ISP815X,ISP825X,ISP845X3,2,1
ISP815,ISP825,ISP845-3,-2,-1

LOW INPUT CURRENT PHOTODARLINGTON OPTICALLY COUPLED ISOLATORS

APPROVALS

- UL recognised, File No. E91231

'X' SPECIFICATION APPROVALS

- VDE 0884 approval pending
- 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 ISP815-3,-2,-1, ISP825-3,-2,-1, ISP845-3,-2,-1 series of optically coupled isolators consist of infrared light emitting diodes and NPN silicon photodarlingtons in space efficient dual in line plastic packages.

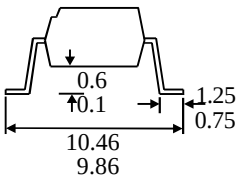
FEATURES

- Options :-
  10mm lead spread - add G after part no.
  Surface mount - add SM after part no.
  Tape&reel - add SMT&R after part no.
- Low input current 0.25mA I_F
- High CurrentTransfer Ratio (200% min)
- High Isolation Voltage (5.3kV$_{RMS}$,7.5kV$_{PK}$)
- High BV_{CEO} (70V min)
- All electrical parameters 100% tested
- Custom electrical selections available

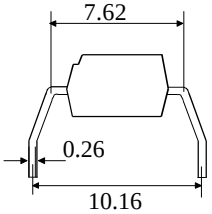
APPLICATIONS

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

OPTION SM
SURFACE MOUNT

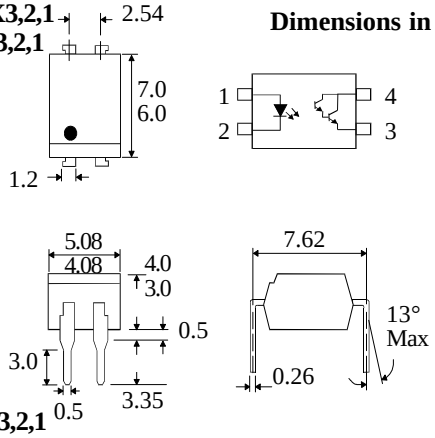


OPTION G

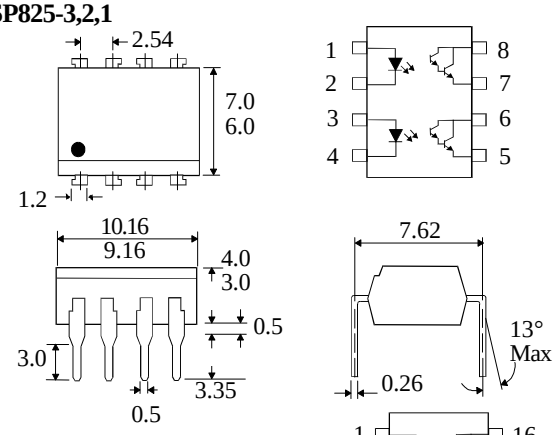


ISP815X3,2,1
ISP815-3,2,1

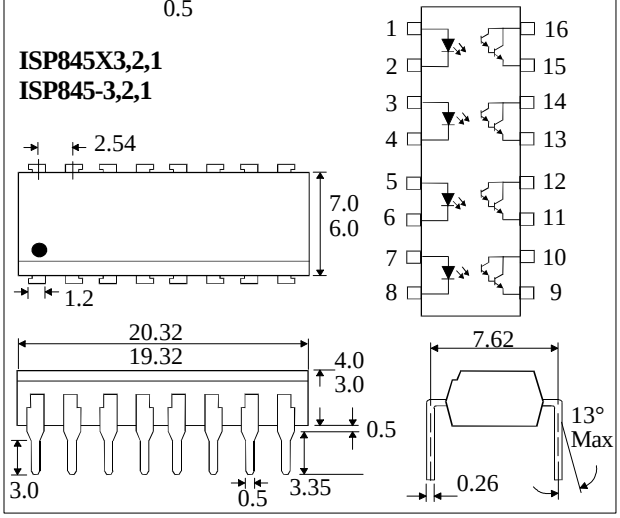
Dimensions in mm



ISP825X3,2,1
ISP825-3,2,1



ISP845X3,2,1
ISP845-3,2,1



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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	10V
Power Dissipation	70mW

