ISOCOM COMPONENTS

ICPL2630 / ICPL2631

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	$I_R = 10\mu A$	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}	$V_{CC} = 5.5V$, $V_O = 5.5V$, $I_F = 250\mu A$		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

ICPL2630 / ICPL2631

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).

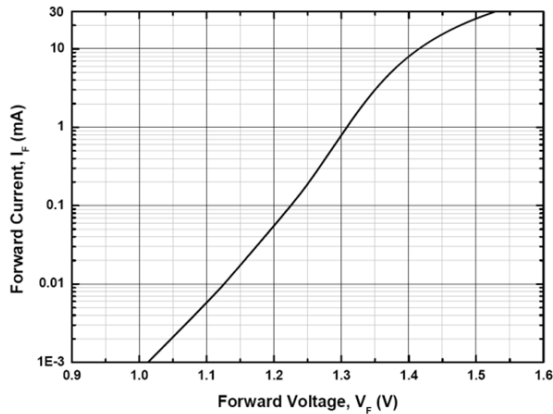# ICPL2630 / ICPL2631

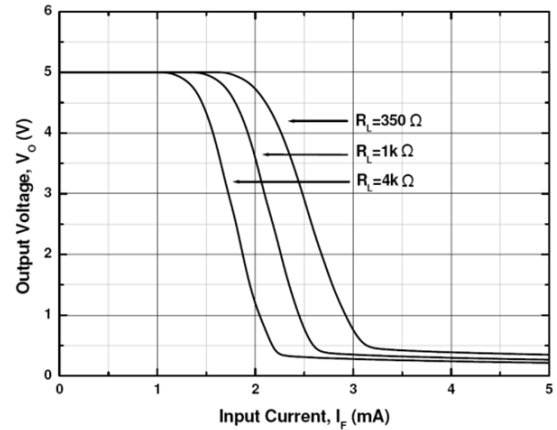Fig 1 Forward Current vs Forward Voltage

Fig 2 Output Voltage vs Input Current
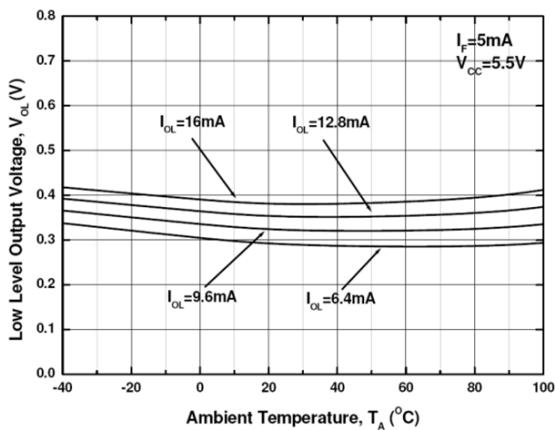

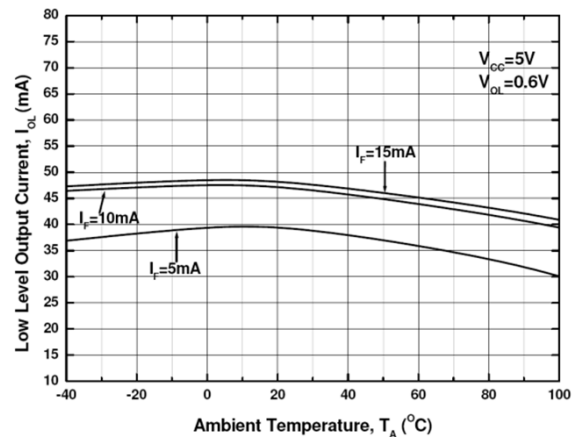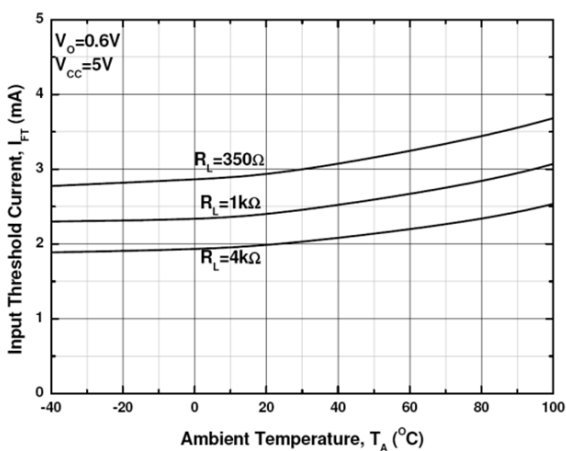Fig 3 Low Level Output Voltage vs T_A

