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.

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ICPL2630 / ICPL2631

DESCRIPTION

The ICPL2630 and ICPL2631 dual channel devices each consists of an infrared emitting diode, optically coupled to a high speed integrated photo detector logic gate with a strobable output.

FEATURES

- High speed 10Mbit/s
- 10kV/µs min. Common Mode Transient Immunity (ICPL2631)
- High AC Isolation voltage 5000V_{rms}
- Guaranteed performance from -40°C to 85°C
- Wide Operating temperature range - 55°C to 125°C
- Logic Gate Output
- RoHS Compliant
- Safety Approvals Pending

APPLICATIONS

- Line Receivers, Data Transmission
- Ground Loop Elimination
- LSTTL to TTL, LSTTL or 5V CMOS
- Data Multiplexing
- Switch Mode Power Supplies
- Pulse Transformer Replacement
- Computer Peripheral Interface

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

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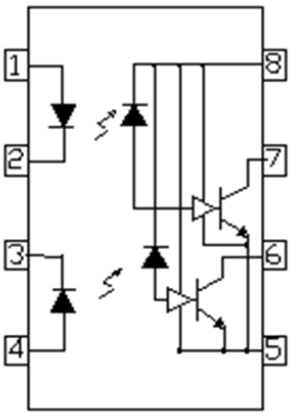

1. Anode
2. Cathode
3. Cathode
4. Anode
5. Gnd
6. Vout2
7. Vout1
8. V_{CC}

ABSOLUTE MAXIMUM RATINGS

Input Diode

Forward Current (each Channel)	20mA
Reverse Voltage	5V
Power dissipation (each Channel)	40mW

Output

Output Current (each Channel)	50mA
Output Voltage	7V
Supply Voltage	7V
Power Dissipation	85mW

Total Package

Isolation Voltage	5000V_{rms}
Operating Temperature	-40 to 100 °C
Storage Temperature	-55 to 125 °C
Power Dissipation	85mW
Lead Soldering Temperature (10s)	260°C

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Truth Table (Positive Logic)

Input	Output
H	L
L	H

ELECTRICAL CHARACTERISTICS

INPUT (T_A = -40°C to 85°C unless otherwise specified)

Parameter	Symbol	Test Condition	Min	Typ.	Max	Unit
Forward Voltage	V_F	I_F = 10mA, T_A = 25°C		1.4	1.8	V
Reverse Voltage	V_R	I_R = 10µA	5.0			V
Temperature Coefficient	$\Delta V_F/\Delta T_A$	I_F = 10mA		-1.8		mV/°C
Input Capacitance	C_{IN}	V_F = 0V, f = 1MHz		60		pF

OUTPUT (T_A = -40°C to 85°C unless otherwise specified)

Parameter	Symbol	Test Condition	Min	Typ.	Max	Unit
High Level Supply Current	I_{CCH}	I_F = 0mA, V_{CC} = 5.5V		12.5	18	mA
Low Level Supply Current	I_{CCL}	I_F = 10mA, V_{CC} = 5.5V		14.5	21	mA

COUPLED (T_A = -40°C to 85°C unless otherwise specified)

Parameter	Symbol	Test Condition	Min	Typ.	Max	Unit
High Level Output Current	I_{OH}	V_{CC} = 5.5V, V_O = 5.5V, I_F = 250µA		2.1	100	µA
Low Level Output Voltage	V_{OL}	V_{CC} = 5.5V, I_F = 5mA, I_{CL} = 13mA		0.35	0.6	V
Input Threshold Current	I_{FT}	V_{CC} = 5.5V, V_O = 0.6V, I_{OL} = 13mA		2.5	5	mA

ELECTRICAL CHARACTERISTICS

Switching Characteristics (T_A = -40°C to 85°C, V_{CC} = 5V, I_F = 7.5mA unless otherwise specified)

