

Description

The IDT XA devices are ultra-precision crystal oscillators with 750 to 890fs typical phase jitter over 12kHz to 20MHz bandwidth. Available in a wide frequency range from 0.750MHz to 1350MHz, the XA series crystal oscillators utilize a family of proprietary ASICs, with a key focus on noise reduction technologies.

The 3rd order Delta Sigma Modulator reduces noise to the levels that are comparable to traditional Bulk Quartz and SAW oscillators. With short lead-time, low cost, low noise, wide frequency range, excellent ambient performance, the XA devices are an excellent choice over the conventional technologies. The XA devices have stabilities as tight as ± 25 ppm with extremely quick delivery for both standard and custom frequencies.

Pin Assignments

NOTE: To minimize power supply line noise, a 0.01 μ F bypass capacitor should be placed between V_{DD} (Pin 6) and GND (Pin 3) on 6-pin devices, or V_{DD} (Pin 4) and GND (Pin 2) on 4-pin devices.

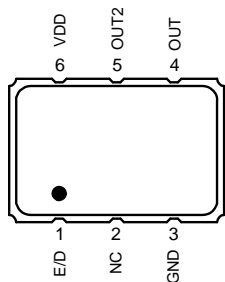


Table 1. 6-pin Package

| Pin # | Pin Name | Description |
|-------|----------|----------------------|
| 1 | E/D | Enable/Disable [a,b] |
| 2 | NC | No connect |
| 3 | GND | Connect to ground |
| 4 | OUT | Output |
| 5 | OUT2 | Complementary output |
| 6 | V_{DD} | Supply voltage |

Features

- Conforms to AEC-Q200
- Frequency range: 0.750MHz to 1350MHz
- Output types: LVDS, LVPECL, LVCMOS
- Frequency stability: ± 25 , ± 50 , or ± 100 ppm
- Supply voltage: 2.5V or 3.3V
- Phase jitter (12kHz to 20MHz): 750fs to 890fs typical
- Package options:
 - 3.2 × 2.5 × 1.0 mm
 - 5.0 × 3.2 × 1.2 mm
- Operating temperature: -40°C to +85°C (Grade 3)
 - Frequency stability options: ± 25 , ± 50 , or ± 100 ppm
- Operating temperature: -40°C to +105°C (Grade 2)
 - Frequency stability options: ± 50 or ± 100 ppm

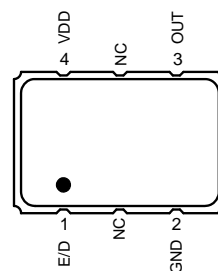


Table 2. 4-pin Package

| Pin # | Pin Name | Description |
|-------|----------|----------------------|
| 1 | E/D | Enable/Disable [a,b] |
| 2 | GND | Connect to ground |
| 3 | OUT | Output |
| 4 | V_{DD} | Supply voltage |

[a] Pulled high internally.
[b] Low = output disabled.

See [Ordering Information](#) for more details.

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Absolute Maximum Ratings

Stresses above the ratings listed below can cause permanent damage to the device. These ratings, which are standard values for IDT commercially rated parts, are stress ratings only. Functional operation of the device at these or any other conditions above those indicated in the operational sections of the specifications is not implied. Exposure to absolute maximum rating conditions for extended periods can affect product reliability. Electrical parameters are guaranteed only over the recommended operating temperature range.

Table 3. Absolute Maximum Ratings

| Item | Rating | | | |
|------------------------------|--------------------------|-----------|--------------------|-----------|
| V_{DD} | -0.5 to +5.0V | | | |
| E/D | -0.5V to $V_{DD} + 0.5V$ | | | |
| OUT | -0.5V to $V_{DD} + 0.5V$ | | | |
| Storage Temperature | -55°C to 125°C | | | |
| Maximum Junction Temperature | 125°C | | | |
| Core Current | 65mA maximum | | | |
| Theta J_A | JS6 | 89.6 °C/W | JX6 | 94.7 °C/W |
| Theta J_B | 5.0 × 3.2 × 1.2 mm | 54.3 °C/W | 3.2 × 2.5 × 1.0 mm | 66.8 °C/W |

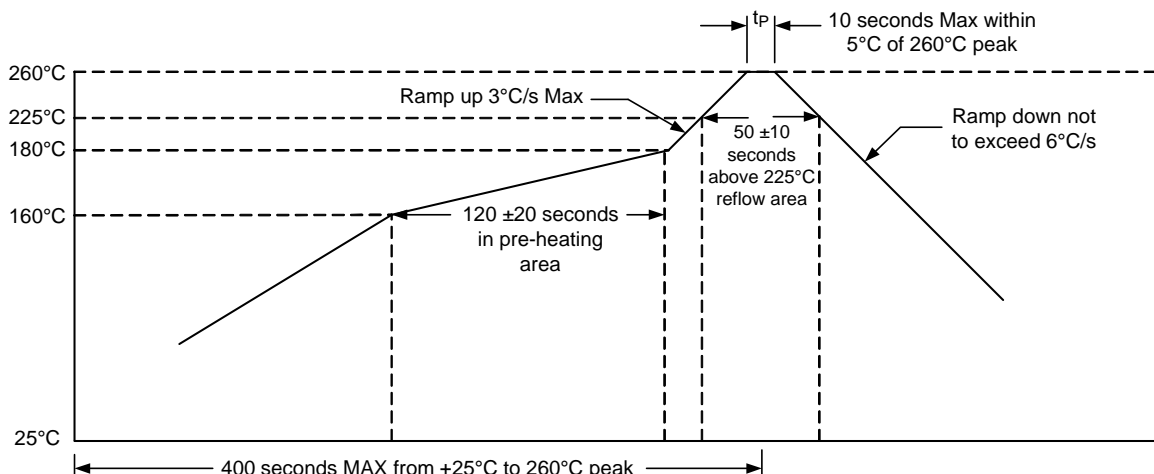
ESD Compliance

| | |
|------------------------|-------|
| Human Body Model (HBM) | 1000V |
| Machine Model (MM) | 150V |

Mechanical Testing

| Parameter | Test Method |
|--------------------------|---|
| Mechanical Shock | Drop from 75cm to hardwood surface—3 times. |
| Mechanical Vibration | 10–55Hz, 1.5mm amplitude, 1 minute sweep; 2 hours each in 3 directions (X, Y, Z). |
| High Temperature Burn-in | Under power at 125°C for 2000 hours. |
| Hermetic Seal | He pressure: $4 \pm 1 \text{ kgf/cm}^2$ 2 hour soak. |

Solder Reflow Profile



DC Electrical Characteristics

Table 4. 3.3V IDD DC Electrical Characteristics

 $V_{DD} = 3.3V \pm 5\%$, $T_A = -40^\circ C$ to $+85^\circ C$, $-40^\circ C$ to $+105^\circ C$.

| Symbol | Parameter | Output Type | Conditions | Minimum | Typical | Maximum | Units |
|--------------------|----------------------|-------------|--------------------|---------|---------|---------|-------|
| I_{DD} | Power Supply Current | LVDS | — | — | — | 100 | mA |
| | | LVPECL | — | — | — | 120 | |
| | | LVCMOS | 0.75MHz to 20MHz. | — | — | 32 | |
| | | | 20+MHz to 50MHz. | — | — | 35 | |
| | | | 50+MHz to 130MHz. | — | — | 47 | |
| | | | 130+MHz to 200MHz. | — | — | 55 | |
| 200+MHz to 250MHz. | — | — | 60 | | | | |

