Description

The API772X family consists of high-performance dual-channel digital isolators with 5000V_{RMS} (SO-8W (Type CJ) package) and 3000V_{RMS} (SO-8 (Type CJ2) package) isolation ratings per UL 1577. This family insulation level can fulfill reinforced and basic isolation requirements, according to VDE, UL, and CQC. The data rate of the API772X is up to 100Mbps. They provide digital channel direction configuration and a default output level. The family can also operate under a wide supply voltage of 2.5V to 5.5V.

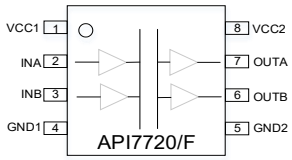
The API772X family provides strong electromagnetic immunity and low emissions at low-power consumption. These devices have a minimum of 150kV/μs common-mode transient immunity (CMTI). The API7720 device has both channels in the same direction while the API7721/22 devices have both channels in the opposite direction. The default output is high for devices without suffix F and low for devices with suffix F. See *Device Functional Modes* section for further details.

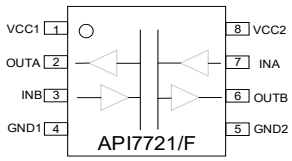
Features

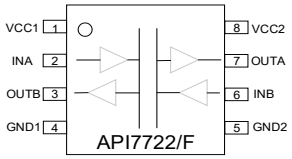
- 100Mbps Data Rate
- Supply Voltage: 2.5V to 5.5V
- ±150kV/μs Minimum CMTI
- CMOS Threshold Inputs
- Default Output High (API772X) and Low (API772XF) Options
- Low Power Consumption, Typical 2.1mA per Channel at 1Mbps
- Low Propagation Delay: 11ns Typical
- Safety-Related Certifications:
  - 8000V_{PK} (SO-8W (Type CJ)) Isolation per DIN EN IEC 60747-17 (VDE 0884-17)
  - 5000V_{RMS} (SO-8W (Type CJ)) Isolation for 1 Minute per UL 1577
  - CQC Certification per GB 4943.1
- Device HBM ESD 8kV
- Device CDM ESD 1.6kV
- Packaged in SO-8 (Type CJ2) and SO-8W (Type CJ)
- Operational Temperature Range: -40 to +125°C
- **Totally Lead-Free & Fully RoHS Compliant (Notes 1 & 2)**
- **Halogen and Antimony Free. "Green" Device (Note 3)**
- **An automotive-compliant part is available under a separate datasheet (API772XQ)**

Pin Assignments

SO-8 (Type CJ2) / SO-8W (Type CJ)







Top View

Applications

- Solar inverters
- Motor control
- Industrial automation
- Power in DATA center/telecom equipment
- Grid, electricity meters

Notes:
1. No purposely added lead. Fully EU Directive 2002/95/EC (RoHS), 2011/65/EU (RoHS 2) & 2015/863/EU (RoHS 3) compliant.
2. See https://www.diodes.com/quality/lead-free/ for more information about Diodes Incorporated's definitions of Halogen- and Antimony-free, "Green" and Lead-free.
3. Halogen- and Antimony-free "Green" products are defined as those which contain <900ppm bromine, <900ppm chlorine (<1500ppm total Br + Cl) and <1000ppm antimony compounds.

© 2026 Copyright Diodes Incorporated. All Rights Reserved.

Downloaded from Arrow.com.

Typical Applications Circuit

The API772X devices can be used with MCUs, CAN transceivers, bias power supplies, and voltage regulators to create an isolated CAN interface. The following is an example circuit of the API7721.

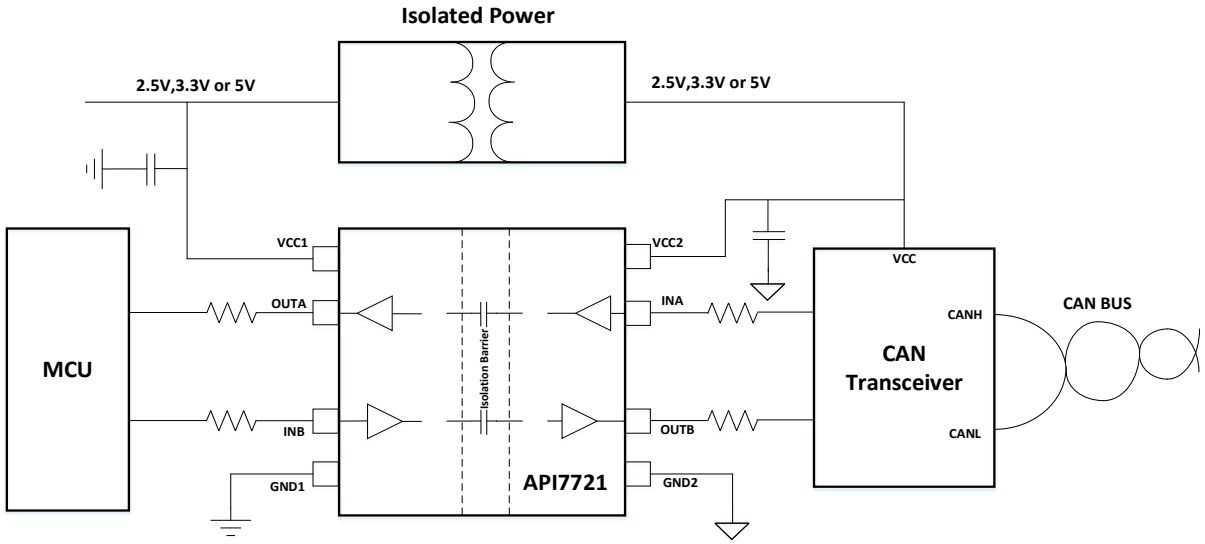


Figure 1. Typical Application Circuit of API772X

Pin Configuration and Descriptions

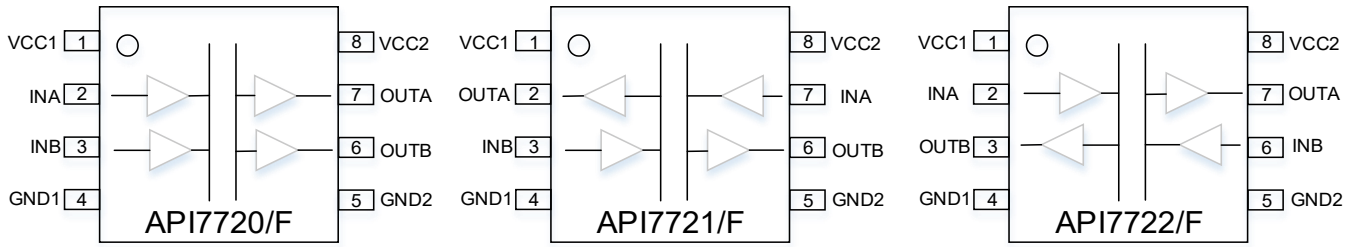


Figure 2. API772X Pin Configuration

Pin Name	Pin Number SO-8 (Type CJ2)/SO-8W (Type CJ)			Function
	API7720/F	API7721/F	API7722/F	
VCC1	1	1	1	Power Supply, VCC1
INA	2	7	2	Input of Channel A
INB	3	3	6	Input of Channel B
GND1	4	4	4	Ground Reference for VCC1 Side
GND2	5	5	5	Ground Reference for VCC2 Side
OUTB	6	6	3	Output of Channel B
OUTA	7	2	7	Output of Channel A
VCC2	8	8	8	Power Supply, VCC2

Table 1. Pin Description

© 2026 Copyright Diodes Incorporated. All Rights Reserved.
Downloaded from Arrow.com.

Absolute Maximum Ratings (Note 4)

Symbol	Parameter	Rating	Unit
V_{CC1}, V_{CC2}	Supply Voltage	-0.5 to 6	V
V_{INA}, V_{INB}	Input Signal Voltage	-0.5 to V_{CC} +0.5 (Note 5)	V
V_{OUTA}, V_{OUTB}	Output Signal Voltage	-0.5 to V_{CC} +0.5 (Note 5)	V
I_O	Output Current	-15 to 15	mA
T_J	Operating Junction Temperature Range	-40 to +150	°C
T_{STG}	Storage Temperature Range	-65 to +150	°C
ESD	Human Body Model	8000	V
	Charged Device Model	1600	V
	Contact Discharge per IEC 61000-4-2; Isolation Barrier Withstand Test (Note 6)	8000	V

Notes: 4. Stresses greater than those listed under *Absolute Maximum Ratings* can 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 Ratings* for extended periods can affect device reliability.
5. Maximum voltage must not exceed 6V.
6. IEC ESD strike is applied across the barrier with all pins on each side tied together creating a two-terminal device.

