



ISOCOM
COMPONENTS

IS1100

DESCRIPTION

The IS1100 series optocoupler consists of an infrared emitting diode optically coupled to an NPN silicon photo transistor.

This device belongs to Isocom Compact Range of Optocouplers.

FEATURES

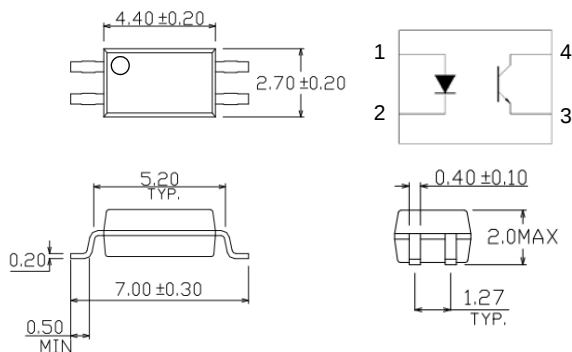
- Half Pitch 1.27mm
- High AC Isolation voltage 3750V_{RMS}
- CTR Selections Available
- Wide Operating Temperature Range -55°C to 110°C
- Pb Free and RoHS Compliant
- UL Approval E91231, Model THP

APPLICATIONS

- Switching Mode Power Supply
- Industrial System Controllers
- Measuring Instruments
- Signal Transmission between Systems of Different Potentials and Impedances

ORDER INFORMATION

- Available in Tape and Reel with 1000pcs per reel



All dimensions in mm.

ABSOLUTE MAXIMUM RATINGS (T_A = 25°C)

Input Diode

Forward Current	50mA
Reverse Voltage	6V
Power dissipation	70mW

Output Transistor

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

Total Package

Isolation Voltage	3750V _{RMS}
Total Power Dissipation	200mW
Operating Temperature	-55 to 110 °C
Storage Temperature	-55 to 125 °C
Lead Soldering Temperature (10s)	260°C

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IS1100

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

INPUT

Parameter	Symbol	Test Condition	Min	Typ.	Max	Unit
Forward Voltage	V_F	$I_F = 20\text{mA}$		1.2	1.4	V
Reverse Current	I_R	$V_R = 4\text{V}$			10	μA
Input Capacitance	C_{IN}	$V_F = 0\text{V}$, $f = 1\text{KHz}$		30	250	pF

OUTPUT

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



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

COUPLED

Parameter	Symbol	Test Condition	Min	Typ.	Max	Unit
Current transfer ratio	CTR	$I_F = 5\text{mA}$, $V_{CE} = 5\text{V}$ IS1100	50		600	%
		$I_F = 10\text{mA}$, $V_{CE} = 5\text{V}$ IS1101	40		80	
		IS1102	63		125	
		IS1103	100		200	
		IS1104	160		320	
		$I_F = 10\text{mA}$, $V_{CE} = 5\text{V}$ IS1105	50		150	
		IS1106	100		300	
		IS1107	80		160	
		IS1108	130		260	
		IS1109	200		400	
Collector-Emitter Saturation Voltage	$V_{CE(sat)}$	$I_F = 10\text{mA}$, $I_C = 1\text{mA}$		0.1	0.2	V
Input to Output Isolation Voltage	V_{ISO}	See note 1	3750			V_{RMS}
Input to Output Isolation Resistance	R_{ISO}	$V_{IO} = 500\text{V}$ See note 1	5×10^{10}			Ω
Floating Capacitance	C_f	$V_F = 0\text{V}$, $f = 1\text{MHz}$		0.3		pF
Output Rise Time	t_r	$V_{CE} = 2\text{V}$, $I_c = 2\text{mA}$, $R_L = 100\Omega$		6	18	μs
Output Fall Time	t_f	$V_{CE} = 2\text{V}$, $I_c = 2\text{mA}$, $R_L = 100\Omega$		6	18	μs

