DESCRIPTION
The ISP814, ISP824, ISP844 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_{RMS}, 7.5kV_{PK})  
- 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

APPROVALS
- UL recognised, File No. E91231  
Package Code " EE "  

'X' SPECIFICATION APPROVALS
- VDE 0884 in 3 available lead form :-  
  - STD  
  - G form  
  - SMD approved to CECC 00802  
- ISP814 Certified to EN60950 by Nemko - Certificate No. P01102465

HIGH DENSITY A.C. INPUT
PHOTOTRANSISTOR OPTICALLY COUPLED ISOLATORS

ISOCOM COMPONENTS 2004 LTD
Unit 25B, Park View Road West,
Park View Industrial Estate, Brenda Road
Hartlepool, TS25 1UD England
Tel: (01429)863609 Fax: (01429)863581 e-mail
sales@isocom.co.uk http://www.isocom.com
ABSOLUTE MAXIMUM RATINGS
(25°C unless otherwise specified)

Storage Temperature: -55°C to +125°C
Operating Temperature: -30°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: $BV_{CEO}$ 35V
Emitter-collector Voltage: $BV_{EBO}$ 6V
Collector Current: 50mA
Power Dissipation: 150mW

POWER DISSIPATION

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

ELECTRICAL CHARACTERISTICS ( $T_a = 25°C$ Unless otherwise noted )

<table>
<thead>
<tr>
<th>PARAMETER</th>
<th>MIN</th>
<th>TYP</th>
<th>MAX</th>
<th>UNITS</th>
<th>TEST CONDITION</th>
</tr>
</thead>
<tbody>
<tr>
<td>Input</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Forward Voltage ($V_f$)</td>
<td>1.2</td>
<td>1.4</td>
<td>V</td>
<td>$I_f = ± 20mA$</td>
<td></td>
</tr>
<tr>
<td>Output</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Collector-emitter Breakdown ($BV_{CEO}$) ( Note 2 )</td>
<td>35</td>
<td>V</td>
<td>$I_c = 1mA$</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Emitter-collector Breakdown ($BV_{EBO}$)</td>
<td>6</td>
<td>V</td>
<td>$I_e = 100μA$</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Collector-emitter Dark Current ($I_{CEO}$)</td>
<td>100</td>
<td>nA</td>
<td>$V_{CE} = 20V$</td>
<td></td>
<td></td>
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<tr>
<td>Coupled</td>
<td></td>
<td></td>
<td></td>
<td></td>
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</tr>
<tr>
<td>Current Transfer Ratio (CTR) (Note 2)</td>
<td>20</td>
<td>300</td>
<td>%</td>
<td>$± 1mA_f, 5V V_{CE}$</td>
<td></td>
</tr>
<tr>
<td>ISP814, ISP824, ISP844</td>
<td>50</td>
<td>150</td>
<td>%</td>
<td>$± 20mA_f, 1mA_I_c$</td>
<td></td>
</tr>
<tr>
<td>ISP814A, ISP824A, ISP844A</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Collector-emitter Saturation Voltage $V_{CE, SAT}$</td>
<td>0.2</td>
<td>V</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Input to Output Isolation Voltage $V_{ISO}$</td>
<td>5300</td>
<td>V_{RMS}</td>
<td>See note 1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>7500</td>
<td>V_{PK}</td>
<td>See note 1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Input-output Isolation Resistance $R_{ISO}$</td>
<td>$5x10^{10}$</td>
<td>Ω</td>
<td>$V_{IO} = 500V$ (note 1)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Output Rise Time $tr$</td>
<td>4</td>
<td>18</td>
<td>μs</td>
<td>$V_{CE} = 2V$</td>
<td></td>
</tr>
<tr>
<td>Output Fall Time $tf$</td>
<td>3</td>
<td>18</td>
<td>μs</td>
<td>$I_c = 2mA, R_c = 100Ω$</td>
<td></td>
</tr>
</tbody>
</table>

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.