

DESCRIPTION

The ISLT100X series optocouplers consists of an infrared emitting diode optically coupled to an NPN silicon photo transistor.

These devices belong to Isocom Long Creepage Range of Optocouplers.

FEATURES

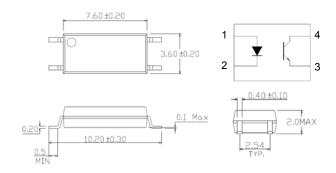
- Long Creepage 8mm
- High AC Isolation voltage 5000V_{RMS}
- CTR Selections Available
- Wide Operating Temperature Range -55°C to 110°C
- Pb Free and RoHS Compliant
- UL Approval E91231, Model THP

APPLICATIONS

- Switching Mode Power Supply
- System Appliances
- Measuring Instruments
- Telecommunication Equipments
- Signal Transmission between Systems of Different Potentials and Impedances

ORDER INFORMATION

Available in Tape and Reel with 3000pcs per reel



All dimensions in mm.

ABSOLUTE MAXIMUM RATINGS $(T_A = 25^{\circ}C)$

Input Diode

Forward Current	60mA
Peak Forward Current (1µs, pulse)	1.5A
Reverse Voltage	6V
Power dissipation	100mW

Output Transistor

Collector to Emitter Voltage V _{CEO}	80V
Emitter to Collector Voltage V _{ECO}	7V
Collector Current	50mA
Power Dissipation	150mW

Total Package

Isolation Voltage (1 minute, R.H. 40 - 60%)	$5000V_{\text{RMS}}$
Total Power Dissipation	250mW
Operating Temperature	-55 to 110 °C
Storage Temperature	-55 to 125 °C
Lead Soldering Temperature (10s)	260°C

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ELECTRICAL CHARACTERISTICS (T_A = 25°C unless otherwise specified)

INPUT

Parameter	Symbol	Test Condition	Min	Тур.	Max	Unit
Forward Voltage	$V_{\rm F}$	$I_F = 50 \text{mA}$		1.45	1.5	V
Reverse Current	I_R	VR = 6V			10	μΑ
Input Capacitance	C_{IN}	$V_F = 0V$, $f = 1KHz$		50		pF

OUTPUT

Parameter	Symbol	Test Condition	Min	Тур.	Max	Unit
Collector-Emitter Breakdown Voltage	BV_{CEO}	$I_C = 0.1 \text{mA}, I_F = 0 \text{mA}$	80			V
Emitter-Collector B Breakdown Voltage	$\mathrm{BV}_{\mathrm{ECO}}$	$I_E = 0.1 \text{mA}, I_F = 0 \text{mA}$	7			V
Collector-Emitter Dark Current	I_{CEO}	$V_{CE} = 20V$, $I_F = 0mA$			100	nA



ELECTRICAL CHARACTERISTICS ($T_A = 25^{\circ}$ C unless otherwise specified)

COUPLED

Parameter	Symbol	Test Condition	Min	Тур.	Max	Unit
Current Transfer Ratio	t Transfer Ratio CTR $I_F = 5mA, V_{CE} = 5V$					%
		ISLT1001	50		600	
		ISLT1007	80		160	
		ISLT1008	130		260	
		ISLT1009	200		400	
		$I_F = 10 \text{mA}, V_{CE} = 5 \text{V}$				
		ISLT1002	63		125	
		ISLT1003	100		200	
		ISLT1004	160		320	
		$I_F = 1 \text{mA}, V_{CE} = 5 \text{V}$				
		ISLT1002	22			
		ISLT1003	34			
		ISLT1004	56			
Collector-Emitter Saturation Voltage	V _{CE(sat)}	$I_F = 10 \text{mA}, I_C = 1 \text{mA}$	nA 0.3		0.3	V
Input to Output Isolation Voltage	V _{ISO}	See note 1	ote 1 5000			$V_{ m RMS}$
Input to Output Isolation Resistance	R _{ISO}	V _{IO} = 500V See note 1 5x10 ¹⁰			Ω	
Floating Capacitance	C_{f}	$V_F = 0V, f = 1MHz$ 1.0		1.0	pF	
Turn On Time	t _{on}	$V_{CE} = 2V$, $Ic = 5mA$, $R_L = 100\Omega$			μs	
Turn Off Time	$t_{ m off}$	3			μs	
Output Rise Time	t _r		2 18		18	μs
Output Fall Time	t_{f}			3	18	μs

