

ISP817X,  
ISP817



# ISOCOM

COMPONENTS

## HIGH DENSITY MOUNTING PHOTOTRANSISTOR OPTICALLY COUPLED ISOLATORS



### APPROVALS

- UL recognised, File No. E91231 under Package System 'EE'

### 'X' SPECIFICATION APPROVALS

- VDE 0884 in 3 available lead form : -  
- STD  
- G form  
- SMD approved to CECC 00802

### DESCRIPTION

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

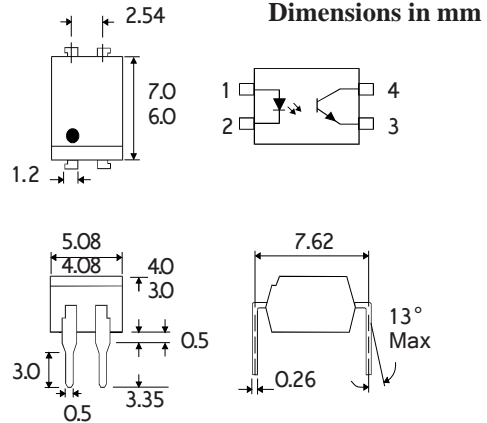
### FEATURES

- 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

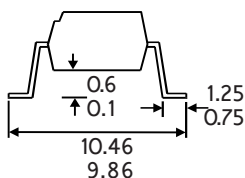
### APPLICATIONS

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

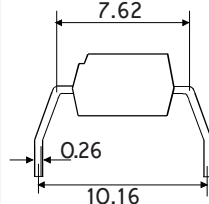
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OPTION SM  
SURFACE MOUNT



OPTION G



**ISOCOMCOMPONENTSLTD**

Unit 25B, Park View Road West,  
Park View Industrial Estate, Brenda Road  
Hartlepool, Cleveland, TS25 1UD  
Tel: (01429) 863609 Fax: (01429) 863581

**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  
 Collector Current \_\_\_\_\_ 50mA  
 Power Dissipation \_\_\_\_\_ 150mW

**POWER DISSIPATION**

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

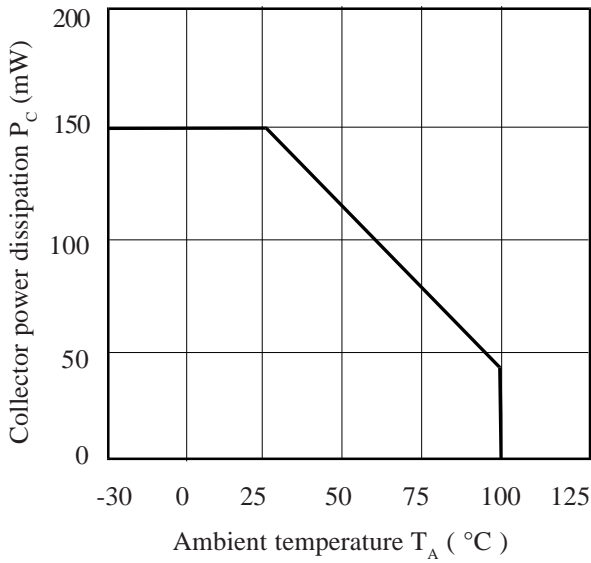
**ELECTRICAL CHARACTERISTICS (  $T_A = 25^\circ\text{C}$  Unless otherwise noted )**

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 ( $BV_{CEO}$ )	80			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)					
		50		600	%	$5\text{mA} I_F, 5\text{V} V_{CE}$
	GB	100		600	%	$5\text{mA} I_F, 5\text{V} V_{CE}$
	BL	200		600	%	$5\text{mA} I_F, 5\text{V} V_{CE}$
	A	80		160	%	$5\text{mA} I_F, 5\text{V} V_{CE}$
	B	130		260	%	$5\text{mA} I_F, 5\text{V} V_{CE}$
	C	200		400	%	$5\text{mA} I_F, 5\text{V} V_{CE}$
	D	300		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		7500	$V_{RMS}$ 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		4	18	$\mu\text{s}$	$V_{CE} = 2\text{V}$ ,	
Output Fall Time tf		3	18	$\mu\text{s}$	$I_C = 2\text{mA}, R_L = 100\Omega$	

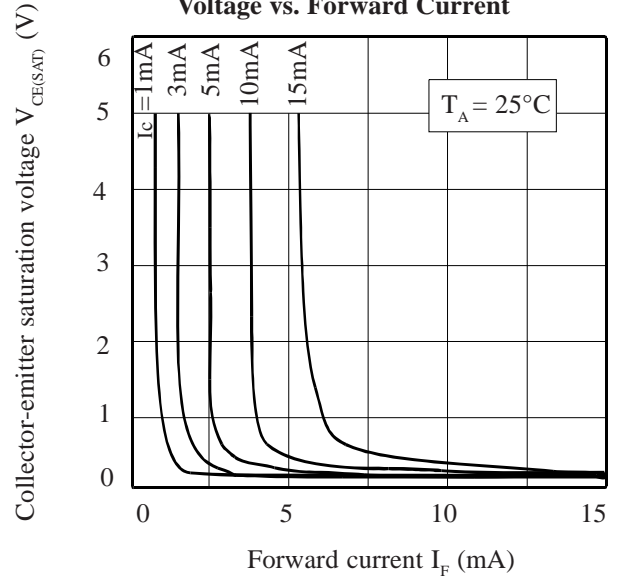
Note 1 Measured with input leads shorted together and output leads shorted together.

