



## Product Change Notification: SYST-13AFCH411

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**Date:**

20-Jul-2026

**Product Category:**

Clock And Timing - Oscillators

**Notification Subject:**

Data Sheet - DSC1102/22 - Low-Jitter Precision LVPECL Oscillator

**Affected CPNs:**

[SYST-13AFCH411\\_Affected\\_CPN\\_07202026.pdf](#)

[SYST-13AFCH411\\_Affected\\_CPN\\_07202026.csv](#)

**Notification Text:**

|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
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| SYST-13AFCH411                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
| <p>Microchip has released a new Datasheet for the DSC1102/22 - Low-Jitter Precision LVPECL Oscillator of devices. If you are using one of these devices please read the document located at <a href="#">DSC1102/22 - Low-Jitter Precision LVPECL Oscillator</a>.</p> <p><b>Notification Status:</b> Final</p> <p><b>Description of Change:</b></p> <p>Added a note at the end of the Package Marking Information section about frequency marking.</p> <p><b>Impacts to Data Sheet:</b> See above details.</p> <p><b>Reason for Change:</b> To Improve Productivity</p> <p><b>Change Implementation Status:</b> Complete</p> <p><b>Date Document Changes Effective:</b> 20 Jul 2026</p> <p><b>NOTE:</b> Please be advised that this is a change to the document only the product has not been changed.</p> |

**Description of Change:**

Added a note at the end of the Package Marking Information section about frequency marking.

**Impacts to Data Sheet:** See above details.

**Reason for Change:** To Improve Productivity

**Change Implementation Status:** Complete

**Date Document Changes Effective:** 20 Jul 2026

**NOTE:** Please be advised that this is a change to the document only the product has not been changed.

**Markings to Distinguish Revised from Unrevised Devices: N/A**

## **Attachments:**

### **DSC1102/22 - Low-Jitter Precision LVPECL Oscillator**

Please contact your local [Microchip sales office](#) with questions or concerns regarding this notification.

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Affected Catalog Part Numbers (CPN)

