



## Low-Power Dual Channel Digital Isolators

 Check for Samples: [ISO7420E](#), [ISO7420FE](#), [ISO7420FCC](#), [ISO7421E](#), [ISO7421FE](#), [ISO7421FCC](#)

### FEATURES

- Signaling Rate > 50 Mbps
- For Devices with Suffix F, Output is Low in Default Mode
- Low Power Consumption: Typical  $I_{CC}$  per Channel (3.3V Supplies):
  - ISO7420: 1.4 mA at 1 Mbps, 2.5 mA at 25 Mbps
  - ISO7421: 1.8 mA at 1 Mbps, 2.8 mA at 25 Mbps
- Low Propagation Delay: 7 ns Typical (E-Grade)
- Low Pulse Skew: 200 ps Typical (E-Grade)
- Wide  $T_A$  Range Specified:  $-40^{\circ}\text{C}$  to  $125^{\circ}\text{C}$
- 50 KV/ $\mu\text{s}$  Transient Immunity, Typical
- Isolation Barrier Life: > 25 Years
- Operates from 3V to 5.5V Supply Levels
- Narrow Body SOIC-8 Package

### APPLICATIONS

- Opto-Coupler Replacement in:
  - Industrial FieldBus
  - ProfiBus
  - ModBus
  - DeviceNet™ Data Buses
- Servo Control Interface
- Motor Control
- Power Supplies
- Battery Packs

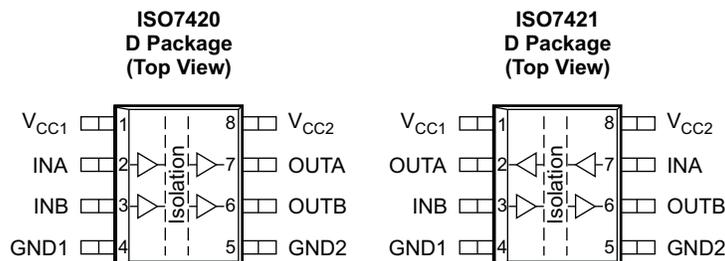
### SAFETY AND REGULATORY APPROVALS

- 3000  $V_{RMS}$  / 4242  $V_{PK}$  Isolation per DIN EN 60747-5-2 (VDE 0884 Part 2)
- 2.5  $KV_{RMS}$  Isolation for 1 minute per UL 1577
- CSA Component Acceptance Notice #5A
- IEC 60950-1 and IEC 61010-1 End Equipment Standards
- UL 1577 Approved; Other Approvals Pending

### DESCRIPTION

ISO7420x and ISO7421x provide galvanic isolation up to 2500  $V_{RMS}$  for 1 minute per UL and 4242  $V_{PK}$  per VDE. These devices have two isolated channels. Each channel has a logic input and output buffer separated by a silicon dioxide ( $\text{SiO}_2$ ) insulation barrier. Used in conjunction with isolated power supplies, these devices prevent noise currents on a data bus or other circuit from entering the local ground and interfering with or damaging sensitive circuitry. The suffix F indicates low-output option in fail-safe conditions (see [Table 1](#)). E-grade devices have no integrated noise filter and thus have fast propagation delays. CC-grade devices have integrated 10ns-filter for harsh environments where short noise pulses may be present at the device input pins.

These devices have TTL input thresholds and operate from 3V to 5.5V supplies. All inputs are 5V tolerant when supplied from a 3.3V supply.



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These devices have limited built-in ESD protection. The leads should be shorted together or the device placed in conductive foam during storage or handling to prevent electrostatic damage to the MOS gates.

**PIN DESCRIPTIONS**

NAME	PIN		I/O	DESCRIPTION
	ISO7420x	ISO7421x		
INA	2	7	I	Input, channel A
INB	3	3	I	Input, channel B
GND1	4	4	–	Ground connection for V <sub>CC1</sub>
GND2	5	5	–	Ground connection for V <sub>CC2</sub>
OUTA	7	2	O	Output, channel A
OUTB	6	6	O	Output, channel B
V <sub>CC1</sub>	1	1	–	Power supply, V <sub>CC1</sub>
V <sub>CC2</sub>	8	8	–	Power supply, V <sub>CC2</sub>

**Table 1. FUNCTION TABLE<sup>(1)</sup>**

INPUT SIDE V <sub>CC</sub>	OUTPUT SIDE V <sub>CC</sub>	INPUT INA, INB	OUTPUT OUTA, OUTB	
			ISO7420E / ISO7421E	ISO7420Fx / ISO7421Fx
PU	PU	H	H	H
		L	L	L
		Open	H <sup>(2)</sup>	L <sup>(3)</sup>
PD	PU	X	H <sup>(2)</sup>	L <sup>(3)</sup>
X	PD	X	Z	Z

- (1) PU = Powered up (V<sub>CC</sub> ≥ 3 V); PD = Powered down (V<sub>CC</sub> ≤ 2.4 V); X = Irrelevant; H = High level; L = Low level; Z = High Impedance
- (2) In fail-safe condition, output defaults to high level
- (3) In fail-safe condition, output defaults to low level

**AVAILABLE OPTIONS**

PRODUCT	DATA RATE	DEFAULT OUTPUT	INTEGRATED NOISE FILTER	RATED T <sub>A</sub>	CHANNEL DIRECTION	MARKED AS	ORDERING NUMBER
ISO7420E	50 Mbps	High	No	–40°C to 125°C	Same	SO7420	ISO7420ED (rail)
ISO7420FE		Low	Yes			I7420F	ISO7420FED (rail)
ISO7420FCC <sup>(1)</sup>		Low			7420FC	ISO7420FCCD (rail)	
			ISO7420FCCDR (reel)				
ISO7421E		High	No		Opposite	SO7421	ISO7421ED (rail)
				ISO7421EDR (reel)			
ISO7421FE	Low	Yes	7421FC	I7421F	ISO7421FED (rail)		
						ISO7421FEDR (reel)	
ISO7421FCC <sup>(1)</sup>	Low				ISO7421FCCD (rail)		
					ISO7421FCCDR (reel)		

(1) Product Preview

**ABSOLUTE MAXIMUM RATINGS<sup>(1)</sup>**

				VALUE	
$V_{CC}$	Supply voltage <sup>(2)</sup> , $V_{CC1}$ , $V_{CC2}$			–0.5 V to 6 V	
$V_I$	Voltage at IN, OUT			–0.5 V to 6 V	
$I_O$	Output current			±15 mA	
ESD	Electrostatic discharge	Human-body model	JEDEC Standard 22, Test Method A114-C.01	All pins	±3 kV
		Field-induced charged-device model	JEDEC Standard 22, Test Method C101		±1.5 kV
		Machine model	ANSI/ESDS5.2-1996		±200 V
$T_{J(Max)}$	Maximum junction temperature			150°C	
$T_{stg}$	Storage temperature			–65°C to 150°C	

- (1) Stresses beyond those listed under *absolute maximum ratings* may cause permanent damage to the device. These are stress ratings only and functional operation of the device at these or any other conditions beyond those indicated under *recommended operating conditions* is not implied. Exposure to absolute-maximum-rated conditions for extended periods may affect device reliability.
- (2) All voltage values except differential I/O bus voltages are with respect to network ground terminal and are peak voltage values.

**RECOMMENDED OPERATING CONDITIONS**

		MIN	TYP	MAX	UNIT
$V_{CC1}$ , $V_{CC2}$	Supply voltage	3.0		5.5	V
$I_{OH}$	High-level output current	–4			mA
$I_{OL}$	Low-level output current			4	mA
$V_{IH}$	High-level input voltage	2		$V_{CC}$	V
$V_{IL}$	Low-level input voltage	0		0.8	V
$t_{ui}$	Input pulse duration	20			ns
$1 / t_{ui}$	Signaling rate	0		50 <sup>(1)</sup>	Mbps
$T_J^{(2)}$	Junction temperature	–40		136	°C
$T_A$	Ambient Temperature	–40	25	125	°C

- (1) Under typical conditions, the device is capable of signaling rate > 150 Mbps.
- (2) To maintain the recommended operating conditions for  $T_J$ , see the [Package Thermal Characteristics](#) table.

## ELECTRICAL CHARACTERISTICS

$V_{CC1}$  and  $V_{CC2} = 5V \pm 10\%$ ,  $T_A = -40^\circ C$  to  $125^\circ C$

PARAMETER		TEST CONDITIONS		MIN	TYP	MAX	UNIT
$V_{OH}$	High-level output voltage	$I_{OH} = -4$ mA; see <a href="#">Figure 1</a> .		$V_{CCx}^{(1)} - 0.8$	4.6		V
		$I_{OH} = -20$ $\mu A$ ; see <a href="#">Figure 1</a> .		$V_{CCx}^{(1)} - 0.1$	5		
$V_{OL}$	Low-level output voltage	$I_{OL} = 4$ mA; see <a href="#">Figure 1</a> .			0.2	0.4	V
		$I_{OL} = 20$ $\mu A$ ; see <a href="#">Figure 1</a> .			0	0.1	
$V_{I(HYS)}$	Input threshold voltage hysteresis				400		mV
$I_{IH}$	High-level input current	INx at 0 V or $V_{CC}$				10	$\mu A$
$I_{IL}$	Low-level input current				-10		
CMTI	Common-mode transient immunity	$V_I = V_{CC}$ or 0 V; see <a href="#">Figure 3</a> .		25	50		kV/ $\mu s$
<b>SUPPLY CURRENT (All inputs switching with square wave clock signal for dynamic <math>I_{CC}</math> measurement)</b>							
<b>ISO7420x</b>							
$I_{CC1}$	Supply current for $V_{CC1}$ and $V_{CC2}$	DC to 1 Mbps	DC Input: $V_I = V_{CC}$ or 0 V, AC Input: $C_L = 15$ pF		0.4	0.8	mA
$I_{CC2}$					3.4	5	
$I_{CC1}$		10 Mbps	$C_L = 15$ pF		0.6	1	
$I_{CC2}$					4.5	6	
$I_{CC1}$		25 Mbps	$C_L = 15$ pF		1	1.5	
$I_{CC2}$					6.2	8	
$I_{CC1}$		50 Mbps	$C_L = 15$ pF		1.7	2.5	
$I_{CC2}$					9	12	
<b>ISO7421x</b>							
$I_{CC1}$	Supply current for $V_{CC1}$ and $V_{CC2}$	DC to 1 Mbps	DC Input: $V_I = V_{CC}$ or 0 V, AC Input: $C_L = 15$ pF		2.3	3.6	mA
$I_{CC2}$					2.3	3.6	
$I_{CC1}$		10 Mbps	$C_L = 15$ pF		2.9	4.5	
$I_{CC2}$					2.9	4.5	
$I_{CC1}$		25 Mbps	$C_L = 15$ pF		4.3	6	
$I_{CC2}$					4.3	6	
$I_{CC1}$		50 Mbps	$C_L = 15$ pF		6	8.5	
$I_{CC2}$					6	8.5	

