

ISP321-1X, ISP321-2X, ISP321-4X
ISP321-1, ISP321-2, ISP321-4



**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

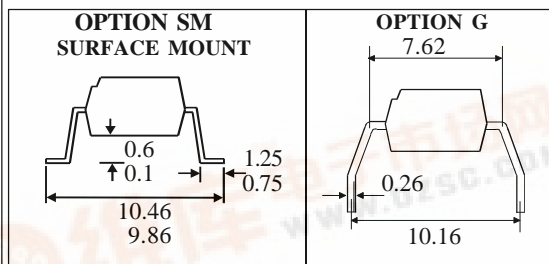
The ISP321-1, ISP321-2, ISP321-4 series of optically coupled isolators consist of infrared light emitting diodes and NPN silicon photo transistors in space efficient dual in line plastic packages.

FEATURES

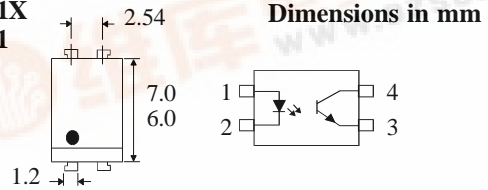
- Options :-
10mm lead spread - add G after part no.
Surface mount - add SM after part no.
Tape&reel - add SMT&R after part no.
- High Current Transfer Ratio (50% min)
- High Isolation Voltage (5.3kV_{RMS}, 7.5kV_{PK})
- High BV_{CEO} (80Vmin)
- All electrical parameters 100% tested
- Custom electrical selections available

APPLICATIONS

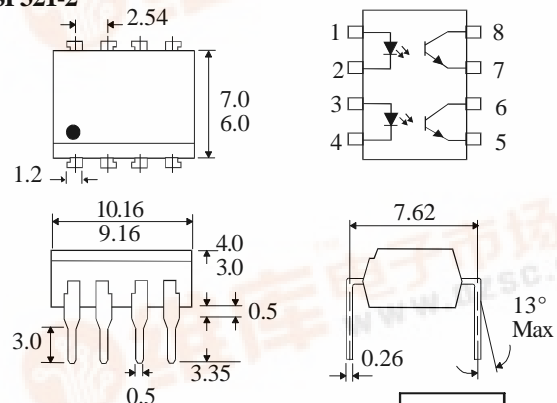
- Computer terminals
- Industrial systems controllers
- Measuring instruments
- Signal transmission between systems of different potentials and impedances



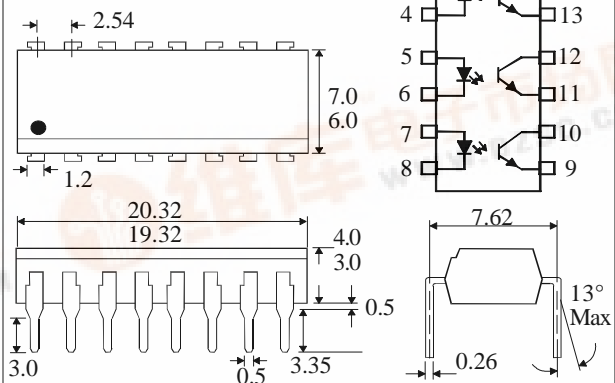
**ISP321-1X
ISP321-1**



**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 BV_{CEO}	80V
Emitter-collector Voltage BV_{ECO}	6V
Power Dissipation	150mW

POWER DISSIPATION

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

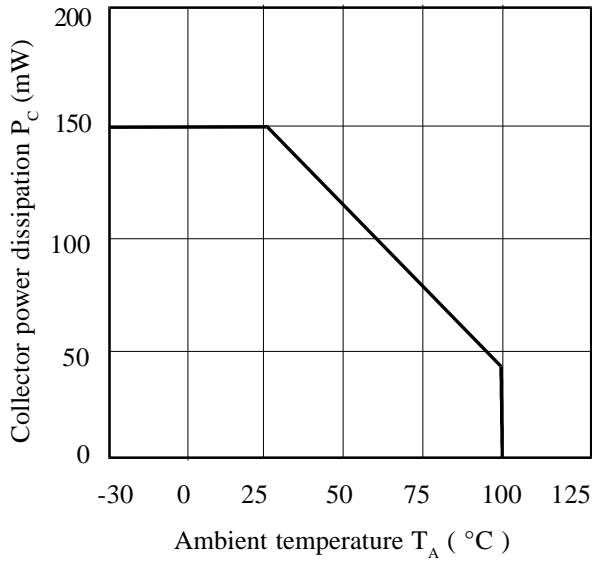
ELECTRICAL CHARACTERISTICS ($T_A = 25^\circ\text{C}$ Unless otherwise noted)

PARAMETER		MIN	TYP	MAX	UNITS	TEST CONDITION
Input	Forward Voltage (V_F)	1.0	1.15	1.3	V	$I_F = 10\text{mA}$
	Reverse Current (I_R)			10	μA	$V_R = 4\text{V}$
Output	Collector-emitter Breakdown (BV_{CEO}) (Note 2)	80			V	$I_C = 0.5\text{mA}$
	Emitter-collector Breakdown (BV_{ECO})	6			V	$I_E = 100\mu\text{A}$
	Collector-emitter Dark Current (I_{CEO})			100	nA	$V_{CE} = 48\text{V}$
Coupled	Current Transfer Ratio (CTR) (Note 2) ISP321-1, ISP321-2, ISP321-4	50		600	%	$5\text{mA } I_F, 5\text{V } V_{CE}$
	CTR selection available GB	100		600	%	
	BL	200		600	%	
	GB	30			%	$1\text{mA } I_F, 0.4\text{V } V_{CE}$
	Collector-emitter Saturation Voltage $V_{CE(SAT)}$			0.4	V	$8\text{mA } I_F, 2.4\text{mA } I_C$
	GB			0.4	V	$1\text{mA } I_F, 0.2\text{mA } I_C$
	Input to Output Isolation Voltage V_{ISO}	5300			V_{RMS}	See note 1
		7500			V_{PK}	
	Input-output Isolation Resistance R_{ISO}	5×10^{10}			Ω	$V_{IO} = 500\text{V}$ (note 1)
	Response Time (Rise, tr)		4		μs	$V_{CE} = 2\text{V},$
Response Time (Fall, tf)		3		μs	$I_C = 2\text{mA}, R_L = 100\Omega$	

