



THE DATASHEET OF ISP844X



ISP814X, ISP824X, ISP844X
ISP814, ISP824, ISP844



ISOCOM
COMPONENTS

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



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

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.

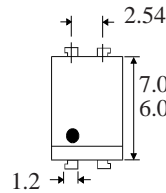
FEATURES

- 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

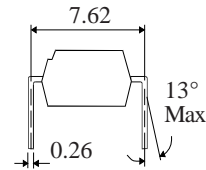
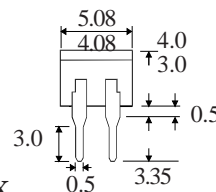
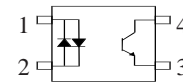
APPLICATIONS

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

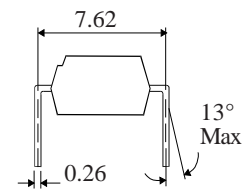
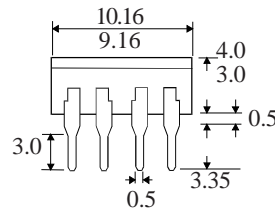
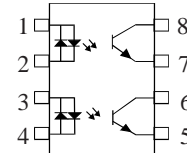
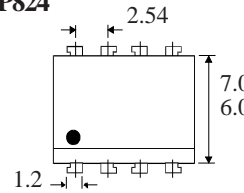
**ISP814X
ISP814**



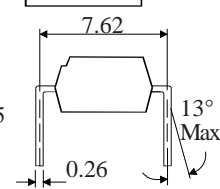
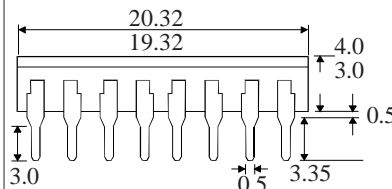
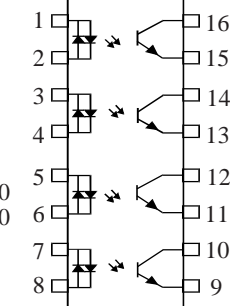
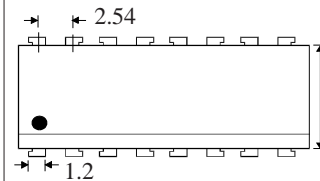
Dimensions in mm



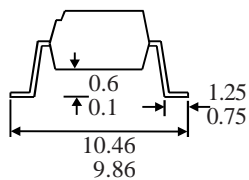
**ISP824X
ISP824**



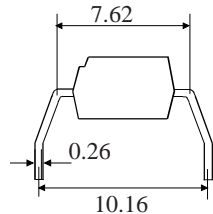
**ISP844X
ISP844**



**OPTION SM
SURFACE MOUNT**



OPTION G



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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_{ECO} _____ 6V
 Collector Current _____ 50mA
 Power Dissipation _____ 150mW

POWER DISSIPATION

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

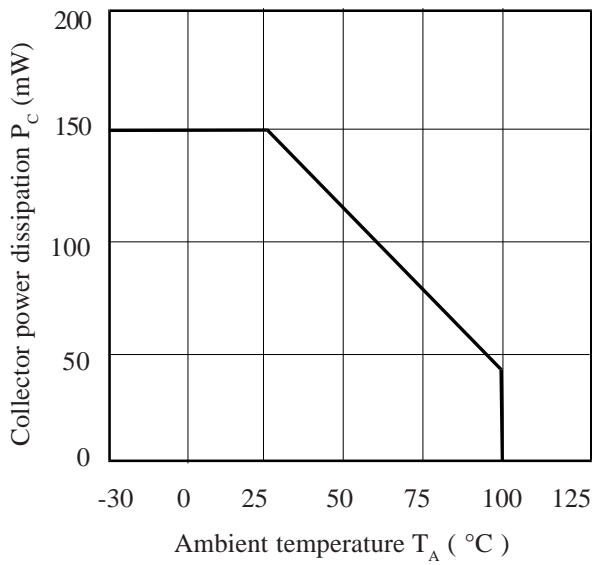
ELECTRICAL CHARACTERISTICS ($T_A = 25^\circ\text{C}$ Unless otherwise noted)