(1)  $V_{CCx}$  is the supply voltage for the output channel that is being measured

## SWITCHING CHARACTERISTICS

$V_{CC1}$  and  $V_{CC2} = 5V \pm 10\%$ ,  $T_A = -40^\circ C$  to  $125^\circ C$

PARAMETER		TEST CONDITIONS	MIN	TYP	MAX	UNIT
$t_{PLH}, t_{PHL}$	Propagation delay time	E-grade		7	11	ns
		CC-grade	See <a href="#">Figure 1</a> .	17	28	
PWD <sup>(1)</sup>	Pulse width distortion $ t_{PHL} - t_{PLH} $	ISO7420x			0.2	3
		ISO7421x		0.3	3.7	
$t_{sk(o)}$ <sup>(2)</sup>	Channel-to-channel output skew time	ISO7420x		0.3	1	ns
		ISO7421x		0.3	2	
$t_{sk(pp)}$ <sup>(3)</sup>	Part-to-part skew time	ISO7420x			3.7	ns
		ISO7421x			4.9	
$t_r$	Output signal rise time	See <a href="#">Figure 1</a> .		1.8		ns
$t_f$	Output signal fall time			1.7		ns
$t_{fs}$	Fail-safe output delay time from input power loss	See <a href="#">Figure 2</a> .		6		$\mu s$

(1) Also known as pulse skew.

(2)  $t_{sk(o)}$  is the skew between outputs of a single device with all driving inputs connected together and the outputs switching in the same direction while driving identical loads.

(3)  $t_{sk(pp)}$  is the magnitude of the difference in propagation delay times between terminals of different devices switching in the same direction while operating at identical supply voltages, temperature, input signals and loads.

## ELECTRICAL CHARACTERISTICS

 $V_{CC1} = 5V \pm 10\%$ ,  $V_{CC2} = 3.3V \pm 10\%$ ,  $T_A = -40^\circ\text{C}$  to  $125^\circ\text{C}$ 

PARAMETER		TEST CONDITIONS		MIN	TYP	MAX	UNIT
$V_{OH}$	High-level output voltage	$I_{OH} = -4\text{ mA}$ ; see Figure 1.	ISO7421x (5V side)	$V_{CC1} - 0.8$	4.6		V
			ISO7420x/7421x (3.3V side)	$V_{CC2} - 0.4$	3		
		$I_{OH} = -20\ \mu\text{A}$ ; see Figure 1,	ISO7421x (5V side)	$V_{CC1} - 0.1$	5		
			ISO7420x/7421x (3.3V side)	$V_{CC2} - 0.1$	3.3		
$V_{OL}$	Low-level output voltage	$I_{OL} = 4\text{ mA}$ ; see Figure 1.			0.2	0.4	V
		$I_{OL} = 20\ \mu\text{A}$ ; see Figure 1.			0	0.1	
$V_{I(HYS)}$	Input threshold voltage hysteresis				400		mV
$I_{IH}$	High-level input current	$I_{NX}$ at 0 V or $V_{CC}$				10	$\mu\text{A}$
$I_{IL}$	Low-level input current				-10		$\mu\text{A}$
CMTI	Common-mode transient immunity	$V_I = V_{CC}$ or 0 V; see Figure 3.		25	50		kV/ $\mu\text{s}$
<b>SUPPLY CURRENT (All inputs switching with square wave clock signal for dynamic <math>I_{CC}</math> measurement)</b>							
<b>ISO7420x</b>							
$I_{CC1}$	Supply current for $V_{CC1}$ and $V_{CC2}$	DC to 1 Mbps	DC Input: $V_I = V_{CC}$ or 0 V, AC Input: $C_L = 15\text{pF}$		0.4	0.8	mA
$I_{CC2}$					2.6	3.7	
$I_{CC1}$		10 Mbps	$C_L = 15\text{pF}$		0.6	1	
$I_{CC2}$					3.3	4.3	
$I_{CC1}$		25 Mbps	$C_L = 15\text{pF}$		1	1.5	
$I_{CC2}$					4.4	5.6	
$I_{CC1}$		50 Mbps	$C_L = 15\text{pF}$		1.7	2.5	
$I_{CC2}$					6.2	7.5	
<b>ISO7421x</b>							
$I_{CC1}$	Supply current for $V_{CC1}$ and $V_{CC2}$	DC to 1 Mbps	DC Input: $V_I = V_{CC}$ or 0 V, AC Input: $C_L = 15\text{pF}$		2.3	3.6	mA
$I_{CC2}$					1.8	2.8	
$I_{CC1}$		10 Mbps	$C_L = 15\text{pF}$		2.9	4.5	
$I_{CC2}$					2.2	3.2	
$I_{CC1}$		25 Mbps	$C_L = 15\text{pF}$		4.3	6	
$I_{CC2}$					2.8	4.1	
$I_{CC1}$		50 Mbps	$C_L = 15\text{pF}$		6	8.5	
$I_{CC2}$					3.8	5.5	

## SWITCHING CHARACTERISTICS

 $V_{CC1} = 5V \pm 10\%$ ,  $V_{CC2} = 3.3V \pm 10\%$ ,  $T_A = -40^\circ\text{C}$  to  $125^\circ\text{C}$ 

PARAMETER		TEST CONDITIONS	MIN	TYP	MAX	UNIT
$t_{PLH}, t_{PHL}$	Propagation delay time	E-grade		8	13.5	ns
		CC-grade		18	32	
PWD <sup>(1)</sup>	Pulse width distortion $ t_{PHL} - t_{PLH} $	ISO7420x		0.3	3	ns
		ISO7421x	See Figure 1.	0.5	5.6	
$t_{sk(o)}$ <sup>(2)</sup>	Channel-to-channel output skew time	ISO7420x			1.5	ns
		ISO7421x		0.5	3	
$t_{sk(pp)}$ <sup>(3)</sup>	Part-to-part skew time	ISO7420x			5.4	ns
		ISO7421x			6.3	
$t_r$	Output signal rise time	See Figure 1.		2		ns
$t_f$	Output signal fall time			2		ns
$t_{fs}$	Fail-safe output delay time from input power loss	See Figure 2.		6		$\mu\text{s}$

(1) Also known as pulse skew.

(2)  $t_{sk(o)}$  is the skew between outputs of a single device with all driving inputs connected together and the outputs switching in the same direction while driving identical loads.

(3)  $t_{sk(pp)}$  is the magnitude of the difference in propagation delay times between terminals of different devices switching in the same direction while operating at identical supply voltages, temperature, input signals and loads.

## ELECTRICAL CHARACTERISTICS

$V_{CC1} = 3.3V \pm 10\%$ ,  $V_{CC2} = 5V \pm 10\%$ ,  $T_A = -40^\circ C$  to  $125^\circ C$

PARAMETER		TEST CONDITIONS		MIN	TYP	MAX	UNIT
$V_{OH}$	High-level output voltage	$I_{OH} = -4$ mA; see Figure 1.	ISO7421x (3.3V side)	$V_{CC1} - 0.4$	3		V
			ISO7420x/7421x (5V side)	$V_{CC2} - 0.8$	4.6		
		$I_{OH} = -20$ $\mu A$ ; see Figure 1	ISO7421x (3.3V side)	$V_{CC1} - 0.1$	3.3		
			ISO7420x/7421x (5V side)	$V_{CC2} - 0.1$	5		
$V_{OL}$	Low-level output voltage	$I_{OL} = 4$ mA; see Figure 1.			0.2	0.4	V
		$I_{OL} = 20$ $\mu A$ ; see Figure 1.			0	0.1	
$V_{I(HYS)}$	Input threshold voltage hysteresis				400		mV
$I_{IH}$	High-level input current	INx at 0 V or $V_{CC}$				10	$\mu A$
$I_{IL}$	Low-level input current				-10		$\mu A$
CMTI	Common-mode transient immunity	$V_I = V_{CC}$ or 0 V; see Figure 3.		25	50		kV/ $\mu s$
<b>SUPPLY CURRENT (All inputs switching with square wave clock signal for dynamic <math>I_{CC}</math> measurement)</b>							
<b>ISO7420x</b>							
$I_{CC1}$	Supply current for $V_{CC1}$ and $V_{CC2}$	DC to 1 Mbps	DC Input: $V_I = V_{CC}$ or 0 V, AC Input: $C_L = 15$ pF		0.2	0.4	mA
$I_{CC2}$					3.4	5	
$I_{CC1}$		10 Mbps	$C_L = 15$ pF		0.4	0.6	
$I_{CC2}$					4.5	6	
$I_{CC1}$		25 Mbps	$C_L = 15$ pF		0.6	0.9	
$I_{CC2}$					6.2	8	
$I_{CC1}$		50 Mbps	$C_L = 15$ pF		1	1.3	
$I_{CC2}$					9	12	
<b>ISO7421x</b>							
$I_{CC1}$	Supply current for $V_{CC2}$ and $V_{CC2}$	DC to 1 Mbps	DC Input: $V_I = V_{CC}$ or 0 V, AC Input: $C_L = 15$ pF		1.8	2.8	mA
$I_{CC2}$					2.3	3.6	
$I_{CC1}$		10 Mbps	$C_L = 15$ pF		2.2	3.2	
$I_{CC2}$					2.9	4.5	
$I_{CC1}$		25 Mbps	$C_L = 15$ pF		2.8	4.1	
$I_{CC2}$					4.3	6	
$I_{CC1}$		50 Mbps	$C_L = 15$ pF		3.8	5.5	
$I_{CC2}$					6	8.5	