Recommended Operating Conditions

Symbol	Parameter	Min	Typ	Max	Unit
V_{CC1}, V_{CC2}	Power Supply Voltage	2.5	—	5.5	V
V_{IH}	High-Level Input Voltage	0.7 × V_{CCI}	—	V_{CCI}	V
V_{IL}	Low-Level Input Voltage	0	—	0.3 × V_{CCI}	V
DR	Data Rate	—	—	100	Mbps
T_A	Ambient Temperature	-40	—	+125	°C

© 2026 Copyright Diodes Incorporated. All Rights Reserved.

Downloaded from Arrow.com.

Package Thermal Information

Symbol	Parameter	SO-8 (Type CJ2)	SO-8W (Type CJ)	Unit
$R_{\theta JA}$	Junction to Ambient Thermal Resistance	100.6	92.3	°C/W
$R_{\theta JC(top)}$	Junction to Case Thermal Resistance	36.7	34.0	°C/W
$R_{\theta JB}$	Junction-to-Board Thermal Resistance	32.7	39.5	°C/W
ψ_{JT}	Junction-to-Top Characterization Parameter	4.5	7.7	°C/W
ψ_{JB}	Junction-to-Board Characterization Parameter	31.7	37.7	°C/W
$R_{\theta JC(bot)}$	Junction-to-Case (Bottom) Thermal Resistance	41.0	48.2	°C/W

Power Ratings

Parameter		Test Conditions	Min	Typ	Max	Unit
API7720						
P_D	Maximum Power Dissipation (Both Sides)	V_{CC1} = V_{CC2} = 5.5V, T_J = +150°C, CL = 15pF, Input 50MHz 50% duty cycle square wave	—	—	154	mW
P_{D1}	Maximum Power Dissipation (Side-1)		—	—	27.5	mW
P_{D2}	Maximum Power Dissipation (Side-2)		—	—	126.5	mW
API7721/API7722						
P_D	Maximum Power Dissipation (Both Sides)	V_{CC1} = V_{CC2} = 5.5V, T_J = +150°C, CL = 15pF, Input 50MHz 50% duty cycle square wave	—	—	165	mW
P_{D1}	Maximum Power Dissipation (Side-1)		—	—	82.5	mW
P_{D2}	Maximum Power Dissipation (Side-2)		—	—	82.5	mW

© 2026 Copyright Diodes Incorporated. All Rights Reserved.
Downloaded from Arrow.com.

Insulation Specifications

Symbol	Parameter	Condition	Value		Unit
			SO-8 (Type CJ2)	SO-8W (Type CJ)	
CLR	External Clearance	Shortest terminal-to-terminal distance through air	> 4	> 8	mm
CPG	External Creepage	Shortest terminal-to-terminal distance across the package surface	> 4	> 8	mm
DTI	Distance Through the Insulation	Minimum internal gap (internal clearance)	26		μm
CTI	Comparative Tracking Index	DIN EN 60112 (VDE 0303-11); IEC 60112	> 600	> 600	V
—	Material Group	According to IEC 60664-1	I	I	—
Overvoltage Category per IEC60664-1					
—	For Rated Mains Voltage ≤ 150V_{RMS}	—	I to IV	I to IV	—
—	For Rated Mains Voltage ≤ 300V_{RMS}	—	I to III	I to IV	—
—	For Rated Mains Voltage ≤ 600V_{RMS}	—	—	I to IV	—
—	For Rated Mains Voltage ≤ 1000V_{RMS}	—	—	I to III	—
DIN EN IEC 60747-17 (VDE 0884-17)					
V_{IORM}	Maximum Repetitive Peak Isolation Voltage	AC voltage	637	2121	V_{PK}
V_{IOWM}	Maximum Working Isolation Voltage	AC voltage	450	1500	V_{RMS}
		DC voltage	637	2121	VDC
V_{IOTM}	Maximum Transient Isolation Voltage	V_{TEST} = V_{IOTM}, t = 60s (qualification) V_{TEST} = 1.2 × V_{IOTM}, t = 1s (100% production)	4242	8000	V_{PK}
V_{IMP}	Maximum Impulse Voltage	Tested in air, 1.2/50μs waveform per IEC 62368-1	5000	8000	V_{PK}
V_{IOSM}	Maximum Surge Isolation Voltage	V_{IOSM} ≥ 1.3 × V_{IMP}; Tested in oil (qualification test), 1.2/50μs waveform, per IEC 62368-1	6500	12800	V_{PK}
Q_{pd}	Apparent Charge	Method a, After I/O safety test subgroup 2/3. Vini = V_{IOTM}, tini = 60s; Vpd(m) = 1.2 × V_{IORM}, tm = 10s	< 5	< 5	pC
		Method a, After environmental tests subgroup 1. Vini = V_{IOTM}, tini = 60s; Vpd(m) = 1.6 × V_{IORM}, tm = 10s	< 5	< 5	pC
		Method b1; At routine test (100% production) and preconditioning (type test) Vini = 1.2 × V_{IOTM}; tini = 1s; Vpd(m) = 1.875 × V_{IORM}, tm = 1s	< 5	< 5	pC
C_{IO}	Barrier Capacitance, Input to Output	V_{IO} = 0.4 sin (2πft), f = 1MHz	~0.5	~0.5	pF
R_{IO}	Isolation Resistance, Input to Output	V_{IO} = 500V at T_A = +25°C	> 10^{12}	> 10^{12}	Ω
R_{IO}	Isolation Resistance, Input to Output	V_{IO} = 500V at +100°C ≤ T_A ≤ +125°C	> 10^{11}	> 10^{11}	Ω
R_{IO}	Isolation Resistance, Input to Output	V_{IO} = 500V at T_S = +150°C	> 10^{9}	> 10^{9}	Ω
Pollution Degree	—	—	2	2	—
Climatic Category	—	—	55/125/21	55/125/21	—
UL 1577					
V_{ISO}	Withstand Isolation Voltage	V_{TEST} = V_{ISO}, t = 60s (qualification), V_{TEST} = 1.2 × V_{ISO}, t = 1s (100% production)	3750	5000	V_{RMS}

© 2026 Copyright Diodes Incorporated. All Rights Reserved.

Downloaded from Arrow.com.

Safety-Related Certifications

VDE	UL	CQC
DIN EN IEC 60747-17 (VDE 0884-17)	UL 1577	GB 4943.1
Maximum transient isolation voltage, 8000V_{PK} (SO-8W (Type CJ)) and 4242V_{PK} (SO-8 (Type CJ2)); Maximum repetitive peak isolation voltage, 2121V_{PK} (SO-8W (Type CJ)) and 637V_{PK} (SO-8 (Type CJ2)); Maximum surge isolation voltage, 12800V_{PK} (SO-8W (Type CJ)) and 6500V_{PK} (SO-8 (Type CJ2))	SO-8W (Type CJ): Single protection, 5000V_{RMS}; SO-8 (Type CJ2): Single protection, 3750V_{RMS}	SO-8W (Type CJ): Reinforced Insulation, Altitude ≤ 5000m, Tropical Climate, 700V_{RMS} maximum working voltage; SO-8 (Type CJ2): Basic Insulation, Altitude ≤ 5000m, Tropical Climate, 400V_{RMS} maximum working voltage
Certificate planned	E550819	Certificate planned

Safety-Limiting Values

Symbol	Parameter	Condition	Value		Unit
			SO-8 (Type CJ2)	SO-8W (Type CJ)	
I_S	Safety Supply Current	V_{CC} = 5.5V, T_J = +150°C, T_A = +25°C	225	246	mA
P_S	Safety Supply Power	V_{CC} = 5.5V, T_J = +150°C, T_A = +25°C	1242	1353	mW
T_S	Safety Temperature	—	+150		°C

Electrical Characteristics (V_{CC1} = V_{CC2}, T_A = -40°C to +125°C. Unless otherwise noted, typical values are at T_A = +25°C)