Fig 4 Low Level Output Current vs T_A
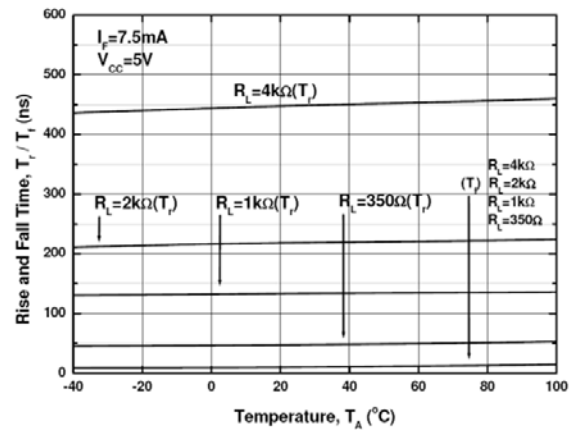

Fig 5 Input Threshold Current vs T_A
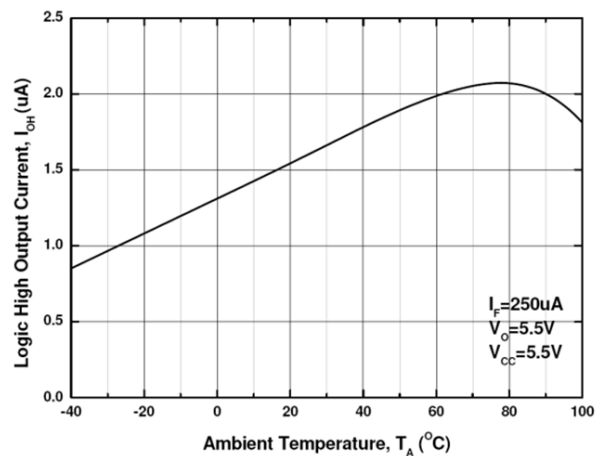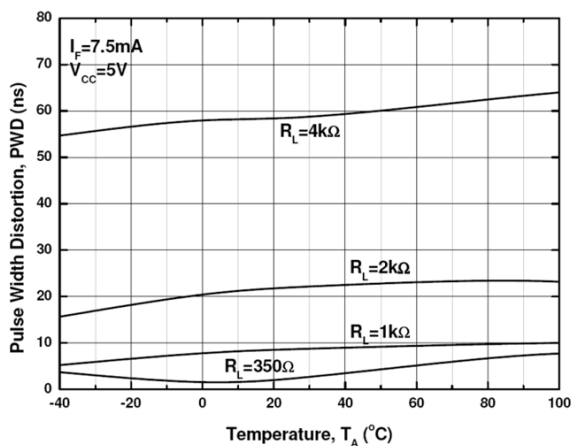