Parameter	Symbol	Test Condition	Min	Typ.	Max	Unit
Propagation Delay Time to Output High Level	t_{PLH}	C_L = 15pF, R_L = 350Ω, T_A = 25°C		35	100	ns
Propagation Delay Time to Output Low Level	t_{PHL}	C_L = 15pF, R_L = 350Ω, T_A = 25°C		40	100	ns
Pulse Width Distortion	$\lvert t_{PHL} - t_{PLH} \rvert$	C_L = 15pF, R_L = 350Ω		5	35	ns
Output Rise Time	t_r	C_L = 15pF, R_L = 350Ω		40		ns
Output Fall time	t_f	C_L = 15pF, R_L = 350Ω		10		ns
Common Mode Transient Immunity at Logic High	CM_H	ICPL2630 ICPL2631 I_F = 0mA, V_{CM} = 1kVp-p, V_{OH} = 2.0V, R_L = 350Ω, T_A = 25°C	5000 10000	20000		V/µs
Common Mode Transient Immunity at Logic Low	CM_L	ICPL2630 ICPL2631 I_F = 7.5mA, V_{CM} = 1kVp-p, V_{OL} = 0.8V, R_L = 350Ω, T_A = 25°C	5000 10000	20000		V/µs

Notes :

1. The V_{CC} supply must be bypassed by a 0.1µF capacitor or larger with good high frequency characteristic and should be connected as close as possible to the package V_{CC} and Gnd pins.
2. t_{PLH}– Propagation delay is measured from the 3.75mA level on the HIGH to LOW transition of the input current pulse to the 1.5 V level on the LOW to HIGH transition of the output voltage pulse.
3. t_{PHL}– Propagation delay is measured from the 3.75mA level on the LOW to HIGH transition of the input current pulse to the 1.5 V level on the HIGH to LOW transition of the output voltage pulse.
4. t_r– Rise time is measured from the 10% to the 90% levels on the LOW to HIGH transition of the output pulse.
5. t_f– Fall time is measured from the 90% to the 10% levels on the HIGH to LOW transition of the output pulse.
6. CM_H– The maximum tolerable rate of rise of the common mode voltage to ensure the output will remain in the HIGH state (i.e., V_{OUT} > 2.0V).
7. CM_L– The maximum tolerable rate of rise of the common mode voltage to ensure the output will remain in the LOW output state (i.e., V_{OUT} < 0.8V).