| PARAMETER | | MIN | TYP | MAX | UNITS | TEST CONDITION |
|-----------|---|--------------------|--------|----------|--------------------------------|--|
| Input | Forward Voltage (V_F) | | 1.2 | 1.4 | V | $I_F = \pm 20\text{mA}$ |
| Output | Collector-emitter Breakdown (BV_{CEO}) (Note 2) | 35 | | | 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 | $V_{CE} = 20\text{V}$ |
| Coupled | Current Transfer Ratio (CTR) (Note 2) ISP814, ISP824, ISP844 | 20 | | 300 | % | $\pm 1\text{mA} I_F, 5\text{V} V_{CE}$ |
| | ISP814A, ISP824A, ISP844A | 50 | | 150 | % | |
| | Collector-emitter Saturation Voltage $V_{CE(SAT)}$ | | | 0.2 | V | $\pm 20\text{mA} I_F, 1\text{mA} I_C$ |
| | Input to Output Isolation Voltage V_{ISO} | 5300 7500 | | | V_{RMS} V_{PK} | See note 1 See note 1 |
| | Input-output Isolation Resistance R_{ISO} | 5×10^{10} | | | Ω | $V_{IO} = 500\text{V}$ (note 1) |
| | Output Rise Time t_r Output Fall Time t_f | | 4 3 | 18 18 | μs μs | $V_{CE} = 2\text{V},$ $I_C = 2\text{mA}, R_L = 100\Omega$ |

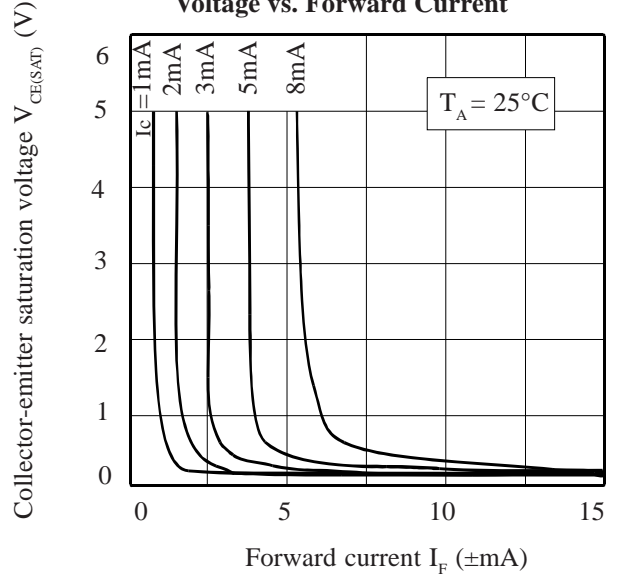
Note 1 Measured with input leads shorted together and output leads shorted together.

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

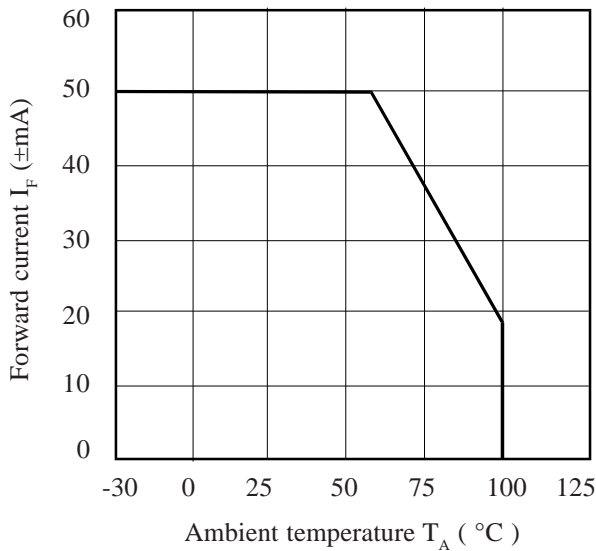
Collector Power Dissipation vs. Ambient Temperature