Fig 6 High Level Output Current vs T_A

Fig 7 Propagation Delay vs Forward Current

Fig 8 Propagation Delay vs T_A

Fig 9 Pulse Width Distortion vs T_A
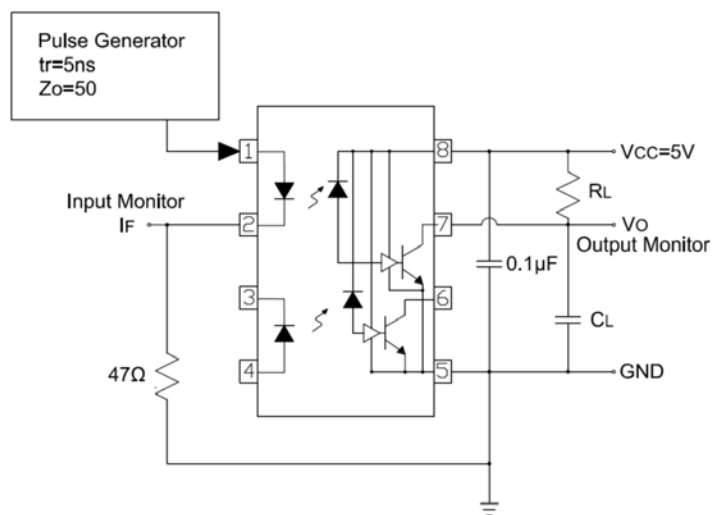

Fig 10 Rise Time and Fall Time vs T_A