Table 5. 2.5V IDD DC Electrical Characteristics

 $V_{DD} = 2.5V \pm 5\%$, $T_A = -40^\circ C$ to $+85^\circ C$, $-40^\circ C$ to $+105^\circ C$.

| Symbol | Parameter | Output Type | Conditions | Minimum | Typical | Maximum | Units |
|----------|----------------------|-------------|---------------------|---------|---------|---------|-------|
| I_{DD} | Power Supply Current | LVDS | 0.75MHz to 20MHz. | — | — | 26 | mA |
| | | | 20+MHz to 220MHz. | — | — | 34 | |
| | | | 220+MHz to 630MHz. | — | — | 44 | |
| | | | 630+MHz to 1000MHz. | — | — | 65 | |
| | | LVPECL | 0.75MHz to 20MHz. | — | — | 33 | |
| | | | 20+MHz to 220MHz. | — | — | 41 | |
| | | | 220+MHz to 630MHz. | — | — | 63 | |
| | | | 630+MHz to 1000MHz. | — | — | 72 | |
| | | LVCMOS | 0.75MHz to 20MHz. | — | — | 22 | |
| | | | 20+MHz to 50MHz. | — | — | 25 | |
| | | | 50+MHz to 100MHz. | — | — | 29 | |
| | | | 100+MHz to 130MHz. | — | — | 32 | |
| | | | 130+MHz to 160MHz. | — | — | 35 | |
| | | | 160+MHz to 180MHz. | — | — | 37 | |

Table 6. LVDS DC Electrical Characteristics

 $V_{DD} = 3.3V, 2.5V \pm 5\%$, $T_A = -40^\circ C$ to $+85^\circ C$, $-40^\circ C$ to $+105^\circ C$. Below are guaranteed for listed standard frequencies.

| Symbol | Parameter | Conditions | Minimum | Typical | Maximum | Units |
|----------|--|---------------------------|---------------|---------|---------------|-------|
| V_{OD} | Differential Output Voltage | $V_{DD} = 3.3V \pm 5\%$. | — | — | 0.6 | V |
| | | $V_{DD} = 2.5V \pm 5\%$. | — | — | 0.4 | |
| V_{OS} | Output Offset Voltage | $V_{DD} = 3.3V \pm 5\%$. | — | — | 1.3 | |
| | | $V_{DD} = 2.5V \pm 5\%$. | — | — | 1.25 | |
| V_{IH} | Enable/Disable Input High Voltage (Output enabled) | — | $70\% V_{DD}$ | — | — | |
| V_{IL} | Enable/Disable Input Low Voltage (Output disabled) | — | — | — | $30\% V_{DD}$ | |

Table 7. LVPECL DC Electrical Characteristics

 $V_{DD} = 3.3V, 2.5V \pm 5\%$, $T_A = -40^\circ C$ to $+85^\circ C$, $-40^\circ C$ to $+105^\circ C$. Below are guaranteed for listed standard frequencies.

| Symbol | Parameter | Conditions | Minimum | Typical | Maximum | Units |
|----------|--|---------------------------|---------------|---------|---------------|-------|
| V_{OD} | Differential Output Voltage | $V_{DD} = 3.3V \pm 5\%$. | 2.055 | — | 2.405 | V |
| | | $V_{DD} = 2.5V \pm 5\%$. | — | 1.4 | — | |
| V_{OS} | Output Offset Voltage | $V_{DD} = 3.3V \pm 5\%$. | 1.305 | — | 1.65 | |
| | | $V_{DD} = 2.5V \pm 5\%$. | — | 0.68 | — | |
| V_{IH} | Enable/Disable Input High Voltage (Output enabled) | — | $70\% V_{DD}$ | — | — | |
| V_{IL} | Enable/Disable Input Low Voltage (Output disabled) | — | — | — | $30\% V_{DD}$ | |

Table 8. LVCMOS DC Electrical Characteristics

 $V_{DD} = 3.3V, 2.5V \pm 5\%$, $T_A = -40^\circ C$ to $+85^\circ C$, $-40^\circ C$ to $+105^\circ C$. Below are guaranteed for listed standard frequencies.

| Symbol | Parameter | Conditions | | Minimum | Typical | Maximum | Units |
|----------|--|---------------------------|--------------------|---------------|---------|---------------|-------|
| V_{OH} | Output High Voltage | $V_{DD} = 3.3V \pm 5\%$. | 0.75MHz to 150MHz. | $90\% V_{DD}$ | — | — | V |
| | | | 150+MHz to 250MHz. | $80\% V_{DD}$ | — | — | |
| | | $V_{DD} = 2.5V \pm 5\%$. | 0.75MHz to 160MHz. | $90\% V_{DD}$ | — | — | |
| | | | 160+MHz to 180MHz. | $80\% V_{DD}$ | — | — | |
| V_{OL} | Output Low Voltage | $V_{DD} = 3.3V \pm 5\%$. | 0.75MHz to 150MHz. | — | — | $10\% V_{DD}$ | |
| | | | 150+MHz to 250MHz. | — | — | $20\% V_{DD}$ | |
| | | $V_{DD} = 2.5V \pm 5\%$. | 0.75MHz to 160MHz. | — | — | $10\% V_{DD}$ | |
| | | | 160+MHz to 180MHz. | — | — | $20\% V_{DD}$ | |
| V_{IH} | Enable/Disable Input High Voltage (Output enabled) | — | — | $70\% V_{DD}$ | — | — | |
| V_{IL} | Enable/Disable Input Low Voltage (Output disabled) | — | — | — | — | $30\% V_{DD}$ | |

AC Electrical Characteristics

Table 9. 3.3V AC Electrical Characteristics

 $V_{DD} = 3.3V \pm 5\%$, $T_A = -40^\circ C$ to $+85^\circ C$, $-40^\circ C$ to $+105^\circ C$.

