

HIGH DENSITY MOUNTING 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. P01102465
 - Fimko - Certificate No. FI18162
 - Semko - Reference No. 0202041/01-25
 - Demko - Certificate No. 311161-01
- BSI approved - Certificate No. 8001

DESCRIPTION

The ISP321-1, ISP321-2, ISP321-4 series of optically coupled isolators consist of infrared light emitting diodes and NPN silicon photo transistors in space efficient dual in line plastic packages.

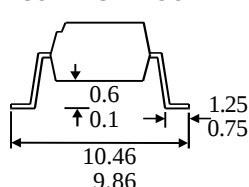
FEATURES

- 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_{RMS}, 7.5kV_{PK})
- High BV_{CEO} (80Vmin)
- All electrical parameters 100% tested
- Custom electrical selections available

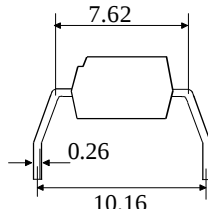
APPLICATIONS

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

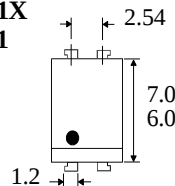
OPTION SM SURFACE MOUNT



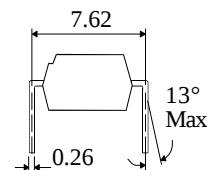
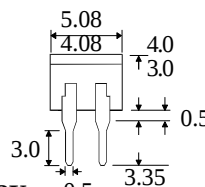
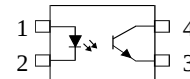
OPTION G



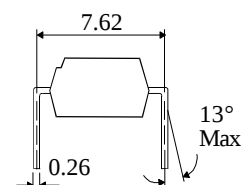
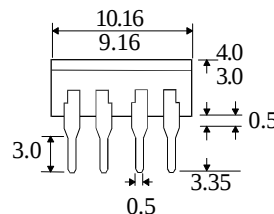
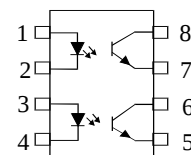
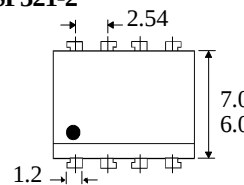
ISP321-1X ISP321-1



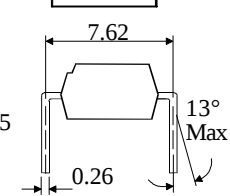
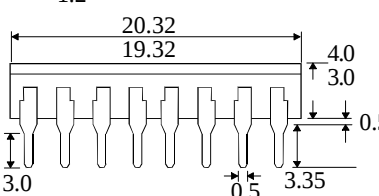
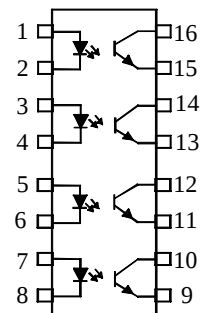
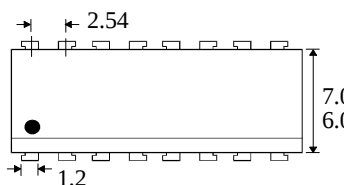
Dimensions in mm



ISP321-2X ISP321-2



ISP321-4X ISP321-4



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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
Reverse Voltage	_____	6V
Power Dissipation	_____	70mW

OUTPUT TRANSISTOR

Collector-emitter Voltage V_{CEO}	_____	80V
Emitter-collector Voltage V_{ECO}	_____	6V
Power Dissipation	_____	150mW

POWER DISSIPATION

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

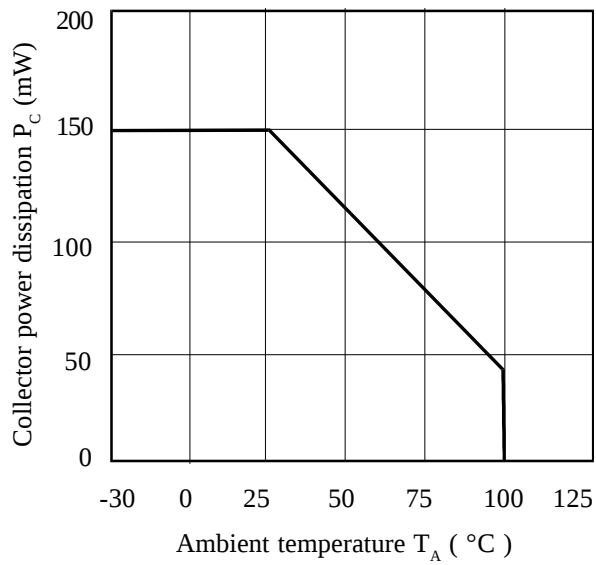
ELECTRICAL CHARACTERISTICS ($T_A = 25^{\circ}\text{C}$ Unless otherwise noted)

PARAMETER		MIN	TYP	MAX	UNITS	TEST CONDITION
Input	Forward Voltage (V _F)	1.0	1.15	1.3	V	I _F = 10mA
	Reverse Current (I _R)			10	μA	V _R =4V
Output	Collector-emitter Breakdown (BV _{CEO}) (Note 2)	80			V	I _C = 0.5mA
	Emitter-collector Breakdown (BV _{ECO})	6			V	I _E = 100μA
	Collector-emitter Dark Current (I _{CEO})			100	nA	V _{CE} = 48V
Coupled	Current Transfer Ratio (CTR) (Note 2)					
	ISP321-1, ISP321-2, ISP321-4	50		600	%	5mA I _F , 5V V _{CE}
	CTR selection available GB	100		600	%	
	BL	200		600	%	
	GB	30			%	1mA I _F , 0.4V V _{CE}
	Collector-emitter Saturation VoltageV _{CE (SAT)}			0.4	V	8mA I _F , 2.4mA I _C
	GB			0.4	V	1mA I _F , 0.2mA I _C
	Input to Output Isolation Voltage V _{ISO}	5300			V _{RMS}	See note 1
		7500			V _{PK}	
	Input-output Isolation Resistance R _{ISO}	5x10 ¹⁰			Ω	V _{IO} = 500V (note 1)
Response Time (Rise, tr)		4		μs	V _{CE} = 2V ,	
Response Time (Fall, tf)		3		μs	I _C = 2mA, R _L = 100Ω	