Symbol	Parameter	Condition	Min	Typ	Max	Unit
V_{CC} (UVLOP)	UVLO Threshold When Supply Voltage is Rising	—	—	2.2	—	V
V_{CC} (UVLON)	UVLO Threshold When Supply Voltage is Falling	—	—	2.1	—	V
V_{HYS} (UVLO)	Supply Voltage UVLO Hysteresis	—	—	100	—	mV
V_{OH}	High-Level Output Voltage	I_O ≤ 4mA	V_{CCO} - 0.4	—	—	V
V_{OL}	Low-Level Output Voltage	I_O ≤ 4mA	—	—	0.4	V
$V_{IT+(IN)}$	Rising Input Threshold Voltage	—	—	0.6 x V_{CCI}	0.7 x V_{CCI}	V
$V_{IT-(IN)}$	Falling Input Threshold Voltage	—	0.3 x V_{CCI}	0.4 x V_{CCI}	—	V
$V_{I(HYS)}$	Input Threshold Voltage Hysteresis	—	0.1 x V_{CCI}	0.2 x V_{CCI}	—	V
I_{IH}	High-Level Input Current	V_{IH} = V_{CCI} at INx	—	—	15	µA
I_{IL}	Low-Level Input Current	V_{IL} = 0 at INx	-15	—	—	µA
CMTI	Common-Mode Transient Immunity (Note 7)	V_I = V_{CCI} or 0, V_{CM} = 1200V	150	—	—	kV/µs

Note: 7. Parameter is not subject to production test - verified by design/characterization.

© 2026 Copyright Diodes Incorporated. All Rights Reserved.

Downloaded from Arrow.com.

Supply Current Characteristics – 5V Supply (V_{CC1} = V_{CC2} = 5V ± 10%, T_A = -40°C to +125°C. Unless otherwise noted, typical values are at T_A = +25°C.)

Symbol	Parameter	Condition	Min	Typ	Max	Unit
API7720, API7720F						
$I_{CC1(DC)}$	Supply Current - DC Signal	V_I = V_{CCI} (API7720), V_I = 0 (API7720F)	—	0.80	1.19	mA
$I_{CC2(DC)}$			—	1.80	2.88	
$I_{CC1(DC)}$		V_I = 0 (API7720), V_I = V_{CCI} (API7720F)	—	3.15	4.55	
$I_{CC2(DC)}$			—	1.84	2.85	
$I_{CC1(1M)}$	Supply Current - AC Signal	All channels switching with 1Mbps square wave clock input; CL = 15pF	—	1.96	2.76	
$I_{CC2(1M)}$			—	2.00	3.04	
$I_{CC1(10M)}$		All channels switching with 10Mbps square wave clock input; CL = 15pF	—	1.97	2.86	
$I_{CC2(10M)}$			—	3.49	4.50	
$I_{CC1(100M)}$		All channels switching with 100Mbps square wave clock input; CL = 15pF	—	2.26	4.00	
$I_{CC2(100M)}$			—	16.88	24.08	
API7721, API7721F, API7722, API7722F						
$I_{CC1(DC)}$, $I_{CC2(DC)}$	Supply Current - DC Signal	V_I = V_{CCI} (API7721, API7722), V_I = 0 (API7721F, API7722F)	—	1.48	1.91	mA
$I_{CC1(DC)}$, $I_{CC2(DC)}$		V_I = 0 (API7721, API7722), V_I = V_{CCI} (API7721F, API7722F)	—	2.74	3.71	
$I_{CC1(1M)}$, $I_{CC2(1M)}$	Supply Current - AC Signal	All channels switching with 1Mbps square wave clock input; CL = 15pF	—	2.10	2.87	
$I_{CC1(10M)}$, $I_{CC2(10M)}$		All channels switching with 10Mbps square wave clock input; CL = 15pF	—	2.89	3.83	
$I_{CC1(100M)}$, $I_{CC2(100M)}$		All channels switching with 100Mbps square wave clock input; CL = 15pF	—	10.16	12.25	

Supply Current Characteristics – 3.3V Supply (V_{CC1} = V_{CC2} = 3.3V ± 10%, T_A = -40°C to +125°C. Unless otherwise noted, typical values are at T_A = +25°C)

Symbol	Parameter	Condition	Min	Typ	Max	Unit
API7720, API7720F						
$I_{CC1(DC)}$	Supply Current - DC Signal	V_I = V_{CCI} (API7720), V_I = 0 (API7720F)	—	0.64	0.91	mA
$I_{CC2(DC)}$			—	1.62	2.81	
$I_{CC1(DC)}$		V_I = 0 (API7720), V_I = V_{CCI} (API7720F)	—	2.98	4.25	
$I_{CC2(DC)}$			—	1.67	2.77	
$I_{CC1(1M)}$	Supply Current - AC Signal	All channels switching with 1Mbps square wave clock input; CL = 15pF	—	1.79	2.62	
$I_{CC2(1M)}$			—	1.75	2.92	
$I_{CC1(10M)}$		All channels switching with 10Mbps square wave clock input; CL = 15pF	—	1.80	2.66	
$I_{CC2(10M)}$			—	2.75	4.26	
$I_{CC1(100M)}$		All channels switching with 100Mbps square wave clock input; CL = 15pF	—	2.17	3.63	
$I_{CC2(100M)}$			—	12.88	16.53	
API7721, API7721F, API7722, API7722F						
$I_{CC1(DC)}$, $I_{CC2(DC)}$	Supply Current - DC Signal	V_I = V_{CCI} (API7721, API7722), V_I = 0 (API7721F, API7722F)	—	1.32	1.77	mA
$I_{CC1(DC)}$, $I_{CC2(DC)}$		V_I = 0 (API7721, API7722), V_I = V_{CCI} (API7721F, API7722F)	—	2.56	3.57	
$I_{CC1(1M)}$, $I_{CC2(1M)}$	Supply Current - AC Signal	All channels switching with 1Mbps square wave clock input; CL = 15pF	—	1.95	2.68	
$I_{CC1(10M)}$, $I_{CC2(10M)}$		All channels switching with 10Mbps square wave clock input; CL = 15pF	—	2.47	3.33	
$I_{CC1(100M)}$, $I_{CC2(100M)}$		All channels switching with 100Mbps square wave clock input; CL = 15pF	—	6.77	9.67	

© 2026 Copyright Diodes Incorporated. All Rights Reserved.

Downloaded from Arrow.com.

Supply Current Characteristics – 2.5V Supply (V_{CC1} = V_{CC2} = 2.5V ± 10%, T_A = -40°C to +125°C. Unless otherwise noted, typical values are at T_A = +25°C.)

Symbol	Parameter	Condition	Min	Typ	Max	Unit
API7720, API7720F						
$I_{CC1(DC)}$	Supply Current - DC Signal	V_I = V_{CCI} (API7720), V_I = 0 (API7720F)	—	0.62	0.89	mA
$I_{CC2(DC)}$			—	1.60	2.78	
$I_{CC1(DC)}$		V_I = 0 (API7720), V_I = V_{CCI} (API7720F)	—	2.95	4.32	
$I_{CC2(DC)}$			—	1.64	2.76	
$I_{CC1(1M)}$	Supply Current - AC Signal	All channels switching with 1Mbps square wave clock input; CL = 15pF	—	1.76	2.58	
$I_{CC2(1M)}$			—	1.70	2.87	
$I_{CC1(10M)}$		All channels switching with 10Mbps square wave clock input; CL = 15pF	—	1.78	2.62	
$I_{CC2(10M)}$			—	2.46	3.96	
$I_{CC1(100M)}$		All channels switching with 100Mbps square wave clock input; CL = 15pF	—	2.15	3.40	
$I_{CC2(100M)}$			—	10.42	13.53	
API7721, API7721F, API7722, API7722F						
$I_{CC1(DC)}$, $I_{CC2(DC)}$	Supply Current - DC Signal	V_I = V_{CCI} (API7721, API7722), V_I = 0 (API7721F, API7722F)	—	1.30	1.72	mA
$I_{CC1(DC)}$, $I_{CC2(DC)}$		V_I = 0 (API7721, API7722), V_I = V_{CCI} (API7721F, API7722F)	—	2.54	3.53	
$I_{CC1(1M)}$, $I_{CC2(1M)}$	Supply Current - AC Signal	All channels switching with 1Mbps square wave clock input; CL = 15pF	—	1.97	2.68	
$I_{CC1(10M)}$, $I_{CC2(10M)}$		All channels switching with 10Mbps square wave clock input; CL = 15pF	—	2.36	3.79	
$I_{CC1(100M)}$, $I_{CC2(100M)}$		All channels switching with 100Mbps square wave clock input; CL = 15pF	—	5.73	8.03	

© 2026 Copyright Diodes Incorporated. All Rights Reserved.
Downloaded from Arrow.com.