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

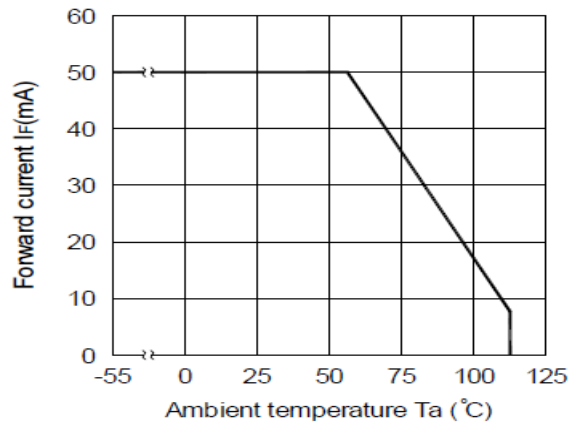


Fig 1 Forward Current vs Ambient Temperature

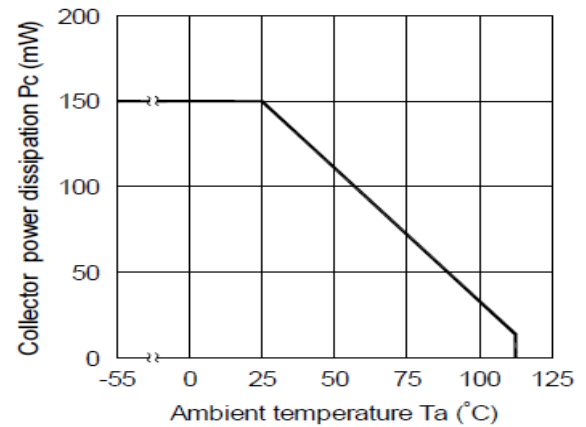


Fig 2 Collector Power Dissipation vs T_A

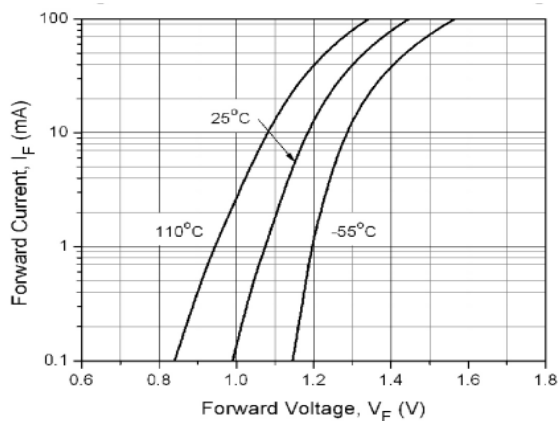


Fig 3 Forward Current vs Forward Voltage

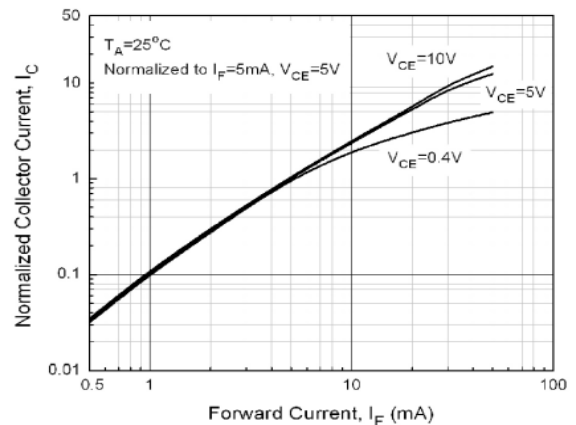


Fig 4 Normalized Collector Current vs Forward Current

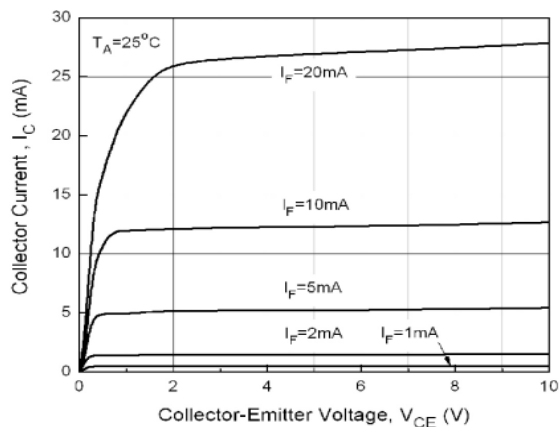


Fig 5 Collector Current vs Collector-Emitter Voltage (1)

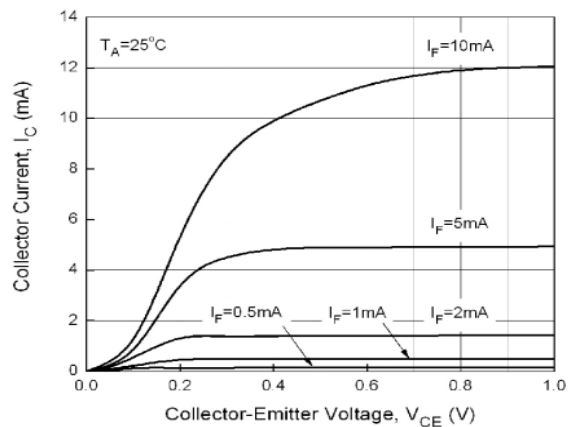


Fig 6 Collector Current vs Collector-Emitter Voltage (2)

