

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.

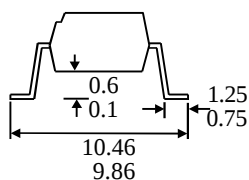
FEATURES

- 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 ($5.3kV_{RMS}$, $7.5kV_{PK}$)
- AC or polarity insensitive input
- All electrical parameters 100% tested
- Custom electrical selections available

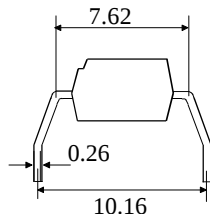
APPLICATIONS

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

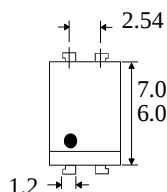
OPTION SM SURFACE MOUNT



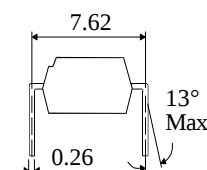
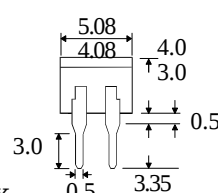
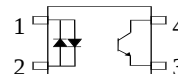
OPTION G



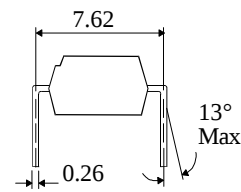
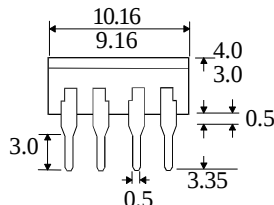
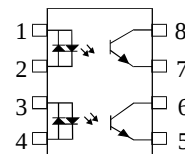
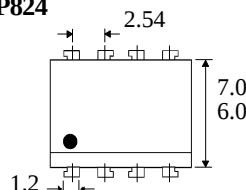
ISP814X ISP814



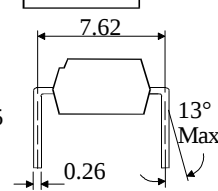
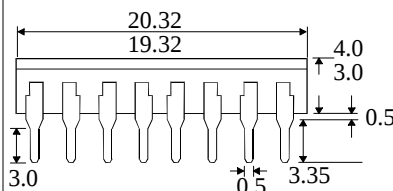
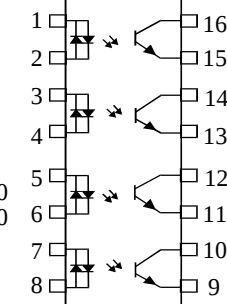
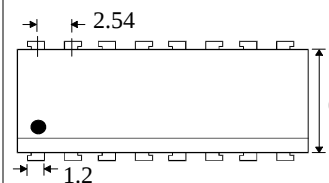
Dimensions in mm



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)

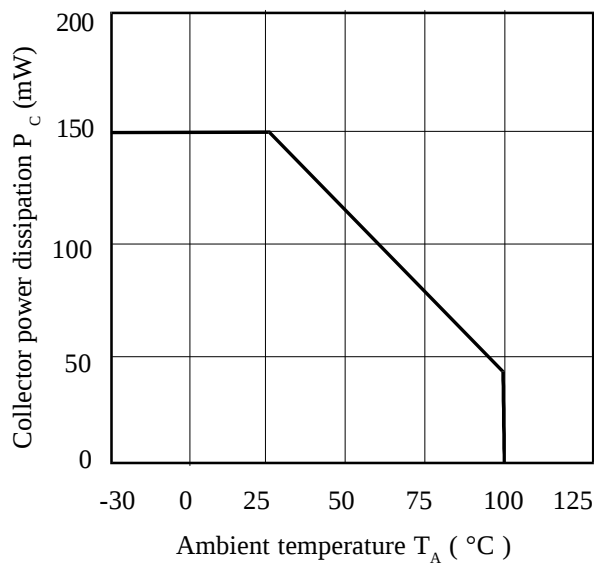
ELECTRICAL CHARACTERISTICS ($T_A = 25^\circ\text{C}$ Unless otherwise noted)

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	%	$\pm 1\text{mA} I_F$, 5V V_{CE}
	ISP814A, ISP824A, ISP844A	50		150	%	
	Collector-emitter Saturation Voltage $V_{CE(SAT)}$			0.2	V	$\pm 20\text{mA} I_F$, 1mA 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 tr Output Fall Time tf		4 3	18 18	μs μs	$V_{CE} = 2\text{V}$, $I_C = 10\text{mA}$, $R_L = 100\Omega$