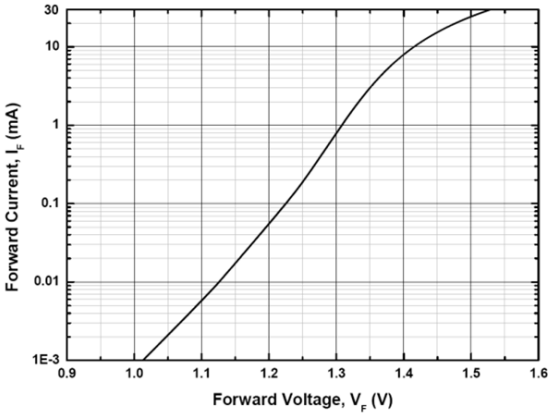


Fig 1 Forward Current vs Forward Voltage

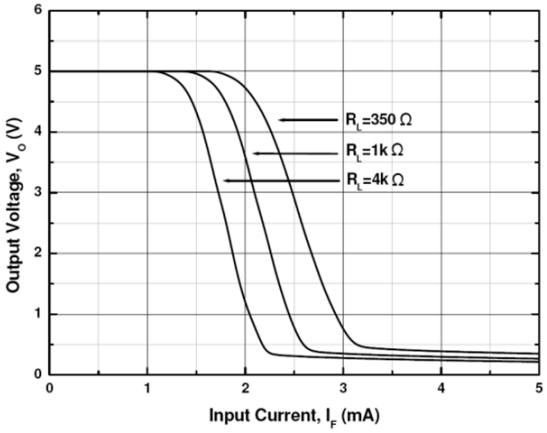


Fig 2 Output Voltage vs Input Current

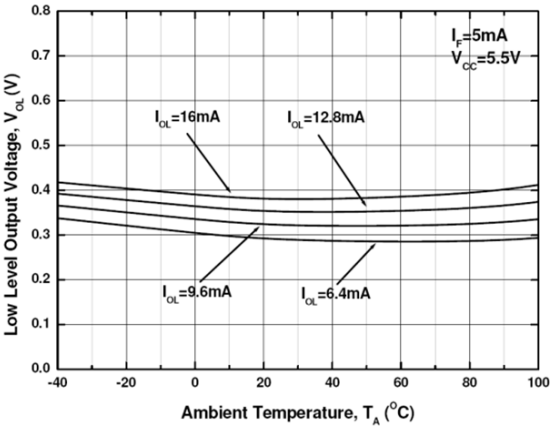


Fig 3 Low Level Output Voltage vs T_A

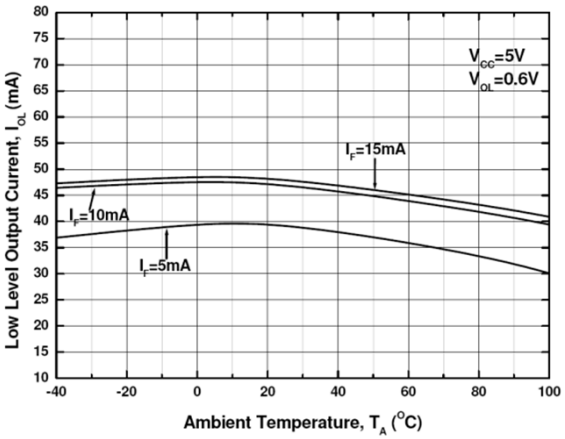


Fig 4 Low Level Output Current vs T_A

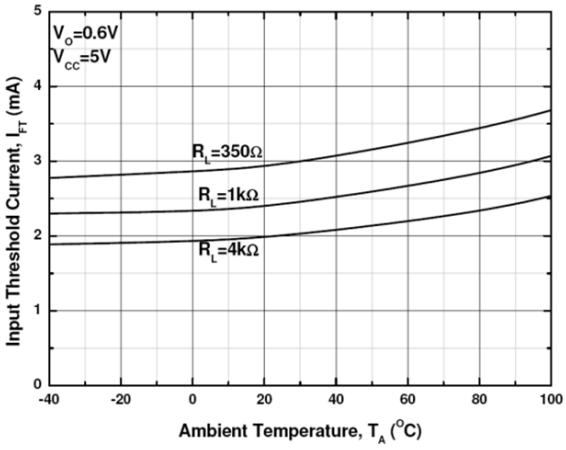