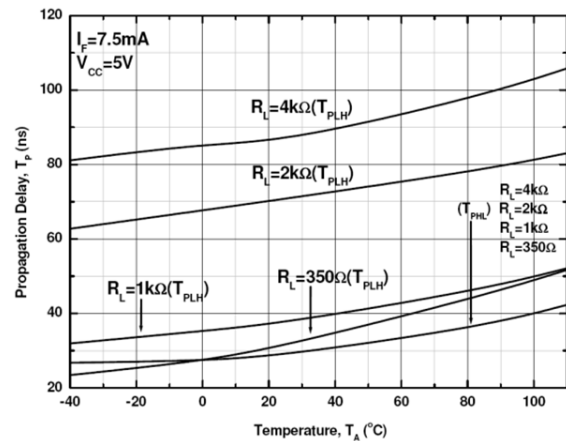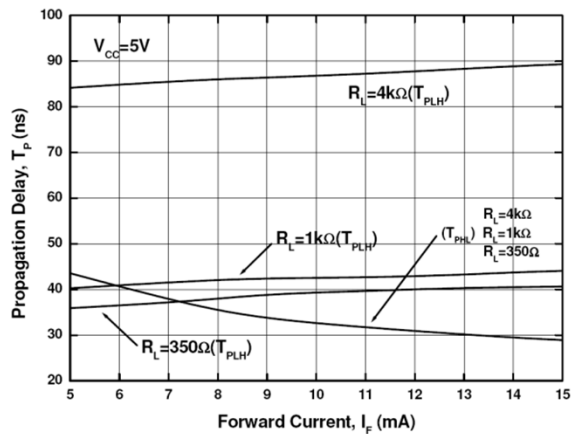
Fig 11 Switching Time Test Circuit
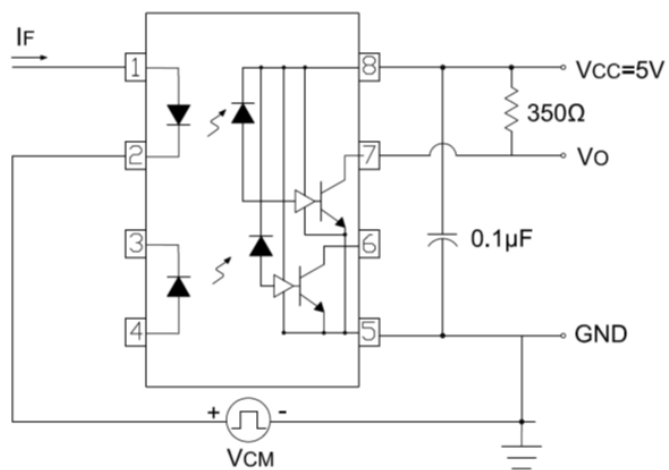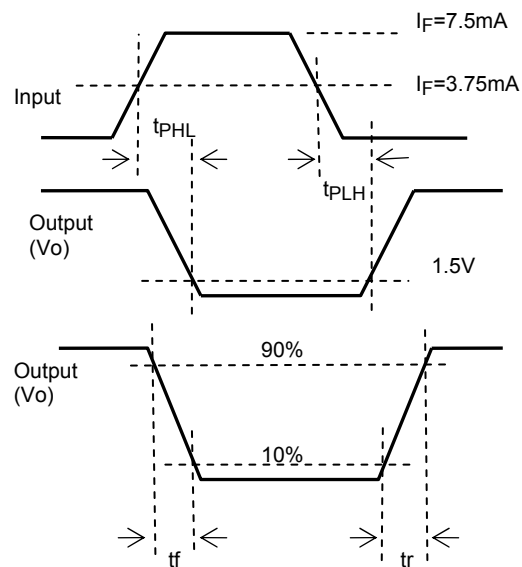
Fig 12 Common Mode Transient Immunity Test Circuit
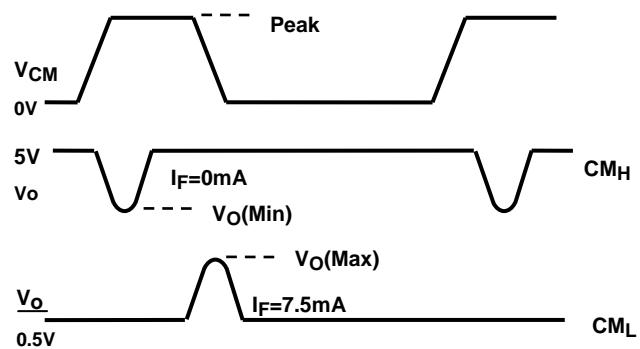
ISOCOM
COMPONENTS