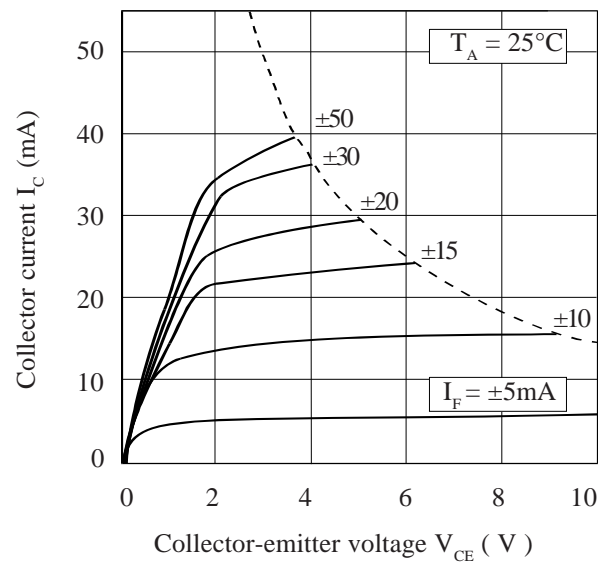
Collector-emitter Saturation Voltage vs. Forward Current



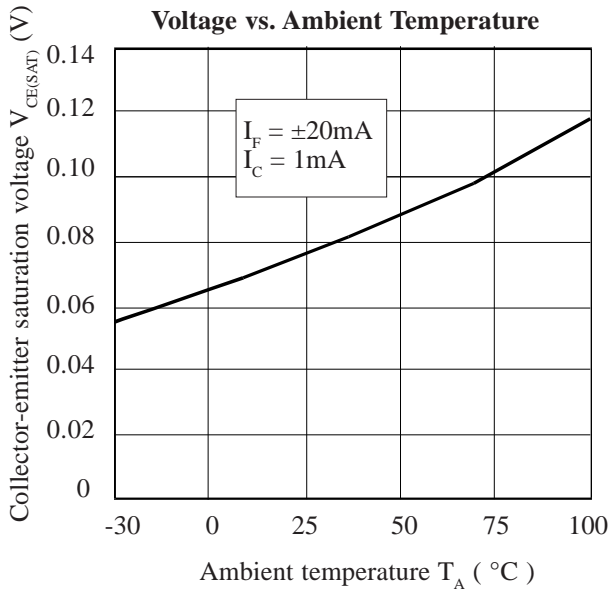
Forward Current vs. Ambient Temperature



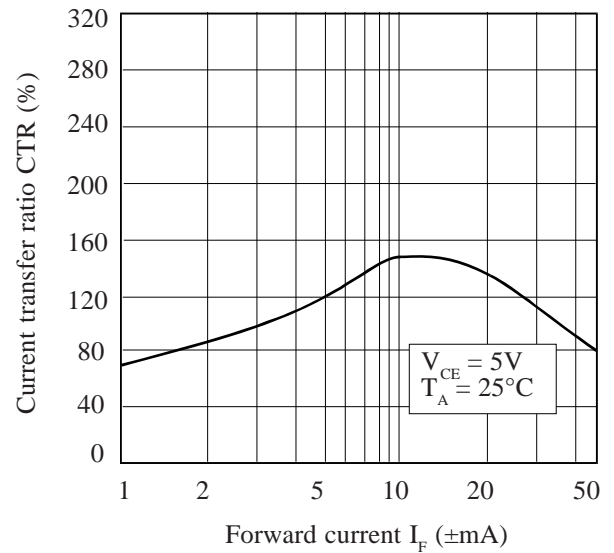
Collector Current vs. Collector-emitter Voltage



Collector-emitter Saturation Voltage vs. Ambient Temperature



Current Transfer Ratio vs. Forward Current







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