| Symbol | Parameter | Test Condition | | Minimum | Typical | Maximum | Units |
|-----------|-----------------------------|---|--------------------------|----------|---------|-----------|----------|
| F | Output Frequency Range | LVDS. | | 0.75 | — | 1350 | MHz |
| | | LVPECL. | | 0.75 | — | 1350 | |
| | | LVCMOS. | | 0.75 | — | 250 | |
| | Frequency Stability | Temperature = $-40^\circ C$ to $+85^\circ C$. | | ± 25 | — | ± 100 | ppm |
| | | Temperature = $-40^\circ C$ to $+105^\circ C$. | | ± 50 | — | ± 100 | ppm |
| | Aging (1st year) | $T_A = 25^\circ C$. | | — | — | ± 3 | ppm |
| | Aging (10 years) | $T_A = 25^\circ C$. | | — | — | ± 10 | ppm |
| | Output Load | LVDS. | Differential. | — | 100 | — | Ω |
| | | LVPECL. | $V_{DD} - 2.0V$. | — | 50 | — | |
| | | LVCMOS. | To GND. | — | 15 | — | pF |
| T_{ST} | Start-up Time | Output valid time after V_{DD} meets minimum specified level. | | — | — | 10 | ms |
| t_R | Output Rise Time | LVDS. | 20% to 80% V_{pp} . | — | — | 400 | ps |
| | | LVPECL. | | — | — | 400 | |
| | | LVCMOS. | 10% to 90% V_{DD} . | — | — | 3 | ns |
| t_F | Output Fall Time | LVDS. | 80% to 20% V_{pp} . | — | — | 400 | ps |
| | | LVPECL. | | — | — | 400 | |
| | | LVCMOS. | 90% to 10% V_{DD} . | — | — | 3 | ns |
| O_{DC} | Output Clock Duty Cycle | LVDS. | | 45 | — | 55 | % |
| | | LVPECL. | | 45 | — | 55 | |
| | | LVCMOS. | $F_{OUT} \leq 62.5MHz$. | 45 | — | 55 | |
| | | | $F_{OUT} \geq 62.5MHz$. | 40 | — | 60 | |
| T_{OE} | Output Enable/ Disable Time | — | | — | — | 100 | ns |
| J_{PER} | Period Jitter, RMS | LVDS. | | — | 3 | — | ps |
| | | LVPECL. | | — | 5.8 | — | |
| | | LVCMOS. | $F_{OUT} = 125MHz$. | — | 5 | — | |
| R_J | Random Jitter | LVDS. | | — | 1.3 | — | ps |
| | | LVPECL. | | — | 1.29 | — | |
| | | LVCMOS. | $F_{OUT} = 125MHz$. | — | 0.6 | — | |
| D_J | Deterministic Jitter | LVDS. | | — | 5.8 | — | ps |
| | | LVPECL. | | — | 9.3 | — | |
| | | LVCMOS. | $F_{OUT} = 125MHz$. | — | 10 | — | |

Table 9. 3.3V AC Electrical Characteristics (Cont.)

 $V_{DD} = 3.3V \pm 5\%$, $T_A = -40^\circ C$ to $+85^\circ C$, $-40^\circ C$ to $+105^\circ C$.

| Symbol | Parameter | Test Condition | Minimum | Typical | Maximum | Units |
|--------------|----------------------------|----------------|---------------------|---------|---------|-------|
| T_J | Total Jitter | LVDS. | — | 23.6 | — | ps |
| | | LVPECL. | — | 27.7 | — | |
| | | LVC MOS. | $F_{OUT} = 125MHz.$ | — | 19 | |
| f_{JITTER} | Phase Jitter (12kHz–20MHz) | LVDS. | — | 890 | — | fs |
| | | LVPECL. | — | 860 | — | |
| | | LVC MOS. | $F_{OUT} = 125MHz.$ | — | 750 | |

Table 10. 2.5V AC Electrical Characteristics

 $V_{DD} = 2.5V \pm 5\%$, $T_A = -40^\circ C$ to $+85^\circ C$, $-40^\circ C$ to $+105^\circ C$.

| Symbol | Parameter | Test Condition | Minimum | Typical | Maximum | Units | |
|----------|-----------------------------|---|-----------------------|---------|-----------|----------|----|
| F | Output Frequency Range | LVDS. | 0.75 | — | 1000 | MHz | |
| | | LVPECL. | 0.75 | — | 1000 | | |
| | | LVC MOS. | 0.75 | — | 180 | | |
| | Frequency Stability | Temperature = $-40^\circ C$ to $+85^\circ C$. | ± 25 | — | ± 100 | ppm | |
| | | Temperature = $-40^\circ C$ to $+105^\circ C$. | ± 50 | — | ± 100 | ppm | |
| | Aging (1st year) | $T_A = 25^\circ C$. | — | — | ± 3 | ppm | |
| | Aging (10 years) | $T_A = 25^\circ C$. | — | — | ± 10 | ppm | |
| | Output Load | LVDS. | Differential. | — | 100 | Ω | |
| | | LVPECL. | $V_{DD} - 2.0V$. | — | 50 | | |
| | | LVC MOS. | To GND. | — | 15 | μF | |
| T_{ST} | Start-up Time | Output valid time after V_{DD} meets minimum specified level. | — | — | 10 | ms | |
| t_R | Output Rise Time | LVDS. | 20% to 80% V_{pp} . | — | — | 400 | ps |
| | | LVPECL. | | — | — | 400 | |
| | | LVC MOS. | 10% to 90% V_{DD} . | — | — | 3.5 | ns |
| t_F | Output Fall Time | LVDS. | 80% to 20% V_{pp} . | — | — | 400 | ps |
| | | LVPECL. | | — | — | 400 | |
| | | LVC MOS. | 90% to 10% V_{DD} . | — | — | 3 | ns |
| O_{DC} | Output Clock Duty Cycle | LVDS. | 45 | — | 55 | % | |
| | | LVPECL. | 45 | — | 55 | | |
| | | LVC MOS. | 45 | — | 55 | | |
| T_{OE} | Output Enable/ Disable Time | — | — | — | 100 | ns | |

Table 10. 2.5V AC Electrical Characteristics (Cont.)

 $V_{DD} = 2.5V \pm 5\%$, $T_A = -40^\circ C$ to $+85^\circ C$, $-40^\circ C$ to $+105^\circ C$.

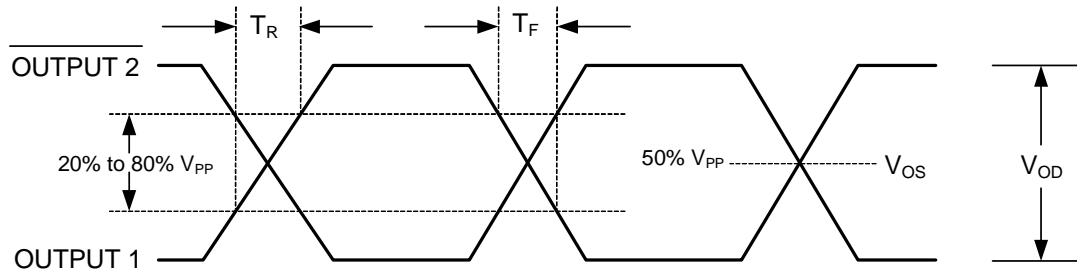
| Symbol | Parameter | Test Condition | Minimum | Typical | Maximum | Units |
|--------------|----------------------------|----------------|---------------------|---------|---------|-------|
| J_{PER} | Period Jitter, RMS | LVDS. | — | 4 | — | ps |
| | | LVPECL. | — | 5.12 | — | |
| | | LVC MOS. | $F_{OUT} = 125MHz.$ | — | 3.3 | |
| R_J | Random Jitter | LVDS. | — | 1.4 | — | ps |
| | | LVPECL. | — | 1.36 | — | |
| | | LVC MOS. | $F_{OUT} = 125MHz.$ | — | 1.3 | |
| D_J | Deterministic Jitter | LVDS. | — | 9.2 | — | ps |
| | | LVPECL. | — | 10 | — | |
| | | LVC MOS. | $F_{OUT} = 125MHz.$ | — | 6.7 | |
| T_J | Total Jitter | LVDS. | — | 29.2 | — | ps |
| | | LVPECL. | — | 29.3 | — | |
| | | LVC MOS. | $F_{OUT} = 125MHz.$ | — | 25.6 | |
| f_{JITTER} | Phase Jitter (12kHz–20MHz) | LVDS. | — | 1040 | — | fs |
| | | LVPECL. | — | 1200 | — | |
| | | LVC MOS. | $F_{OUT} = 125MHz.$ | — | 850 | |

Notes for all AC Electrical Characteristics tables:

¹ All jitter values provided at 156.25MHz, unless noted otherwise.

