

ISP621-1X, ISP621-2X, ISP621-4X  
ISP621-1, ISP621-2, ISP621-4



**HIGH DENSITY MOUNTING  
PHOTOTRANSISTOR  
OPTICALLY COUPLED ISOLATORS**

**APPROVALS**

- UL recognised, File No. E91231

**'X' SPECIFICATION APPROVALS**

- VDE 0884 in 3 available lead form : -  
-STD  
- G form  
- SMD approved to CECC 00802
- 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 ISP621-1, ISP621-2, ISP621-4 series of optically coupled isolators consist of infrared light emitting diodes and NPN silicon photo transistors in space efficient dual in line plastic packages.

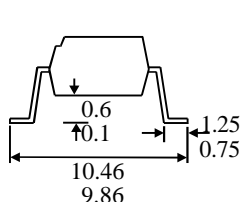
**FEATURES**

- 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 ( 50% min)
- High Isolation Voltage (5.3kV<sub>RMS</sub>, 7.5kV<sub>PK</sub>)
- High BV<sub>CEO</sub> ( 55Vmin )
- All electrical parameters 100% tested
- Custom electrical selections available

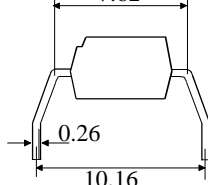
**APPLICATIONS**

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

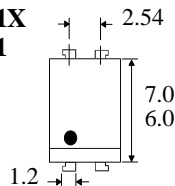
**OPTION SM  
SURFACE MOUNT**



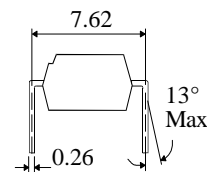
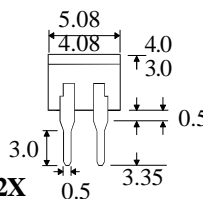
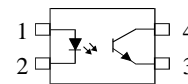
**OPTION G**



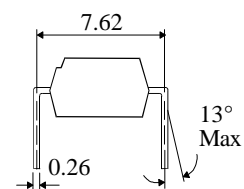
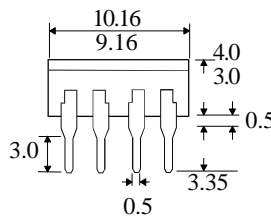
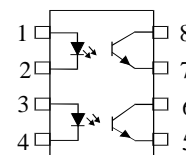
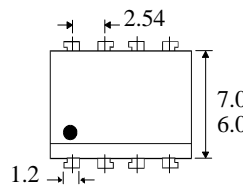
**ISP621-1X  
ISP621-1**



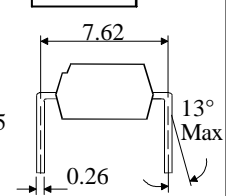
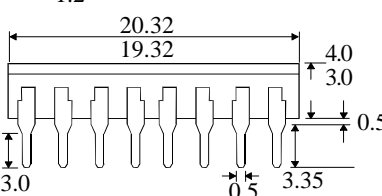
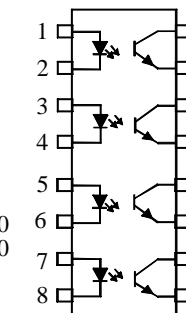
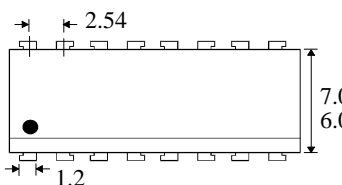
**Dimensions in mm**



**ISP621-2X  
ISP621-2**



**ISP621-4X  
ISP621-4**



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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 \_\_\_\_\_ 5V  
 Power Dissipation \_\_\_\_\_ 70mW

**OUTPUT TRANSISTOR**

Collector-emitter Voltage  $BV_{CEO}$  \_\_\_\_\_ 55V  
 Emitter-collector Voltage  $BV_{ECO}$  \_\_\_\_\_ 6V  
 Power Dissipation \_\_\_\_\_ 150mW

