Chipsmall Limited consists of a professional team with an average of over 10 year of expertise in the distribution of electronic components. Based in Hongkong, we have already established firm and mutual-benefit business relationships with customers from,Europe,America and south Asia,supplying obsolete and hard-to-find components to meet their specific needs.

With the principle of “Quality Parts,Customers Priority,Honest Operation,and Considerate Service”,our business mainly focus on the distribution of electronic components. Line cards we deal with include Microchip,ALPS,ROHM,Xilinx,Pulse,ON,Everlight and Freescale. Main products comprise IC,Modules,Potentiometer,IC Socket,Relay,Connector.Our parts cover such applications as commercial,industrial, and automotives areas.

We are looking forward to setting up business relationship with you and hope to provide you with the best service and solution. Let us make a better world for our industry!

Contact us

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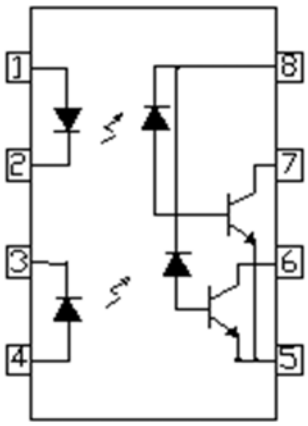
ISOCOM COMPONENTS

ICPL2530, ICPL2531

DESCRIPTION

The ICPL2530 and ICPL2531 dual channel devices each consists of an infrared emitting diode optically coupled to a high speed photo detector transistor. A separate connection for the photodiode bias and output transistor collector increases the speed by several orders of magnitude over conventional phototransistor couplers by reducing the base-collector capacitance.



1. Anode
2. Cathode
3. Cathode
4. Anode
5. Gnd
6. Vout2
7. Vout1
8. V_{CC}

FEATURES

- High Speed 1Mbit/s
- High AC Isolation Voltage 5000V_{RMS}
- Guaranteed Performance from 0°C to 70°C
- Wide Operating Temperature Range -40°C to 100 °C
- Pb Free and RoHS Compliant
- Safety Approvals Pending

APPLICATIONS

- Line Receivers
- Telecommunication Equipment
- Power Transistor Isolation in Motor Drives
- Replacement of Low Speed Phototransistor Optocouplers
- High Speed Logic Ground Isolation

ORDER INFORMATION

- Add G after PN for 10mm lead spacing
- Add SM after PN for Surface Mount
- Add SMT&R after PN for Surface Mount Tape & Reel

.

ABSOLUTE MAXIMUM RATINGS

Input Diode

Forward Current	25mA
Peak Forward Current (50% duty cycle 1ms pulse width)	50mA
Peak Transient Current ($\leq 1\mu s$ pulse width, 300pps)	1A
Reverse Voltage	5V
Power dissipation	45mW

Output

Average Output Current	8mA
Peak Output Current	16mA
Output Voltage	-0.5 to 20V
Supply Voltage	-0.5 to 30V
Power Dissipation	35mW

Total Package

Isolation Voltage	5000V_{RMS}
Operating Temperature	-40 to 100 °C
Storage Temperature	-55 to 125 °C
Lead Soldering Temperature (10s)	260°C

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Tel: +852 2995 9217 Fax : +852 8161 6292
e-mail sales@isocom.com.hk

ELECTRICAL CHARACTERISTICS

INPUT (T_A = 0°C to 70°C unless otherwise specified)

Parameter	Symbol	Test Condition	Min	Typ.*	Max	Unit
Forward Voltage	V_F	I_F = 16mA, T_A = 25°C		1.45	1.8	V
Reverse Voltage	V_R	I_R = 10µA	5.0			V
Temperature Coefficient	V_F/T_A	I_F = 16mA		-1.9		mV/°C
Input Capacitance	C_{IN}	V_F = 0V, f = 1MHz		60		pF

OUTPUT (T_A = 0°C to 70°C unless otherwise specified)