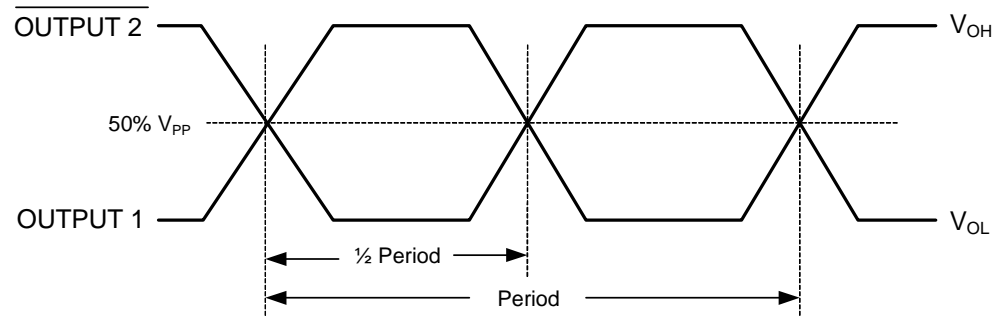
Output Waveforms – LVDS

Output Levels/Rise Time/Fall Time Measurements



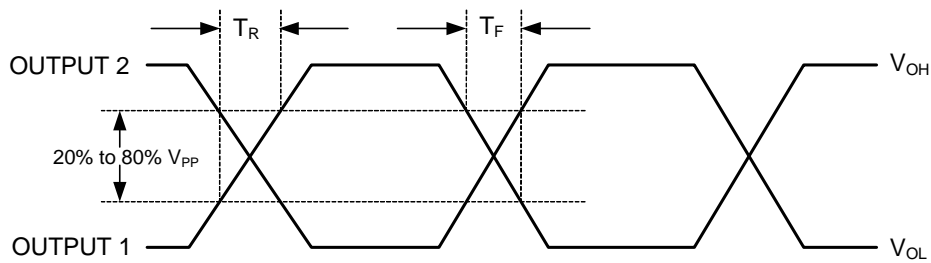
Oscillator Symmetry

Ideally, Symmetry should be 50/50 for $\frac{1}{2}$ period – Other expressions are 45/55 or 55/45

