505-1**



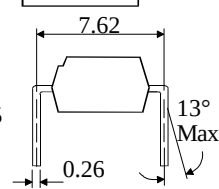
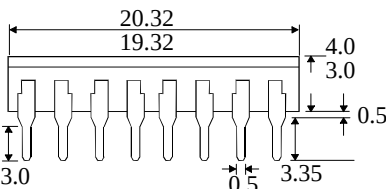
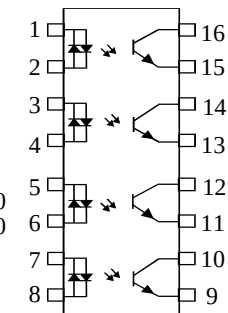
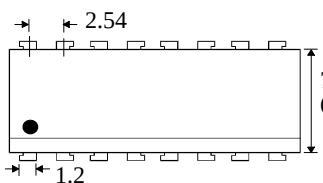
**Dimensions in mm**



**PS2505-2X  
PS2505-2**



**PS2505-4X  
PS2505-4**



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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  
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)

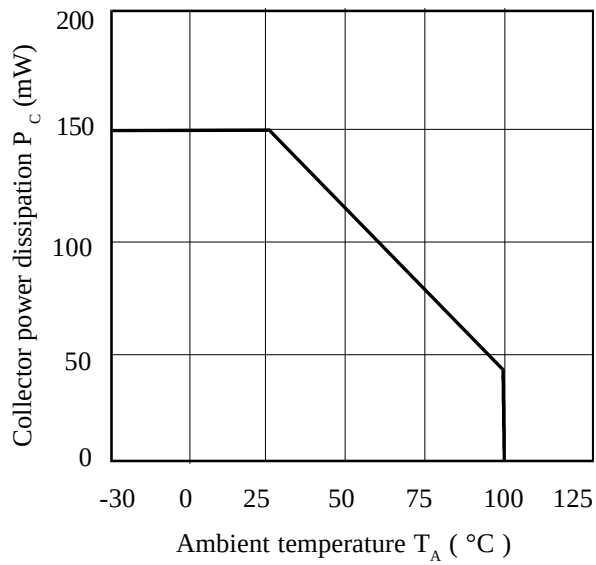
**ELECTRICAL CHARACTERISTICS (  $T_A = 25^\circ\text{C}$  Unless otherwise noted )**

| PARAMETER |                                                                       | MIN                | TYP    | MAX | UNITS                          | TEST CONDITION                                                    |
|-----------|-----------------------------------------------------------------------|--------------------|--------|-----|--------------------------------|-------------------------------------------------------------------|
| Input     | Forward Voltage ( $V_F$ )                                             |                    | 1.2    | 1.4 | V                              | $I_F = \pm 10\text{mA}$                                           |
| 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>PS2505-1, PS2505-2, PS2505-4 | 80                 |        | 600 | %                              | $\pm 5\text{mA}I_F$ , 5V $V_{CE}$                                 |
|           | Collector-emitter Saturation Voltage $V_{CE(SAT)}$                    |                    |        | 0.3 | V                              | $\pm 10\text{mA}I_F$ , 2mA $I_C$                                  |
|           | 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 $t_r$<br>Output Fall Time $t_f$                      |                    | 3<br>5 |     | $\mu\text{s}$<br>$\mu\text{s}$ | $V_{CC} = 10\text{V}$ ,<br>$I_C = 2\text{mA}$ , $R_L = 100\Omega$ |

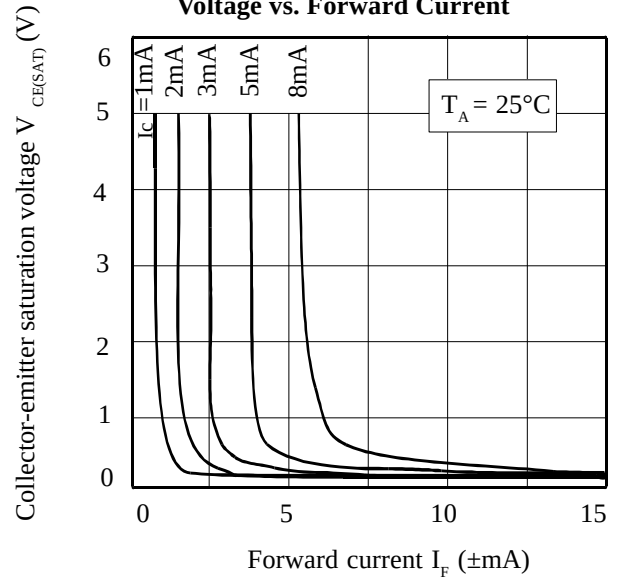
Note 1 Measured with input leads shorted together and output leads shorted together.