Note 1 : Measured with input leads shorted together and output leads shorted together, R.H 40% to 60%



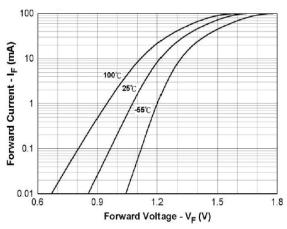


Fig 1 Forward Current vs Forward Voltage

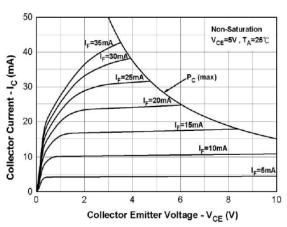


Fig 3 Collector Current vs Collector-Emitter Voltage (1)

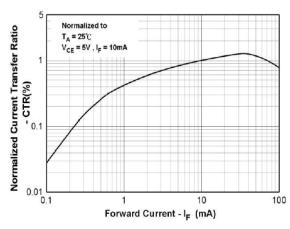


Fig 5 Normalized Current Transfer Ratio vs Forward Current

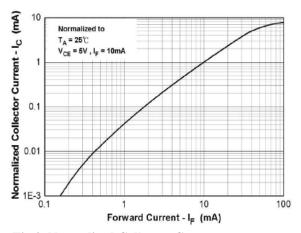


Fig 2 Normalized Collector Current vs Forward Current

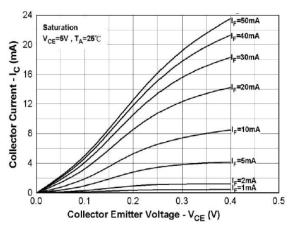


Fig 4 Collector Current vs Collector-Emitter Voltage (2)

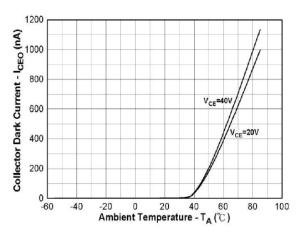


Fig 6 Collector Dark Current vs Ambient Temperature



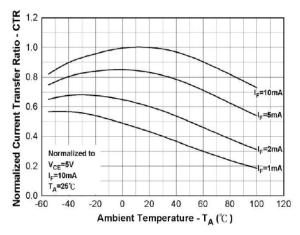


Fig 7 Normalized Current Transfer Ratio vs Ambient Temperature (1)

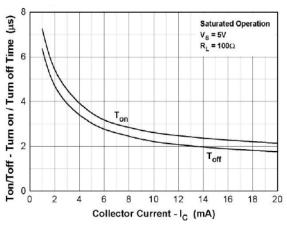


Fig 9 Turn on/off Time vs Collector Current

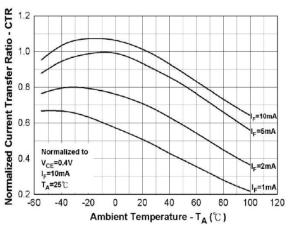


Fig 8 Normalized Current Transfer Ratio vs Ambient Temperature (2)

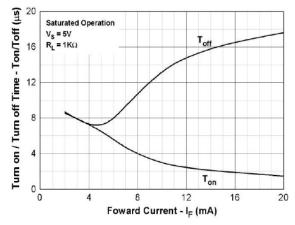
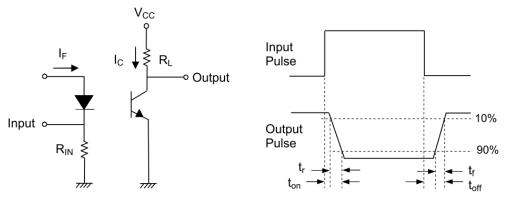


Fig 10 Turn on/off Time vs Forward Current



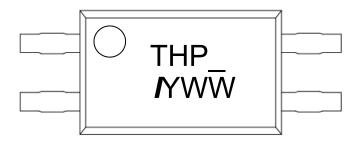
Switching Time Test Circuit and Waveforms



ORDER INFORMATION

	ISLT1000					
After PN	PN Description		Packing quantity			
Any CTR Grade	ISLT1001, ISLT1002, ISLT1003, ISLT1004, ISLT1007, ISLT1008, ISLT1009	Surface Mount Tape & Reel	3000 pcs per reel			