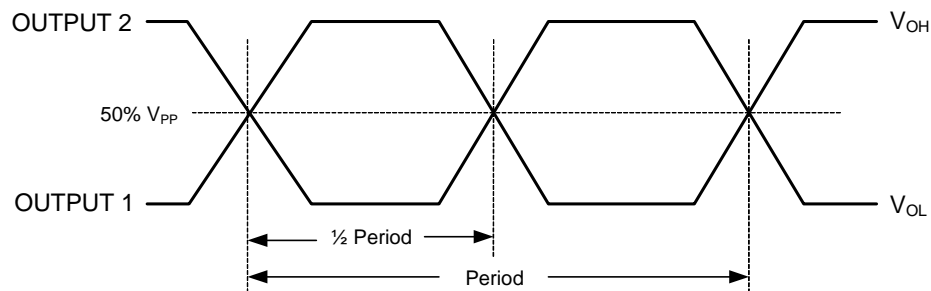


Output Waveforms – LVPECL

Rise Time/Fall Time Measurements

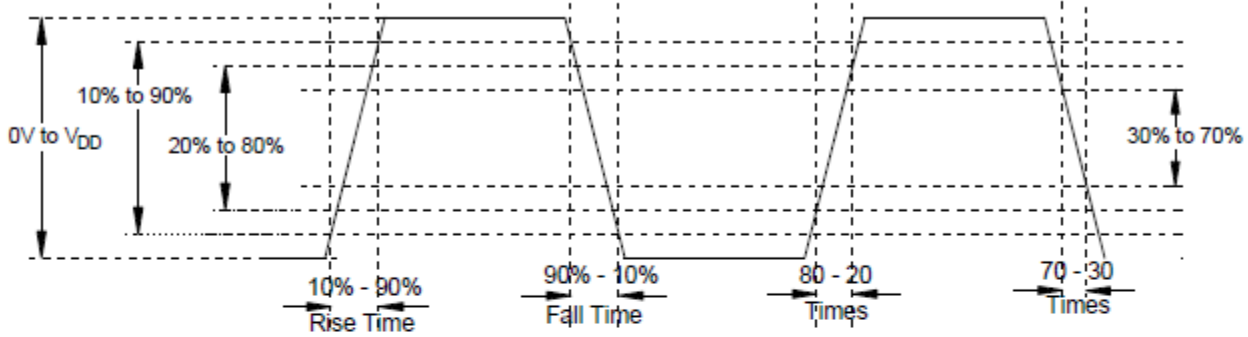


Oscillator Symmetry

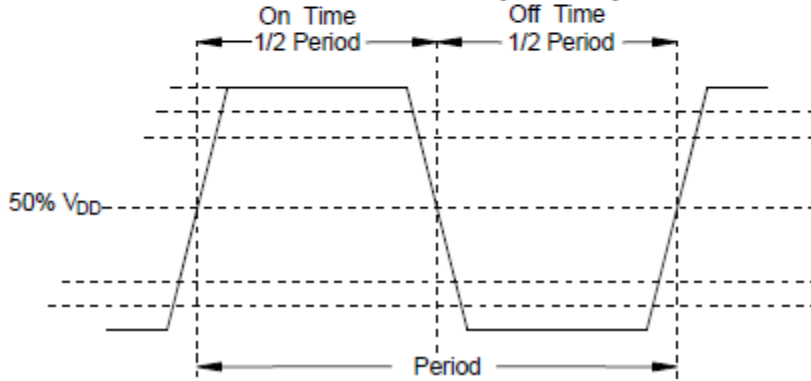


Output Waveforms – LVCMOS

Rise Time / Fall Time Measurements



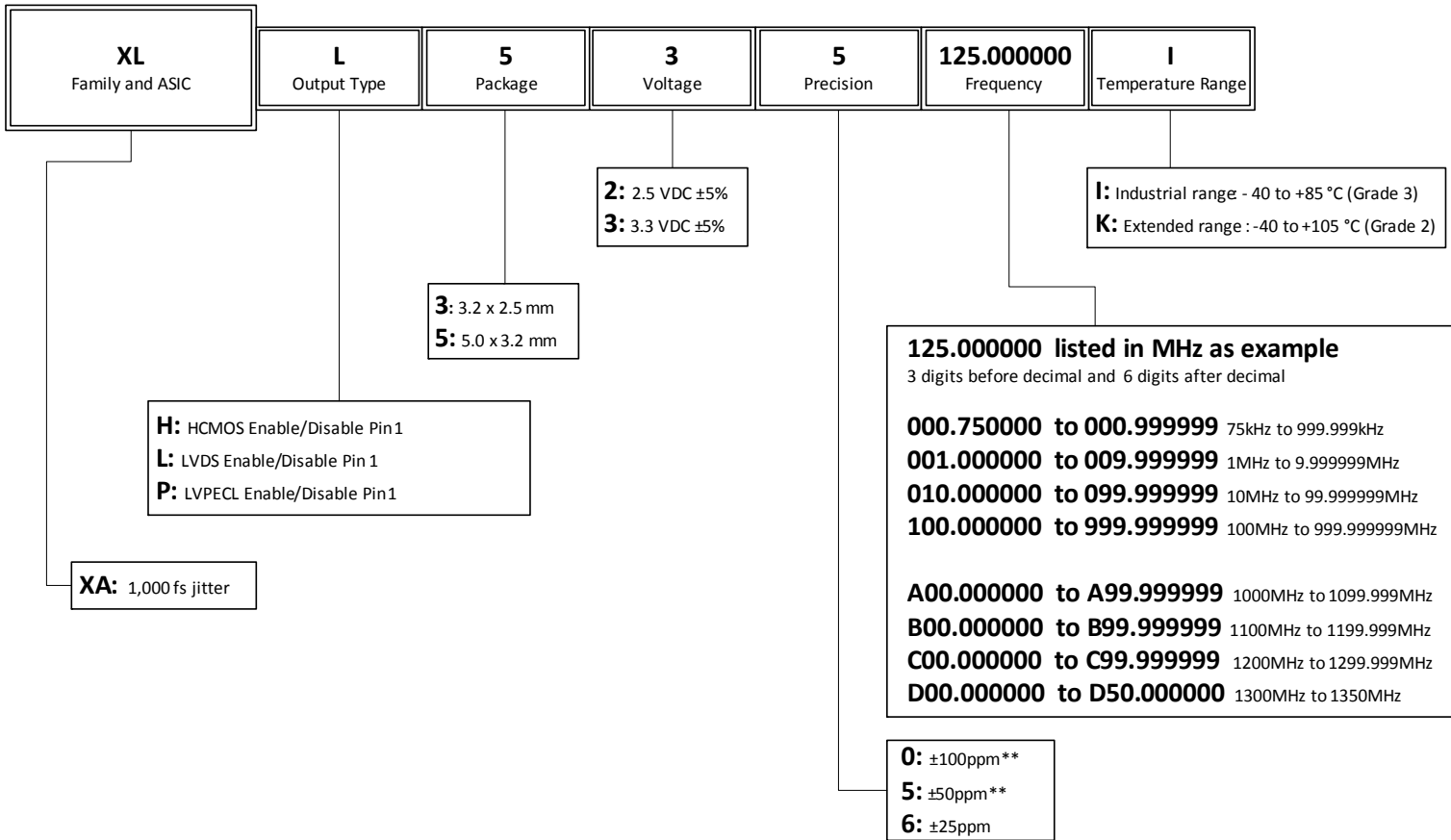
Oscillator Symmetry



Package Outline Drawings

The package outline drawings are located at the end of this document. The package information is the most current data available.

Ordering Information



** ±100ppm and ±50ppm for K (-40°C to +105°C) only.

Revision History

| Revision Date | Description of Change |
|----------------|---|
| May 24, 2018 | Updated LVCMOS Output Clock Duty Cycle, FOOUT test condition. |
| April 27, 2018 | Initial release. |



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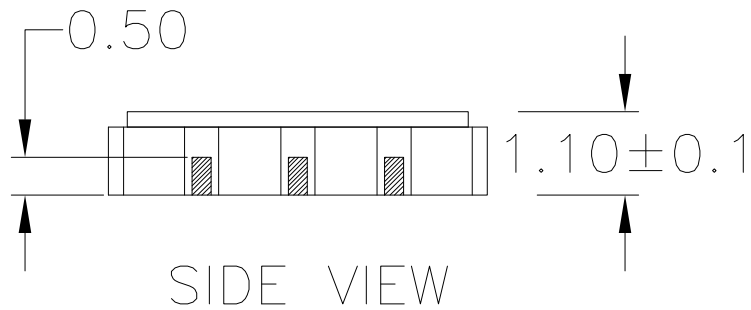
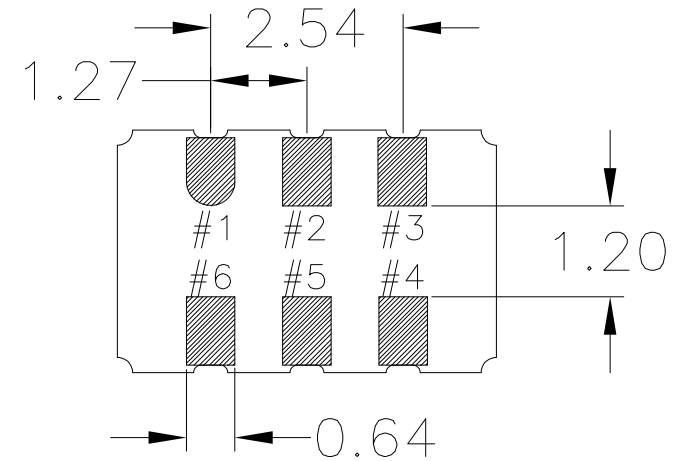
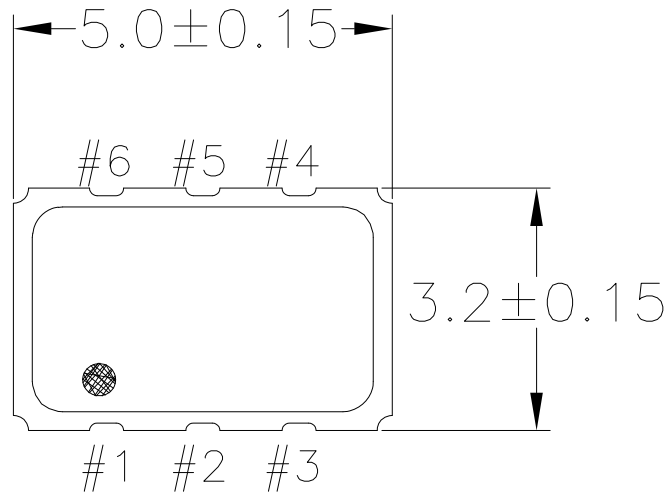
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www.IDT.com/go/support

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| REVISIONS | | | |
|-----------|------------------------|----------|----------|
| REV | DESCRIPTION | DATE | APPROVED |
| 00 | INITIAL RELEASE | 04/2/12 | DP |
| 01 | ADDED LID IN TOP VIEW | 07/12/12 | KS |
| 02 | UPDATED LID TOLERANCES | 12/03/12 | KS |
| 03 | UPDATE PACKAGE DRAWING | 8/8/14 | J.HUA |

