

ISP815X, ISP825X, ISP845X  
ISP815, ISP825, ISP845



# ISOCOM

COMPONENTS



## HIGH DENSITY MOUNTING PHOTODARLINGTON OPTICALLY COUPLED ISOLATORS

### APPROVALS

- UL recognised, File No. E91231  
Package Code FF
- 'X' SPECIFICATION APPROVALS
  - VDE 0884 in 3 available lead form :-
    - STD
    - G form
    - SMD approved to CECC 00802
  - Certified to EN60950 by  
Nemko - Certificate No. P01102465

### DESCRIPTION

The ISP815, ISP825, ISP845 series of optically coupled isolators consist of infrared light emitting diodes and NPN silicon photodarlington in space efficient dual in line plastic packages.

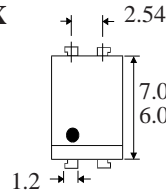
### FEATURES

- 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 (600% min)
- High Isolation Voltage ( $5.3kV_{RMS}, 7.5kV_{PK}$ )
- All electrical parameters 100% tested
- Custom electrical selections available

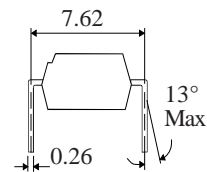
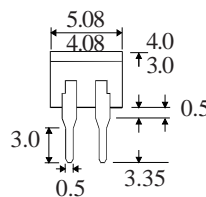
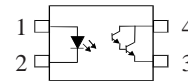
### APPLICATIONS

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

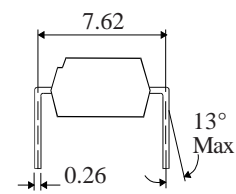
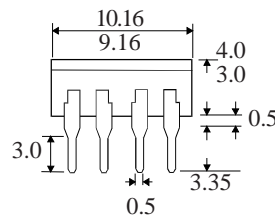
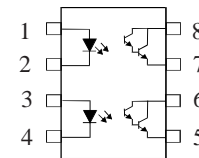
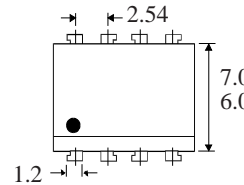
### ISP815X ISP815



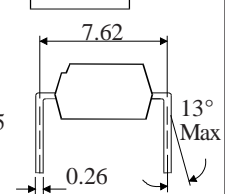
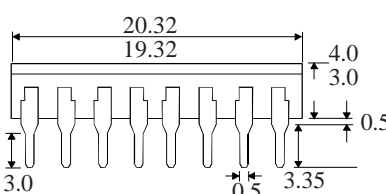
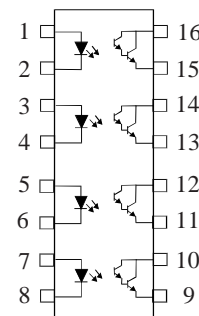
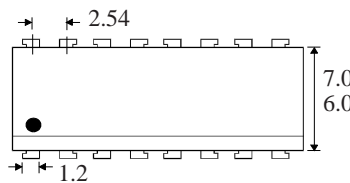
### Dimensions in mm



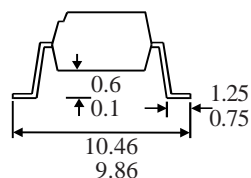
### ISP825X ISP825



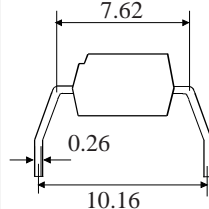
### ISP845X ISP845



### OPTION SM SURFACE MOUNT



### OPTION G



### ISOCOM COMPONENTS LTD

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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  $BV_{CEO}$  \_\_\_\_\_ 35V  
 Emitter-collector Voltage  $BV_{ECO}$  \_\_\_\_\_ 6V  
 Collector Current \_\_\_\_\_ 80mA  
 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 )**

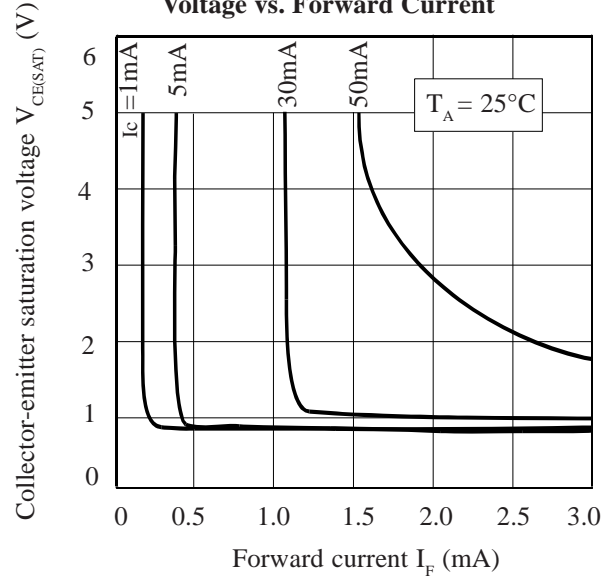
PARAMETER		MIN	TYP	MAX	UNITS	TEST CONDITION
Input	Forward Voltage ( $V_F$ )		1.2	1.4	V	$I_F = 20\text{mA}$
	Reverse Current ( $I_R$ )			10	$\mu\text{A}$	$V_R = 4\text{V}$
Output	Collector-emitter Breakdown ( $BV_{CEO}$ ) ( Note 2 )	35			V	$I_C = 1\text{mA}$
	Emitter-collector Breakdown ( $BV_{ECO}$ )	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)	600		7500	%	$1\text{mA } I_F, 2\text{V } V_{CE}$
	Collector-emitter Saturation Voltage $V_{CE(SAT)}$			1.0	V	$20\text{mA } I_F, 5\text{mA } I_C$
	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		60 53	300 250	$\mu\text{s}$ $\mu\text{s}$	$V_{CE} = 2\text{V}$ , $I_C = 10\text{mA}, R_L = 100\Omega$

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.