**POWER DISSIPATION**

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

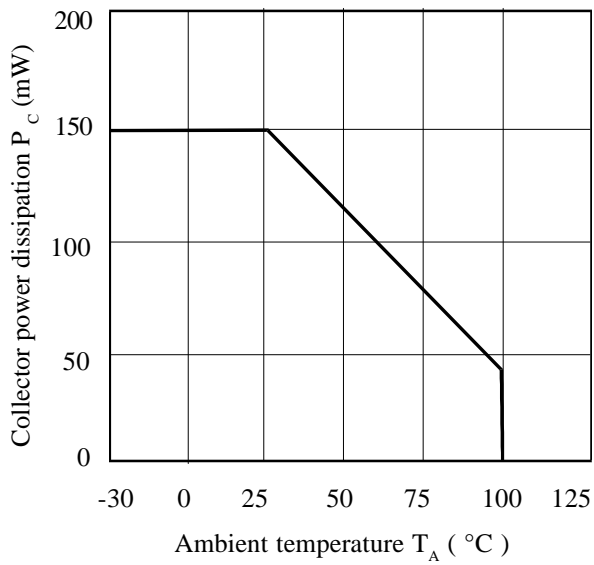
**ELECTRICAL CHARACTERISTICS (  $T_A = 25^\circ\text{C}$  Unless otherwise noted )**

| PARAMETER          |   | MIN                | TYP  | MAX           | UNITS         | TEST CONDITION                         |
|--------------------|---|--------------------|------|---------------|---------------|--|
| Input              | Forward Voltage ( $V_F$ )   | 1.0                | 1.15 | 1.3           | V             | $I_F = 10\text{mA}$                    |
|                    | Reverse Voltage ( $V_R$ )   | 5                  |      |               | V             | $I_R = 10\mu\text{A}$                  |
|                    | Reverse Current ( $I_R$ )   |                    |      | 10            | $\mu\text{A}$ | $V_R = 5\text{V}$                      |
| Output             | Collector-emitter Breakdown ( $BV_{CEO}$ )<br>(Note 2)                | 55                 |      |               | V             | $I_C = 0.5\text{mA}$                   |
|                    | Emitter-collector Breakdown ( $BV_{ECO}$ )                            | 6                  |      |               | V             | $I_E = 100\mu\text{A}$                 |
|                    | Collector-emitter Dark Current ( $I_{CEO}$ )                          |                    |      | 100           | nA            | $V_{CE} = 24\text{V}$                  |
| Coupled            | Current Transfer Ratio (CTR) (Note 2)<br>ISP621-1, ISP621-2, ISP621-4 | 50                 |      | 600           | %             | $5\text{mA } I_F, 5\text{V } V_{CE}$   |
|                    | CTR selection available GB  | 100                |      | 600           | %             |  |
|                    | BL  | 200                |      | 600           | %             |  |
|                    | GB  | 30                 |      |               | %             | $1\text{mA } I_F, 0.4\text{V } V_{CE}$ |
|                    | Collector-emitter Saturation Voltage $V_{CE(SAT)}$<br>GB              |                    |      | 0.4           | V             | $8\text{mA } I_F, 2.4\text{mA } I_C$   |
|                    |   |                    |      | 0.4           | V             | $1\text{mA } I_F, 0.2\text{mA } I_C$   |
|                    | Input to Output Isolation Voltage $V_{ISO}$                           | 5300               |      |               | $V_{RMS}$     | See note 1                             |
|                    |   | 7500               |      |               | $V_{PK}$      | See note 1                             |
|                    | Input-output Isolation Resistance $R_{ISO}$                           | $5 \times 10^{10}$ |      |               | $\Omega$      | $V_{IO} = 500\text{V}$ (note 1)        |
|                    | Rise Time tr  |                    | 2    |               | $\mu\text{s}$ | $V_{CC} = 10\text{V}$ ,                |
|                    | Fall Time tf  |                    | 3    |               | $\mu\text{s}$ | $I_C = 2\text{mA}, R_L = 100\Omega$    |
| Turn-on Time ton   |   | 3                  |      | $\mu\text{s}$ |               |  |
| Turn-off Time toff |   | 3                  |      | $\mu\text{s}$ |               |  |