OUTPUT TRANSISTOR

Collector-emitter Voltage BV_{CEO}	70V
Emitter-collector Voltage BV_{ECO}	6V
Power Dissipation	150mW

POWER DISSIPATION

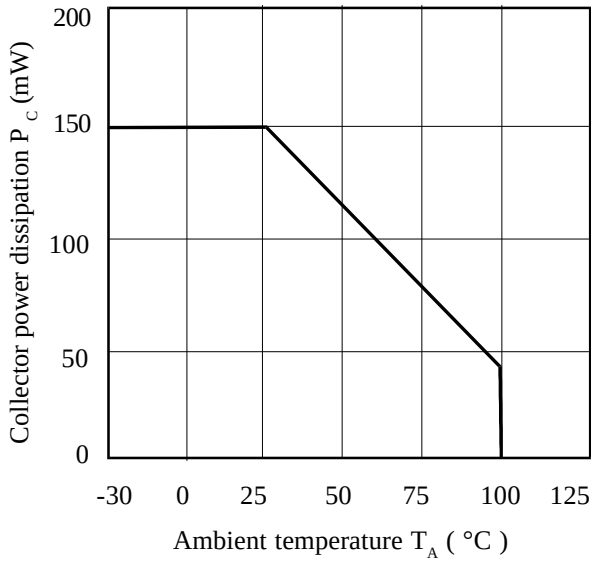
Total Power Dissipation	200mW
(derate linearly 2.67mW/°C above 25°C)	

ELECTRICAL CHARACTERISTICS (T_A = 25°C Unless otherwise noted)

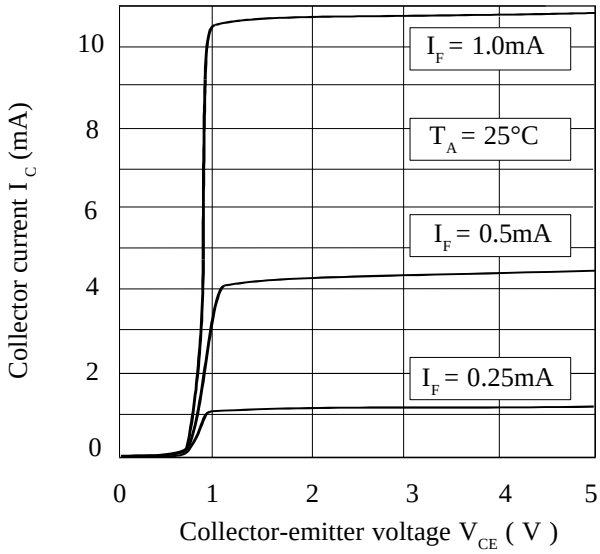
PARAMETER		MIN	TYP	MAX	UNITS	TEST CONDITION
Input	Forward Voltage (V_F)		1.2	1.4	V	I_F = 20mA
	Reverse Voltage (V_R)	10			V	I_R = 10μA
	Reverse Current (I_R)			10	μA	V_R = 10V
Output	Collector-emitter Breakdown (BV_{CEO}) (Note 2)	70			V	I_C = 1mA
	Emitter-collector Breakdown (BV_{ECO})	6			V	I_E = 100μA
	Collector-emitter Dark Current (I_{CEO})			100	nA	V_{CE} = 20V
Coupled	Current Transfer Ratio (CTR) (Note 2)					
	ISP815-3, ISP825-3, ISP845-3	200			%	0.25mA I_F, 1.0V V_{CE}
		400			%	0.5mA I_F, 1.0V V_{CE}
		800			%	1.0mA I_F, 1.0V V_{CE}
	ISP815-2, ISP825-2, ISP845-2	400			%	0.5mA I_F, 1.0V V_{CE}
		800			%	1.0mA I_F, 1.0V V_{CE}
	ISP815-1, ISP825-1, ISP845-1	800			%	1.0mA I_F, 1.0V V_{CE}
	Collector-emitter Saturation Voltage -3			1.0	V	0.25mA I_F, 0.5mA I_C
	-2			1.0	V	0.5mA I_F, 2mA I_C
	-1			1.0	V	1.0mA I_F, 8mA 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}	$5x10^{10}$			Ω	V_{IO} = 500V (note 1)
	Output Rise Time tr		60	300	μs	V_{CE} = 2V ,
	Output Fall Time tf		53	250	μs	I_C = 0.5mA, 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.