DSC1102CI5-156.2500T

DSC1102CI1-135.0000T

DSC1102CI2-400.0000T

DSC1102CI2-148.5000T

DSC1102CI2-156.2500T

DSC1102CI1-108.0000T

DSC1102CI5-020.0000T

DSC1102CI1-212.5000T

DSC1102BI5-108.0000T

DSC1102AI1-100.0000T

DSC1102AI2-167.3320T

DSC1102AI1-156.2500T

DSC1102AI2-156.2500T

DSC1102AI5-156.2500T

DSC1102AI2-106.0000T

DSC1102AI5-160.0000T

DSC1102AI5-400.0000T

DSC1102AI2-156.2540T

DSC1102AI1-250.0000T

DSC1102AI1-050.0000T

DSC1102NI5-156.2500T

DSC1102NI5-400.0000T

DSC1102NI5-200.0000T

DSC1102NI1-156.2500T

DSC1102DI1-156.2500T

DSC1102DI5-135.0000T

DSC1102DI2-125.0000T

DSC1102DI2-156.2500T

DSC1102DI1-212.5000T

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Date: Sunday, July 19, 2026

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DSC1102DI2-212.5000T

DSC1102DI5-100.0000T

DSC1122BI5-036.7000

DSC1122BI2-150.0000

DSC1122BI2-156.2500

DSC1122BI2-100.0000

DSC1122BI2-114.2850

DSC1122BI2-155.5200

DSC1122BI1-100.0000

DSC1122BI5-400.0000

DSC1122BI2-156.2539

DSC1122BI2-156.2570

DSC1122BI2-020.0000

DSC1122BI2-322.0000

DSC1122BI2-125.0000

DSC1122BI1-025.0000

DSC1122BI3-166.6000

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DSC1122BE2-156.2500

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DSC1122BE2-156.2500T

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DSC1122BL2-018.4320T

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DSC1102AE1-125.0000T

DSC1102AE5-412.5000T

DSC1102AL3-100.0000T

DSC1102AL5-100.0000T

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DSC1102BI2-100.0000

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DSC1102BI2-155.2500

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DSC1102BE2-312.5000T

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DSC1102BI2-100.0000T

DSC1102BI2-156.2500T

DSC1102BI2-155.2500T

DSC1102BI2-114.2850T

## Low-Jitter Precision LVPECL Oscillator

### Features

- Low RMS Phase Jitter: <1 ps (typ.)
- High Stability:  $\pm 10$  ppm,  $\pm 20$  ppm,  $\pm 25$  ppm,  $\pm 50$  ppm
- Wide Temperature Range
  - Ext. Industrial:  $-40^{\circ}\text{C}$  to  $+105^{\circ}\text{C}$
  - Industrial:  $-40^{\circ}\text{C}$  to  $+85^{\circ}\text{C}$
  - Ext. Commercial:  $-20^{\circ}\text{C}$  to  $+70^{\circ}\text{C}$
- High Supply Noise Rejection:  $-50$  dBc
- Wide Frequency Range: 2.3 MHz to 460 MHz
- Small Industry Standard Footprints:
  - 2.5 mm  $\times$  2.0 mm, 3.2 mm  $\times$  2.5 mm, 5.0 mm  $\times$  3.2 mm, and 7.0 mm  $\times$  5.0 mm
- Excellent Shock and Vibration Immunity
  - Qualified to MIL-STD-883
- High Reliability
  - 20x Better MTF than Quartz Oscillators
- Low Current Consumption
- Supply Range of 2.25V to 3.63V
- Standby and Output Enable Function
- Lead Free and RoHS Compliant
- LVDS and HCSL Versions Available

### Applications

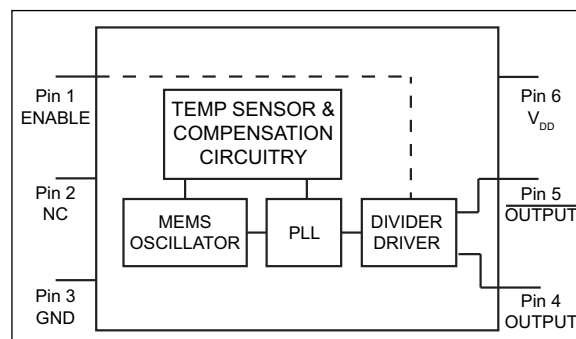
- Storage Area Networks
  - SATA, SAS, Fibre Channel
- Passive Optical Networks
  - EPON, 10G-EPON, GPON, 10G-GPON
- Ethernet
  - 1G, 10GBASE-T/KR/LR/SR, and FCoE
- HD/SD/SDI Video and Surveillance

### General Description

The DSC1102 and DSC1122 series of high performance oscillators utilizes a proven silicon MEMS technology to provide excellent jitter and stability over a wide range of supply voltages and temperatures. By eliminating the need for quartz or SAW technology, MEMS oscillators significantly enhance reliability and accelerate product development, while meeting stringent clock performance criteria for a variety of communications, storage, and networking applications.

DSC1102 has a standby feature allowing it to completely power down when EN pin is pulled low; whereas for DSC1122, only the outputs are disabled when EN is low. Both oscillators are available in industry standard packages, including the smallest 2.5 mm  $\times$  2.0 mm, and are drop-in replacements for standard 6-lead LVPECL quartz crystal oscillators.

### Block Diagram



**TABLE 1: OUTPUT ENABLE MODES**

| EN Pin | DSC1102        | DSC1122          |
|--------|----------------|------------------|
| High   | Outputs Active | Outputs Active   |
| NC     | Outputs Active | Outputs Active   |
| Low    | Standby        | Outputs Disabled |

## 1.0 ELECTRICAL CHARACTERISTICS

### Absolute Maximum Ratings †

|                            |                          |
|----------------------------|--------------------------|
| Supply Voltage .....       | –0.3V to +4.0V           |
| Input Voltage .....        | –0.3V to $V_{DD} + 0.3V$ |
| ESD Protection (HBM) ..... | 4 kV                     |
| ESD Protection (MM) .....  | 400V                     |
| ESD Protection (CDM) ..... | 1.5 kV                   |

† **Notice:** Stresses above those listed under “Absolute Maximum Ratings” may cause permanent damage to the device. This is a stress rating only and functional operation of the device at those or any other conditions above those indicated in the operational sections of this specification is not intended. Exposure to maximum rating conditions for extended periods may affect device reliability.

