

**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. P96102022
Fimko - Registration No. 192313-01..25
Semko - Reference No. 9639052 01
Demko - Reference No. 305969

DESCRIPTION

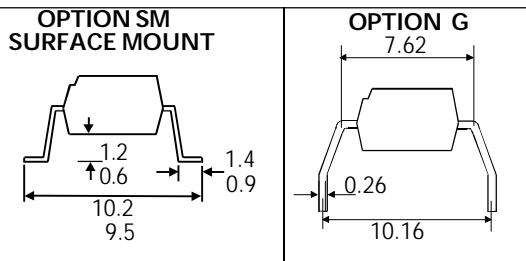
The ISP817, ISP827, ISP847 series of optically coupled isolators consist of infrared light emitting diodes and NPN silicon photo transistors in space efficient dual in line plastic packages.

FEATURES

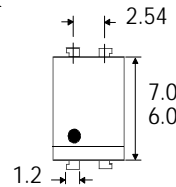
- Options :-
10mm lead spread - add G after part no.
Surface mount - add SM after part no.
Tape&reel - add SMT&R after part no.
- High Current Transfer Ratio (50% min)
- High Isolation Voltage (5.3kV_{RMS}, 7.5kV_{PK})
- High BV_{CEO} (35Vmin)
- All electrical parameters 100% tested
- Custom electrical selections available

APPLICATIONS

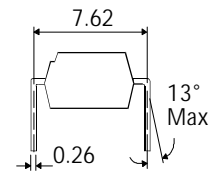
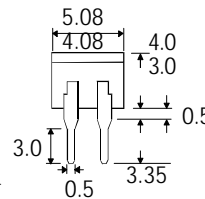
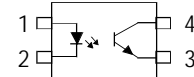
- Computer terminals
- Industrial systems controllers
- Measuring instruments
- Signal transmission between systems of different potentials and impedances



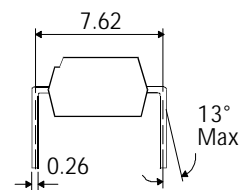
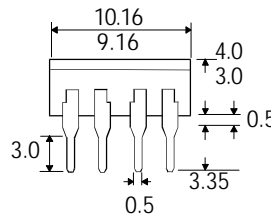
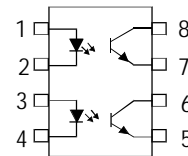
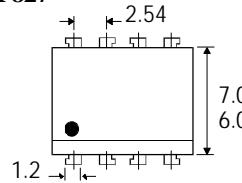
**ISP817X
ISP817**



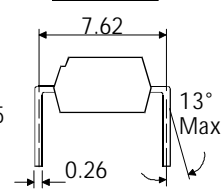
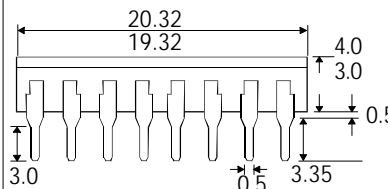
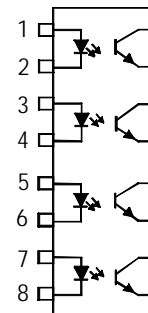
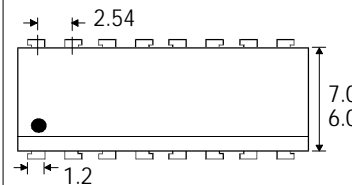
Dimensions in mm



**ISP827X
ISP827**



**ISP847X
ISP847**



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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
 Reverse Voltage _____ 6V
 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)