Fig 5 Input Threshold Current vs T_A

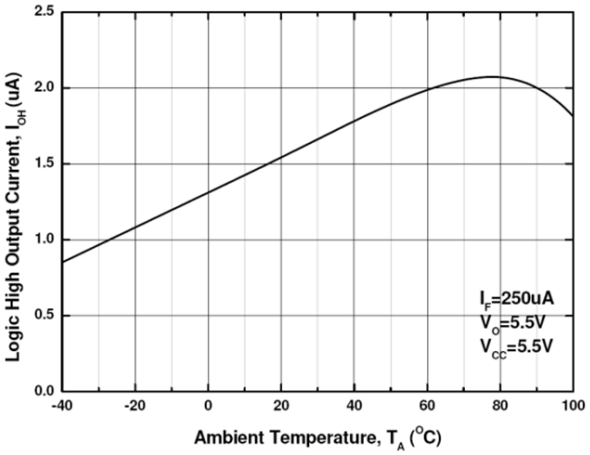


Fig 6 High Level Output Current vs T_A

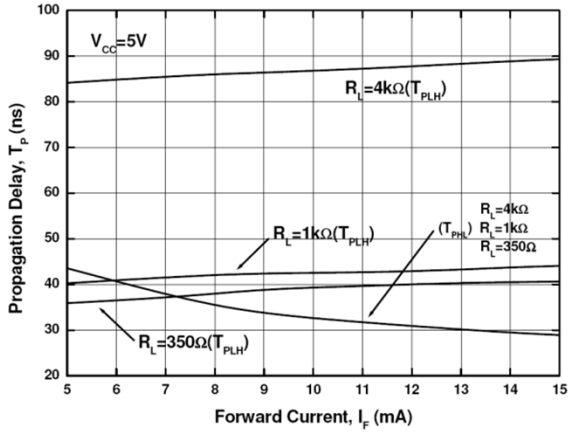


Fig 7 Propagation Delay vs Forward Current

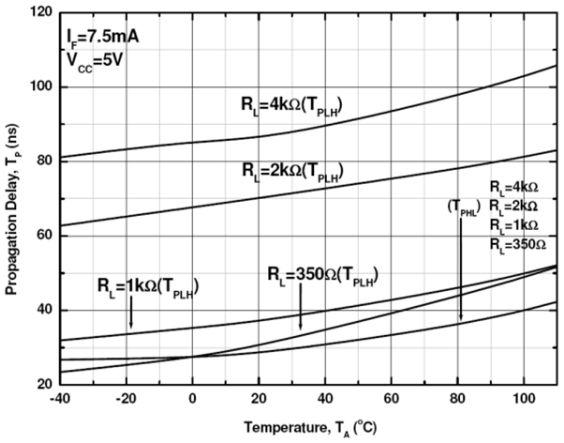


Fig 8 Propagation Delay vs T_A

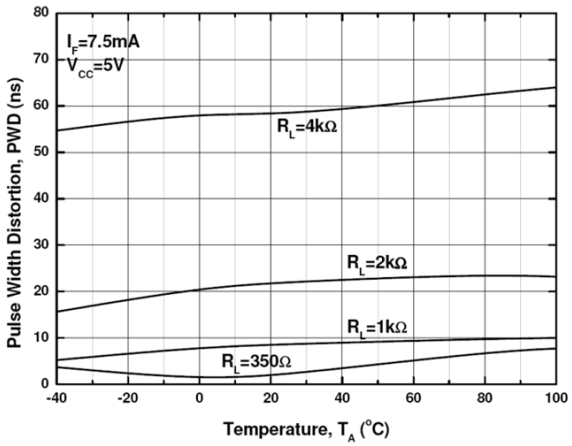


Fig 9 Pulse Width Distortion vs T_A