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

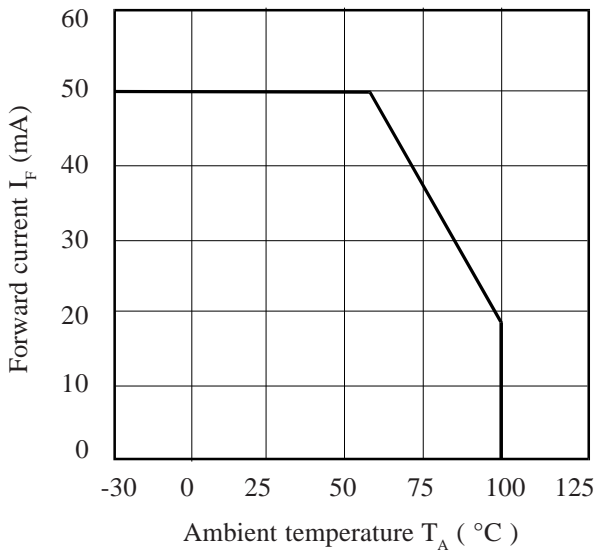
**Collector Power Dissipation vs. Ambient Temperature**



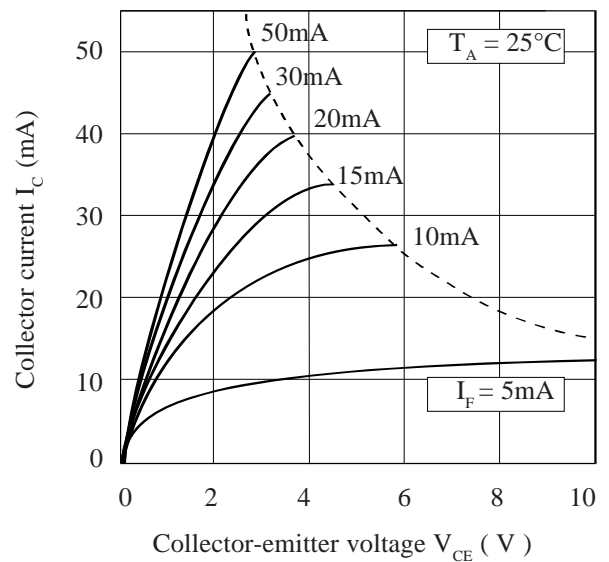
**Collector-emitter Saturation Voltage vs. Forward Current**



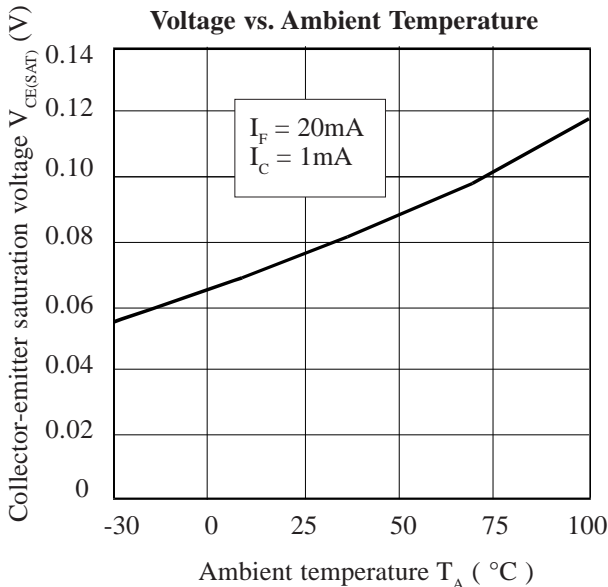
**Forward Current vs. Ambient Temperature**



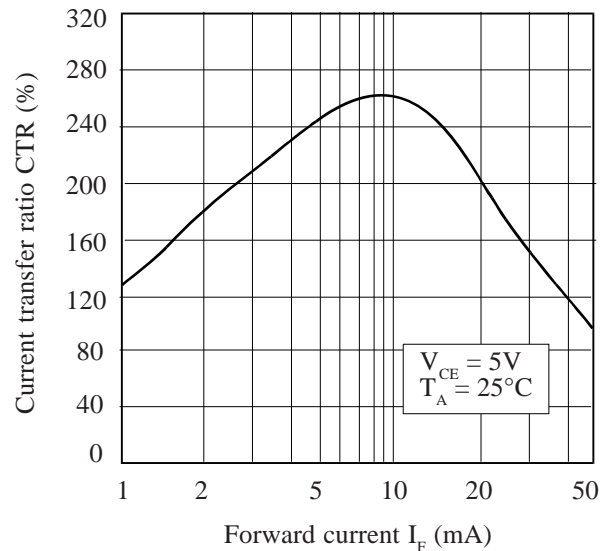
**Collector Current vs. Collector-emitter Voltage**



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



**Current Transfer Ratio vs. Forward Current**



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