Switching Characteristics – 5V Supply (V_{CC1} = V_{CC2} = 5V ± 10%, T_A = -40°C to +125°C. Unless otherwise noted, typical values are at T_A = +25°C)

Symbol	Parameter	Condition	Min	Typ	Max	Unit
t_{PLH}, t_{PHL}	Propagation Delay Time	—	—	10	17	ns
PWD	Pulse-Width Distortion $\|t_{PHL} - t_{PLH}\|$	—	—	0.5	5	ns
$t_{sk(o)}$	Channel-to-Channel Output Skew Time (Note 8)	Same direction channels	—	—	4	ns
$t_{sk(pp)}$	Part-to-Part Skew Time (Note 9)	—	—	—	5	ns
t_r	Output Signal Rise Time	—	—	—	5	ns
t_f	Output Signal Fall Time	—	—	—	5	ns
MPW	Minimum Pulse Width	—	—	—	10	ns
$t_{JIT(PK)}$	Peak Eye Diagram Jitter (Note 10)	—	—	350	—	ps

Switching Characteristics – 3.3V Supply (V_{CC1} = V_{CC2} = 3.3V ± 10%, T_A = -40°C to +125°C. Unless otherwise noted, typical values are at T_A = +25°C.)

Symbol	Parameter	Condition	Min	Typ	Max	Unit
t_{PLH}, t_{PHL}	Propagation Delay Time	—	—	10.5	18.5	ns
PWD	Pulse Width Distortion $\|t_{PHL} - t_{PLH}\|$	—	—	0.5	5	ns
$t_{sk(o)}$	Channel-to-Channel Output Skew Time (Note 8)	Same direction channels	—	—	4	ns
$t_{sk(pp)}$	Part-to-Part Skew Time (Note 9)	—	—	—	5	ns
t_r	Output Signal Rise Time	—	—	—	5	ns
t_f	Output Signal Fall Time	—	—	—	5	ns
MPW	Minimum Pulse Width	—	—	—	10	ns
$t_{JIT(PK)}$	Peak Eye Diagram Jitter (Note 10)	—	—	350	—	ps

Switching Characteristics – 2.5V Supply (V_{CC1} = V_{CC2} = 2.5V ± 10%, T_A = -40°C to +125°C. Unless otherwise noted, typical values are at T_A = +25°C.)

Symbol	Parameter	Condition	Min	Typ	Max	Unit
t_{PLH}, t_{PHL}	Propagation Delay Time	—	—	11	21	ns
PWD	Pulse Width Distortion $\|t_{PHL} - t_{PLH}\|$	—	—	0.5	5	ns
$t_{sk(o)}$	Channel-to-Channel Output Skew Time (Note 8)	Same direction channels	—	—	4	ns
$t_{sk(pp)}$	Part-to-Part Skew Time (Note 9)	—	—	—	5	ns
t_r	Output Signal Rise Time	—	—	—	5	ns
t_f	Output Signal Fall Time	—	—	—	5	ns
MPW	Minimum Pulse Width	—	—	—	10	ns
$t_{JIT(PK)}$	Peak Eye Diagram Jitter (Note 10)	—	—	350	—	ps

Notes:
8. $t_{sk(o)}$ is the skew between outputs of a single device with all inputs connected and outputs switching in the same direction with same loads.
9. $t_{sk(pp)}$ is the magnitude of the difference in propagation delay times between any terminals of different devices switching in the same direction while operating at identical supply voltages, temperature, input signals and loads.
10. Parameter is not subject to production test - verified by design/characterization.

© 2026 Copyright Diodes Incorporated. All Rights Reserved.

Downloaded from Arrow.com.

Insulation Characteristics Curves

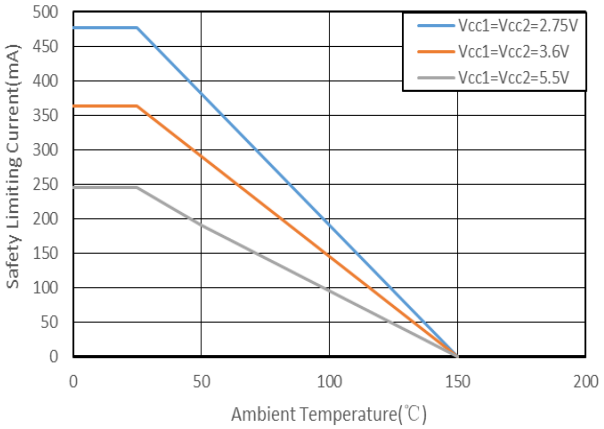


Figure 3. Thermal Derating Curve for Limiting Current per VDE for SO-8W (Type CJ) Package

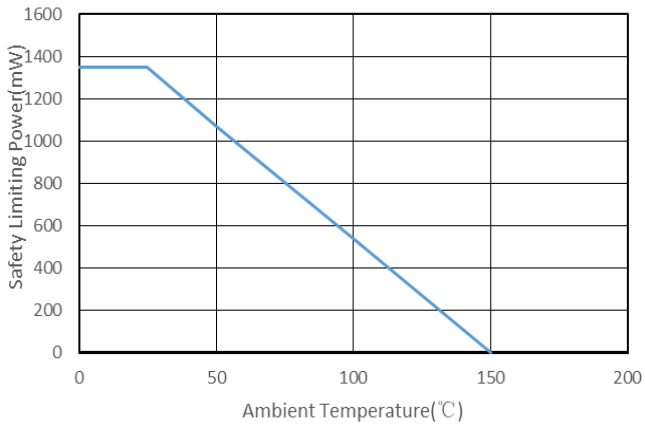


Figure 4. Thermal Derating Curve for Limiting Power per VDE for SO-8W (Type CJ) Package

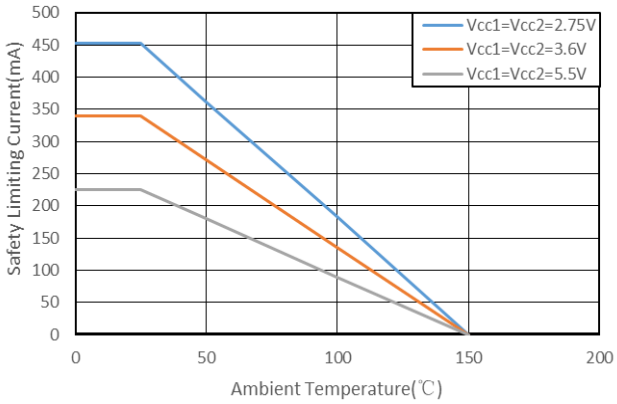


Figure 5. Thermal Derating Curve for Limiting Current per VDE for SO-8 (Type CJ2) Package

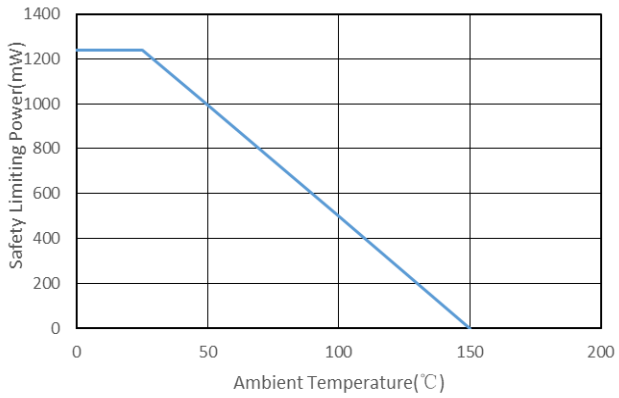
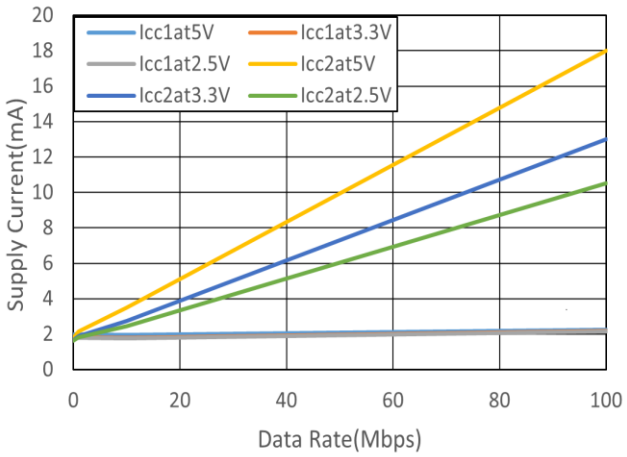