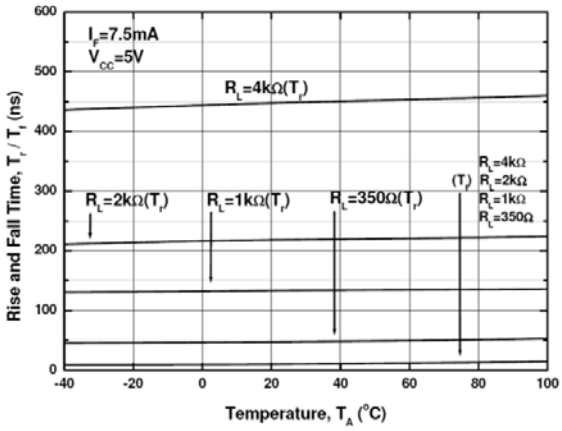


Fig 10 Rise Time and Fall Time vs T_A

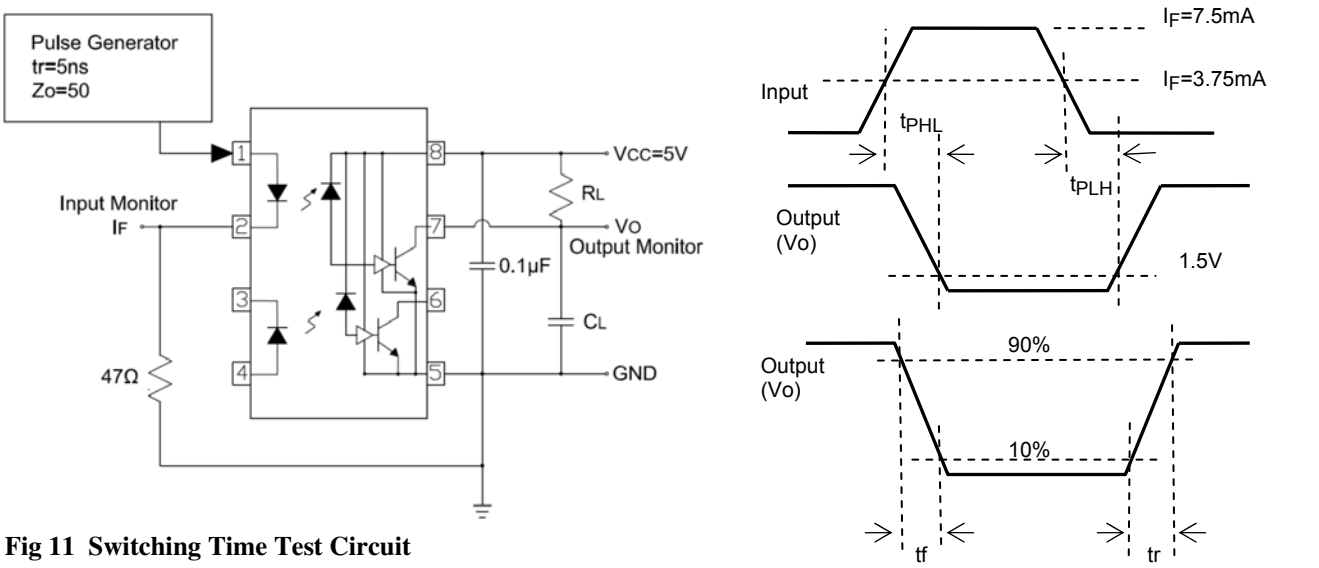


Fig 11 Switching Time Test Circuit

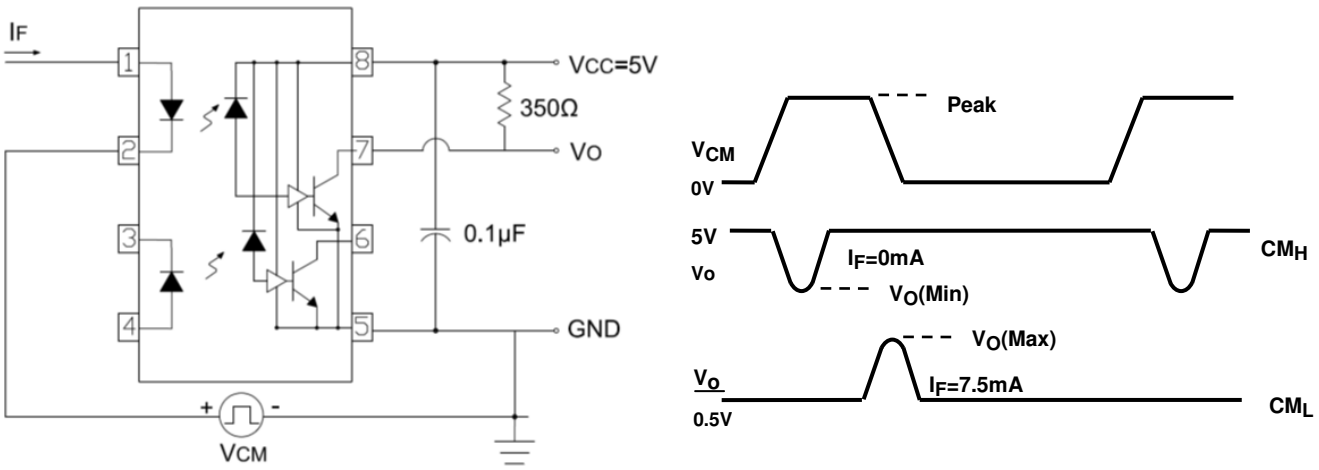


Fig 12 Common Mode Transient Immunity Test Circuit

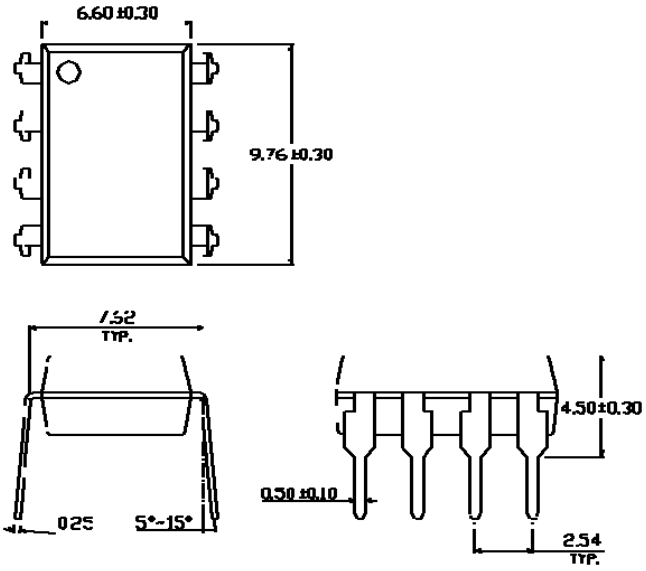
ORDER INFORMATION

ICPL2630, ICPL2631