## SWITCHING CHARACTERISTICS

$V_{CC1} = 3.3V \pm 10\%$ ,  $V_{CC2} = 5V \pm 10\%$ ,  $T_A = -40^\circ C$  to  $125^\circ C$

PARAMETER		TEST CONDITIONS	MIN	TYP	MAX	UNIT
$t_{PLH}$ , $t_{PHL}$	E-grade	See Figure 1.		7.5	12	ns
			ISO7420x		7.5	
	ISO7421x			18.5	32	
PWD <sup>(1)</sup>	Pulse width distortion $ t_{PHL} - t_{PLH} $	See Figure 1.		0.7	3	ns
			ISO7421x		0.7	
$t_{sk(o)}$ <sup>(2)</sup>	Channel-to-channel output skew time	See Figure 1.		0.5	1.5	ns
			ISO7421x		0.5	
$t_{sk(pp)}$ <sup>(3)</sup>	Part-to-part skew time	See Figure 1.		4.6		ns
			ISO7421x		8.5	
$t_r$	Output signal rise time	See Figure 1.		1.7		ns
$t_f$	Output signal fall time			1.6		ns
$t_{fs}$	Fail-safe output delay time from input power loss	See Figure 2.		6		$\mu s$

- (1) Also known as pulse skew.
- (2)  $t_{sk(o)}$  is the skew between outputs of a single device with all driving inputs connected together and the outputs switching in the same direction while driving identical loads.
- (3)  $t_{sk(pp)}$  is the magnitude of the difference in propagation delay times between terminals of different devices switching in the same direction while operating at identical supply voltages, temperature, input signals and loads.

## ELECTRICAL CHARACTERISTICS

 $V_{CC1}$  and  $V_{CC2} = 3.3\text{ V} \pm 10\%$ ,  $T_A = -40^\circ\text{C}$  to  $125^\circ\text{C}$ 

PARAMETER		TEST CONDITIONS		MIN	TYP	MAX	UNIT
$V_{OH}$	High-level output voltage	$I_{OH} = -4\text{ mA}$ ; see Figure 1.		$V_{CCx}^{(1)} - 0.4$	3		V
		$I_{OH} = -20\text{ }\mu\text{A}$ ; see Figure 1.		$V_{CCx}^{(1)} - 0.1$	3.3		
$V_{OL}$	Low-level output voltage	$I_{OL} = 4\text{ mA}$ ; see Figure 1.			0.2	0.4	V
		$I_{OL} = 20\text{ }\mu\text{A}$ ; see Figure 1.			0	0.1	
$V_{I(HYS)}$	Input threshold voltage hysteresis				400		mV
$I_{IH}$	High-level input current	INx at 0 V or $V_{CC}$				10	$\mu\text{A}$
$I_{IL}$	Low-level input current				-10		$\mu\text{A}$
CMTI	Common-mode transient immunity	$V_I = V_{CC}$ or 0 V; see Figure 3.		25	50		kV/ $\mu\text{s}$
<b>SUPPLY CURRENT (All inputs switching with square wave clock signal for dynamic <math>I_{CC}</math> measurement)</b>							
<b>ISO7420x</b>							
$I_{CC1}$	Supply current for $V_{CC1}$ and $V_{CC2}$	DC to 1 Mbps	DC Input: $V_I = V_{CC}$ or 0 V, AC Input: $C_L = 15\text{ pF}$		0.2	0.4	mA
$I_{CC2}$					2.6	3.7	
$I_{CC1}$		10 Mbps	$C_L = 15\text{ pF}$		0.4	0.6	
$I_{CC2}$					3.3	4.3	
$I_{CC1}$		25 Mbps	$C_L = 15\text{ pF}$		0.6	0.9	
$I_{CC2}$					4.4	5.6	
$I_{CC1}$		50 Mbps	$C_L = 15\text{ pF}$		1	1.3	
$I_{CC2}$					6.2	7.5	
<b>ISO7421x</b>							
$I_{CC1}$	Supply current for $V_{CC2}$ and $V_{CC2}$	DC to 1 Mbps	DC Input: $V_I = V_{CC}$ or 0 V, AC Input: $C_L = 15\text{ pF}$		1.8	2.8	mA
$I_{CC2}$					1.8	2.8	
$I_{CC1}$		10 Mbps	$C_L = 15\text{ pF}$		2.2	3.2	
$I_{CC2}$					2.2	3.2	
$I_{CC1}$		25 Mbps	$C_L = 15\text{ pF}$		2.8	4.1	
$I_{CC2}$					2.8	4.1	
$I_{CC1}$		50 Mbps	$C_L = 15\text{ pF}$		3.8	5.5	
$I_{CC2}$					3.8	5.5	

(1)  $V_{CCx}$  is the supply voltage for the output channel that is being measured

## SWITCHING CHARACTERISTICS

 $V_{CC1}$  and  $V_{CC2} = 3.3\text{ V} \pm 10\%$ ,  $T_A = -40^\circ\text{C}$  to  $125^\circ\text{C}$ 

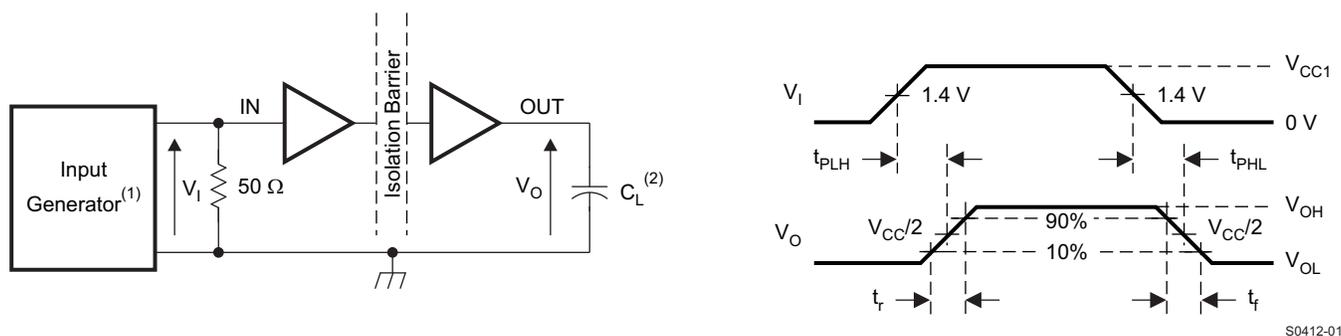
PARAMETER		TEST CONDITIONS	MIN	TYP	MAX	UNIT
$t_{PLH}, t_{PHL}$	Propagation delay time	E-grade		8.5	14	ns
		CC-grade	See Figure 1.	19.5	34	
PWD <sup>(1)</sup>	Pulse width distortion $ t_{PHL} - t_{PLH} $	ISO7420x and ISO7421x		0.5	2	ns
$t_{sk(o)}$ <sup>(2)</sup>	Channel-to-channel output skew time	ISO7420x		0.4	2	ns
		ISO7421x		0.4	3	
$t_{sk(pp)}$ <sup>(3)</sup>	Part-to-part skew time	ISO7420x			6.2	ns
		ISO7421x			6.8	
$t_r$	Output signal rise time	See Figure 1.		2		ns
$t_f$	Output signal fall time			1.8		ns
$t_{fs}$	Fail-safe output delay time from input power loss	See Figure 2.		6		$\mu\text{s}$

(1) Also known as pulse skew.

(2)  $t_{sk(o)}$  is the skew between outputs of a single device with all driving inputs connected together and the outputs switching in the same direction while driving identical loads.

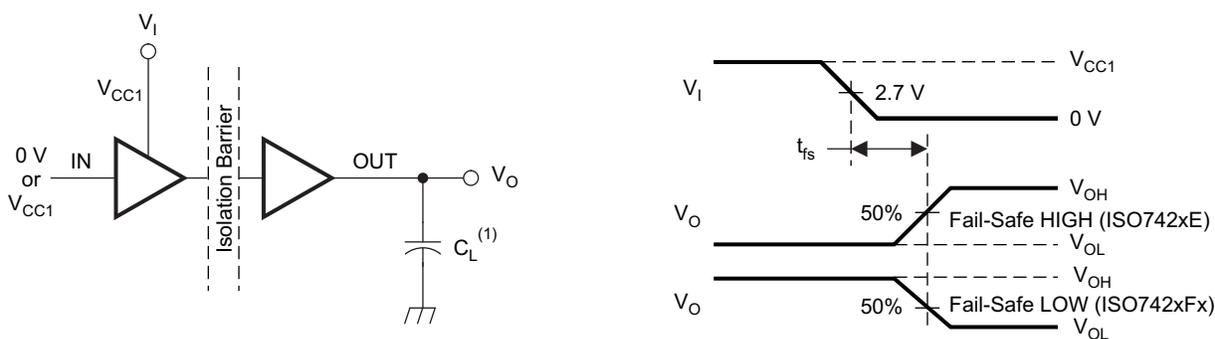
(3)  $t_{sk(pp)}$  is the magnitude of the difference in propagation delay times between terminals of different devices switching in the same direction while operating at identical supply voltages, temperature, input signals and loads.