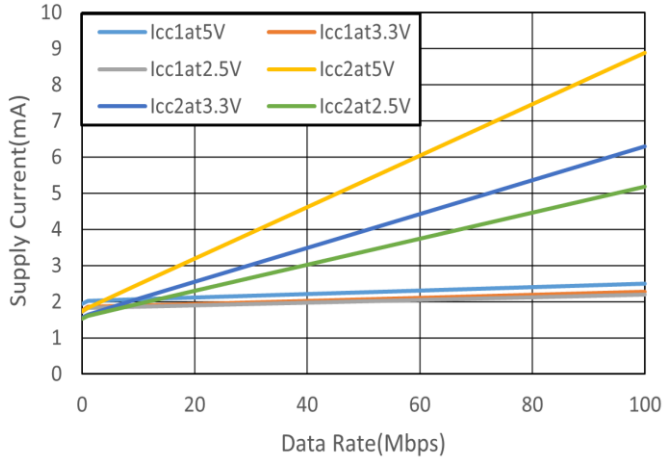
Figure 6. Thermal Derating Curve for Limiting Power per VDE for SO-8 (Type CJ2) Package

© 2026 Copyright Diodes Incorporated. All Rights Reserved.
Downloaded from Arrow.com.

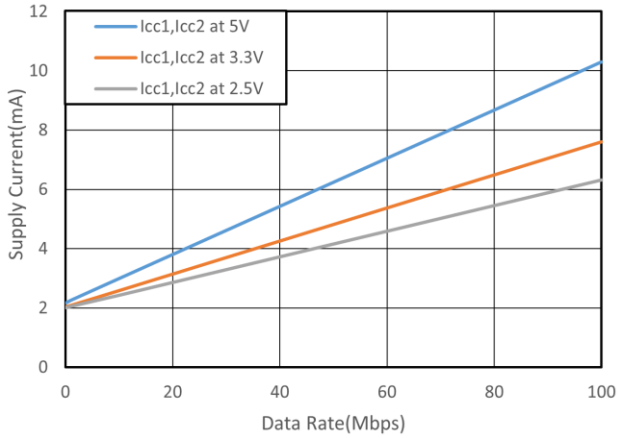
Typical Characteristics



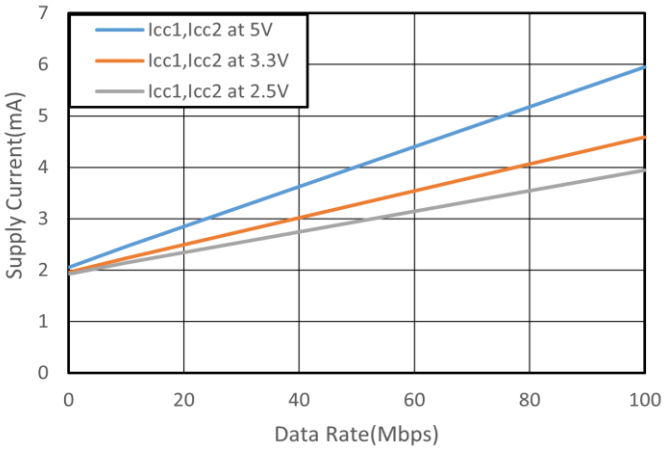
T_A = +25°C CL = 15pF
Figure 7. API7720 Supply Current vs. Data Rate (With 15pF Load)



T_A = +25°C CL = No Load
Figure 8. API7720 Supply Current vs. Data Rate (With No Load)



T_A = +25°C CL = 15pF
Figure 9. API7721/AP7722 Supply Current vs. Data Rate (With 15pF Load)



T_A = +25°C CL = No Load
Figure 10. API7721/API7722 Supply Current vs. Data Rate (With No Load)

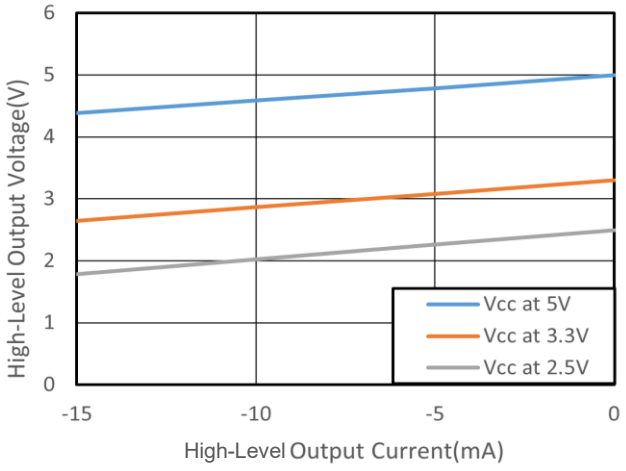


Figure 11. High-Level Output Voltage vs. High-Level Output Current

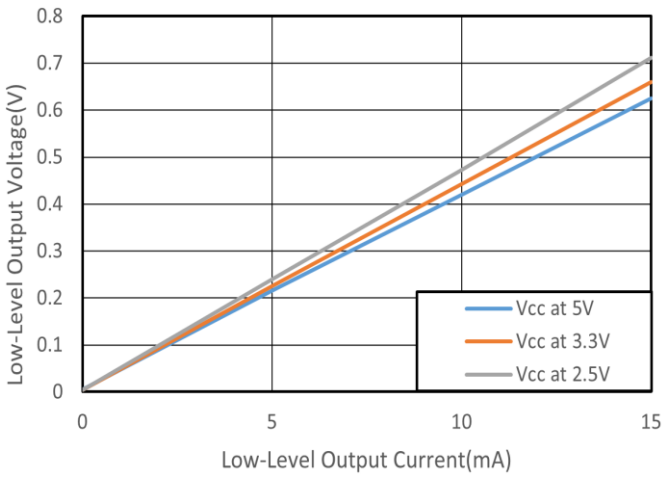


Figure 12. Low-Level Output Voltage vs. Low-Level Output Current

© 2026 Copyright Diodes Incorporated. All Rights Reserved.
Downloaded from Arrow.com.

Typical Characteristics (continued)