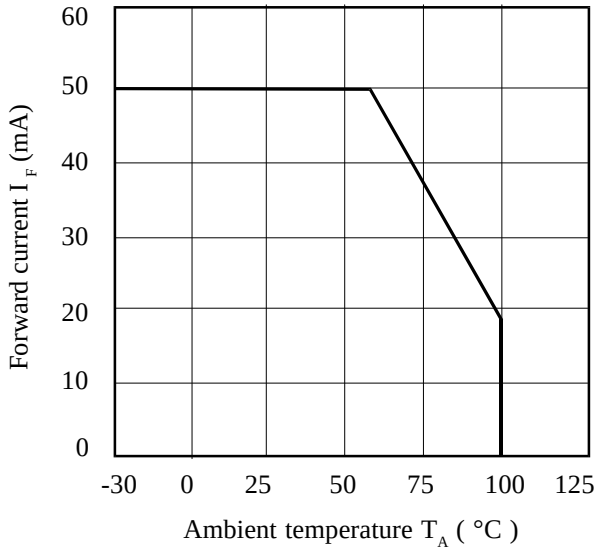
Collector Power Dissipation vs. Ambient Temperature



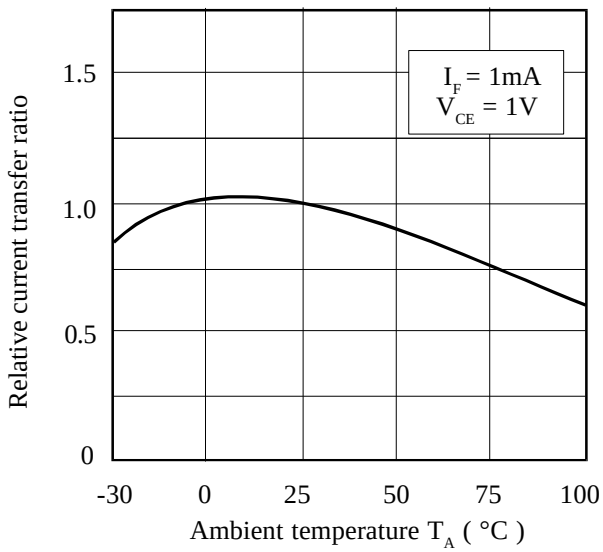
Collector Current vs. Collector-emitter Voltage



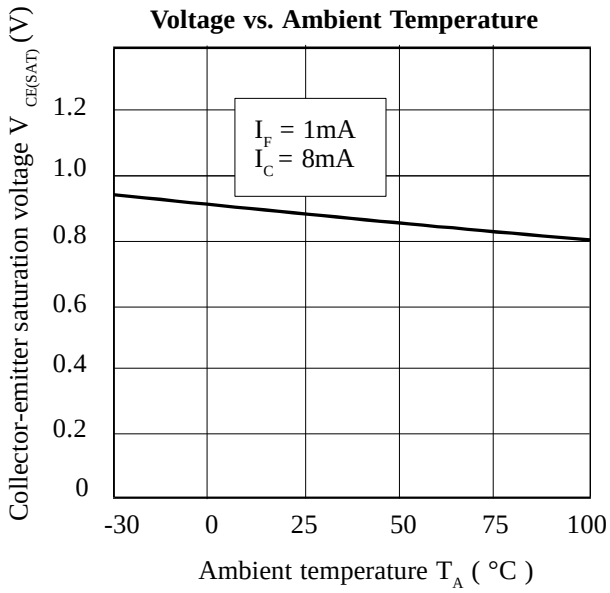
Forward Current vs. Ambient Temperature



Relative Current Transfer Ratio vs. Ambient Temperature



Collector-emitter Saturation Voltage vs. Ambient Temperature



Current Transfer Ratio vs. Forward Current