PARAMETER MEASUREMENT INFORMATION



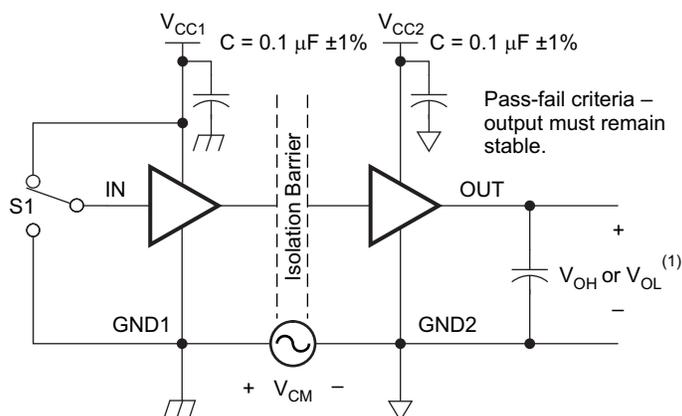
- (1) The input pulse is supplied by a generator having the following characteristics: PRR ≤ 50 kHz, 50% duty cycle,  $t_r \leq 3$  ns,  $t_f \leq 3$  ns,  $Z_o = 50 \Omega$ . At the input, a 50-Ω resistor is required to terminate the Input Generator signal. It is not needed in an actual application.
- (2)  $C_L = 15$  pF and includes instrumentation and fixture capacitance within ±20%.

Figure 1. Switching Characteristic Test Circuit and Voltage Waveforms



- (1)  $C_L = 15$  pF and includes instrumentation and fixture capacitance within ±20%.

Figure 2. Fail-Safe Output Delay-Time Test Circuit and Voltage Waveforms



- (1)  $C_L = 15$  pF and includes instrumentation and fixture capacitance within ±20%.

Figure 3. Common-Mode Transient Immunity Test Circuit

## DEVICE INFORMATION

### IEC INSULATION AND SAFETY-RELATED SPECIFICATIONS FOR D-8 PACKAGE

over recommended operating conditions (unless otherwise noted)

PARAMETER		TEST CONDITIONS	MIN	TYP	MAX	UNIT
L(I01)	Minimum air gap (clearance)	Shortest terminal-to-terminal distance through air	4.8			mm
L(I02)	Minimum external tracking (creepage)	Shortest terminal-to-terminal distance across the package surface	4.3			mm
CTI	Tracking resistance (comparative tracking index)	DIN IEC 60112 / VDE 0303 Part 1	>400			V
	Minimum internal gap (internal clearance)	Distance through the insulation	0.014			mm
R <sub>IO</sub>	Isolation resistance, input to output <sup>(1)</sup>	V <sub>IO</sub> = 500 V, T <sub>A</sub> < 100°C	>10 <sup>12</sup>			Ω
		V <sub>IO</sub> = 500 V, 100°C ≤ T <sub>A</sub> ≤ max	>10 <sup>11</sup>			Ω
C <sub>IO</sub>	Barrier capacitance, input to output <sup>(1)</sup>	V <sub>IO</sub> = 0.4 sin (2πft), f = 1 MHz		1		pF
C <sub>I</sub>	Input capacitance <sup>(2)</sup>	V <sub>I</sub> = V <sub>CC</sub> /2 + 0.4 sin (2πft), f = 1 MHz, V <sub>CC</sub> = 5 V		1		pF

(1) All pins on each side of the barrier tied together creating a two-terminal device.

(2) Measured from input pin to ground.

#### NOTE

Creepage and clearance requirements should be applied according to the specific equipment isolation standards of an application. Care should be taken to maintain the creepage and clearance distance of a board design to ensure that the mounting pads of the isolator on the printed-circuit board do not reduce this distance.

Creepage and clearance on a printed-circuit board become equal according to the measurement techniques shown in the Isolation Glossary. Techniques such as inserting grooves and/or ribs on a printed circuit board are used to help increase these specifications.

### INSULATION CHARACTERISTICS<sup>(3)</sup>

over recommended operating conditions (unless otherwise noted)

PARAMETER		TEST CONDITIONS	SPECIFICATION	UNIT
V <sub>IORM</sub>	Maximum working insulation voltage		566	V <sub>PEAK</sub>
V <sub>PR</sub>	Input-to-output test voltage per IEC 60747-5-2	Method a, After environmental tests subgroup 1, V <sub>PR</sub> = V <sub>IORM</sub> × 1.6, t = 10 s, Partial Discharge < 5 pC	906	V <sub>PEAK</sub>
		Method b1, V <sub>PR</sub> = V <sub>IORM</sub> × 1.875, t = 1 s (100% Production test) Partial discharge < 5 pC	1062	
		After Input/Output safety test subgroup 2/3, V <sub>PR</sub> = V <sub>IORM</sub> × 1.2, t = 10 s, Partial discharge < 5 pC	680	
V <sub>IOTM</sub>	Transient overvoltage per IEC 60747-5-2	V <sub>TEST</sub> = V <sub>IOTM</sub> t = 60 sec (qualification) t = 1 sec (100% production)	4242	V <sub>PEAK</sub>
V <sub>ISO</sub>	Isolation voltage per UL	V <sub>TEST</sub> = V <sub>ISO</sub> , t = 60 sec (qualification)	2500	V <sub>RMS</sub>
		V <sub>TEST</sub> = 1.2 × V <sub>ISO</sub> , t = 1 sec (100% production)	3000	
R <sub>S</sub>	Insulation resistance	V <sub>IO</sub> = 500 V at T <sub>S</sub>	>10 <sup>9</sup>	Ω
	Pollution degree		2	

(3) Climatic Classification 40/125/21

**Table 2. IEC 60664-1 RATINGS TABLE**

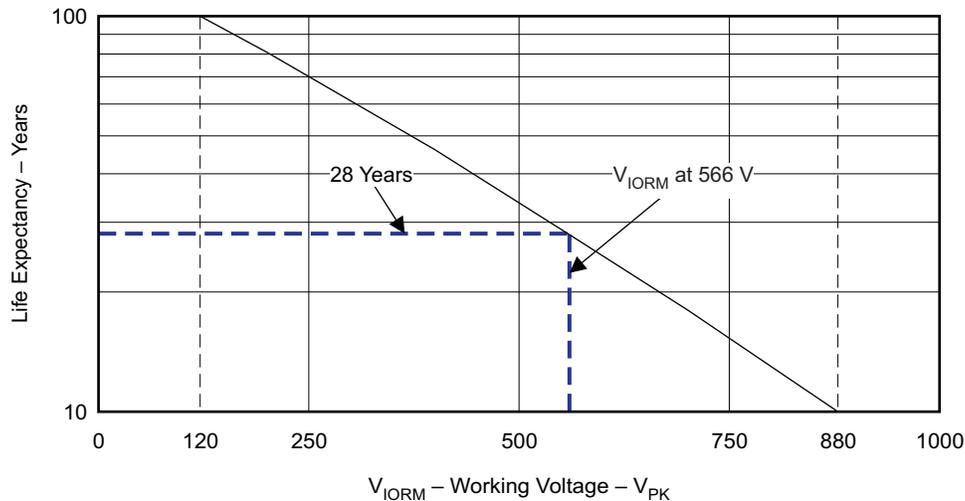
PARAMETER	TEST CONDITIONS	SPECIFICATION
Basic isolation group	Material group	II
Installation classification	Rated mains voltage $\leq 150 V_{RMS}$	I–IV
	Rated mains voltage $\leq 300 V_{RMS}$	I–III
	Rated mains voltage $\leq 400 V_{RMS}$	I–II

**REGULATORY INFORMATION**

VDE	CSA	UL
Certified according to DIN EN 60747-5-2 (VDE 0884 Part 2)	Approved under CSA Component Acceptance Notice #5A	Recognized under 1577 Component Recognition Program
Basic Insulation Maximum Transient Overvoltage, 4242 $V_{PK}$ Maximum Working Voltage, 566 $V_{PK}$	Basic insulation per CSA 60950-1-03 and IEC 60950-1, 400 $V_{RMS}$ (566 $V_{PK}$ ) maximum working voltage Functional insulation per CSA 60950-1-03 and IEC 60950-1, 800 $V_{RMS}$ (1131 $V_{PK}$ ) maximum working voltage	Single / Basic Isolation Voltage, 2500 $V_{RMS}$ <sup>(1)</sup>
File number: 40016131 (Approval Pending)	File number: 220991 (Approval Pending)	File number: E181974

(1) Production tested  $\geq 3000 V_{RMS}$  for 1 second in accordance with UL 1577.

**LIFE EXPECTANCY vs WORKING VOLTAGE**



G001

**Figure 4. Life Expectancy vs Working Voltage**

## IEC SAFETY LIMITING VALUES

Safety limiting intends to prevent potential damage to the isolation barrier upon failure of input or output circuitry. A failure of the I/O can allow low resistance to ground or the supply and, without current limiting, dissipate sufficient power to overheat the die and damage the isolation barrier, potentially leading to secondary system failures.