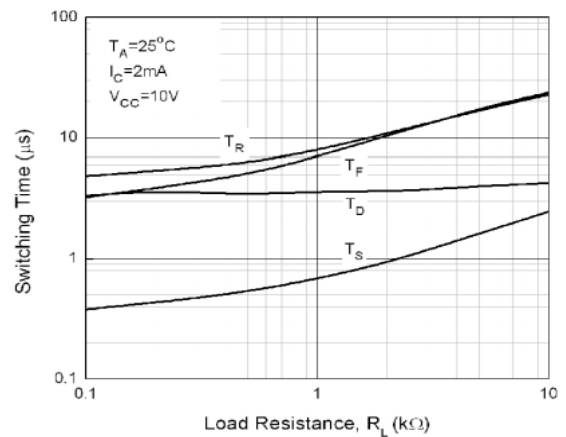
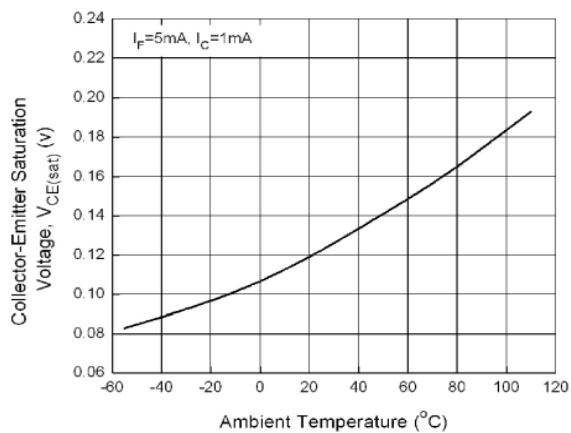
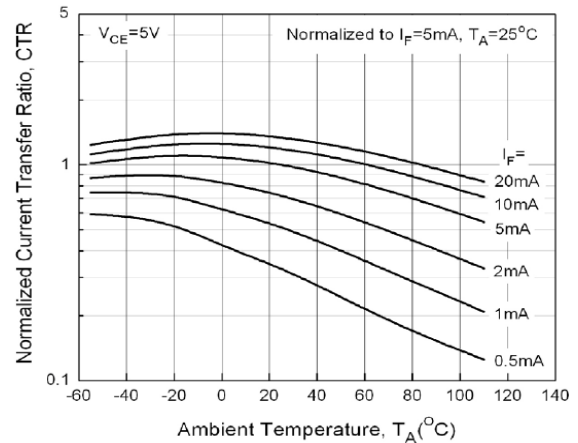
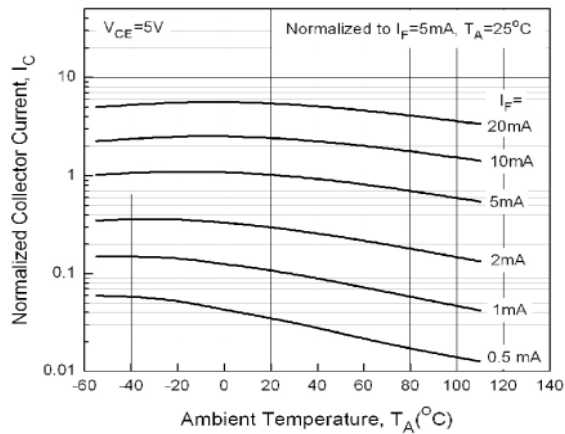
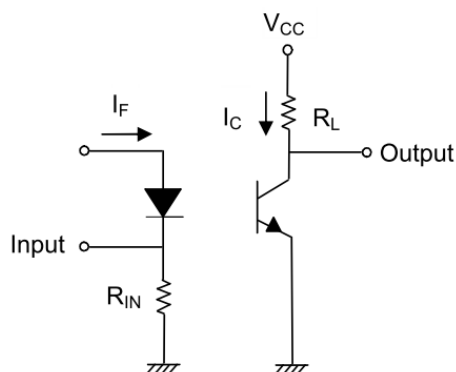
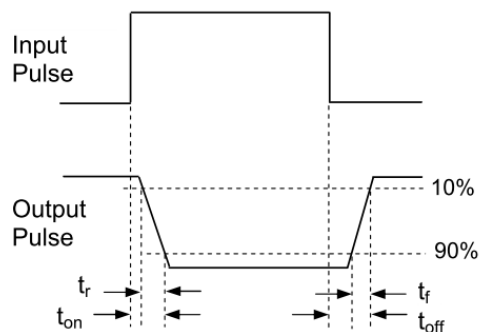