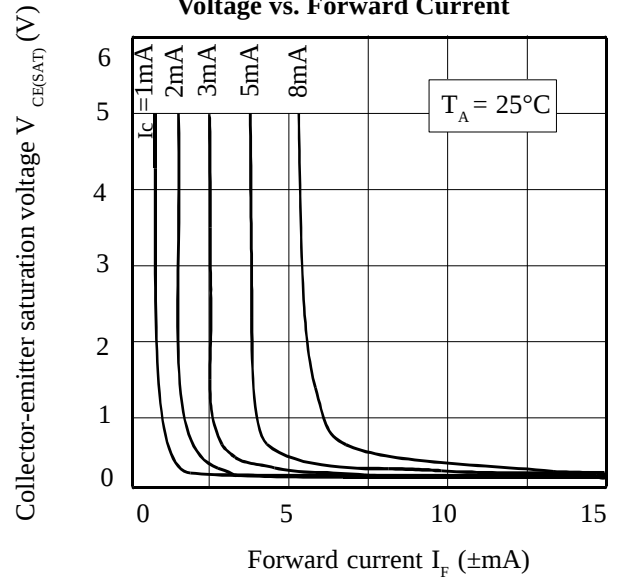
Note 1 Measured with input leads shorted together and output leads shorted together.

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

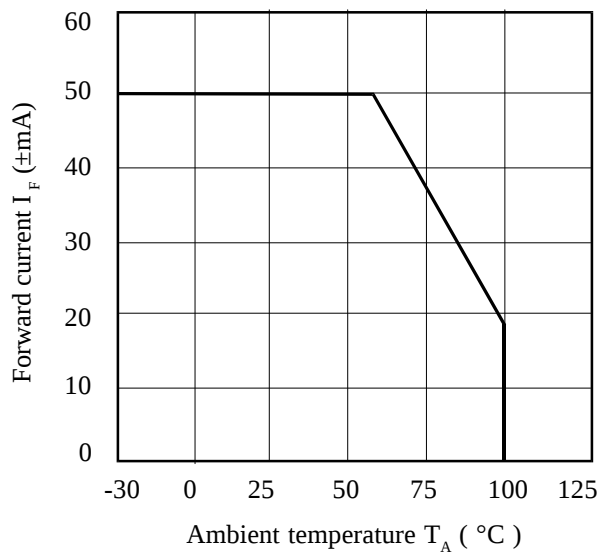
Collector Power Dissipation vs. Ambient Temperature



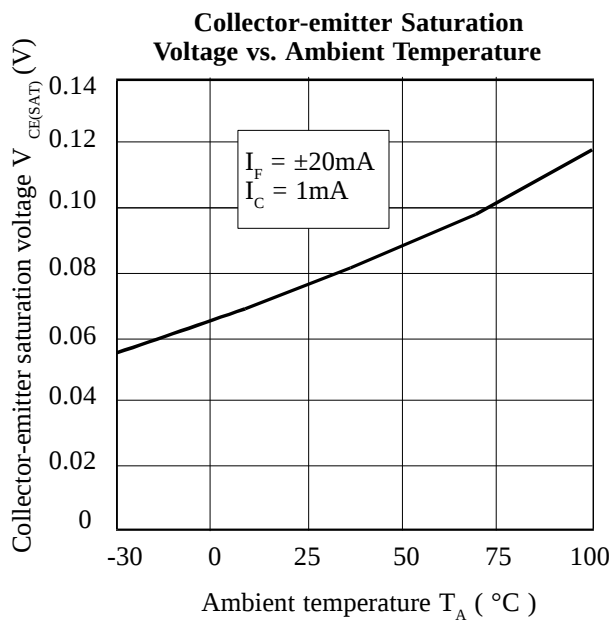
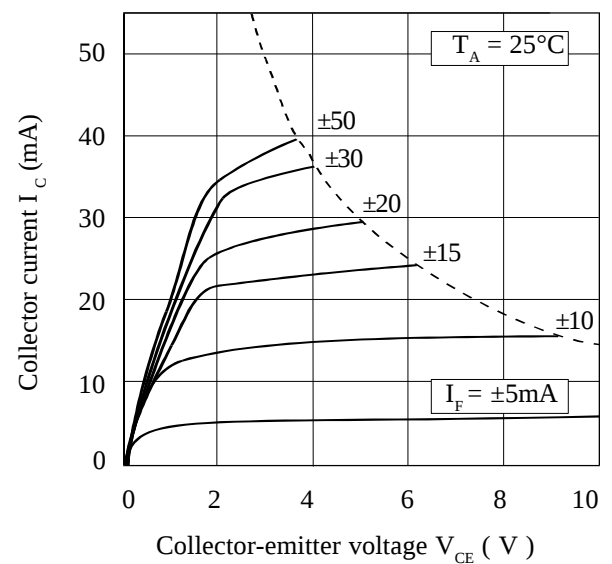
Collector-emitter Saturation Voltage vs. Forward Current



Forward Current vs. Ambient Temperature



Collector Current vs. Collector-emitter Voltage



Current Transfer Ratio vs. Forward Current