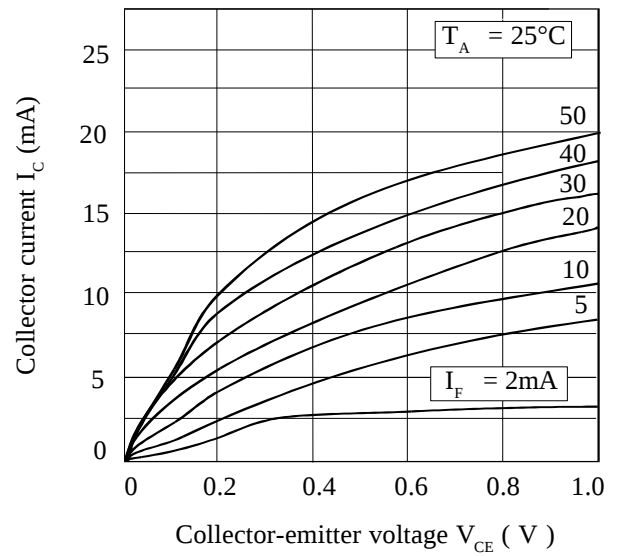
Note 1 Measured with input leads shorted together and output leads shorted together.

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

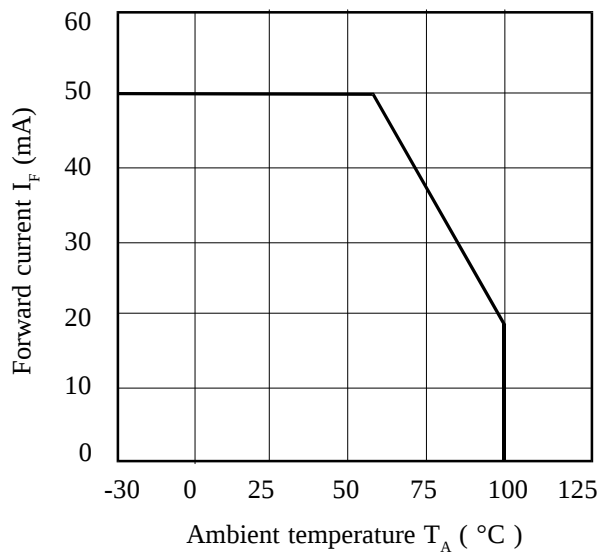
Collector Power Dissipation vs. Ambient Temperature



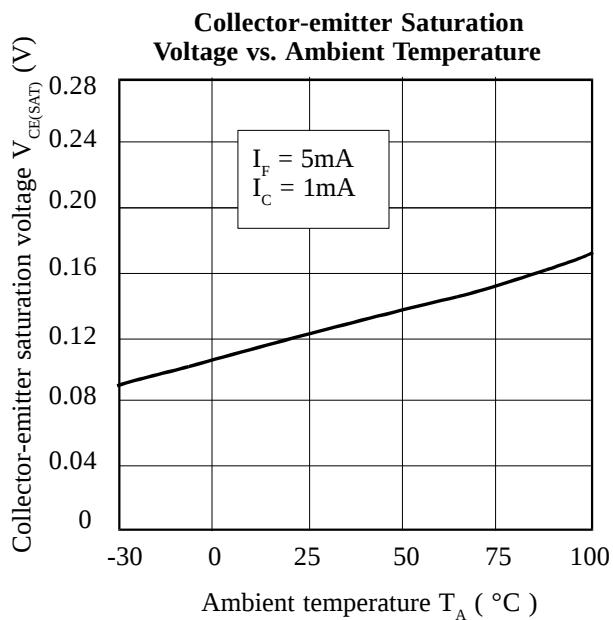
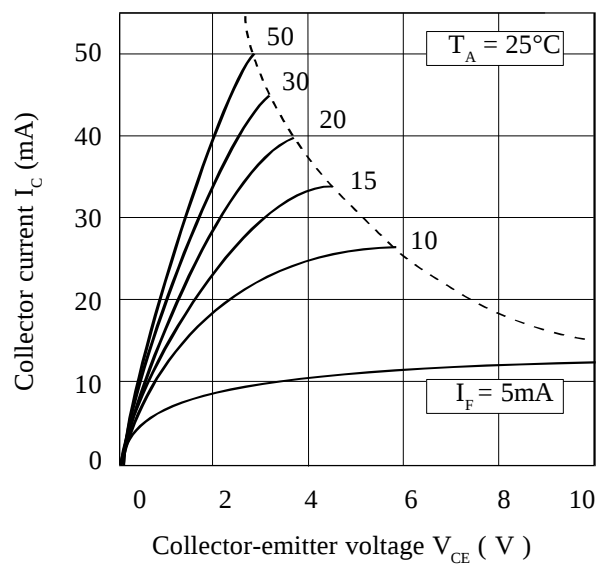
Collector Current vs. Low Collector-emitter Voltage



Forward Current vs. Ambient Temperature



Collector Current vs. Collector-emitter Voltage



Current Transfer Ratio vs. Forward Current