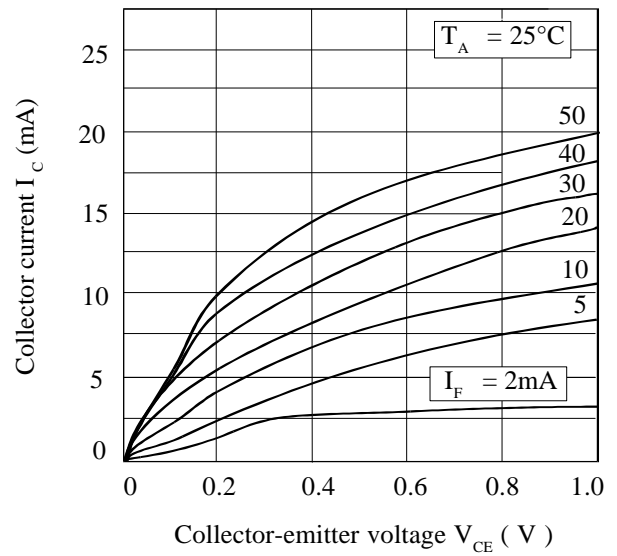
Note 1 Measured with input leads shorted together and output leads shorted together.

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

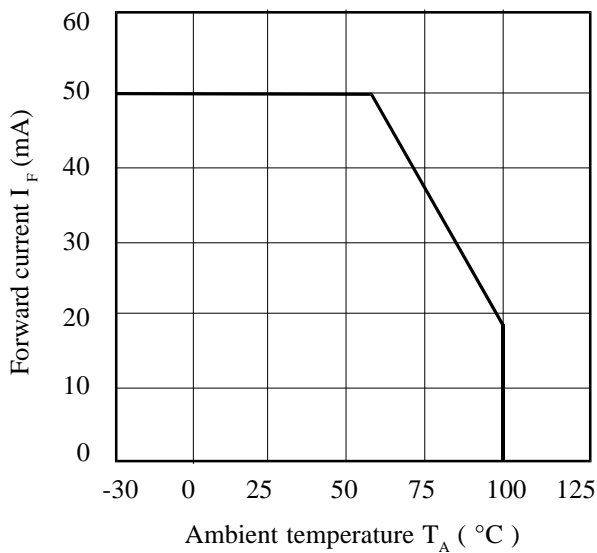
**Collector Power Dissipation vs. Ambient Temperature**



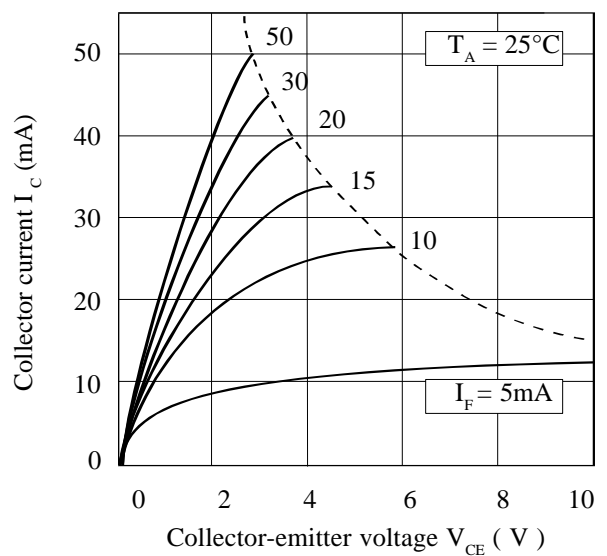
**Collector Current vs. Low Collector-emitter Voltage**



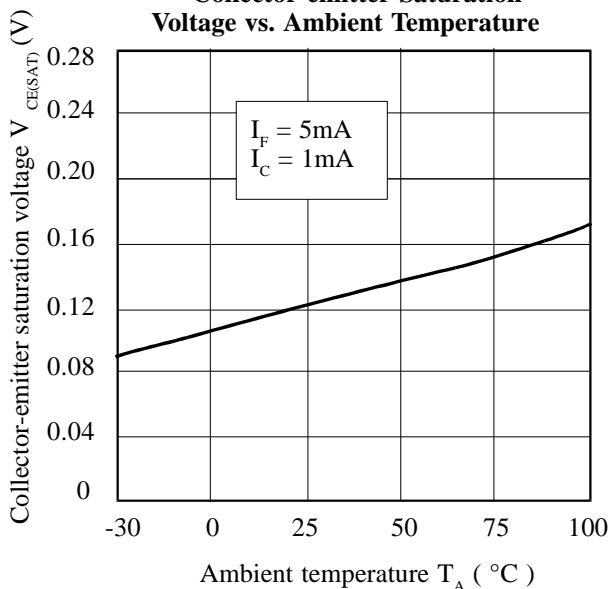
**Forward Current vs. Ambient Temperature**



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



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



**Current Transfer Ratio vs. Forward Current**

