

ISP814X, ISP824X, ISP844X  
ISP814, ISP824, ISP844



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

**APPROVALS**

- UL recognised, File No. E91231

**'X' SPECIFICATION APPROVALS**

- VDE 0884 approval pending
- ISP814X - 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  
ISP824X, ISP844X - EN60950 pending

**DESCRIPTION**

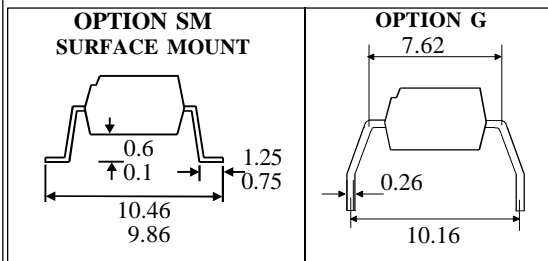
The ISP814, ISP824, ISP844 series of optically coupled isolators consist of two infrared light emitting diodes connected in inverse parallel and NPN silicon photo transistors in space efficient dual in line plastic packages.

**FEATURES**

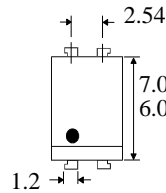
- Options :-  
10mm lead spread - add G after part no.  
Surface mount - add SM after part no.  
Tape&reel - add SMT&R after part no.
- High Isolation Voltage (5.3kV<sub>RMS</sub>, 7.5kV<sub>PK</sub>)
- AC or polarity insensitive input
- All electrical parameters 100% tested
- Custom electrical selections available

**APPLICATIONS**

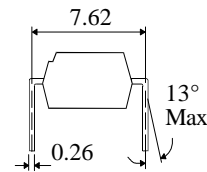
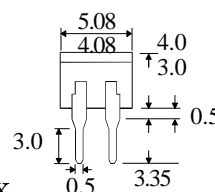
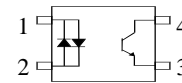
- Computer terminals
- Industrial systems controllers
- Telephone sets, Telephone exchangers
- Signal transmission between systems of different potentials and impedances



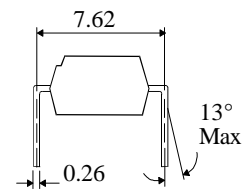
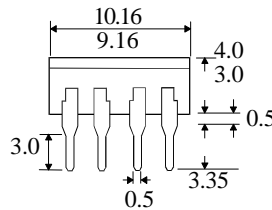
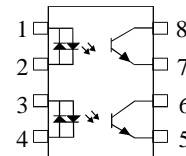
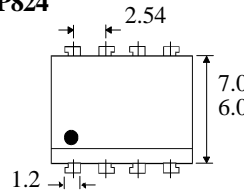
**ISP814X  
ISP814**



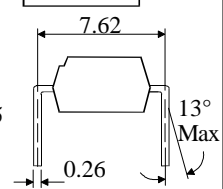
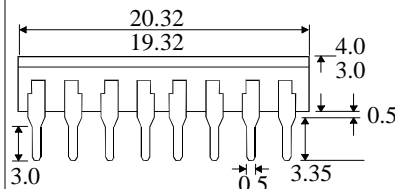
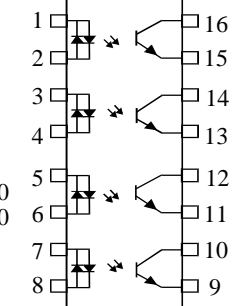
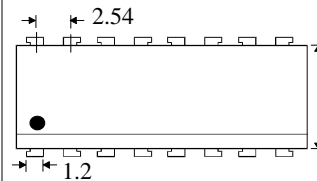
Dimensions in mm



**ISP824X  
ISP824**



**ISP844X  
ISP844**



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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  $BV_{CEO}$  — 35V  
 Emitter-collector Voltage  $BV_{ECO}$  — 6V  
 Power Dissipation ——— 150mW

**POWER DISSIPATION**

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

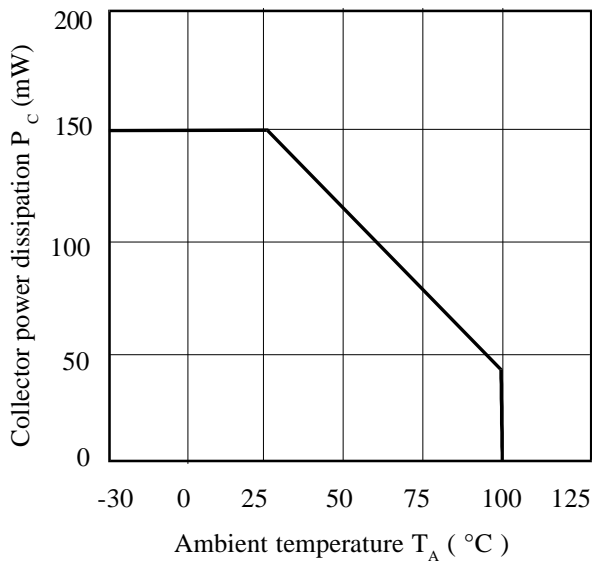
**ELECTRICAL CHARACTERISTICS (  $T_A = 25^\circ\text{C}$  Unless otherwise noted )**

