

DESCRIPTION

The IS280 is an optically coupled isolator consists of two infrared emitting diodes in reverse parallel connection and optically coupled to an NPN silicon photo transistor.

This device belongs to Isocom Compact Range of Optocouplers.

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FEATURES

- Half Pitch 1.27mm
- High AC Isolation voltage 3750V_{RMS}
- Wide Operating Temperature Range -55°C to 100°C
- Pb Free and RoHS Compliant
- UL Approval E91231, Model AHP

APPLICATIONS

- Ring Detection on Telephone Lines
- 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

ABSOLUTE MAXIMUM RATINGS ($T_A = 25$ °C)

Input Diode

Forward Current	±50mA
Peak Forward Current (10us)	1A
Power dissipation	70mW

Output Transistor

Collector to Emitter Voltage V _{CEO}	80V
Emitter to Collector Voltage V _{ECO}	6V
Power Dissipation	150mW

Total Package

Isolation Voltage	$3750V_{RMS}$
Total Power Dissipation	200mW
Operating Temperature	-55 to 100 °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	$V_{\rm F}$	$I_F = \pm 20 \text{mA}$		1.2	1.4	V
Input Capacitance	C_{IN}	$V_F = 0V$, $f = 1KHz$		50	250	pF

OUTPUT

Parameter	Symbol	Test Condition	Min	Тур.	Max	Unit
Collector-Emitter Breakdown Voltage	$\mathrm{BV}_{\mathrm{CEO}}$	$I_C = 0.1 \text{ mA}, I_F = 0 \text{mA}$	80			V
Emitter-Collector Breakdown Voltage	$\mathrm{BV}_{\mathrm{ECO}}$	$I_E = 0.01 \text{mA}, I_F = 0 \text{mA}$	6			V
Collector-Emitter Dark Current	I_{CEO}	$V_{CE} = 20V$, $I_F = 0mA$			100	nA

COUPLED

Parameter	Symbol	Test Condition	Min	Тур.	Max	Unit
Current Transfer Ratio	CTR	$I_F = \pm 1 \text{mA}, \ V_{CE} = 5 \text{V}$	20		300	%
CTR Symmetry		$I_F = \pm 1 \text{mA}, V_{CE} = 5V$	0.5		2.0	
Collector—Emitter Saturation Voltage	V _{CE(sat)}	$I_F = \pm 20 \text{mA}, I_C = 1 \text{mA}$		0.1	0.2	V
Input to Output Isolation Voltage	$V_{\rm ISO}$	See note 1	3750			V_{RMS}
Input to Output Isolation Resistance	R _{ISO}	V _{IO} = 500V See note 1	5x10 ¹⁰	1x10 ¹¹		Ω
Floating Capacitance	C _{IO}	$V_F = 0V$, $f = 1MHz$		0.6	1.0	pF
Output Rise Time	t _r	$V_{CE} = 2V$, $Ic = 2mA$,		6	18	μs
Output Fall Time	t_{f}	$R_L = 100\Omega$		6	18	μs

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



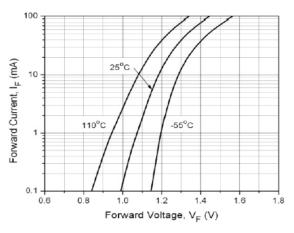


Fig 1 Forward Current vs Forward Voltage

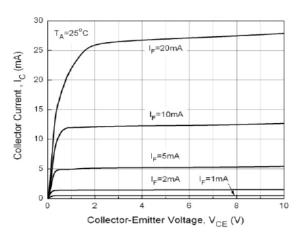


Fig 3 Collector Current vs Collector-Emitter Voltage (1)

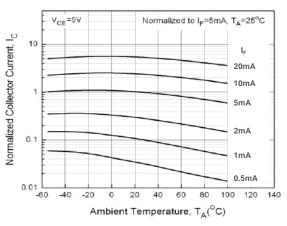


Fig 5 Normalized Collector Current vs Ambient Temperature

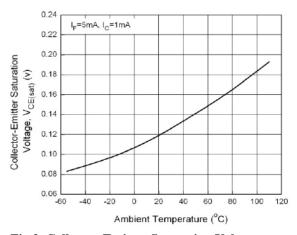


Fig 2 Collector-Emitter Saturation Voltage vs Ambient Temperature

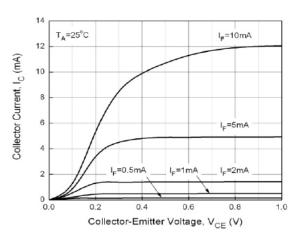


Fig 4 Collector Current vs Collector-Emitter Voltage (2)

