

ISP624-1X, ISP624-2X, ISP624-4X  
ISP624-1, ISP624-2, ISP624-4



**ISOCOM**  
COMPONENTS

**LOW INPUT CURRENT  
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 ISP624-1 , ISP624-2 , ISP624-4 series of optically coupled isolators consist of infrared light emitting diodes and NPN silicon photo transistors in space efficient dual in line plastic packages.

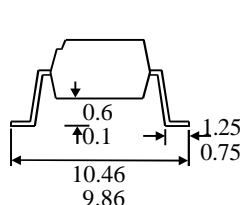
**FEATURES**

- 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
- Low Input Current 0.5mA I<sub>F</sub>

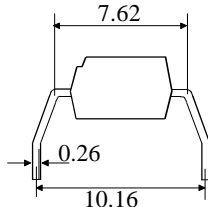
**APPLICATIONS**

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

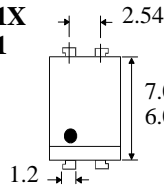
**OPTION SM  
SURFACE MOUNT**



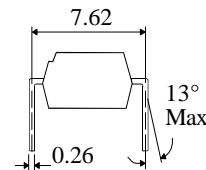
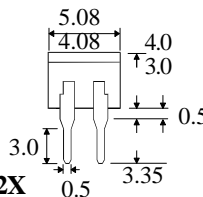
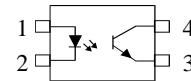
**OPTION G**



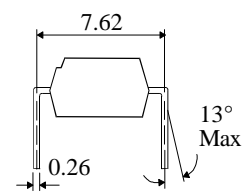
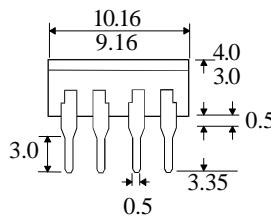
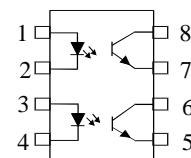
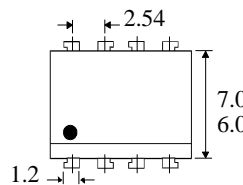
**ISP624-1X  
ISP624-1**



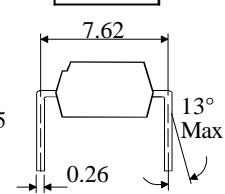
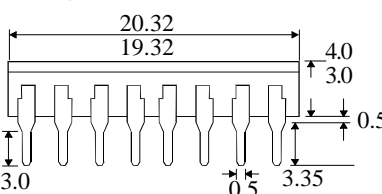
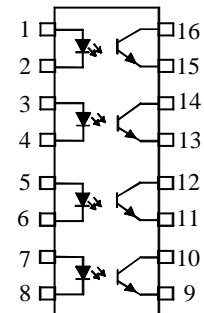
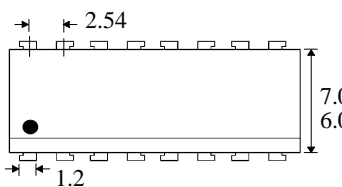
**Dimensions in mm**



**ISP624-2X  
ISP624-2**



**ISP624-4X  
ISP624-4**



**ISOCOM COMPONENTS LTD**  
Unit 25B, Park View Road West,  
Park View Industrial Estate, Brenda Road  
Hartlepool, Cleveland, TS25 1YD  
Tel: (01429) 863609 Fax :(01429) 863581

**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)

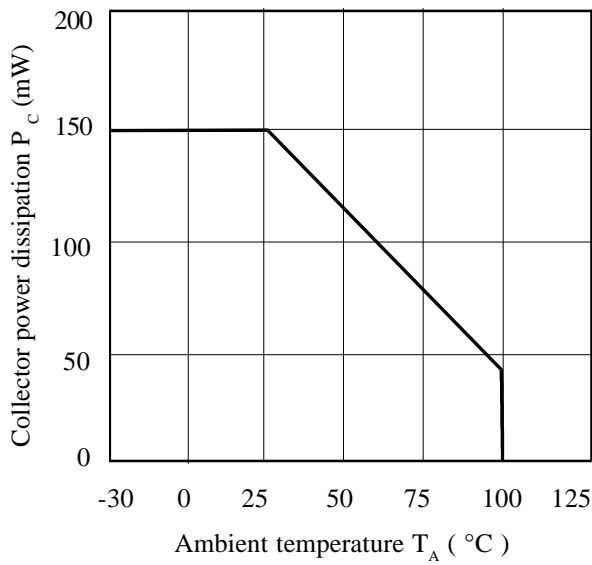
**ELECTRICAL CHARACTERISTICS (  $T_A = 25^\circ\text{C}$  Unless otherwise noted )**

| 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>ISP624-1,ISP624-2,ISP624-4 | 100<br>50          |      | 1200 | %<br>%                | $1\text{mA } I_F, 0.5\text{V } V_{CE}$<br>$0.5\text{mA } I_F, 1.5\text{V } V_{CE}$ |
|           | Collector-emitter Saturation Voltage $V_{CE(SAT)}$                  |                    | 0.2  | 0.4  | V<br>V                | $1\text{mA } I_F, 0.5\text{mA } I_C$<br>$1\text{mA } I_F, 1\text{mA } I_C$         |
|           | 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)  |
|           | Rise Time tr  |                    | 8    |      | $\mu\text{s}$         | $V_{CC} = 10\text{V}$ ,  |
|           | Fall Time tf  |                    | 8    |      | $\mu\text{s}$         | $I_C = 2\text{mA}, R_L = 100\Omega$  |
|           | Turn-on Time ton  |                    | 10   |      | $\mu\text{s}$         |  |
|           | Turn-off Time toff  |                    | 8    |      | $\mu\text{s}$         |  |