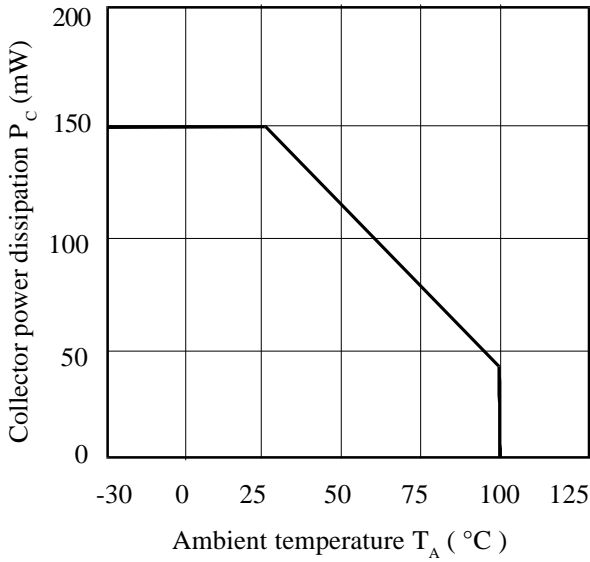
ELECTRICAL CHARACTERISTICS ($T_A = 25^\circ\text{C}$ Unless otherwise noted)

PARAMETER		MIN	TYP	MAX	UNITS	TEST CONDITION
Input	Forward Voltage (V_F)		1.2	1.4	V	$I_F = 20\text{mA}$ $I_R = 10\mu\text{A}$ $V_R = 6\text{V}$
	Reverse Voltage (V_R)	6			V	
	Reverse Current (I_R)			10	μA	
Output	Collector-emitter Breakdown (BV_{CEO}) (Note 2)	35			V	$I_C = 1\text{mA}$ $I_E = 100\mu\text{A}$ $V_{CE} = 20\text{V}$
	Emitter-collector Breakdown (BV_{ECO})	6			V	
	Collector-emitter Dark Current (I_{CEO})			100	nA	
Coupled	Current Transfer Ratio (CTR) (Note 2)					
	ISP817, ISP827, ISP847	50		600	%	$5\text{mA } I_F, 5\text{V } V_{CE}$
	ISP817A,ISP827A,ISP847A	80		160	%	$5\text{mA } I_F, 5\text{V } V_{CE}$
	ISP817B,ISP827B,ISP847B	130		260	%	$5\text{mA } I_F, 5\text{V } V_{CE}$
	ISP817C,ISP827C,ISP847C	200		400	%	$5\text{mA } I_F, 5\text{V } V_{CE}$
	ISP817D,ISP827D,ISP847D	300		600	%	$5\text{mA } I_F, 5\text{V } V_{CE}$
	ISP817GB, ISP827GB, ISP847GB	100		600	%	$5\text{mA } I_F, 5\text{V } V_{CE}$
	ISP817BL, ISP827BL, ISP847BL	200		600	%	$5\text{mA } I_F, 5\text{V } V_{CE}$
	Collector-emitter Saturation Voltage $V_{CE(SAT)}$			0.2	V	$20\text{mA } I_F, 1\text{mA } I_C$
	Input to Output Isolation Voltage V_{ISO}	5300			V_{RMS}	See note 1
	7500			V_{PK}	See note 1	
Input-output Isolation Resistance R_{ISO}	5×10^{10}			Ω	$V_{IO} = 500\text{V}$ (note 1)	
Output Rise Time tr		4	18	μs	$V_{CE} = 2\text{V}$,	
Output Fall Time tf		3	18	μs	$I_C = 2\text{mA}, R_L = 100\Omega$	

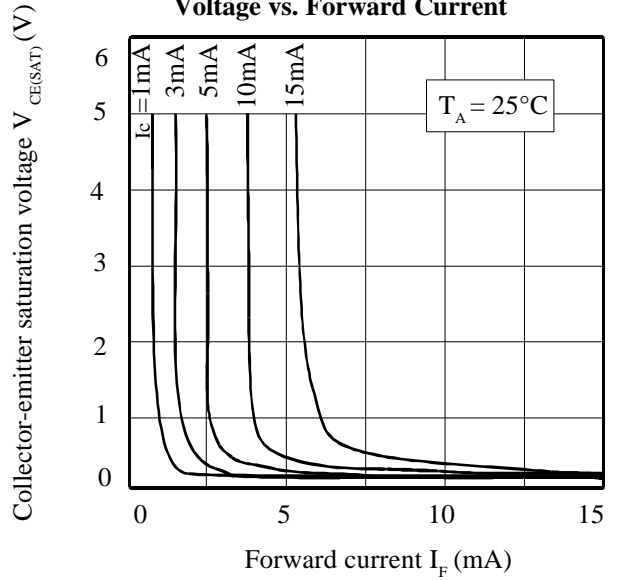
Note 1 Measured with input leads shorted together and output leads shorted together.