DEVICE MARKING



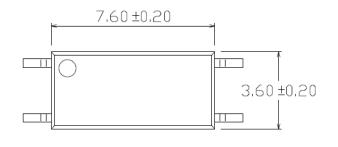
THP_ denotes Device Part Number where "_" denoted CTR Grade

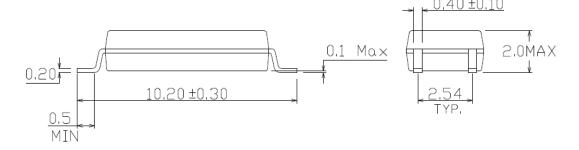
I denotes Isocom

Y denotes 1 digit Year code WW denotes 2 digit Week code

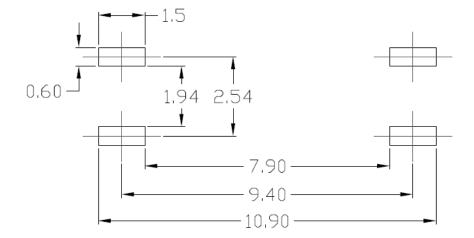


PACKAGE DIMENSIONS (mm)





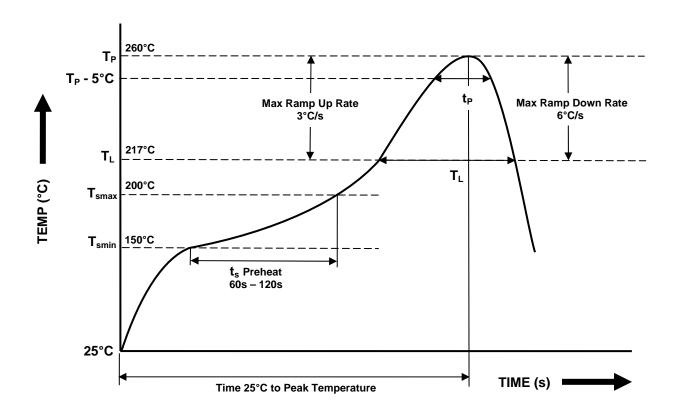
RECOMMENDED SOLDER PAD LAYOUT (mm)





IR REFLOW SOLDERING TEMPERATURE PROFILE

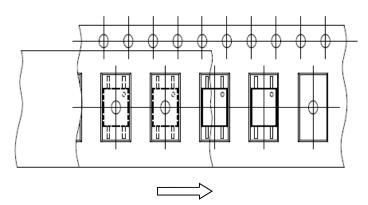
(One Time Reflow Soldering is Recommended)



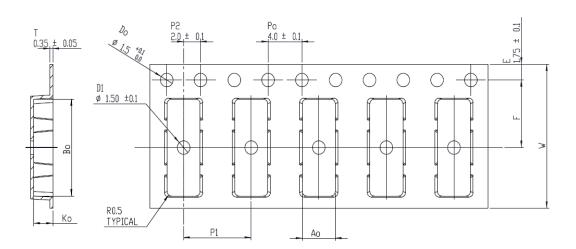
Profile Details	Conditions
$ \begin{array}{l} \textbf{Preheat} \\ \textbf{- Min Temperature } (T_{SMIN}) \\ \textbf{- Max Temperature } (T_{SMAX}) \\ \textbf{- Time T}_{SMIN} \ \text{to T}_{SMAX} \ (t_s) \end{array} $	150°C 200°C 60s - 120s
	260°C 217°C 30s 60s - 100s 3°C/s max 6°C/s max
Average Ramp Up Rate (T _{smax} to T _P)	3°C/s max
Time 25°C to Peak Temperature	8 minutes max



TAPE AND REEL PACKAGING



Direction of feed from reel



Dimension No.	Ao	Во	Do	D1	E	F
Dimension (mm)	3.9±0.1	10.75±0.10	1.5+0.1/-0	1.5±0.1	1.75±0.10	7.5±0.1
Dimension No.	Ро	P1	P2	Т	w	Ko
Dimension (mm)	4.0±0.1	8.0±0.1	2.0±0.1	0.35±0.05	16.0±0.3	2.25±0.10



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- When requiring a device for any "specific" application, please contact our sales for advice.
- The contents described herein are subject to change without prior notice.
- Do not immerse device body in solder paste.



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