Parameter	Symbol	Test Condition	Min	Typ.*	Max	Unit
Logic High Output Current	I_{OH}	I_F = 0mA, V_O = V_{CC} = 5.5V, T_A = 25°C		0.001	0.5	µA
		I_F = 0mA, V_O = V_{CC} = 15V, T_A = 25°C			50	
Logic Low Supply Current	I_{CCL}	I_{F1} = I_{F2} = 16mA, V_O = Open, V_{CC} = 15V		140	400	µA
Logic High Supply Current	I_{CCH}	I_F = 0mA, V_O = Open V_{CC} = 15V, T_A = 25°C		0.01	1	µA
		I_F = 0mA, V_O = Open V_{CC} = 15V			4	

*** Typical Values at T_A = 25°C**

ELECTRICAL CHARACTERISTICS

COUPLED (T_A = 0°C to 70°C unless otherwise specified)

Parameter	Symbol	Test Condition	Min	Typ.*	Max	Unit
Current Transfer Ratio	CTR	ICPL2530 ICPL2531 I_F = 16mA, V_O = 0.4V V_{CC} = 4.5V, T_A = 25°C	7 19		50 50	%
		ICPL2530 ICPL2531 I_F = 16mA, V_O = 0.5V V_{CC} = 4.5V	5 15			%
Logic Low Output Voltage	V_{OL}	ICPL2530 I_F = 16mA, I_O = 1.1mA V_{CC} = 4.5V, T_A = 25°C		0.18	0.5	V
		ICPL2531 I_F = 16mA, I_O = 3mA V_{CC} = 4.5V, T_A = 25°C		0.25	0.5	V
		ICPL2530 I_F = 16mA, I_O = 0.8mA V_{CC} = 4.5V			0.5	V
		ICPL2531 I_F = 16mA, I_O = 2.4mA V_{CC} = 4.5V			0.5	V

*** Typical Values at T_A = 25°C**

ELECTRICAL CHARACTERISTICS

Switching Characteristics

(T_A = 0°C to 70°C, Vcc = 5V, I_F = 16mA unless otherwise specified)

Parameter	Symbol	Test Condition	Min	Typ.*	Max	Unit
Propagation Delay Time to Logic Low	t_{PHL}	ICPL2530 R_L = 4.1kΩ, T_A = 25°C R_L = 4.1kΩ		0.35	1.5 2.0	µs
		ICPL2531 R_L = 1.9kΩ, T_A = 25°C R_L = 1.9kΩ		0.35	0.8 1.0	
Propagation Delay Time to Logic High	t_{PLH}	ICPL2530 R_L = 4.1kΩ, T_A = 25°C R_L = 4.1kΩ		0.5	1.5 2.0	µs
		ICPL2531 R_L = 1.9kΩ, T_A = 25°C R_L = 1.9kΩ		0.3	0.8 1.0	
Common Mode Transient Immunity at Logic High	CM_H	ICPL2530 I_F = 0mA, V_{CM} = 10Vp-p, R_L = 4.1kΩ , T_A = 25°C	1000	10000		V/µs
		ICPL2531 I_F = 0mA, V_{CM} = 1000Vp-p, R_L = 1.9kΩ , T_A = 25°C	1000	10000		V/µs
Common Mode Transient Immunity at Logic Low	CM_L	ICPL2530 I_F = 16mA, V_{CM} = 10Vp-p, R_L = 4.1kΩ , T_A = 25°C	1000	10000		V/µs
		ICPL2531 I_F = 16mA, V_{CM} = 1000Vp-p, R_L = 1.9kΩ , T_A = 25°C	1000	10000		V/µs

*** Typical Values at T_A = 25°C**

- Common mode transient immunity in logic high level is the maximum tolerable (positive) dV_{CM}/dt on the leading edge of the common mode pulse signal V_{CM}, to assure that the output will remain in a logic high state (i.e. $V_O > 2.0V$).