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

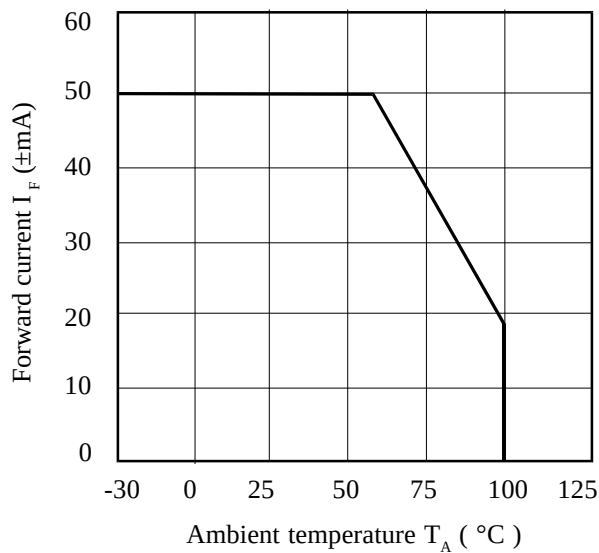
**Collector Power Dissipation vs. Ambient Temperature**



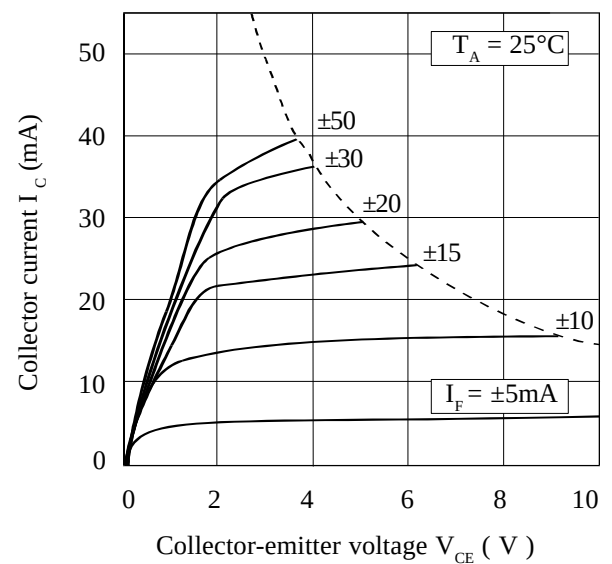
**Collector-emitter Saturation Voltage vs. Forward Current**



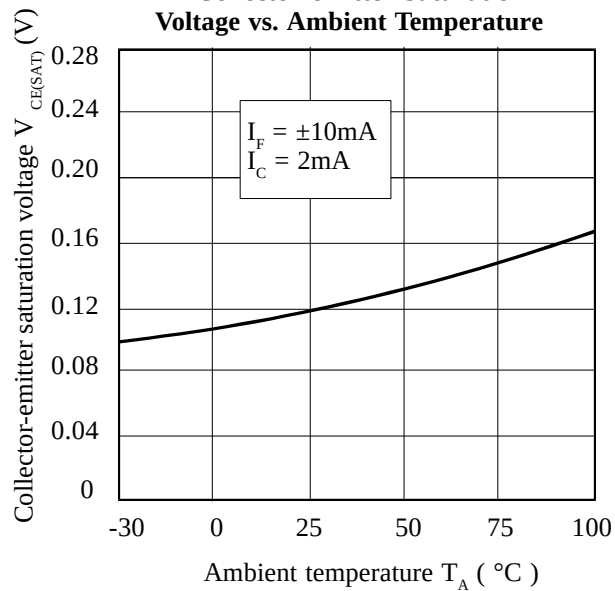
**Forward Current vs. Ambient Temperature**



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



**Collector-emitter Saturation Voltage vs. Ambient Temperature**



**Current Transfer Ratio vs. Forward Current**