PARAMETER	TEST CONDITIONS	MIN	TYP	MAX	UNIT
$I_S$ Safety input, output, or supply current	$\theta_{JA} = 212^\circ\text{C/W}$ , $V_I = 5.5\text{ V}$ , $T_J = 150^\circ\text{C}$ , $T_A = 25^\circ\text{C}$			107	mA
	$\theta_{JA} = 212^\circ\text{C/W}$ , $V_I = 3.6\text{ V}$ , $T_J = 150^\circ\text{C}$ , $T_A = 25^\circ\text{C}$			164	
$T_S$ Maximum case temperature				150	$^\circ\text{C}$

The safety-limiting constraint is the absolute-maximum junction temperature specified in the *Absolute Maximum Ratings* table. The power dissipation and junction-to-air thermal impedance of the device installed in the application hardware determines the junction temperature. The assumed junction-to-air thermal resistance in the *Thermal Characteristics* table is that of a device installed in the JESD51-3, Low-Effective-Thermal-Conductivity Test Board for Leaded Surface-Mount Packages and is conservative. The power is the recommended maximum input voltage times the current. The junction temperature is then the ambient temperature plus the power times the junction-to-air thermal resistance.

## PACKAGE THERMAL CHARACTERISTICS

(over recommended operating conditions unless otherwise noted)

PARAMETER	TEST CONDITIONS	MIN	TYP	MAX	UNIT
$\theta_{JA}$ Junction-to-air thermal resistance	Low-K thermal resistance <sup>(1)</sup>		212		$^\circ\text{C/W}$
	High-K thermal resistance <sup>(1)</sup>		122		
$\theta_{JB}$ Junction-to-board thermal resistance			37		$^\circ\text{C/W}$
$\theta_{JC}$ Junction-to-case thermal resistance			69.1		$^\circ\text{C/W}$
$P_D$ Device power dissipation	$V_{CC1} = V_{CC2} = 5.5\text{ V}$ , $T_J = 150^\circ\text{C}$ , $C_L = 15\text{ pF}$ , Input a 100-Mbps 50% duty-cycle square wave			138	mW

(1) Tested in accordance with the low-K or high-K thermal metric definitions of EIA/JESD51-3 for leaded surface-mount packages

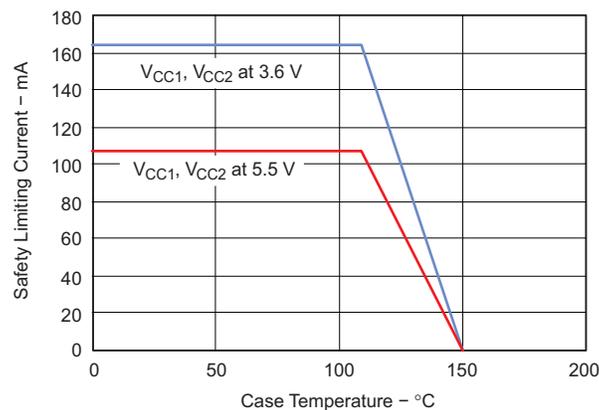


Figure 5.  $\theta_{JC}$  Thermal Derating Curve per IEC 60747-5-2

### APPLICATION INFORMATION

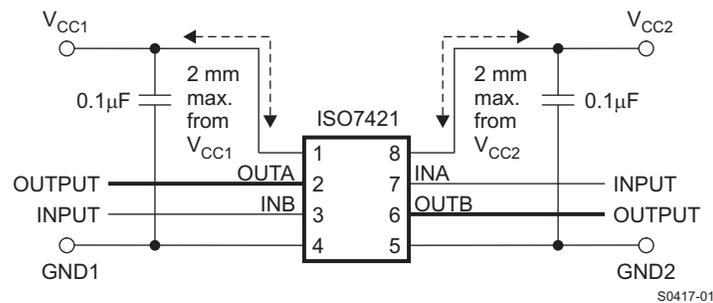


Figure 6. Typical ISO7421x Application Circuit

Note: For detailed layout recommendations, see Application Note [SLLA284](#), *Digital Isolator Design Guide*.

### SUPPLY CURRENT EQUATIONS

#### Maximum Supply Current Equations:

(Calculated over recommended operating temperature range and Silicon process variation)

#### ISO7420

At  $V_{CC1} = V_{CC2} = 3.3V \pm 10\%$

$$I_{CC1}(\max) = I_{CC1_Q}(\max) + 1.791 \times 10^{-2} \times f \quad (1)$$

$$I_{CC2}(\max) = I_{CC2_Q}(\max) + 1.687 \times 10^{-2} \times f + 3.570 \times 10^{-3} \times f \times C_L \quad (2)$$

At  $V_{CC1} = V_{CC2} = 5V \pm 10\%$

$$I_{CC1}(\max) = I_{CC1_Q}(\max) + 3.152 \times 10^{-2} \times f \quad (3)$$

$$I_{CC2}(\max) = I_{CC2_Q}(\max) + 2.709 \times 10^{-2} \times f + 5.365 \times 10^{-3} \times f \times C_L \quad (4)$$

#### ISO7421

At  $V_{CC1} = V_{CC2} = 3.3V \pm 10\%$

$$I_{CC1}(\max) = I_{CC1_Q}(\max) + 1.726 \times 10^{-2} \times f + 1.785 \times 10^{-3} \times f \times C_L \quad (5)$$

$$I_{CC2}(\max) = I_{CC2_Q}(\max) + 1.726 \times 10^{-2} \times f + 1.785 \times 10^{-3} \times f \times C_L \quad (6)$$

At  $V_{CC1} = V_{CC2} = 5V \pm 10\%$

$$I_{CC1}(\max) = I_{CC1_Q}(\max) + 2.920 \times 10^{-2} \times f + 2.682 \times 10^{-3} \times f \times C_L \quad (7)$$

$$I_{CC2}(\max) = I_{CC2_Q}(\max) + 2.920 \times 10^{-2} \times f + 2.682 \times 10^{-3} \times f \times C_L \quad (8)$$

$I_{CC1_Q}(\max)$  and  $I_{CC2_Q}(\max)$  are equivalent to the maximum supply currents measured in mA under DC input conditions (provided in the specification tables of this data sheet);  $f$  is data rate in Mbps of both channels;  $C_L$  is the capacitive load in pF of both channels.  $I_{CC1}(\max)$  and  $I_{CC2}(\max)$  are measured in mA.

#### Typical Supply Current Equations:

(Calculated over recommended operating temperature range and Silicon process variation)

#### ISO7420

At  $V_{CC1} = V_{CC2} = 3.3V$

$$I_{CC1}(\text{typ}) = I_{CC1_Q}(\text{typ}) + 1.528 \times 10^{-2} \times f \quad (9)$$

$$I_{CC2}(\text{typ}) = I_{CC2_Q}(\text{typ}) + 1.637 \times 10^{-2} \times f + 3.275 \times 10^{-3} \times f \times C_L \quad (10)$$

At  $V_{CC1} = V_{CC2} = 5V$

$$I_{CC1}(\text{typ}) = I_{CC1_Q}(\text{typ}) + 2.640 \times 10^{-2} \times f \quad (11)$$

$$I_{CC2}(\text{typ}) = I_{CC2_Q}(\text{typ}) + 2.502 \times 10^{-2} \times f + 4.919 \times 10^{-3} \times f \times C_L \quad (12)$$

**ISO7421**

At  $V_{CC1} = V_{CC2} = 3.3V$

$$I_{CC1}(typ) = I_{CC1_Q}(typ) + 1.567 \times 10^{-2} \times f + 1.640 \times 10^{-3} \times f \times C_L \quad (13)$$

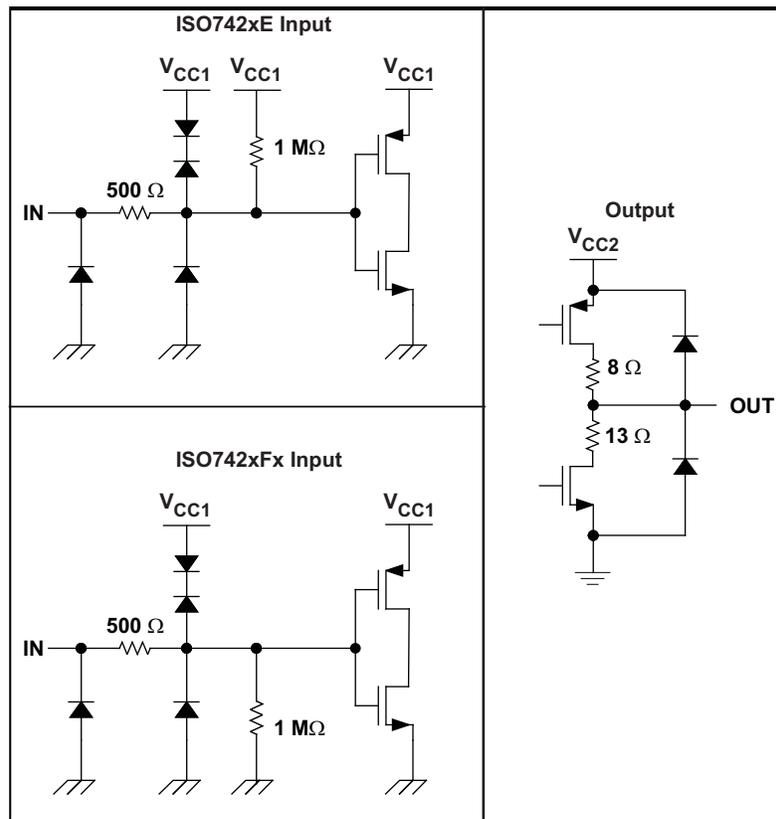
$$I_{CC2}(typ) = I_{CC2_Q}(typ) + 1.567 \times 10^{-2} \times f + 1.640 \times 10^{-3} \times f \times C_L \quad (14)$$

At  $V_{CC1} = V_{CC2} = 5V$

$$I_{CC1}(typ) = I_{CC1_Q}(typ) + 2.550 \times 10^{-2} \times f + 2.416 \times 10^{-3} \times f \times C_L \quad (15)$$

$$I_{CC2}(typ) = I_{CC2_Q}(typ) + 2.550 \times 10^{-2} \times f + 2.461 \times 10^{-3} \times f \times C_L \quad (16)$$

$I_{CC1_Q}(typ)$  and  $I_{CC2_Q}(typ)$  are equivalent to the typical supply currents measured in mA under DC input conditions (provided in the specification tables of this data sheet);  $f$  is data rate in Mbps of each channel;  $C_L$  is the capacitive load in pF of each channel.  $I_{CC1}(typ)$  and  $I_{CC2}(typ)$  are measured in mA.