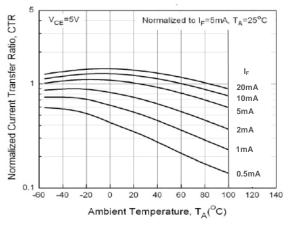


Fig 6 Normalized Current Transfer Ratio vs Ambient Temperature



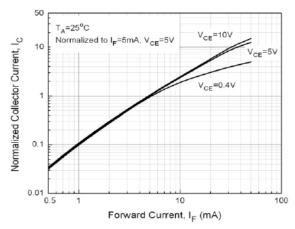


Fig 7 Normalized Collector Current vs Forward Current

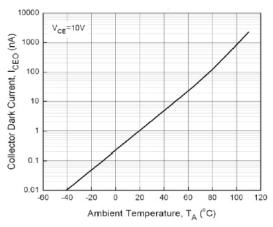


Fig 9 Collector Dark Current vs Ambient Temperature

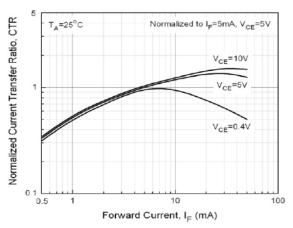


Fig 8 Normalized Current Transfer Ratio vs Forward Current

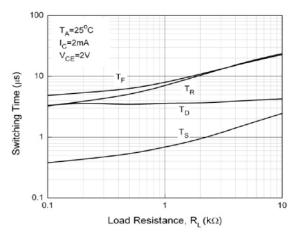
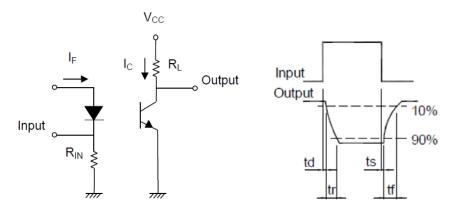


Fig 10 Switching Time vs Load Resistance



Switching Time Test Circuit



ORDER INFORMATION

		IS280				
After PN	After PN PN Description Packing quantity					
None	IS280	Surface Mount Tape & Reel	1000 pcs per reel			

DEVICE MARKING



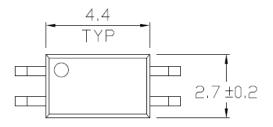
AHP1 denotes Device Part Number

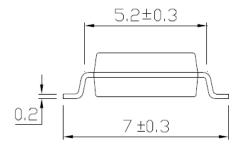
denotes Isocom

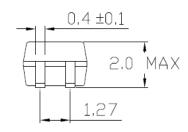
Y denotes 1 digit Year code WW denotes 2 digit Week code



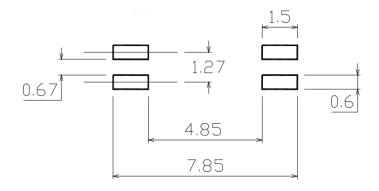
PACKAGE DIMENSIONS (mm)







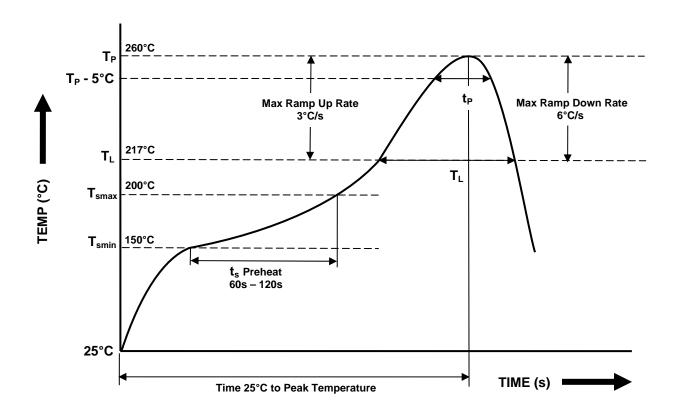
RECOMMENDED SOLDER PAD LAYOUT (mm)





IR REFLOW SOLDERING TEMPERATURE PROFILE

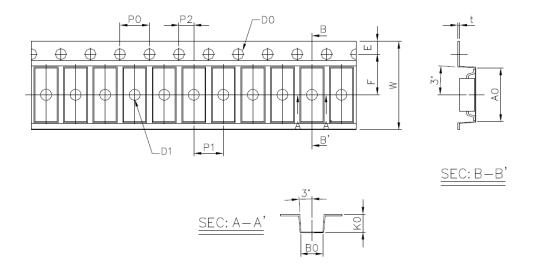
(One Time Reflow Soldering is Recommended)



Profile Details	Conditions
Preheat - Min Temperature (T _{SMIN}) - Max Temperature (T _{SMAX}) - Time T _{SMIN} to T _{SMAX} (t _s)	150°C 200°C 60s - 120s
$\begin{tabular}{lll} \textbf{Soldering Zone} \\ - & \mbox{Peak Temperature } (T_P) \\ - & \mbox{Liquidous Temperature } (T_L) \\ - & \mbox{Time within } 5^{\circ}\mbox{C of Actual Peak Temperature } (T_P - 5^{\circ}\mbox{C}) \\ - & \mbox{Time maintained above } T_L \ (t_L) \\ - & \mbox{Ramp Up Rate } (T_L \ \mbox{to } T_P) \\ - & \mbox{Ramp Down Rate } (T_P \ \mbox{to } T_L) \\ \end{tabular}$	260°C 217°C 30s 60s 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



Dimension No.	Α	В	Do	D1	E	F
Dimension (mm)	3.0 ± 0.1	7.3 ± 0.1	1.5 + 0.1/-0	1.5 ± 0.1	1.7 5± 0.1	5.5 ± 0.1
Dimension No.	Po	P1	P2	t	W	К
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



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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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