- Common mode transient immunity in logic low level is the maximum tolerable (negative) dV_{CM}/dt on the trailing edge of the common mode pulse signal, V_{CM}, to assure that the output will remain in a logic low state (i.e. $V_O < 0.8V$).

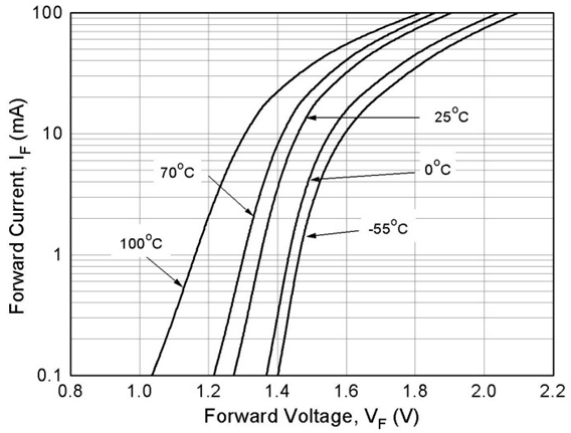


Fig 1 Forward Current vs Forward Voltage

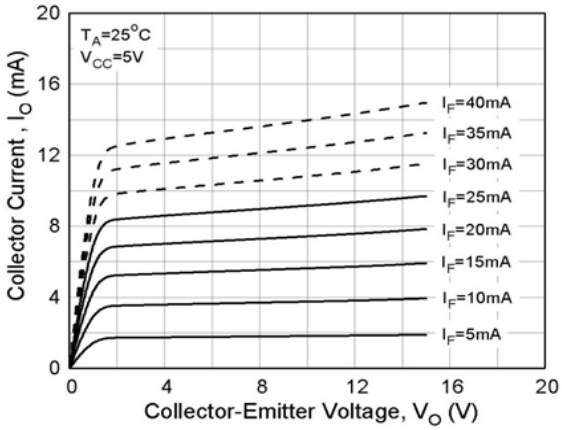


Fig 2 Output Current vs Output Voltage