PARAMETER		MIN	TYP	MAX	UNITS	TEST CONDITION
Input	Forward Voltage ( $V_F$ )		1.2	1.4	V	$I_F = \pm 20\text{mA}$
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 $R_{ISO}$	$5 \times 10^{10}$			$\Omega$	$V_{IO} = 500\text{V}$ (note 1)
	Output Rise Time tr Output Fall Time tf		4 3	18 18	$\mu\text{s}$ $\mu\text{s}$	$V_{CE} = 2\text{V},$ $I_C = 10\text{mA}, R_L = 100\Omega$

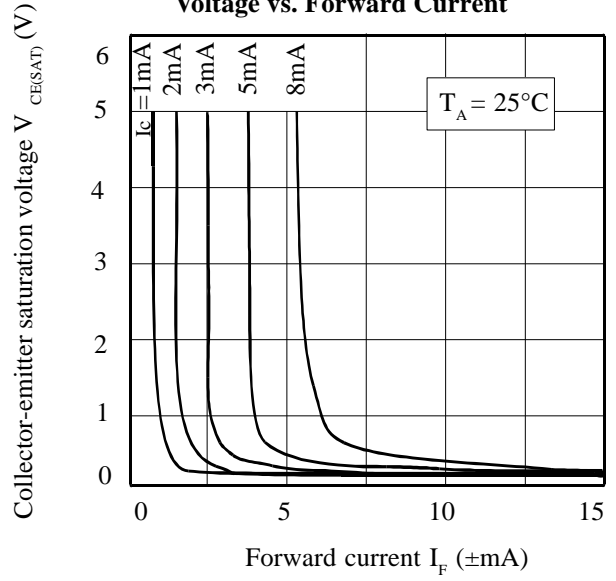
Note 1 Measured with input leads shorted together and output leads shorted together.

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

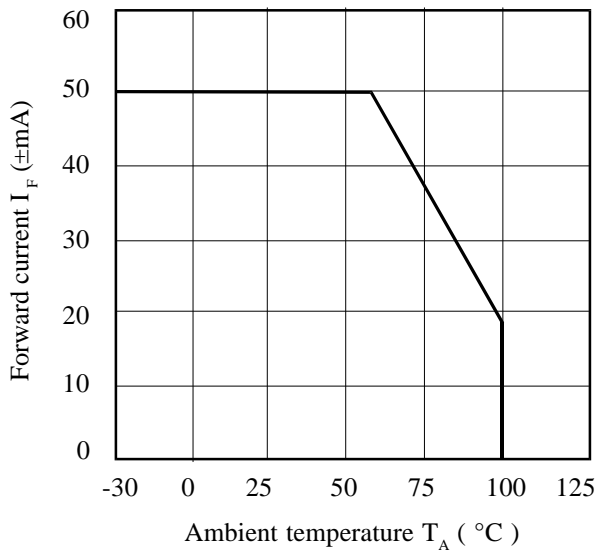
**Collector Power Dissipation vs. Ambient Temperature**



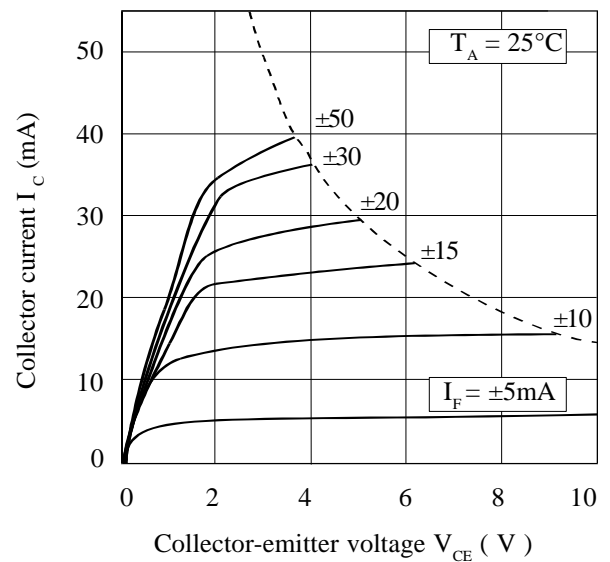
**Collector-emitter Saturation Voltage vs. Forward Current**



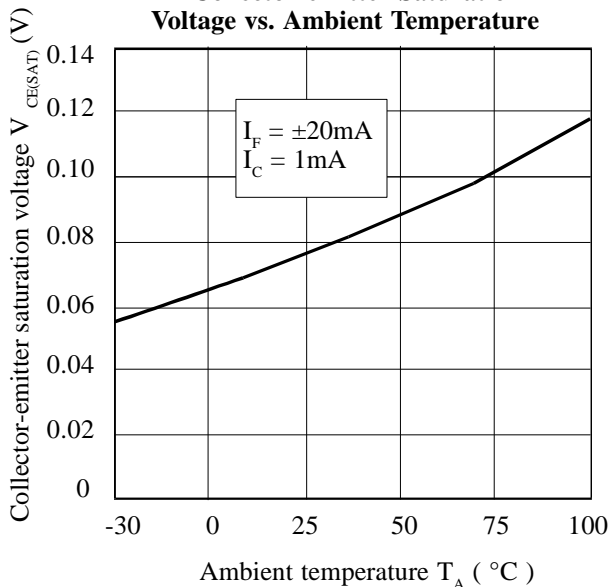
**Forward Current vs. Ambient Temperature**



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



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



**Current Transfer Ratio vs. Forward Current**