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

ISOCOM
COMPONENTS

PACKAGE DIMENSIONS (mm)

DIP

6.60 ±0.30

9.76 ±0.30

7.52 TYP.

4.50±0.30

0.50 ±0.10

0.25

5°~15°

2.54 TYP.

G FORM

6.60±0.30

9.76±0.30

7.62 TYP.

4.50±0.30

0.25

0.50±0.10

10.16 TYP.

2.54 TYP.

DC93164

ISOCOM
COMPONENTS

SMD

6.60 ±0.30

1.30

9.76 ±0.30

7.62
TYP.

0.6MIN

0.25

10.30 MAX

3.50 ±0.30

4.30 ±0.30

2.54
TYP.
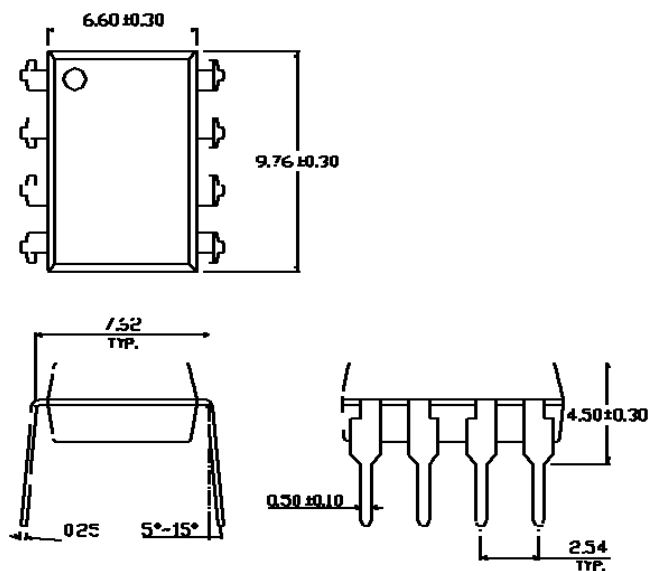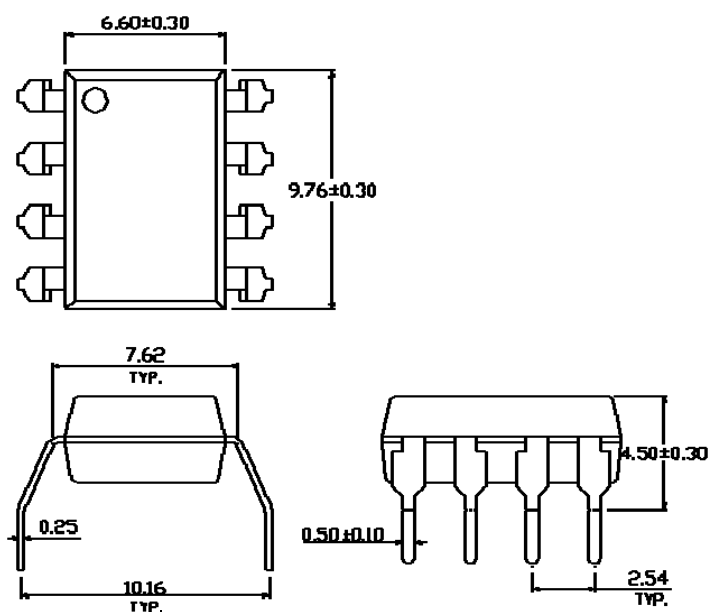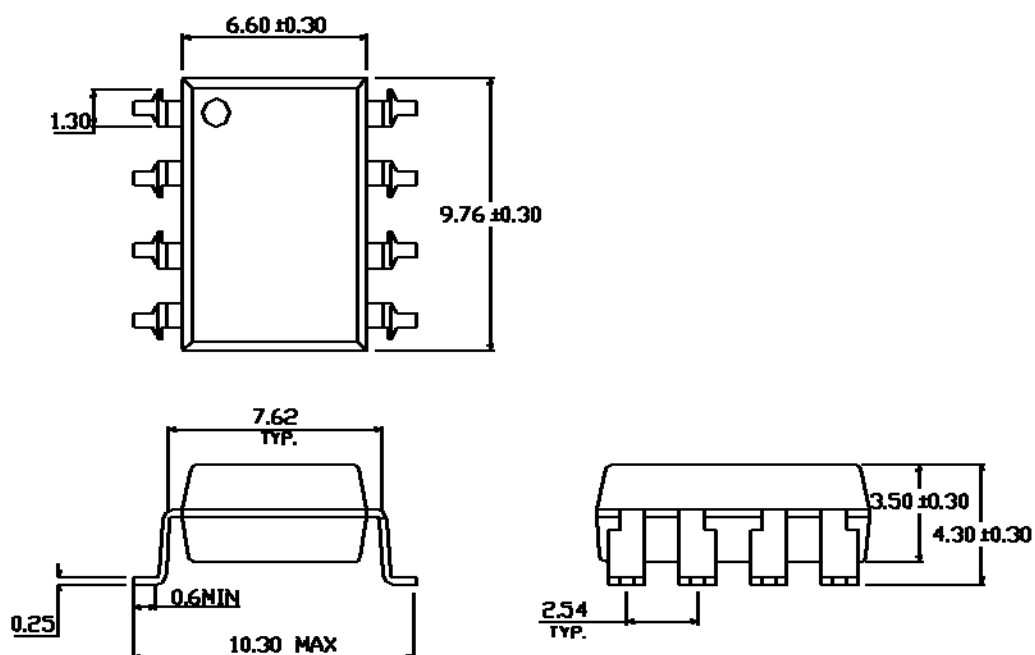
REFLOW SOLDERING TEMPERATURE PROFILE

260 °C (peak,10s Max)

>255 °C (30s Max)

217°C

1-3 °C/s Max

200°C

60s – 120 s

150°C

TEMP (°C)

60s – 100s

1-3 °C/s Max

TIME (s)