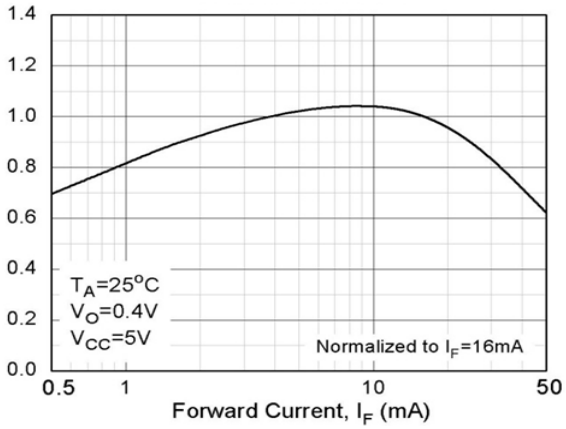


Fig 3 Normalized CTR vs Forward Current

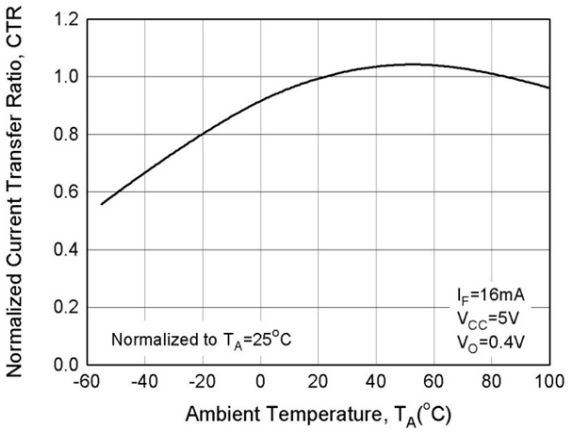


Fig 4 Normalized CTR vs Ambient Temperature

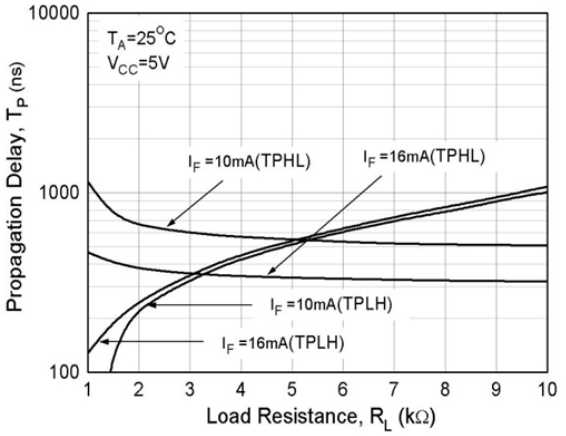


Fig 5 Propagation Delay vs Load Resistance

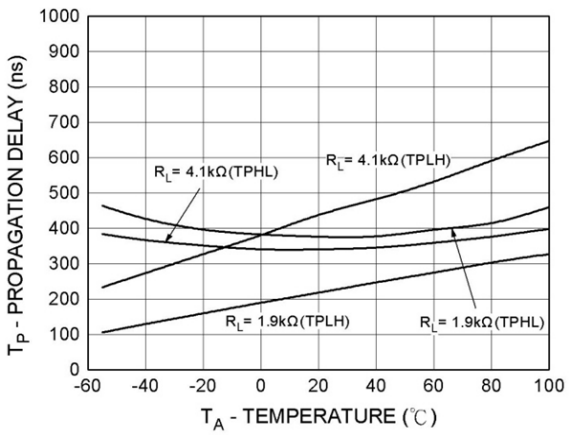


Fig 6 Propagation Delay vs Ambient Temperature

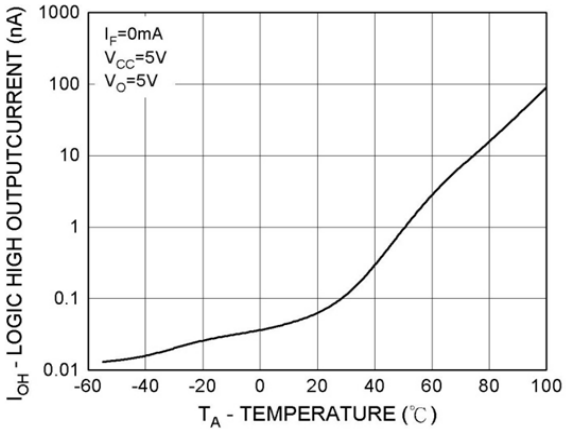
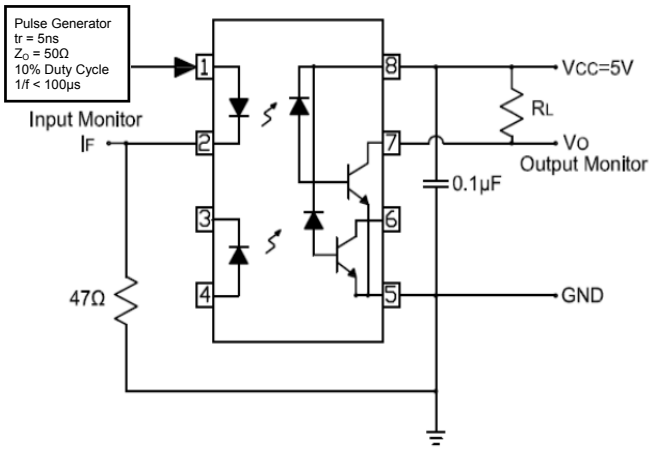