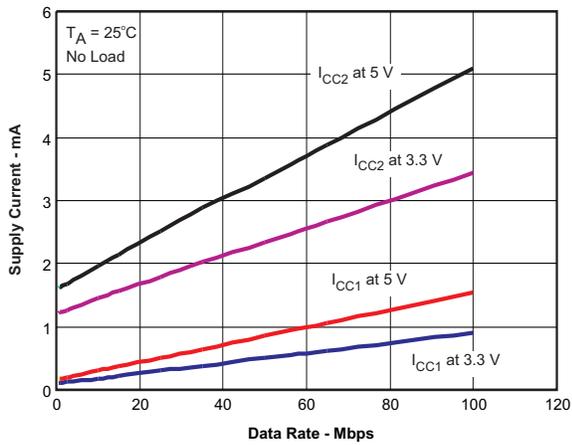


**Figure 7. Device I/O Schematics**

**TYPICAL CHARACTERISTICS**

**ISO7420 SUPPLY CURRENT PER CHANNEL**

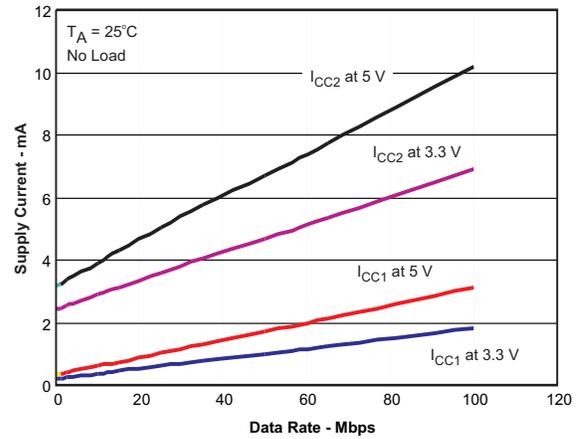
**vs  
DATA RATE (NO LOAD)**



**Figure 8.**

**ISO7420 SUPPLY CURRENT BOTH CHANNELS**

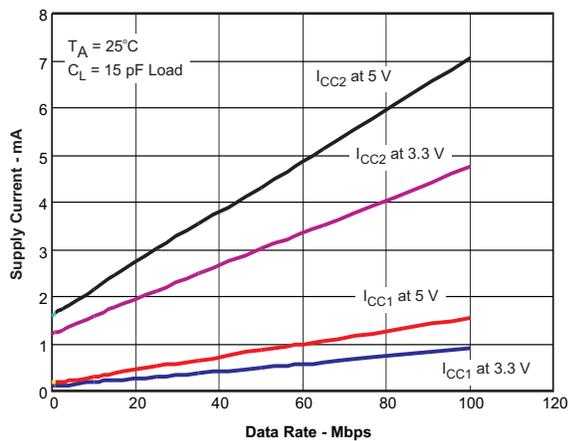
**vs  
DATA RATE (NO LOAD)**



**Figure 9.**

**ISO7420 SUPPLY CURRENT PER CHANNEL**

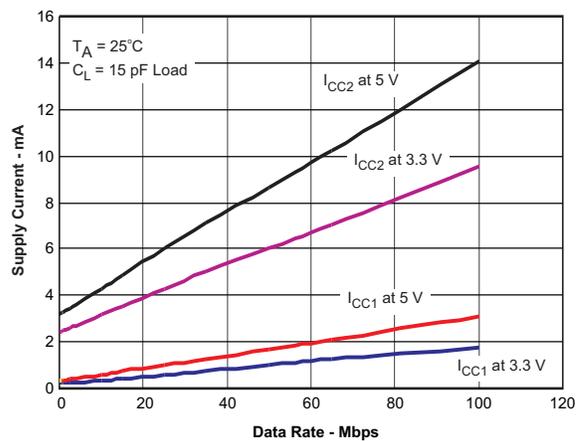
**vs  
DATA RATE (15 pF LOAD)**



**Figure 10.**

**ISO7420 SUPPLY CURRENT BOTH CHANNELS**

**vs  
DATA RATE (15 pF LOAD)**

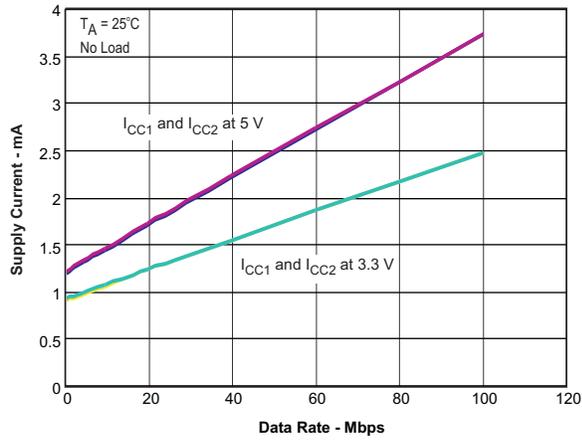


**Figure 11.**

**TYPICAL CHARACTERISTICS (continued)**

**ISO7421 SUPPLY CURRENT PER CHANNEL**

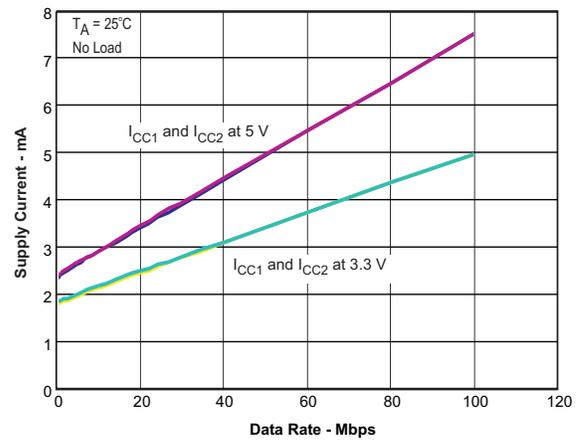
**vs**  
**DATA RATE (NO LOAD)**



**Figure 12.**

**ISO7421 SUPPLY CURRENT BOTH CHANNELS**

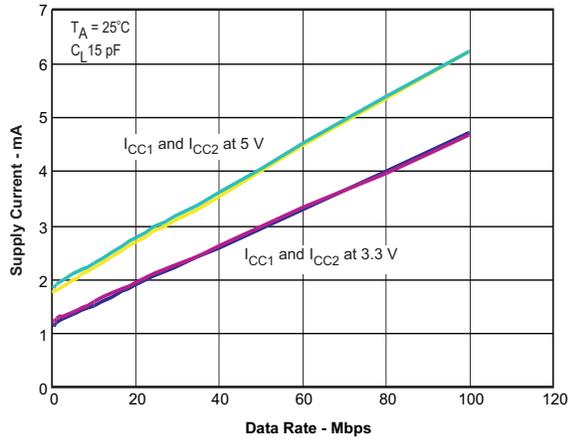
**vs**  
**DATA RATE (NO LOAD)**



**Figure 13.**

**ISO7421 SUPPLY CURRENT PER CHANNEL**

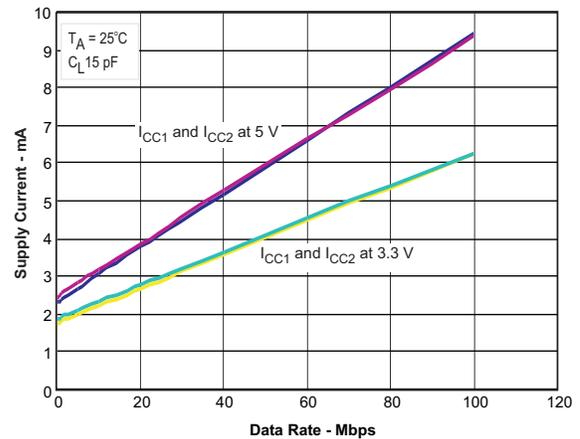
**vs**  
**DATA RATE (15 pF LOAD)**



**Figure 14.**

**ISO7421 SUPPLY CURRENT BOTH CHANNELS**

**vs**  
**DATA RATE (15 pF LOAD)**



**Figure 15.**

**TYPICAL CHARACTERISTICS (continued)**

**'E-GRADE PROPAGATION DELAY TIME  
 VS  
 FREE-AIR TEMPERATURE**

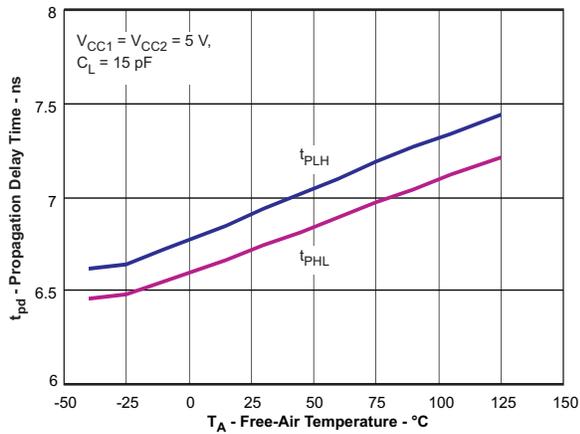


Figure 16.