Fig 9 Collector-Emitter Voltage vs Ambient Temperature

Fig 10 Switching Time vs Load Resistance



Switching Time Test Circuit





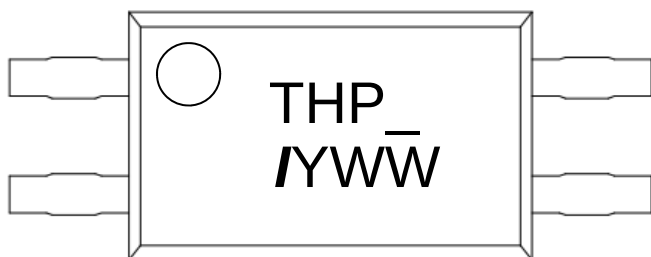
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ORDER INFORMATION

IS1100			
After PN	PN	Description	Packing quantity
None	IS1100	Surface Mount Tape & Reel	1000 pcs per reel
Any CTR Grade	IS1101, IS1102, IS1103, IS1104, IS1105, IS1106, IS1107, IS1108, IS1109,	Surface Mount Tape & Reel	1000 pcs per reel

Device Marking

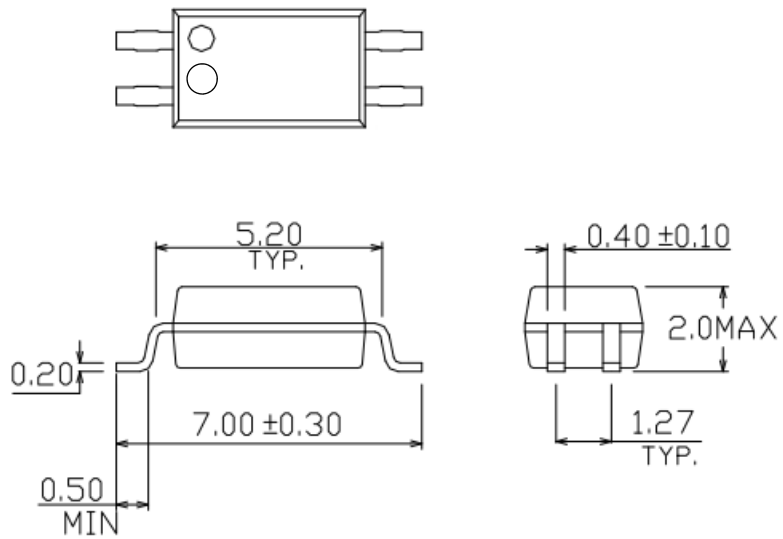


THP_ denotes Device Part Number where “_” denoted CTR Grade
/ denotes Isocom
Y denotes 1 digit Year code
WW denotes 2 digit Week code

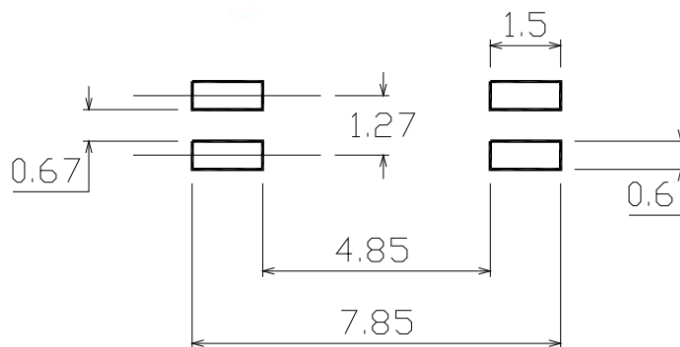


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PACKAGE DIMENSIONS (mm)