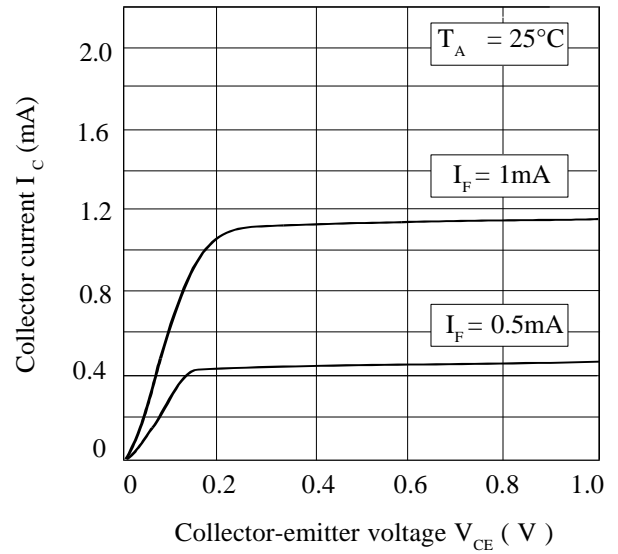
Note 1 Measured with input leads shorted together and output leads shorted together.

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

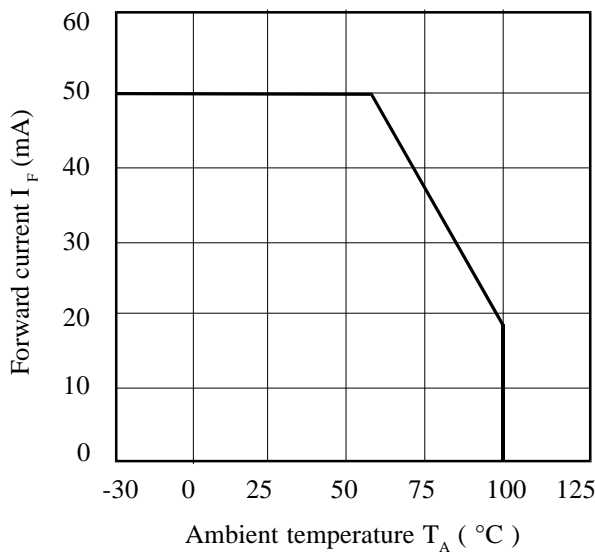
**Collector Power Dissipation vs. Ambient Temperature**



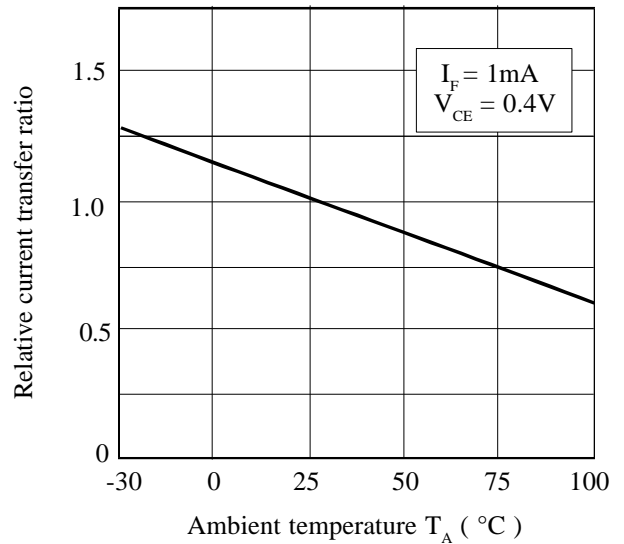
**Collector Current vs. Low Collector-emitter Voltage**



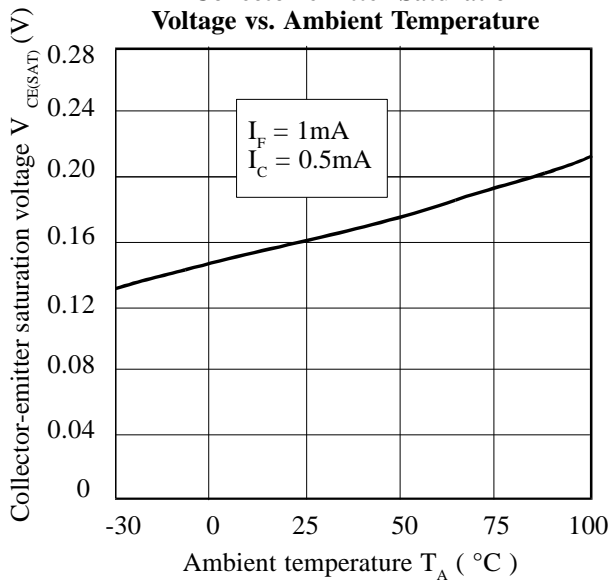
**Forward Current vs. Ambient Temperature**



**Relative Current Transfer Ratio vs. Ambient Temperature**



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



**Current Transfer Ratio vs. Forward Current**