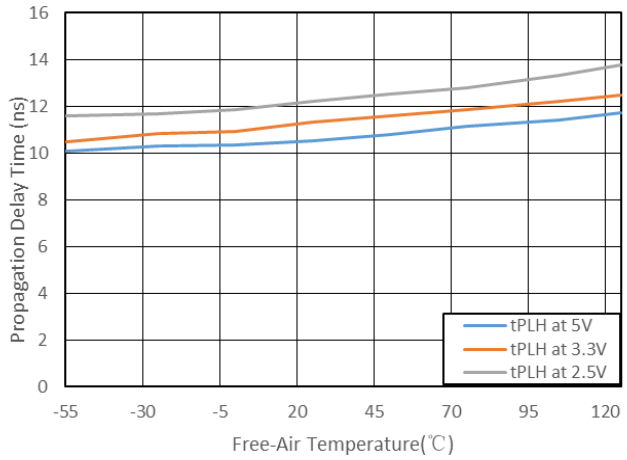


Figure 13. Propagation Delay Time vs. Free-Air Temperature

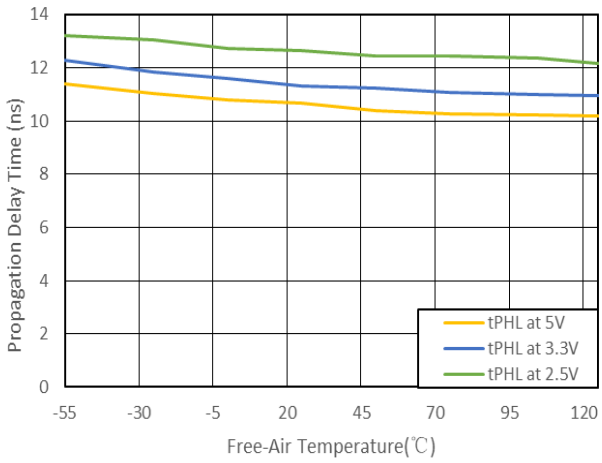


Figure 14. Propagation Delay Time vs. Free-Air Temperature

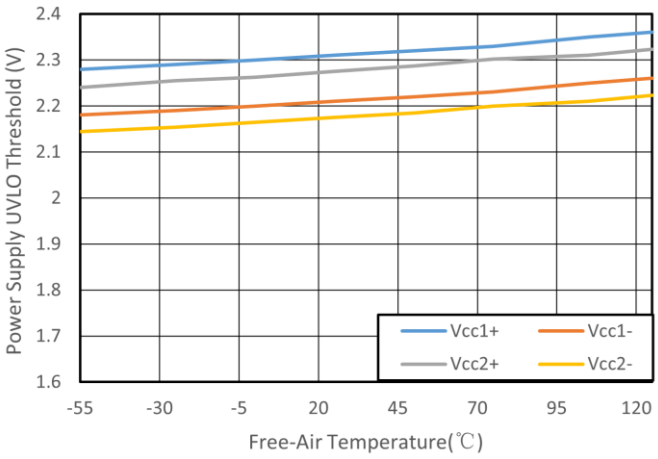
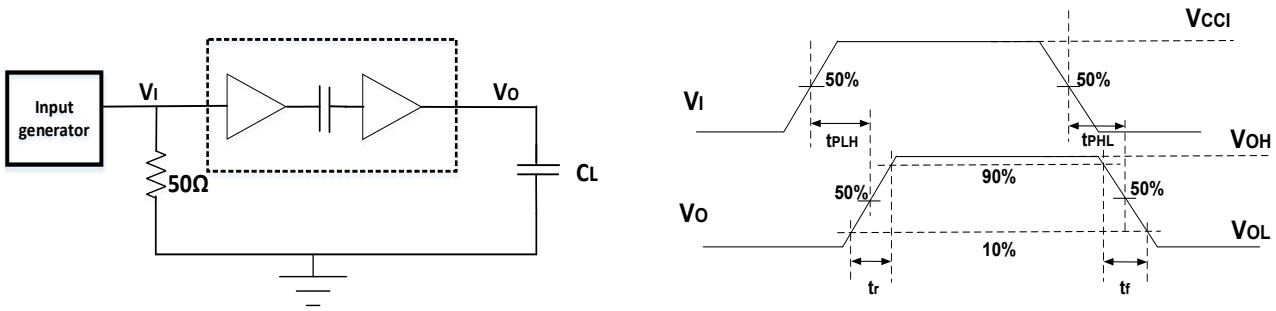


Figure 15. Power-Supply Undervoltage Threshold vs. Free-Air Temperature

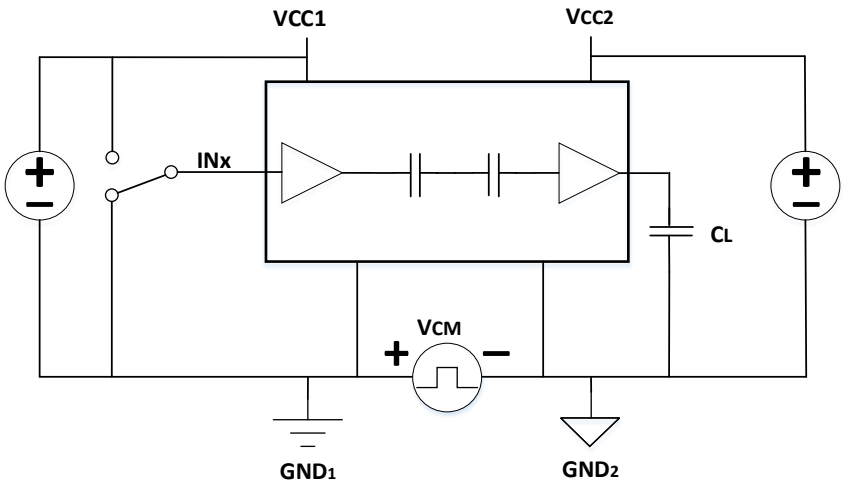
© 2026 Copyright Diodes Incorporated. All Rights Reserved.
Downloaded from Arrow.com.

Parameter Measurement



A. The input pulse is supplied by a generator having the following characteristics: PRR ≤ 50kHz, 50% duty cycle, tr ≤ 3ns, tf ≤ 3ns, ZO = 50Ω. At the input, 50Ω resistor is required to terminate input generator signal. It is not needed in actual application.
B. CL = 15pF and includes instrumentation and fixture capacitance within ±20%.

Figure 16. Switching Characteristics Test Circuit and Voltage Waveforms



A. CL = 15pF and includes instrumentation and fixture capacitance within ±20%.

Figure 17. Common-Mode Transient Immunity Test Circuit

© 2026 Copyright Diodes Incorporated. All Rights Reserved.
Downloaded from Arrow.com.

Operation Description

Overview

The API772X/API772XF family of devices are dual-channel isolators based on an ON-OFF keying (OOK) modulation scheme to transfer digital data through a capacitive isolation barrier. The different states of digital data were modulated with a high-frequency carrier at the transmitter-side and demodulated at the receiver-side by an advanced signal process technique. The accomplished circuit technique was incorporated to enhance CMTI performance and minimize the influence of radiated emissions.

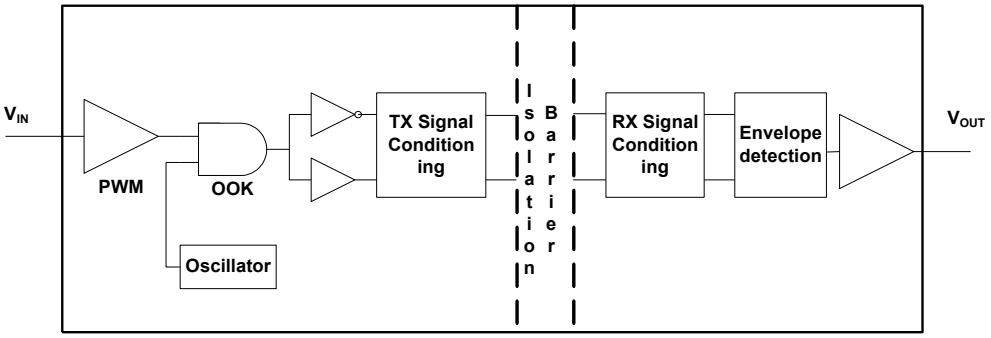


Figure 18. API772X Internal Block Diagram

A concept of the OOK modulation scheme:

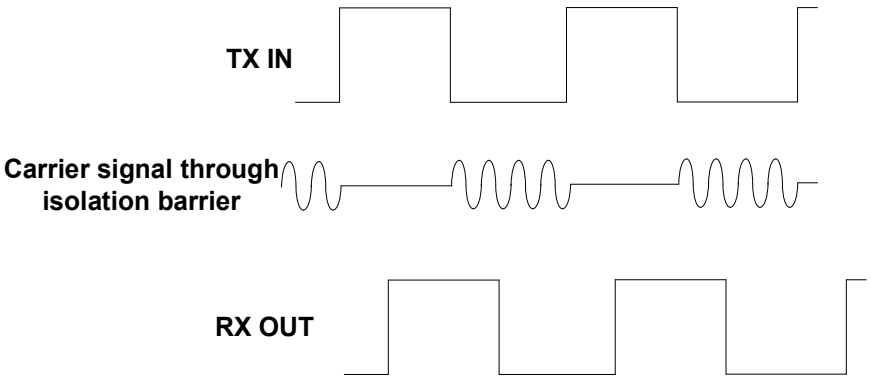


Figure 19. ON-OFF Keying (OOK) Modulation Scheme

Device Functional Modes:

The table below lists the functional modes for the API772X devices.

Input	V_{CCI} Status	V_{CCO} Status	Output	Comment
H	Ready	Ready	H	Normal operation.
L	Ready	Ready	L	
O	Ready	Ready	Default	Default mode: When INx is open, the corresponding channel output goes to the default logic state. The default is High for API7720/21/22 and Low for API7720F/21F/22F.
X	Unready	Ready	Default	Default mode: When V_{CCI} is unpowered, a channel output assumes the logic state based on the selected default option. The default is High for API7720/21/22 and Low for API7720F/21F/22F. When V_{CCI} transitions from unpowered to powered-up, a channel output assumes the logic state of the input. When V_{CCI} transitions from powered-up to unpowered, a channel output assumes the selected default state.
X	X	Unready	Undetermined	When V_{CCO} is unpowered, a channel output is undetermined. When V_{CCO} transitions from unpowered to powered-up, a channel output assumes the logic state of the input.