**'E-GRADE PROPAGATION DELAY TIME  
 VS  
 FREE-AIR TEMPERATURE**

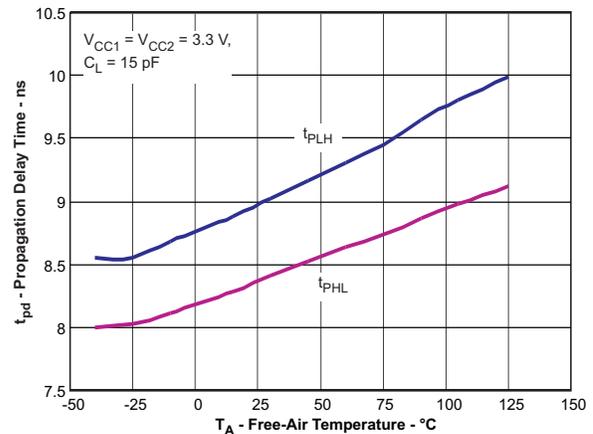


Figure 17.

**INPUT  $V_{CC}$  FAIL-SAFE VOLTAGE THRESHOLD  
 VS  
 FREE-AIR TEMPERATURE**

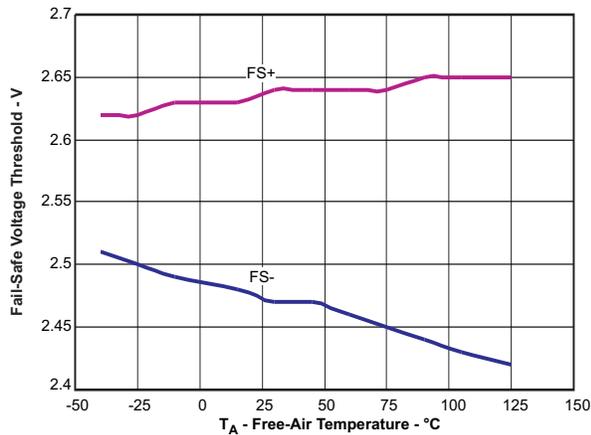


Figure 18.

**HIGH-LEVEL OUTPUT VOLTAGE  
 VS  
 HIGH-LEVEL OUTPUT CURRENT**

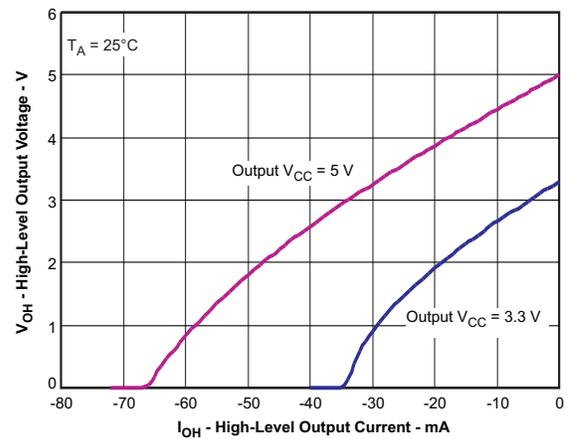


Figure 19.

TYPICAL CHARACTERISTICS (continued)

LOW-LEVEL OUTPUT VOLTAGE  
vs  
LOW-LEVEL OUTPUT CURRENT

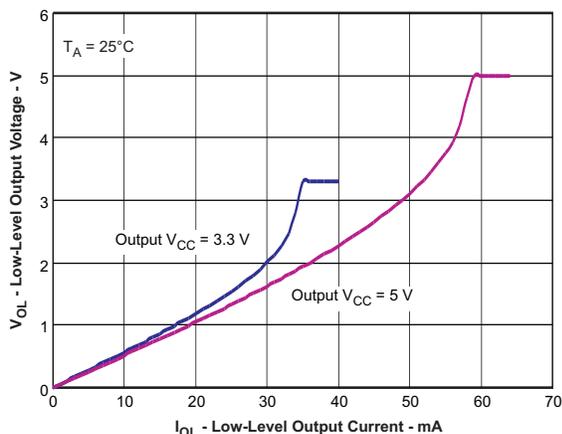


Figure 20.

ISO7420FE OUTPUT JITTER  
vs  
DATA RATE

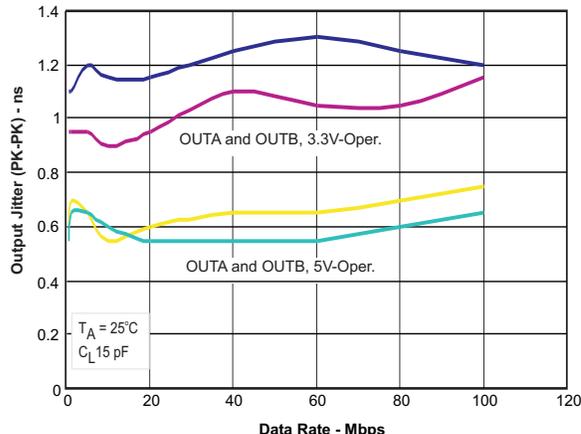


Figure 21.

ISO7421FE OUTPUT JITTER  
vs  
DATA RATE

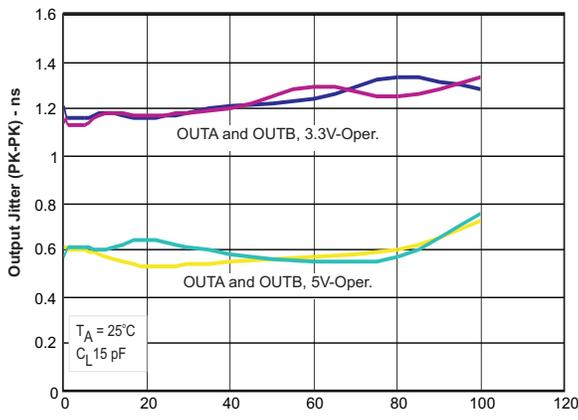


Figure 22.

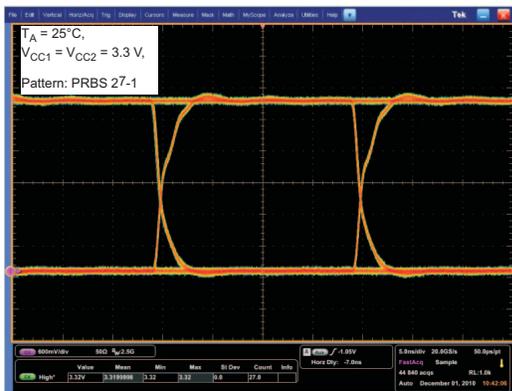


Figure 23. ISO7420FE Typical Eye Diagram at 50 MBPS, 3.3 V Operation



Figure 24. ISO7420FE Typical Eye Diagram at 100 MBPS, 3.3 V Operation

## REVISION HISTORY

### Changes from Original (December 2010) to Revision A

Page

- Changed the Max values for Supply current for  $V_{CC1}$  and  $V_{CC2}$ ,  $C_L = 15\text{pF}$  ..... 7

### Changes from Revision A (December 2010) to Revision B

Page

- Changed Feature bullet From: ISO7421: TBDmA at 1Mbps, TBDmA at 25Mbps To: ISO7421: 1.8mA at 1Mbps, 2.8mA at 25Mbps ..... 1
- Updated the ISO7421x Supply Current values for  $V_{CC1}$  and  $V_{CC2} = 5\text{V}$  ..... 4
- Updated the ISO7421x Supply Current values for  $V_{CC1} = 5\text{V}$  and  $V_{CC2} = 3.3\text{V}$  ..... 5
- Updated the ISO7421x Supply Current values for  $V_{CC1} = 3.3\text{V}$  and  $V_{CC2} = 5\text{V}$  ..... 6
- Updated the ISO7421x Supply Current values for  $V_{CC1}$  and  $V_{CC2} = 3.3\text{V}$  ..... 7

### Changes from Revision B (January 2011) to Revision C

Page

- Added devices ISO7420FCC and ISO7421FCC ..... 1
- Changed Feature bullet To: Low Propagation Delay: 7 ns Typical (E-Grade) ..... 1
- Changed Feature bullet To: Low Pulse Skew: 200 Typical (E-Grade) ..... 1
- Changed the SAFETY and REGULATORY APPROVALS list ..... 1
- Changed the data sheet DESCRIPTION ..... 1
- Changed PU to X in the last row of the FUNCTION TABLE ..... 2
- Changed the Available Options Table ..... 2
- Changed the Supply Current values for ISO7421x at 10, 25, and 50 Mbps ..... 4
- Added CC-grade and valued to  $t_{PLH}$ ,  $t_{PHL}$  in the Switching Characteristics table ..... 4
- Added ISO7421x values for Pulse width distortion, Channel-to-channel output skew time, and Part-to-part skew time .... 4
- Changed the Supply Current values for ISO7421x at 10, 25, and 50 Mbps ..... 5
- Added CC-grade and valued to  $t_{PLH}$ ,  $t_{PHL}$  in the Switching Characteristics table ..... 5
- Added ISO7421x values for Pulse width distortion and Channel-to-channel output skew time ..... 5
- Changed the Supply Current values for ISO7421x at 10, 25, and 50 Mbps ..... 6
- Added CC-grade and valued to  $t_{PLH}$ ,  $t_{PHL}$  in the Switching Characteristics table ..... 6
- Changed the Supply Current values for ISO7421x 25 and 50 Mbps ..... 7
- Added CC-grade and valued to  $t_{PLH}$ ,  $t_{PHL}$  in the Switching Characteristics table ..... 7
- Changed Note 1 [Figure 1](#) ..... 8
- Changed [Figure 2](#) ..... 8
- Changed Isolation resistance test conditions ..... 9
- Changed the values of  $V_{IORM}$  and  $V_{PR}$  in the INSULATION CHARACTERISTICS table ..... 9
- Changed the value of  $V_{IOTM}$  in the INSULATION CHARACTERISTICS table From: 4000 To: 4242 ..... 9
- Changed [Figure 5](#) ..... 11
- Added section: SUPPLY CURRENT EQUATIONS ..... 12
- Added graphs [Figure 12](#), [Figure 13](#), [Figure 14](#), and [Figure 15](#) ..... 15
- Added graphs [Figure 21](#) and [Figure 22](#) ..... 17