### ELECTRICAL CHARACTERISTICS

Specifications:  $V_{DD} = 3.3V$ ;  $T_A = +25^{\circ}C$  unless otherwise specified.

| Parameters                       | Sym.             | Min.                 | Typ. | Max.                 | Units      | Conditions                                                                              |
|----------------------------------|------------------|----------------------|------|----------------------|------------|-----------------------------------------------------------------------------------------|
| Supply Voltage (Note 1)          | $V_{DD}$         | 2.25                 | —    | 3.63                 | V          | —                                                                                       |
| Supply Current                   | $I_{DD}$         | —                    | —    | 0.095                | mA         | DSC1102, EN pin low, Output is disabled                                                 |
|                                  |                  | —                    | 20   | 22                   |            | DSC1122, EN pin low, Output is disabled                                                 |
| Frequency Stability              | $\Delta f$       | —                    | —    | $\pm 10$             | ppm        | Includes frequency variation due to initial tolerance, temp., and power supply voltage. |
|                                  |                  | —                    | —    | $\pm 20$             |            |                                                                                         |
|                                  |                  | —                    | —    | $\pm 25$             |            |                                                                                         |
|                                  |                  | —                    | —    | $\pm 50$             |            |                                                                                         |
| Aging - First Year               | $\Delta f_{Y1}$  | —                    | —    | $\pm 5$              | ppm        | One year at $+25^{\circ}C$                                                              |
| Aging - After First Year         | $\Delta f_{Y2+}$ | —                    | —    | $< \pm 1$            | ppm/yr     | Year two and beyond at $+25^{\circ}C$                                                   |
| Start-up Time (Note 2)           | $t_{SU}$         | —                    | —    | 5                    | ms         | $T = +25^{\circ}C$                                                                      |
| Input Logic Levels               | $V_{IH}$         | $0.75 \times V_{DD}$ | —    | —                    | V          | Input logic high                                                                        |
|                                  | $V_{IL}$         | —                    | —    | $0.25 \times V_{DD}$ |            | Input logic low                                                                         |
| Output Disable Time (Note 3)     | $t_{DA}$         | —                    | —    | 5                    | ns         | —                                                                                       |
| Output Enable Time               | $t_{EN}$         | —                    | —    | 5                    | ms         | DSC1102                                                                                 |
|                                  |                  | —                    | —    | 20                   | ns         | DSC1122                                                                                 |
| Enable Pull-Up Resistor (Note 4) | $R_{PU}$         | —                    | 40   | —                    | k $\Omega$ | Pull-up resistor exists                                                                 |
| <b>LVPECL Outputs</b>            |                  |                      |      |                      |            |                                                                                         |
| Supply Current                   | $I_{DD}$         | —                    | 56.5 | 58                   | mA         | Output Enabled, $R_L = 50\Omega$                                                        |
| Output Logic Levels              | $V_{OH}$         | $V_{DD} - 1.08$      | —    | —                    | V          | Output logic high, $R_L = 50\Omega$                                                     |
|                                  | $V_{OL}$         | —                    | —    | $V_{DD} - 1.55$      |            | Output logic low                                                                        |
| Peak-to-Peak Output Swing        | —                | —                    | 800  | —                    | mV         | Single-Ended                                                                            |

**Note 1:** Pin 6  $V_{DD}$  should be filtered with a 0.1  $\mu F$  capacitor.

**2:**  $t_{SU}$  is time to 100 ppm stable output frequency after  $V_{DD}$  is applied and outputs are enabled.

**3:** Output Waveform and Test Circuit figures below define the parameters.

**4:** Output is enabled if pad is floated or not connected.



## ELECTRICAL CHARACTERISTICS (CONTINUED)

Specifications:  $V_{DD} = 3.3V$ ;  $T_A = +25^\circ C$  unless otherwise specified.