Note: H = Logic High; L = Logic Low; O = Left Open; X = Irrelevant.

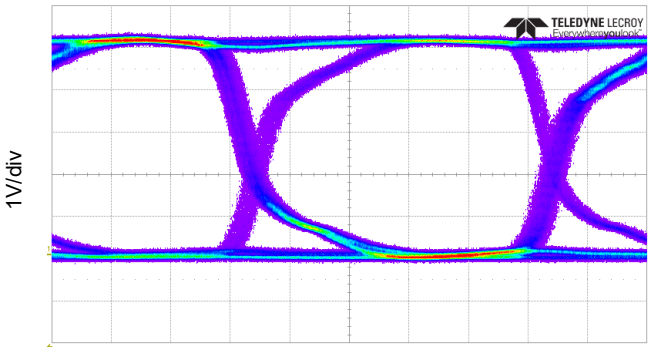
Table 2. API772X Function Table

© 2026 Copyright Diodes Incorporated. All Rights Reserved.
Downloaded from Arrow.com.

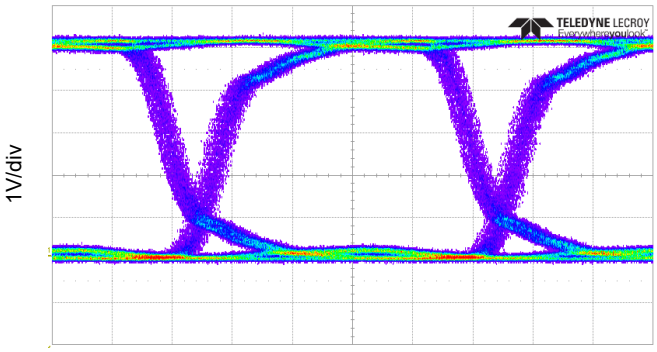
Application and Implementation

Application Curve

The following typical eye diagrams of the API772X family of devices indicate low jitter and wide open-eye at the maximum data rate of 100Mbps.



Time = 2ns/div
API7720 Eye Diagram at 100Mbps, 5V Supplies and +25°C

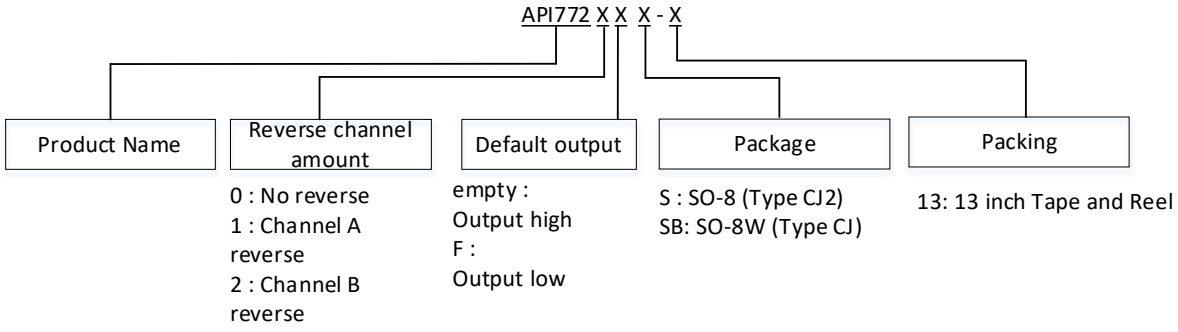


Time = 2ns/div
API7721/API7722 Eye Diagram at 100Mbps, 5V Supplies and +25°C

Figure 20. API7720/21/22 Eye Diagram

© 2026 Copyright Diodes Incorporated. All Rights Reserved.
Downloaded from Arrow.com.

Ordering Information (Note 11)



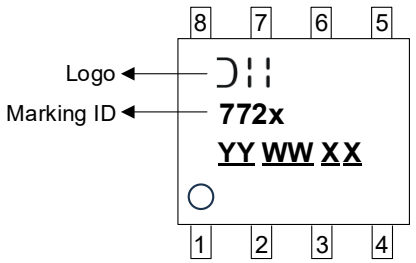
Orderable Part Number	Marking ID	Package	Packing	
			Qty.	Carrier
API7720S-13	7720	SO-8 (Type CJ2)	4000	Tape and Reel
API7721S-13	7721	SO-8 (Type CJ2)	4000	Tape and Reel
API7722S-13	7722	SO-8 (Type CJ2)	4000	Tape and Reel
API7720FS-13	7720F	SO-8 (Type CJ2)	4000	Tape and Reel
API7721FS-13	7721F	SO-8 (Type CJ2)	4000	Tape and Reel
API7722FS-13	7722F	SO-8 (Type CJ2)	4000	Tape and Reel
API7720SB-13	7720	SO-8W (Type CJ)	1000	Tape and Reel
API7721SB-13	7721	SO-8W (Type CJ)	1000	Tape and Reel
API7722SB-13	7722	SO-8W (Type CJ)	1000	Tape and Reel
API7720FSB-13	7720F	SO-8W (Type CJ)	1000	Tape and Reel
API7721FSB-13	7721F	SO-8W (Type CJ)	1000	Tape and Reel
API7722FSB-13	7722F	SO-8W (Type CJ)	1000	Tape and Reel

Note: 11. For packaging details, go to our website at https://www.diodes.com/design/support/packaging/diodes-packaging/.

Marking Information

SO-8 (Type CJ2) / SO-8W (Type CJ)

(Top View)



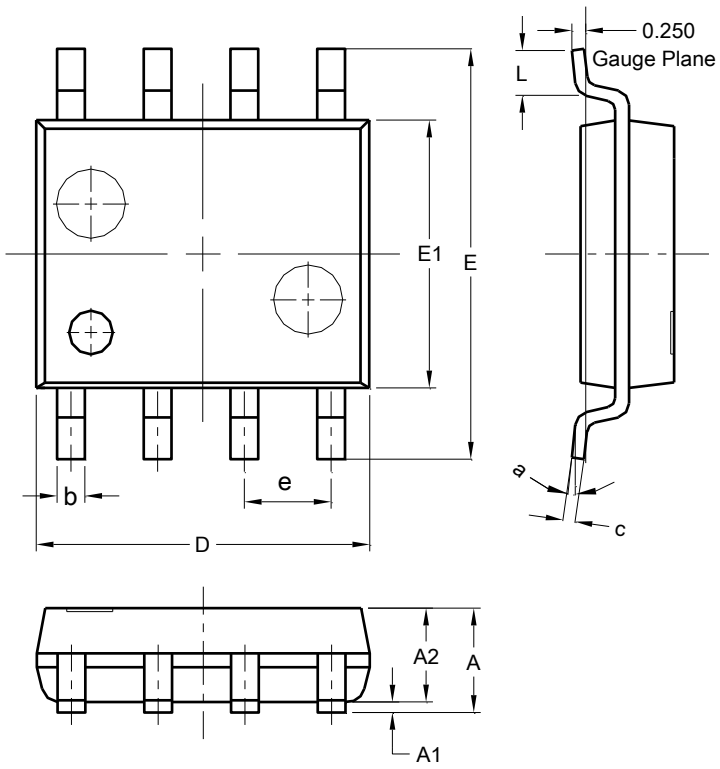
YY : Year (ex: 26 = 2026)
WW : Week : 01 to 52; 52 Represents Week 52 and 53
XX : Internal Code

© 2026 Copyright Diodes Incorporated. All Rights Reserved.
Downloaded from Arrow.com.