**PACKAGING INFORMATION**

Orderable Device	Status <sup>(1)</sup>	Package Type	Package Drawing	Pins	Package Qty	Eco Plan <sup>(2)</sup>	Lead/ Ball Finish	MSL Peak Temp <sup>(3)</sup>	Samples (Requires Login)
ISO7420ED	ACTIVE	SOIC	D	8	75	Green (RoHS & no Sb/Br)	CU NIPDAU	Level-1-260C-UNLIM	
ISO7420EDR	ACTIVE	SOIC	D	8	2500	Green (RoHS & no Sb/Br)	CU NIPDAU	Level-1-260C-UNLIM	
ISO7420FED	ACTIVE	SOIC	D	8	75	Green (RoHS & no Sb/Br)	CU NIPDAU	Level-1-260C-UNLIM	
ISO7420FEDR	ACTIVE	SOIC	D	8	2500	Green (RoHS & no Sb/Br)	CU NIPDAU	Level-1-260C-UNLIM	
ISO7421ED	ACTIVE	SOIC	D	8	75	Green (RoHS & no Sb/Br)	CU NIPDAU	Level-1-260C-UNLIM	
ISO7421EDR	ACTIVE	SOIC	D	8	2500	Green (RoHS & no Sb/Br)	CU NIPDAU	Level-1-260C-UNLIM	
ISO7421FED	ACTIVE	SOIC	D	8	75	Green (RoHS & no Sb/Br)	CU NIPDAU	Level-1-260C-UNLIM	
ISO7421FEDR	ACTIVE	SOIC	D	8	2500	Green (RoHS & no Sb/Br)	CU NIPDAU	Level-1-260C-UNLIM	

<sup>(1)</sup> The marketing status values are defined as follows:

**ACTIVE:** Product device recommended for new designs.

**LIFEBUY:** TI has announced that the device will be discontinued, and a lifetime-buy period is in effect.

**NRND:** Not recommended for new designs. Device is in production to support existing customers, but TI does not recommend using this part in a new design.

**PREVIEW:** Device has been announced but is not in production. Samples may or may not be available.

**OBsolete:** TI has discontinued the production of the device.

<sup>(2)</sup> Eco Plan - The planned eco-friendly classification: Pb-Free (RoHS), Pb-Free (RoHS Exempt), or Green (RoHS & no Sb/Br) - please check <http://www.ti.com/productcontent> for the latest availability information and additional product content details.

**TBD:** The Pb-Free/Green conversion plan has not been defined.

**Pb-Free (RoHS):** TI's terms "Lead-Free" or "Pb-Free" mean semiconductor products that are compatible with the current RoHS requirements for all 6 substances, including the requirement that lead not exceed 0.1% by weight in homogeneous materials. Where designed to be soldered at high temperatures, TI Pb-Free products are suitable for use in specified lead-free processes.

**Pb-Free (RoHS Exempt):** This component has a RoHS exemption for either 1) lead-based flip-chip solder bumps used between the die and package, or 2) lead-based die adhesive used between the die and leadframe. The component is otherwise considered Pb-Free (RoHS compatible) as defined above.

**Green (RoHS & no Sb/Br):** TI defines "Green" to mean Pb-Free (RoHS compatible), and free of Bromine (Br) and Antimony (Sb) based flame retardants (Br or Sb do not exceed 0.1% by weight in homogeneous material)

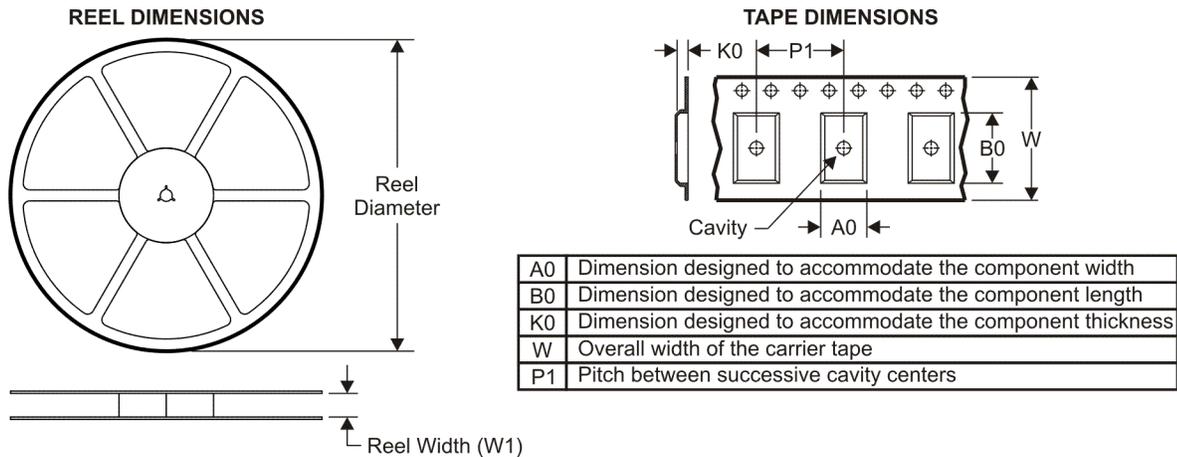
<sup>(3)</sup> MSL, Peak Temp. -- The Moisture Sensitivity Level rating according to the JEDEC industry standard classifications, and peak solder temperature.

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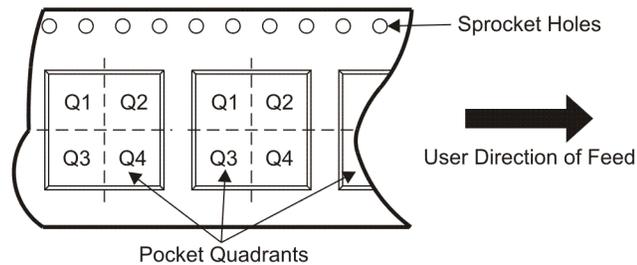
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## TAPE AND REEL INFORMATION



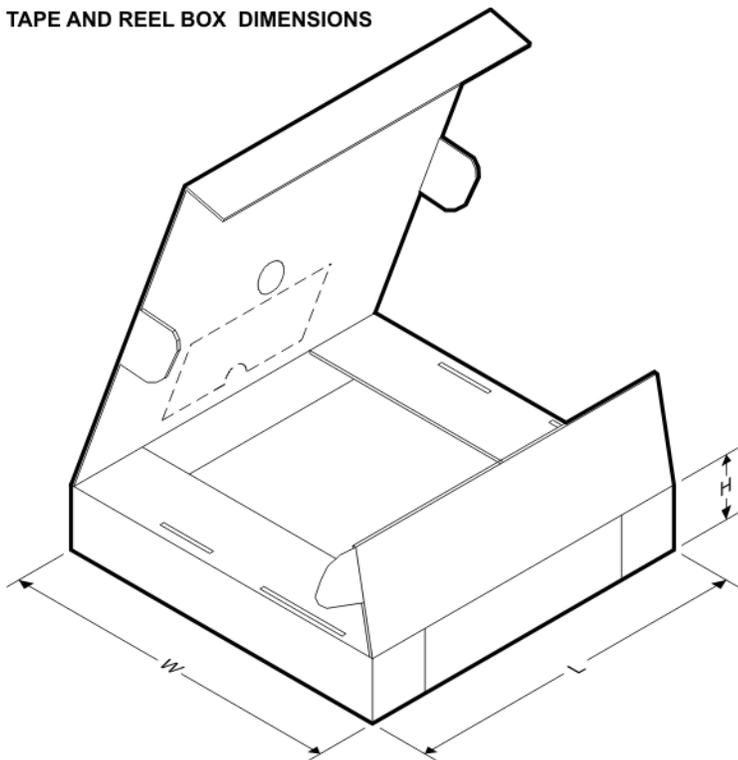
### QUADRANT ASSIGNMENTS FOR PIN 1 ORIENTATION IN TAPE



\*All dimensions are nominal

Device	Package Type	Package Drawing	Pins	SPQ	Reel Diameter (mm)	Reel Width W1 (mm)	A0 (mm)	B0 (mm)	K0 (mm)	P1 (mm)	W (mm)	Pin1 Quadrant
ISO7420FEDR	SOIC	D	8	2500	330.0	12.4	6.4	5.2	2.1	8.0	12.0	Q1
ISO7421EDR	SOIC	D	8	2500	330.0	12.4	6.4	5.2	2.1	8.0	12.0	Q1
ISO7421FEDR	SOIC	D	8	2500	330.0	12.4	6.4	5.2	2.1	8.0	12.0	Q1

## TAPE AND REEL BOX DIMENSIONS



\*All dimensions are nominal

Device	Package Type	Package Drawing	Pins	SPQ	Length (mm)	Width (mm)	Height (mm)
ISO7420FEDR	SOIC	D	8	2500	358.0	335.0	35.0
ISO7421EDR	SOIC	D	8	2500	358.0	335.0	35.0
ISO7421FEDR	SOIC	D	8	2500	358.0	335.0	35.0



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