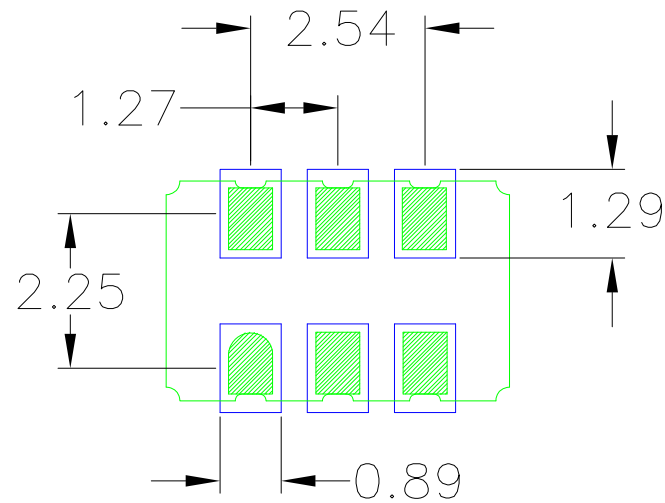


NOTES:

1. ALL DIMENSIONS IN MM.

| | | | | |
|-----------------------------|---------|--|---|---------------------------------------|
| TOLERANCES UNLESS SPECIFIED | |  IDT™ www.IDT.com | 6024 Silver Creek Valley Rd San Jose, CA 95138 PHONE: (408) 727-6116 FAX: (408) 492-8674 | |
| DECIMAL | ANGULAR | | TITLE JS6 PACKAGE OUTLINE 5.0 x 3.2 mm BODY 1.1 mm Thick | |
| XX± | ± | | | |
| XXX± | | APPROVALS | DATE | SIZE DRAWING No. C PSC-4411 |
| XXXX± | | DRAWN <i>rac</i> | 04/2/12 | |
| | | CHECKED | | DO NOT SCALE DRAWING |
| | | | | SHEET 1 OF 2 |


| REVISIONS | | | |
|-----------|------------------------|----------|----------|
| REV | DESCRIPTION | DATE | APPROVED |
| 00 | INITIAL RELEASE | 04/2/12 | DP |
| 01 | ADDED LID IN TOP VIEW | 07/12/12 | KS |
| 02 | UPDATED LID TOLERANCES | 12/03/12 | KS |
| 03 | UPDATE PACKAGE DRAWING | 8/8/14 | J.HUA |



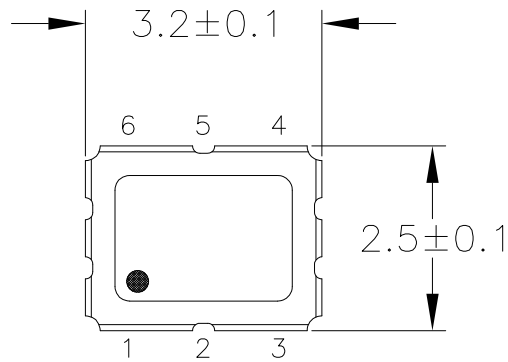
RECOMMENDED LAND PATTERN

NOTES:

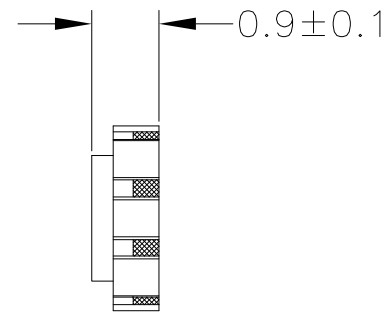
1. ALL DIMENSION ARE IN mm. ANGLES IN DEGREES.
2. TOP DOWN VIEW. AS VIEWED ON PCB.
3. COMPONENT OUTLINE SHOW FOR REFERENCE IN GREEN.
4. LAND PATTERN IN BLUE. NSMD PATTERN ASSUMED.
5. LAND PATTERN RECOMMENDATION PER IPC-7351B GENERIC REQUIREMENT FOR SURFACE MOUNT DESIGN AND LAND PATTERN.

| | | | |
|-----------------------------|---------|---|-----|
| TOLERANCES UNLESS SPECIFIED | |  www.IDT.com 6024 Silver Creek Valley Rd San Jose, CA 95138 PHONE: (408) 727-6116 FAX: (408) 492-8674 | |
| DECIMAL | ANGULAR | | |
| XXX± | ± | | |
| XXXX± | | | |
| APPROVALS | DATE | TITLE | |
| DRAWN <i>RAE</i> | 04/2/12 | JS6 PACKAGE OUTLINE | |
| CHECKED | | 5.0 x 3.2 mm BODY | |
| | | 1.1 mm Thick | |
| | SIZE | DRAWING No. | REV |
| | C | PSC-4411 | 03 |
| DO NOT SCALE DRAWING | | SHEET 2 OF 2 | |

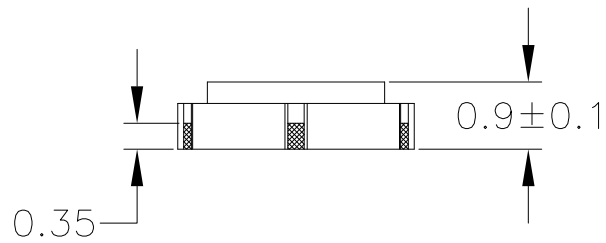
| REVISIONS | | | |
|--|-----------------|--------------|--------|
| REV | DESCRIPTION | DATE CREATED | AUTHOR |
| 00 | INITIAL RELEASE | 8/11/14 | J.HUA |
| 01 | ADD PITCH | 11/17/16 | J.HUA |
| REFER TO DCP FOR OFFICIAL RELEASE DATE | | | |



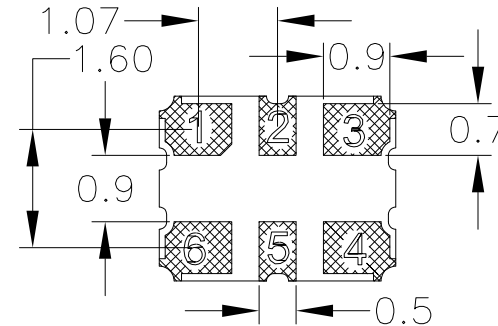
TOP VIEW



END VIEW




SIDE VIEW



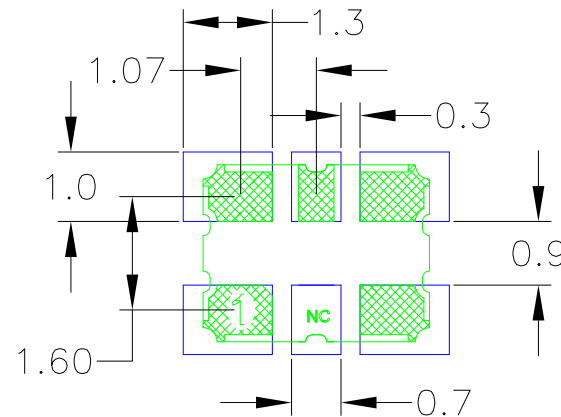
BOTTOM VIEW

NOTES:

1. ALL DIMENSIONS IN MM.

| | | |
|-----------------------------|-------------|---|
| TOLERANCES UNLESS SPECIFIED | |  6024 Silver Creek Valley Rd San Jose, CA 95138 PHONE: (408) 727-6116 FAX: (408) 492-8674 www.IDT.com |
| DECIMAL | ANGULAR | |
| XX± | ± | |
| XXX± | | |
| XXXX± | | |
| TITLE | | JX6 PACKAGE OUTLINE |
| | | 3.2 x 2.5 mm BODY |
| | | 0.9 mm Thick |
| SIZE | DRAWING No. | REV |
| C | PSC-4412 | 01 |
| DO NOT SCALE DRAWING | | SHEET 1 OF 2 |


| REVISIONS | | | |
|--|-----------------|--------------|--------|
| REV | DESCRIPTION | DATE CREATED | AUTHOR |
| 00 | INITIAL RELEASE | 8/11/14 | J.HUA |
| 01 | ADD PITCH | 11/17/16 | J.HUA |
| REFER TO DCP FOR OFFICIAL RELEASE DATE | | | |



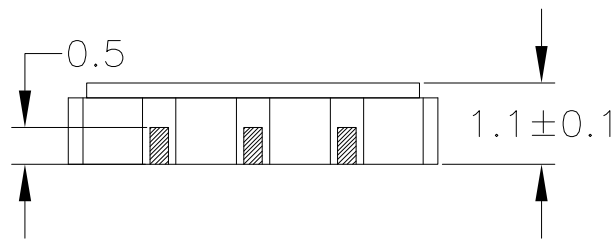
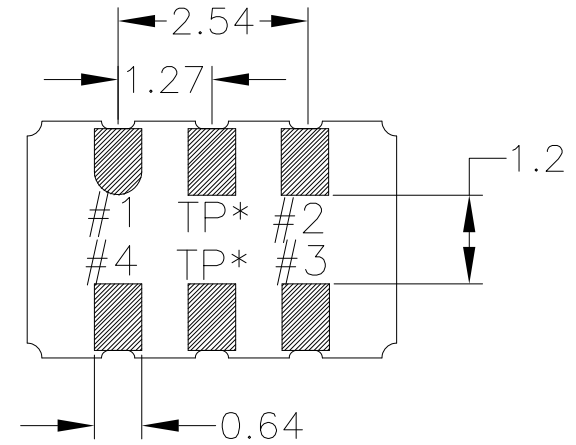
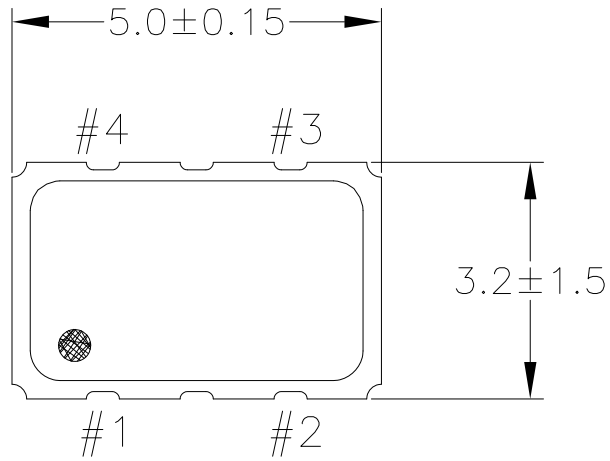
RECOMMENDED LAND PATTERN DIMENSION

NOTES:


1. ALL DIMENSIONS ARE IN MM. ANGLES IN DEGREES.
2. TOP DOWN VIEW. AS VIEWED ON PCB.
3. COMPONENT OUTLINE SHOWS FOR REFERENCE IN GREEN.
4. LAND PATTERN IN BLUE. NSMD PATTERN ASSUMED.
5. LAND PATTERN RECOMMENDATION PER IPC-7351B GENERIC REQUIREMENT FOR SURFACE MOUNT DESIGN AND LAND PATTERN.

| | | |
|-----------------------------|-------------|---|
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| DECIMAL | ANGULAR | |
| XX± | ± | |
| XXX± | | |
| XXXX± | | |
| TITLE | | JX6 PACKAGE OUTLINE 3.2 x 2.5 mm BODY 0.9 mm Thick |
| SIZE | DRAWING No. | REV |
| C | PSC-4412 | 01 |
| DO NOT SCALE DRAWING | | SHEET 2 OF 2 |

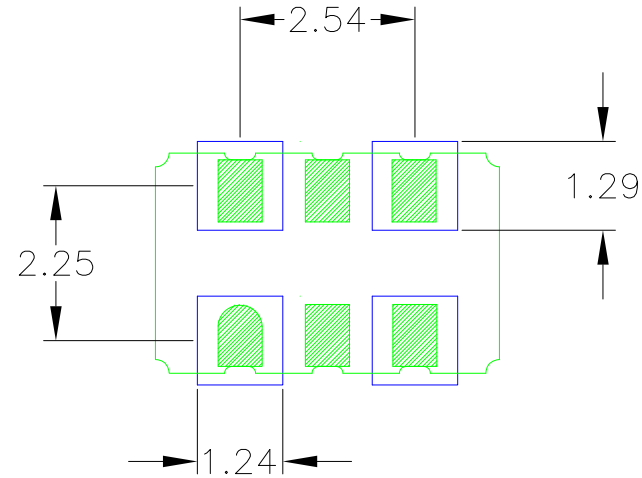
| REVISIONS | | | |
|-----------|------------------------|----------|----------|
| REV | DESCRIPTION | DATE | APPROVED |
| 00 | INITIAL RELEASE | 08/21/12 | K. Stahn |
| 01 | UPDATED LID TOLERANCES | 12/03/12 | K. Stahn |
| 02 | UPDATE PACKAGE DRAWING | 8/8/14 | J.HUA |



NOTES:
1. ALL DIMENSIONS IN MM.

| | | |
|-----------------------------|-------------|---|
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| DECIMAL | ANGULAR | |
| XX± | ± | |
| XXX± | | |
| APPROVALS | DATE | TITLE |
| DRAWN <i>[Signature]</i> | 07/16/12 | JS4 PACKAGE OUTLINE |
| CHECKED | | 5.0 x 3.2 mm BODY |
| | | 1.1 mm Thick |
| SIZE | DRAWING No. | REV |
| C | PSC-4429 | 02 |
| DO NOT SCALE DRAWING | | SHEET 1 OF 2 |


| REVISIONS | | | |
|-----------|------------------------|----------|----------|
| REV | DESCRIPTION | DATE | APPROVED |
| 00 | INITIAL RELEASE | 08/21/12 | K. Stahn |
| 01 | UPDATED LID TOLERANCES | 12/03/12 | K. Stahn |
| 02 | UPDATE PACKAGE DRAWING | 8/8/14 | J.HUA |



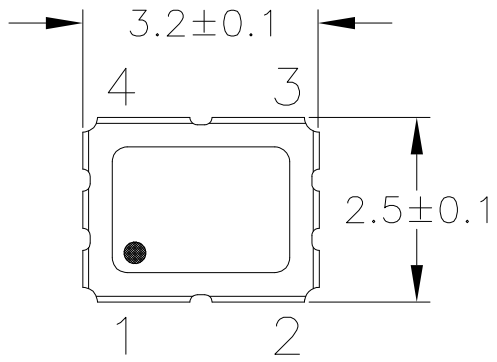
RECOMMENDED LAND PATTERN

NOTES:

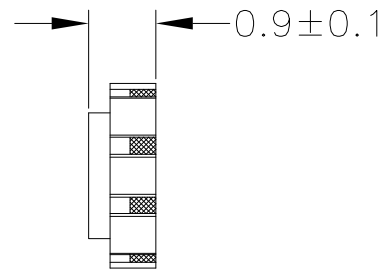
1. ALL DIMENSION ARE IN mm. ANGLES IN DEGREES.
2. TOP DOWN VIEW. AS VIEWED ON PCB.
3. COMPONENT OUTLINE SHOW FOR REFERENCE IN GREEN.
4. LAND PATTERN IN BLUE. NSMD PATTERN ASSUMED.
5. LAND PATTERN RECOMMENDATION PER IPC-7351B GENERIC REQUIREMENT FOR SURFACE MOUNT DESIGN AND LAND PATTERN.

| | | | | |
|--------------------------------|----------|--|-------------|--------------|
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| DECIMAL | ANGULAR | | | |
| XX± | ± | | | |
| XXX± | | | | |
| XXXX± | | | | |
| APPROVALS | DATE | TITLE JS4 PACKAGE OUTLINE | | |
| DRAWN <i>gls</i> | 07/16/12 | 5.0 x 3.2 mm BODY | | |
| CHECKED | | 1.1 mm Thick | | |
| | | SIZE | DRAWING No. | REV |
| | | C | PSC-4429 | 02 |
| DO NOT SCALE DRAWING | | | | SHEET 2 OF 2 |

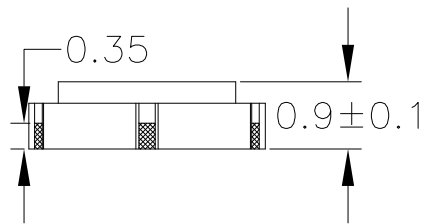
| REVISIONS | | | |
|-----------|------------------|--------|----------|
| REV | DESCRIPTION | DATE | APPROVED |
| 00 | INITIAL RELEASE | 8/8/14 | J.HUA |
| 01 | ADD OPTION 1 & 2 | 4/2/15 | J.HUA |



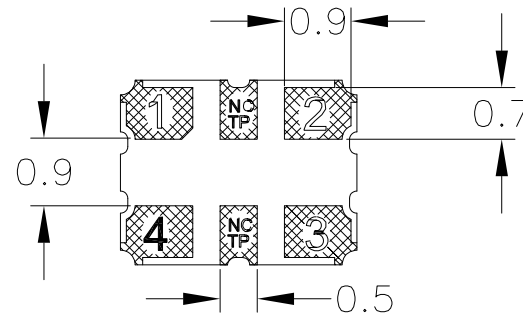
TOP VIEW



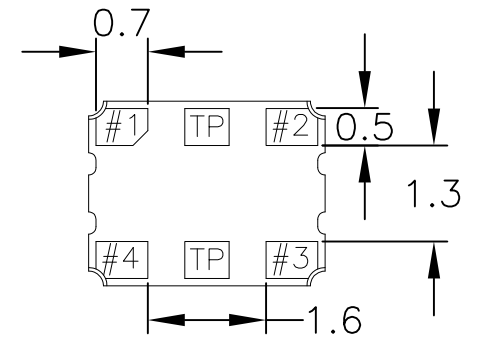
END VIEW



SIDE VIEW




OPTION 1
BOTTOM VIEW



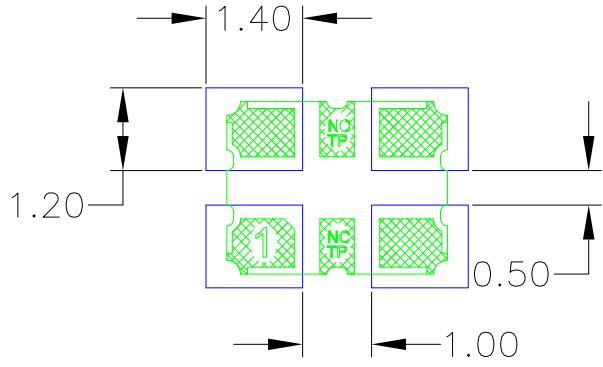
OPTION 2
BOTTOM VIEW

NOTES:

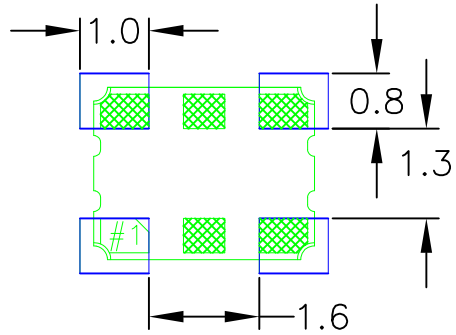
1. ALL DIMENSIONS IN MM.

| | | | | |
|--------------------------------|---------|---|---|-----|
| TOLERANCES UNLESS SPECIFIED | |  www.IDT.com | 6024 Silver Creek Valley Rd San Jose, CA 95138 PHONE: (408) 727-6116 FAX: (408) 492-8674 | |
| DECIMAL | ANGULAR | | | |
| XX± | ± | | | |
| XXX± | | | | |
| XXXX± | | | | |
| APPROVALS | DATE | TITLE JX4 PACKAGE OUTLINE | | |
| DRAWN <i>RAC</i> | 8/8/14 | 3.2 x 2.5 mm BODY | | |
| CHECKED | | 0.9 mm Thick | | |
| | | SIZE | DRAWING No. | REV |
| | | C | PSC-4489 | 01 |
| DO NOT SCALE DRAWING | | | SHEET 1 OF 2 | |

| REVISIONS | | | |
|-----------|------------------|--------|----------|
| REV | DESCRIPTION | DATE | APPROVED |
| 00 | INITIAL RELEASE | 8/8/14 | J.HUA |
| 01 | ADD OPTION 1 & 2 | 4/2/15 | J.HUA |



OPTION 1




OPTION 2

RECOMMENDED LAND PATTERN

NOTES:

1. ALL DIMENSION ARE IN mm. ANGLES IN DEGREES.
2. TOP DOWN VIEW AS VIEWED ON PCB.
3. COMPONENT OUTLINE SHOWN FOR REFERENCE IN GREEN.
4. LAND PATTERN IN BLUE. NSMD PATTERN ASSUMED.
5. LAND PATTERN RECOMMENDATION PER IPC-7351B GENERIC REQUIREMENT FOR SURFACE MOUNT DESIGN AND LAND PATTERN.

| | | | | |
|-----------------------------|---------|--|--------------|-----|
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| DECIMAL | ANGULAR | | | |
| XX± | ± | | | |
| XXX± | | | | |
| XXXX± | | | | |
| APPROVALS | DATE | TITLE | | |
| DRAWN <i>ELC</i> | 8/8/14 | JX4 PACKAGE OUTLINE | | |
| CHECKED | | 3.2 x 2.5 mm BODY | | |
| | | 0.9 mm Thick | | |
| | | SIZE | DRAWING No. | REV |
| | | C | PSC-4489 | 01 |
| DO NOT SCALE DRAWING | | | SHEET 2 OF 2 | |

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