Fig 7 Logic High Output Current vs T_A



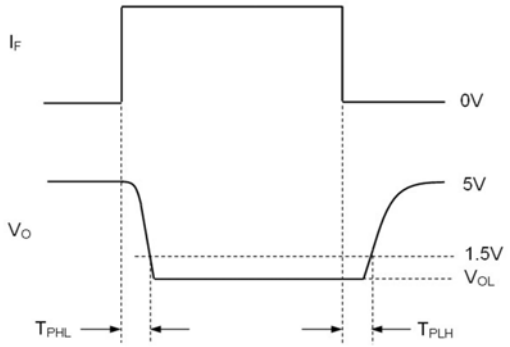
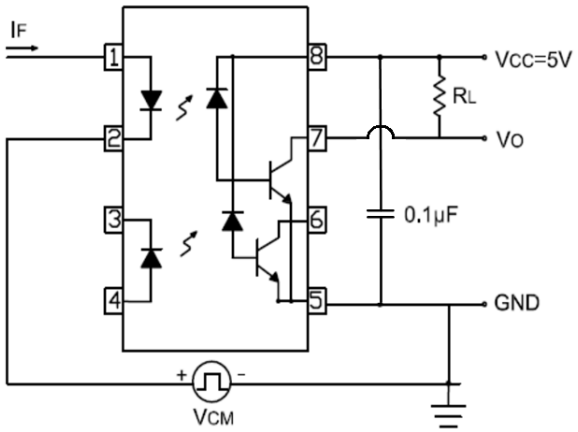


Fig 8 Switching Time Test Circuit



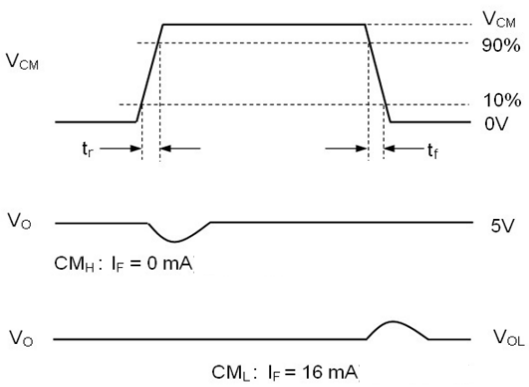


Fig 9 Transient Immunity Test Circuit

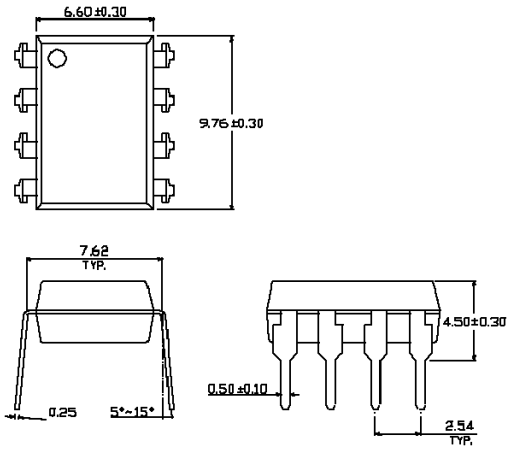
ORDER INFORMATION

ICPL2530			
After PN	**PN**	**Description**	**Packing quantity**
None	ICPL2530	Standard DIP8	45 pcs per tube
G	ICPL2530G	10mm Lead Spacing	45 pcs per tube
SM	ICPL2530SM	Surface Mount	45 pcs per tube
SMT&R	ICPL2530SMT&R	Surface Mount Tape & Reel	1000 pcs per reel

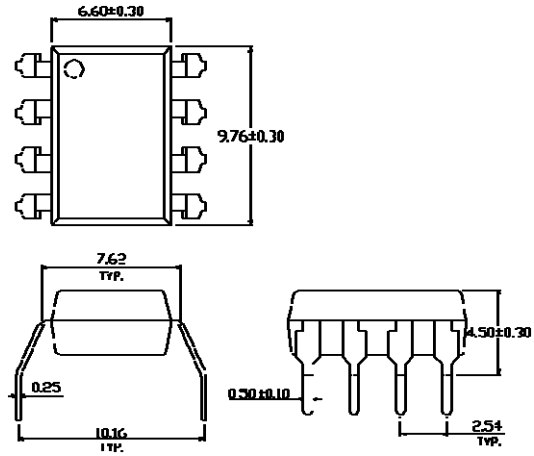
ICPL2531			
After PN	**PN**	**Description**	**Packing quantity**
None	ICPL2531	Standard DIP8	45 pcs per tube
G	ICPL2531G	10mm Lead Spacing	45 pcs per tube
SM	ICPL2531SM	Surface Mount	50 pcs per tube
SMT&R	ICPL2531SMT&R	Surface Mount Tape & Reel	1000 pcs per reel