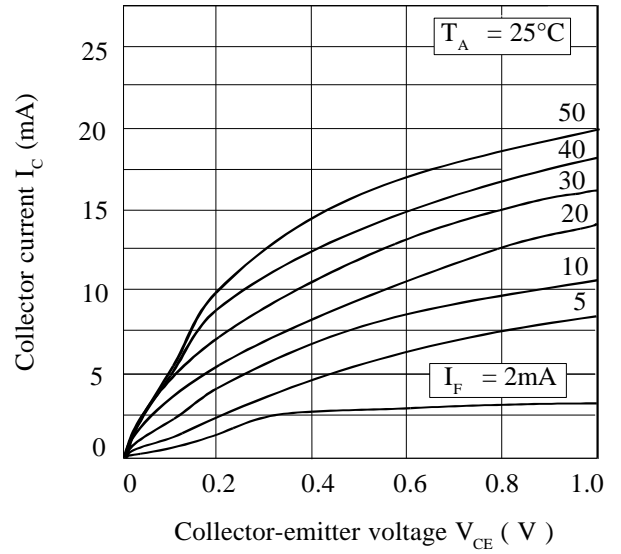
Note 1 Measured with input leads shorted together and output leads shorted together.

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

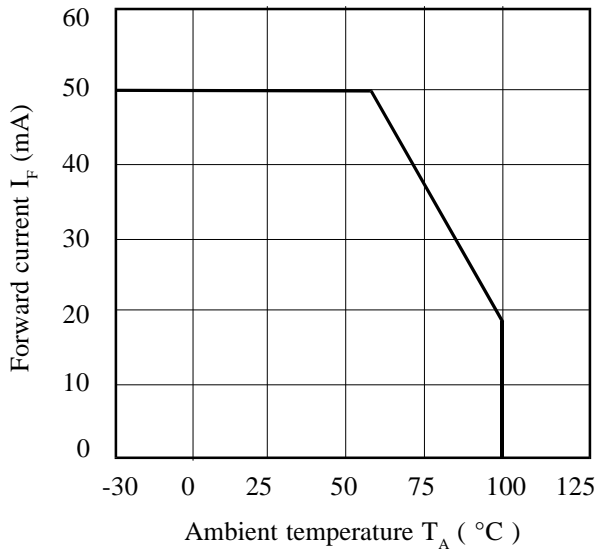
Collector Power Dissipation vs. Ambient Temperature



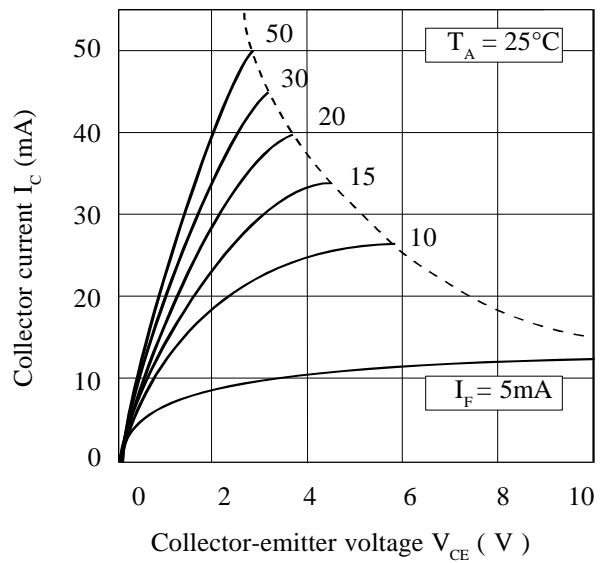
Collector Current vs. Low Collector-emitter Voltage



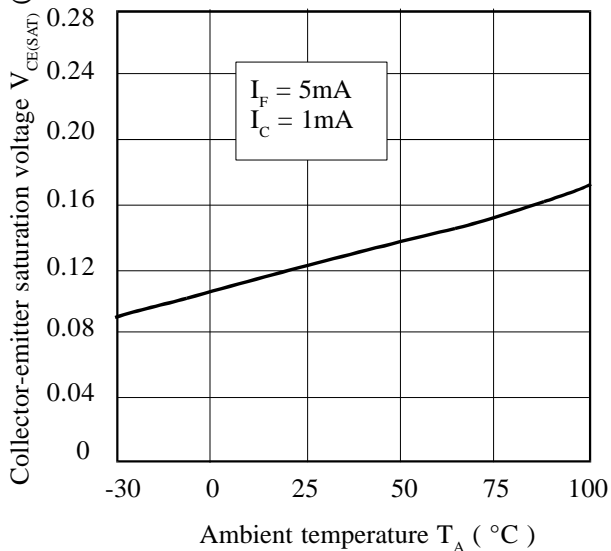
Forward Current vs. Ambient Temperature



Collector Current vs. Collector-emitter Voltage



Collector-emitter Saturation Voltage vs. Ambient Temperature



Current Transfer Ratio vs. Forward Current