Package Outline Dimensions

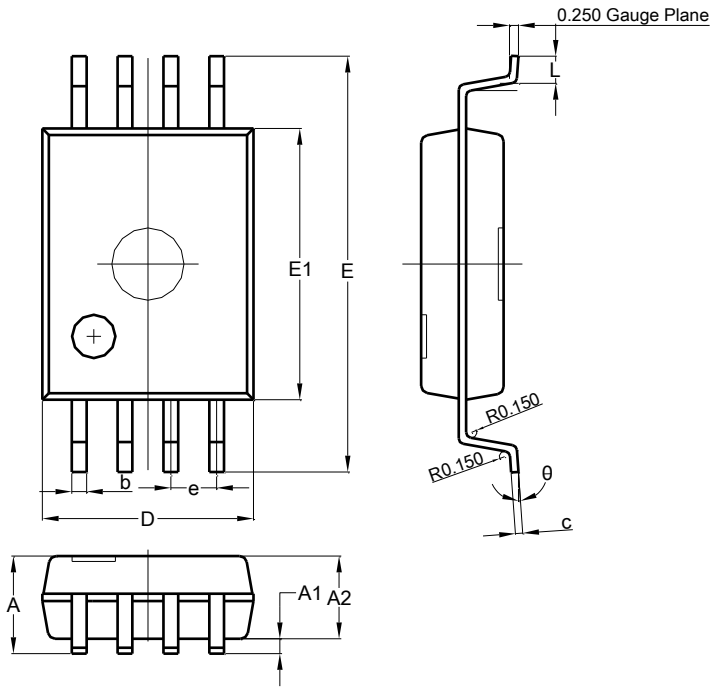
Please see http://www.diodes.com/package-outlines.html for the latest version.

SO-8 (Type CJ2)



SO-8 (Type CJ2)			
Dim	**Min**	**Max**	**Typ**
A	1.450	1.750	--
A1	0.100	0.250	--
A2	1.350	1.550	--
b	0.330	0.510	--
c	0.170	0.250	--
D	4.700	5.100	--
E	5.800	6.200	--
E1	3.800	4.000	--
e	1.27 BSC		
L	0.400	1.270	--
A	0°	8°	--
All Dimensions in mm			

SO-8W (Type CJ)



SO-8W (Type CJ)		
Dim	**Min**	**Max**
A	--	2.800
A1	0.360	0.460
A2	2.186	2.386
b	0.310	0.510
c	0.153	0.303
D	5.750	5.950
E	11.250	11.750
E1	7.400	7.600
e	1.140	1.400
L	0.500	1.000
A	0°	8°
All dimensions in mm		

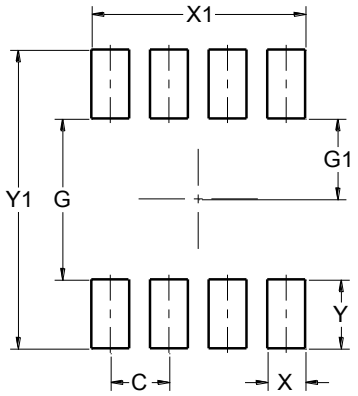
© 2026 Copyright Diodes Incorporated. All Rights Reserved.

Downloaded from Arrow.com.

Suggested Pad Layout

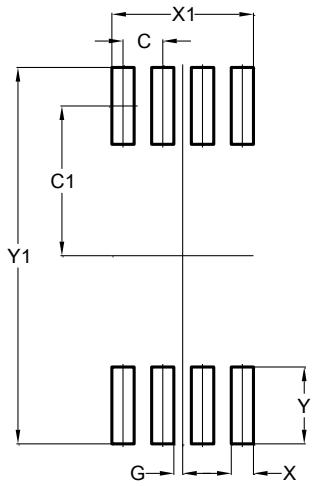
Please see http://www.diodes.com/package-outlines.html for the latest version.

SO-8 (Type CJ2)



Dimensions	Value (in mm)
C	1.270
G	3.500
G1	1.750
X	0.820
X1	4.630
Y	1.500
Y1	6.500

SO-8W (Type CJ)



Dimensions	Value (in mm)
C	1.270
C1	4.775
G	0.280
X	0.710
X1	4.520
Y	2.450
Y1	12.000

Mechanical Data

SO-8 (Type CJ2)

- Moisture Sensitivity: Level 3 per J-STD-020
- Terminals: Finish – Matte Tin Plated Leads, Solderable per JESD22-B102 (e3)
- Weight: 0.079 grams (Approximate)

SO-8W (Type CJ)

- Moisture Sensitivity: Level 3 per J-STD-020
- Terminals: Finish – Matte Tin Plated Leads, Solderable per JESD22-B102 (e3)
- Weight: 0.143 grams (Approximate)

© 2026 Copyright Diodes Incorporated. All Rights Reserved.
Downloaded from Arrow.com.

IMPORTANT NOTICE

1. DIODES INCORPORATED (Diodes) AND ITS SUBSIDIARIES MAKE NO WARRANTY OF ANY KIND, EXPRESS OR IMPLIED, WITH REGARDS TO ANY INFORMATION CONTAINED IN THIS DOCUMENT, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE OR NON-INFRINGEMENT OF THIRD PARTY INTELLECTUAL PROPERTY RIGHTS (AND THEIR EQUIVALENTS UNDER THE LAWS OF ANY JURISDICTION).

2. The Information contained herein is for informational purpose only and is provided only to illustrate the operation of Diodes' products described herein and application examples. Diodes does not assume any liability arising out of the application or use of this document or any product described herein. This document is intended for skilled and technically trained engineering customers and users who design with Diodes' products. Diodes' products may be used to facilitate safety-related applications; however, in all instances customers and users are responsible for (a) selecting the appropriate Diodes products for their applications, (b) evaluating the suitability of Diodes' products for their intended applications, (c) ensuring their applications, which incorporate Diodes' products, comply the applicable legal and regulatory requirements as well as safety and functional-safety related standards, and (d) ensuring they design with appropriate safeguards (including testing, validation, quality control techniques, redundancy, malfunction prevention, and appropriate treatment for aging degradation) to minimize the risks associated with their applications.

3. Diodes assumes no liability for any application-related information, support, assistance or feedback that may be provided by Diodes from time to time. Any customer or user of this document or products described herein will assume all risks and liabilities associated with such use, and will hold Diodes and all companies whose products are represented herein or on Diodes' websites, harmless against all damages and liabilities.

4. Products described herein may be covered by one or more United States, international or foreign patents and pending patent applications. Product names and markings noted herein may also be covered by one or more United States, international or foreign trademarks and trademark applications. Diodes does not convey any license under any of its intellectual property rights or the rights of any third parties (including third parties whose products and services may be described in this document or on Diodes' website) under this document.

5. Diodes' products are provided subject to Diodes' Standard Terms and Conditions of Sale (https://www.diodes.com/about/company/terms-and-conditions/terms-and-conditions-of-sales/) or other applicable terms. This document does not alter or expand the applicable warranties provided by Diodes. Diodes does not warrant or accept any liability whatsoever in respect of any products purchased through unauthorized sales channel.

6. Diodes' products and technology may not be used for or incorporated into any products or systems whose manufacture, use or sale is prohibited under any applicable laws and regulations. Should customers or users use Diodes' products in contravention of any applicable laws or regulations, or for any unintended or unauthorized application, customers and users will (a) be solely responsible for any damages, losses or penalties arising in connection therewith or as a result thereof, and (b) indemnify and hold Diodes and its representatives and agents harmless against any and all claims, damages, expenses, and attorney fees arising out of, directly or indirectly, any claim relating to any noncompliance with the applicable laws and regulations, as well as any unintended or unauthorized application.

7. While efforts have been made to ensure the information contained in this document is accurate, complete and current, it may contain technical inaccuracies, omissions and typographical errors. Diodes does not warrant that information contained in this document is error-free and Diodes is under no obligation to update or otherwise correct this information. Notwithstanding the foregoing, Diodes reserves the right to make modifications, enhancements, improvements, corrections or other changes without further notice to this document and any product described herein. This document is written in English but may be translated into multiple languages for reference. Only the English version of this document is the final and determinative format released by Diodes.

8. Any unauthorized copying, modification, distribution, transmission, display or other use of this document (or any portion hereof) is prohibited. Diodes assumes no responsibility for any losses incurred by the customers or users or any third parties arising from any such unauthorized use.

9. This Notice may be periodically updated with the most recent version available at https://www.diodes.com/about/company/terms-and-conditions/important-notice

The Diodes logo is a registered trademark of Diodes Incorporated in the United States and other countries.
All other trademarks are the property of their respective owners.
© 2026 Diodes Incorporated. All Rights Reserved.

www.diodes.com

© 2026 Copyright Diodes Incorporated. All Rights Reserved.

Downloaded from Arrow.com.