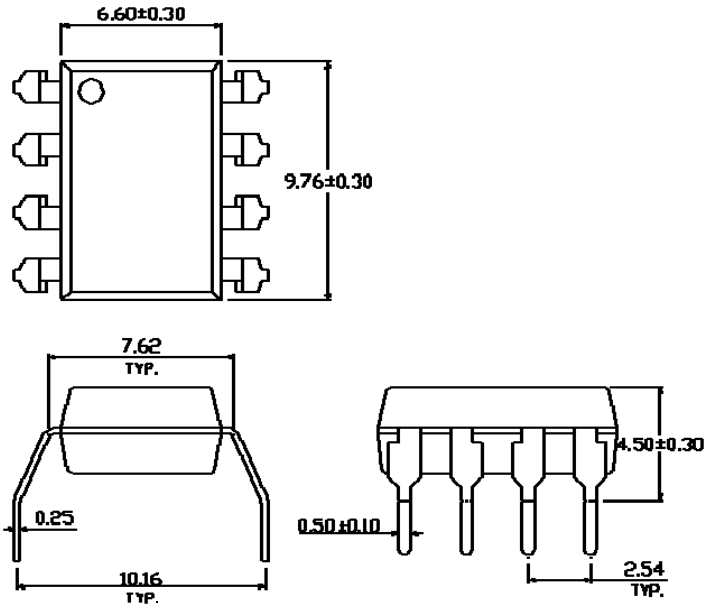
After PN	Description	Packing quantity
None	Standard DIP8	50 pcs per tube
G	10mm Lead Spacing	50 pcs per tube
SM	Surface Mount	50 pcs per tube
SMT&R	Surface Mount Tape & Reel	1000 pcs per reel

PACKAGE DIMENSIONS (mm)

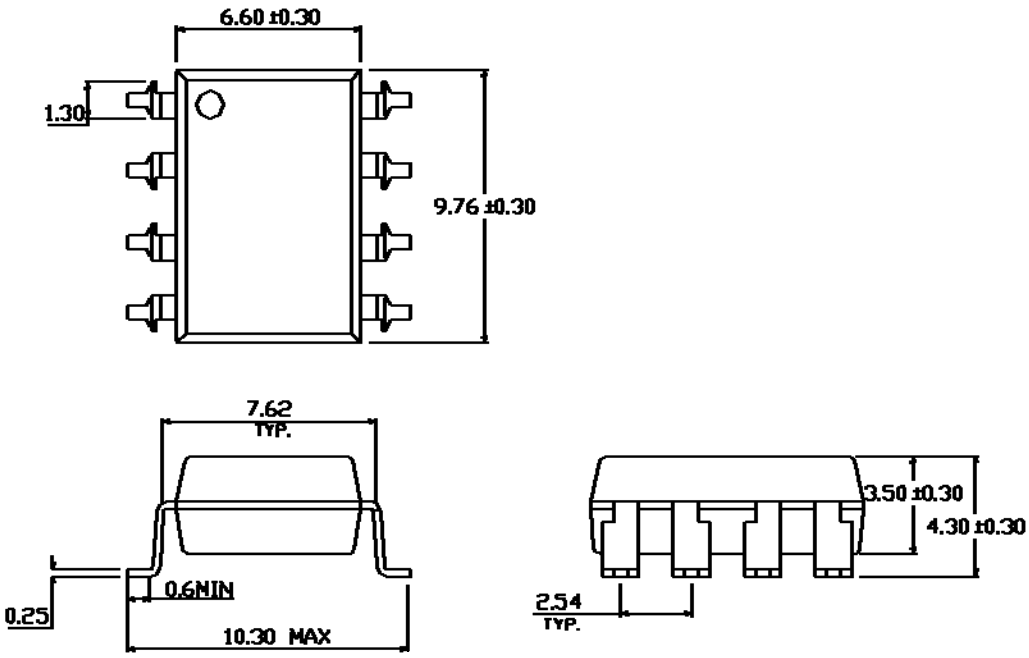
DIP



G FORM



SMD



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