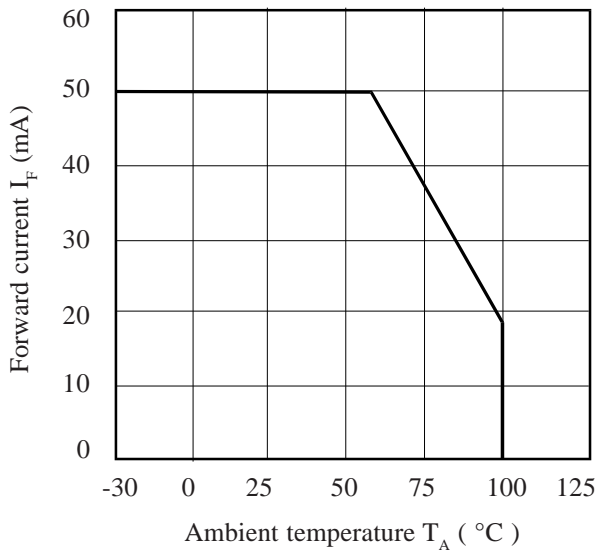
**Collector Power Dissipation vs. Ambient Temperature**



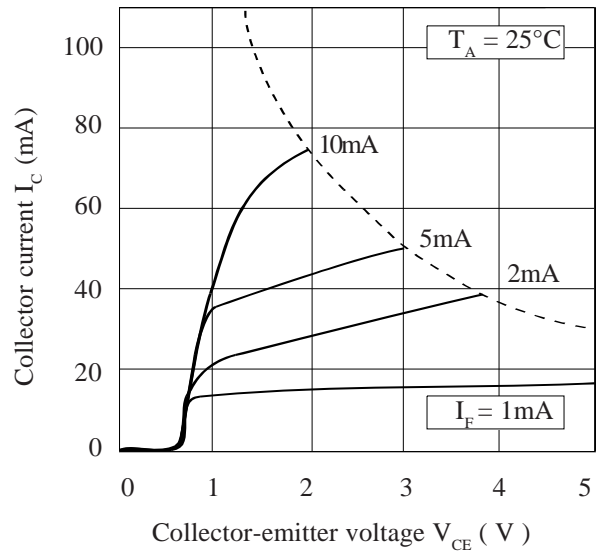
**Collector-emitter Saturation Voltage vs. Forward Current**



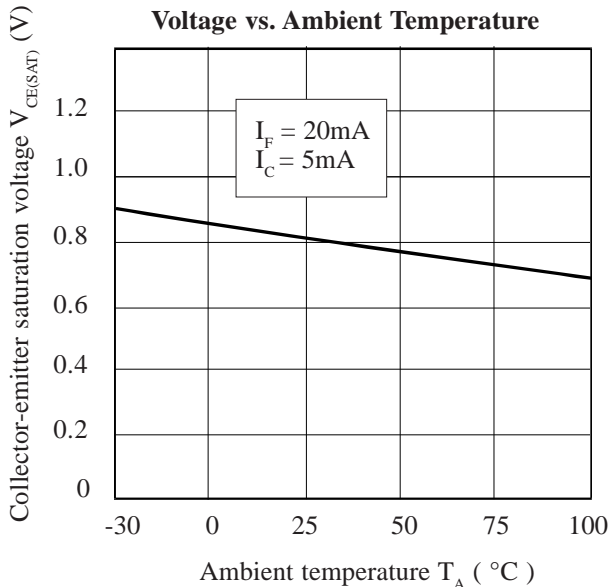
**Forward Current vs. Ambient Temperature**



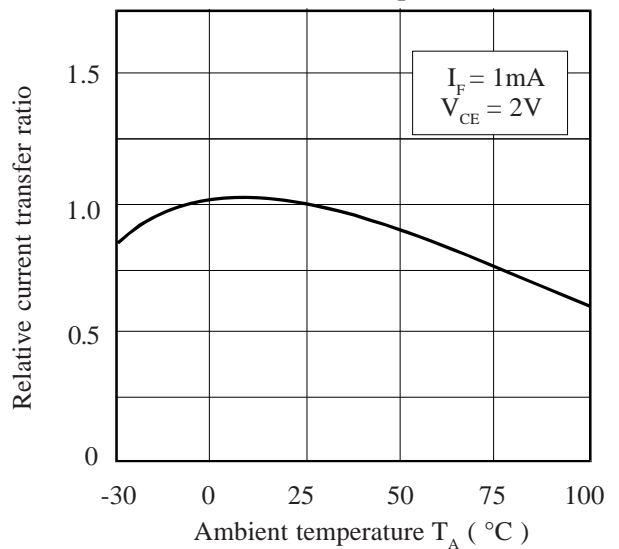
**Collector Current vs. Collector-emitter Voltage**



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



**Relative Current Transfer Ratio vs. Ambient Temperature**



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