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

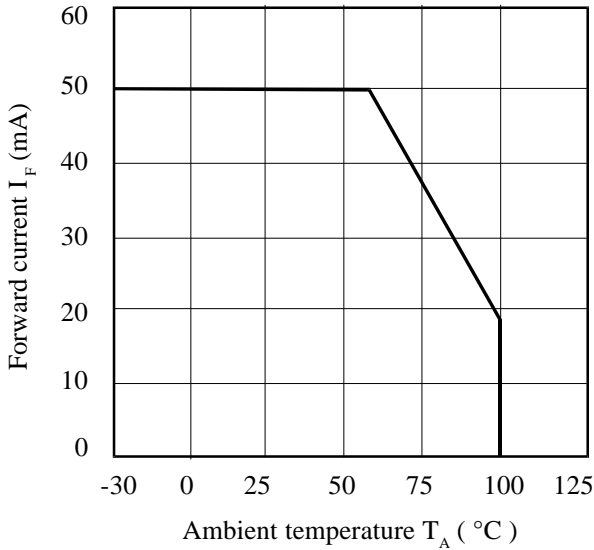
Collector Power Dissipation vs. Ambient Temperature



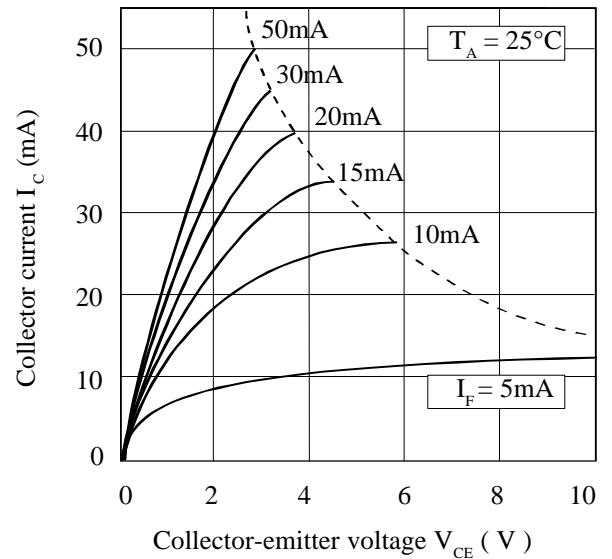
Collector-emitter Saturation Voltage vs. Forward Current



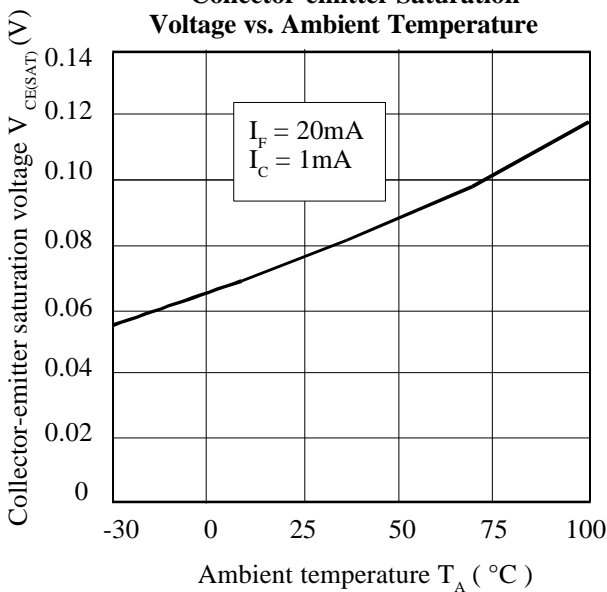
Forward Current vs. Ambient Temperature



Collector Current vs. Collector-emitter Voltage



Collector-emitter Saturation Voltage vs. Ambient Temperature



Current Transfer Ratio vs. Forward Current