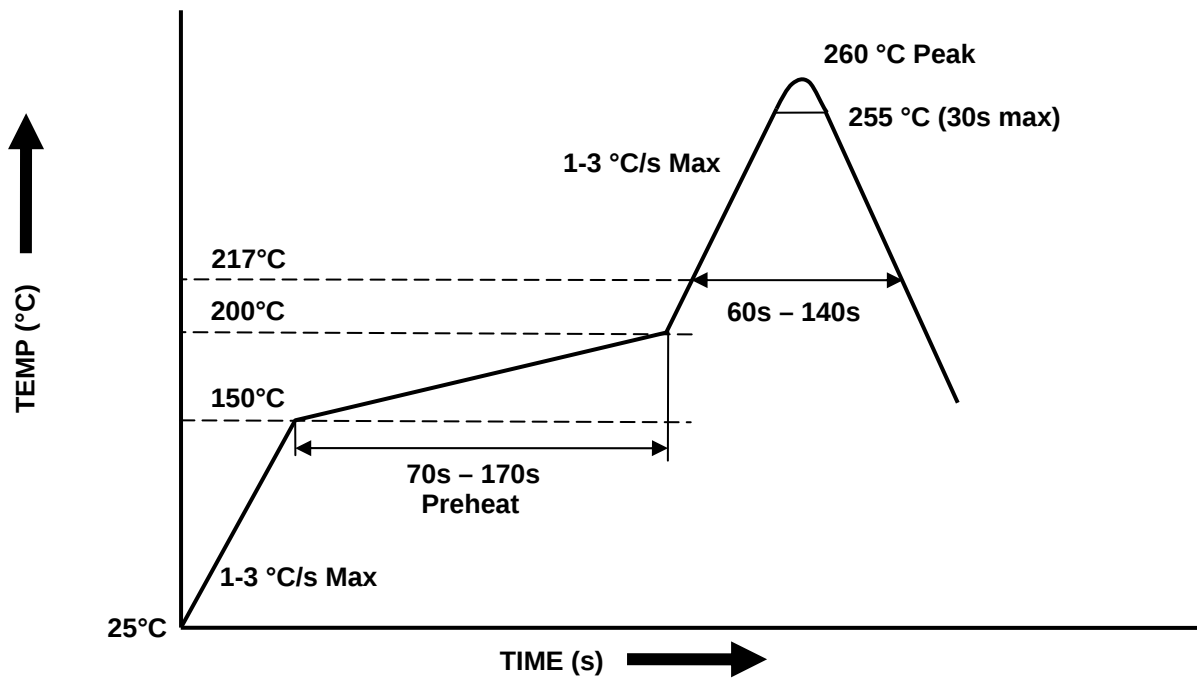


Recommended Solder Pad Layout (mm)





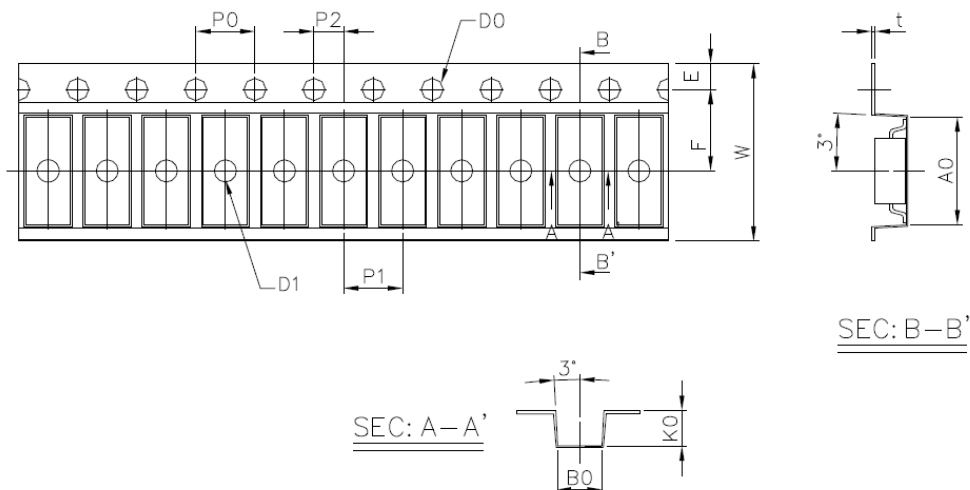
IR REFLOW SOLDERING TEMPERATURE PROFILE
(One Time Reflow Soldering is Recommended)





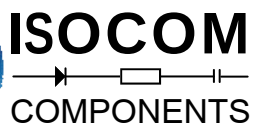
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Tape and Reel Packaging



Dimension No.	A	B	Do	D1	E	F
Dimension (mm)	3.0 ± 0.1	7.3 ± 0.1	$1.5 + 0.1/-0$	1.5 ± 0.1	1.75 ± 0.1	5.5 ± 0.1

Dimension No.	Po	P1	P2	t	W	K
Dimension (mm)	4.0 ± 0.15	4.0 ± 0.1	2.0 ± 0.1	0.25 ± 0.03	12.0 ± 0.2	2.4 ± 0.1



IS1100

Notes:

- Isocom is continually improving the quality, reliability, function or design and Isocom reserves the right to make changes without further notices.
- The products shown in this publication are designed for the general use in electronic applications such as office automation equipment, communications devices, audio/visual equipment, electrical application and instrumentation.
- For equipment/application where high reliability or safety is required, such as space applications, nuclear power control equipment, medical equipment, etc., please contact our sales representatives.
- 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.