PACKAGE DIMENSIONS (mm)

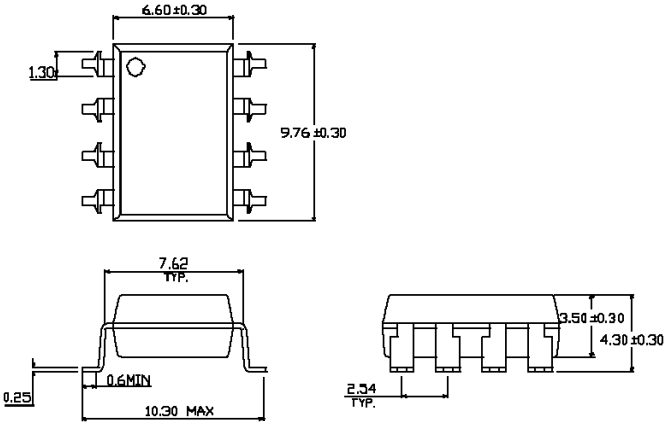
DIP



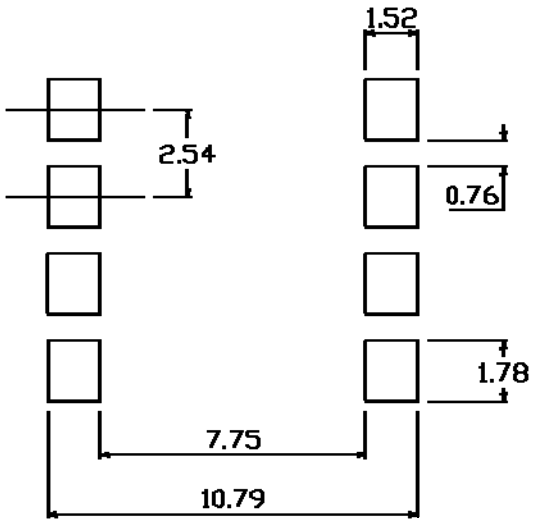
G FORM



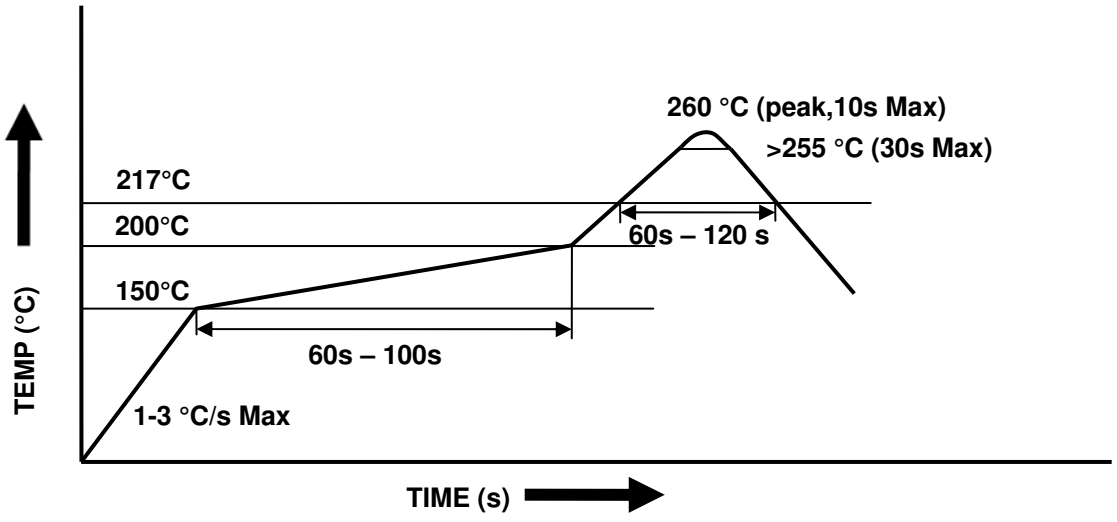
SMD



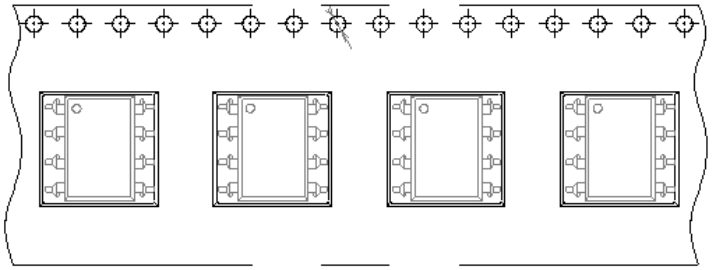
RECOMMENDED PAD LAYOUT FOR SMD (mm)



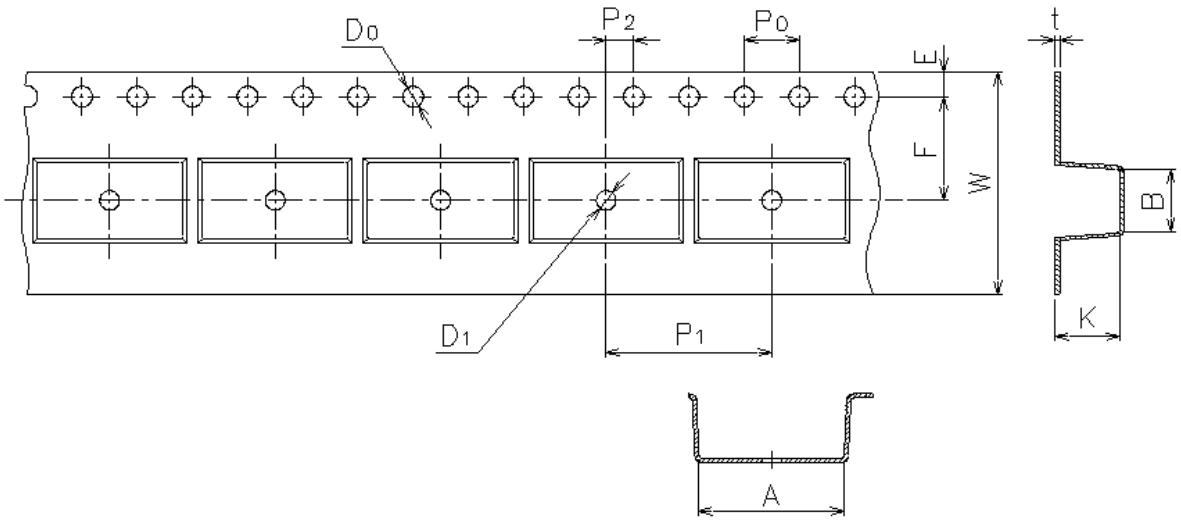
REFLOW SOLDERING TEMPERATURE PROFILE



TAPE AND REEL PACKAGING



Direction of feed from reel



Dimension	A	B	D_0	D_1	E	F
(mm)	10.4±0.1	10.0±0.1	1.5±0.1	1.5±0.1	1.75±0.1	7.5±0.1
Dimension	P_0	P_1	P_2	t	W	K
(mm)	4.0±0.1	12.0±0.1	2.0±0.1	0.4±0.1	16.0 +0.3/-0.1	4.5±0.1

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’s body in solder paste.