| Parameters                         | Sym.      | Min. | Typ. | Max. | Units             | Conditions                                    |
|------------------------------------|-----------|------|------|------|-------------------|-----------------------------------------------|
| Output Transition Time<br>(Note 3) | $t_r$     | —    | 250  | —    | ps                | Rise time, 20% to 80%                         |
|                                    | $t_f$     |      |      |      |                   | Fall time, $R_L = 50\Omega$ ,<br>$C_L = 0$ pF |
| Frequency                          | $f_0$     | 2.3  | —    | 460  | MHz               | —                                             |
| Output Duty Cycle                  | SYM       | 48   | —    | 52   | %                 | Differential                                  |
| Period Jitter                      | $J_{PER}$ | —    | 2.5  | —    | ps <sub>RMS</sub> | —                                             |
| Integrated Phase Noise             | $J_{PH}$  | —    | 0.25 | —    | ps <sub>RMS</sub> | 200 kHz to 20 MHz @<br>156.25 MHz             |
|                                    |           | —    | 0.38 | —    |                   | 100 kHz to 20 MHz @<br>156.25 MHz             |
|                                    |           | —    | 1.7  | 2    |                   | 12 kHz to 20 MHz @<br>156.25 MHz              |

- Note 1:** Pin 6  $V_{DD}$  should be filtered with a 0.1  $\mu F$  capacitor.
- 2:**  $t_{SU}$  is time to 100 ppm stable output frequency after  $V_{DD}$  is applied and outputs are enabled.
- 3:** Output Waveform and Test Circuit figures below define the parameters.
- 4:** Output is enabled if pad is floated or not connected.

## TEMPERATURE SPECIFICATIONS

(Note 1)

| Parameters                  | Sym.  | Min. | Typ. | Max. | Units | Conditions        |
|-----------------------------|-------|------|------|------|-------|-------------------|
| Temperature Ranges          |       |      |      |      |       |                   |
| Operating Temperature Range | $T_A$ | -20  | —    | +70  | °C    | Ordering Option E |
|                             |       | -40  | —    | +85  | °C    | Ordering Option I |
|                             |       | -40  | —    | +105 | °C    | Ordering Option L |
| Max. Junction Temperature   | $T_J$ | —    | —    | +150 | °C    | —                 |
| Storage Temperature Range   | $T_S$ | -55  | —    | +150 | °C    | —                 |
| Soldering Temperature       | —     | —    | —    | +260 | °C    | 40 sec. max.      |

**Note 1:** The maximum allowable power dissipation is a function of ambient temperature, the maximum allowable junction temperature, and the thermal resistance from junction to air (i.e.,  $T_A$ ,  $T_J$ ,  $\theta_{JA}$ ). Exceeding the maximum allowable power dissipation will cause the device operating junction temperature to exceed the maximum +150°C rating. Sustained junction temperatures above +150°C can impact the device reliability.

2.0 PIN DESCRIPTIONS

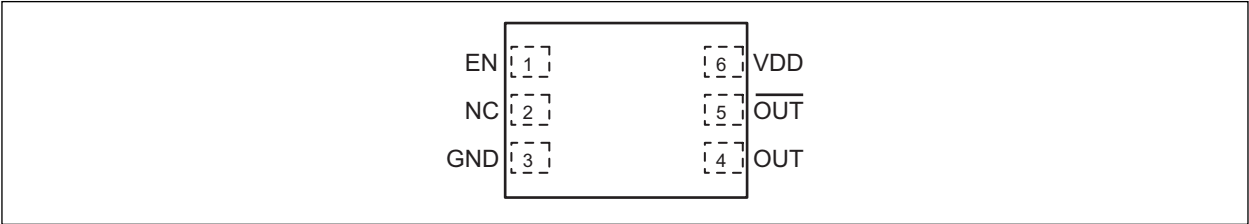


FIGURE 2-1: Pin Configuration, 6-Lead VDFN

The descriptions of the pins are listed in [Table 2-1](#).

TABLE 2-1: PIN FUNCTION TABLE

| Pin Number | Pin Name                | Description                             |
|------------|-------------------------|-----------------------------------------|
| 1          | EN                      | Enable or Standby.                      |
| 2          | NC                      | Leave unconnected or connect to ground. |
| 3          | GND                     | Ground.                                 |
| 4          | OUT                     | Output.                                 |
| 5          | $\overline{\text{OUT}}$ | Complementary Output.                   |
| 6          | VDD                     | Supply Voltage.                         |

3.0 NOMINAL PERFORMANCE PARAMETERS

Unless specified otherwise, T = +25°C, V<sub>DD</sub> = 3.3V.

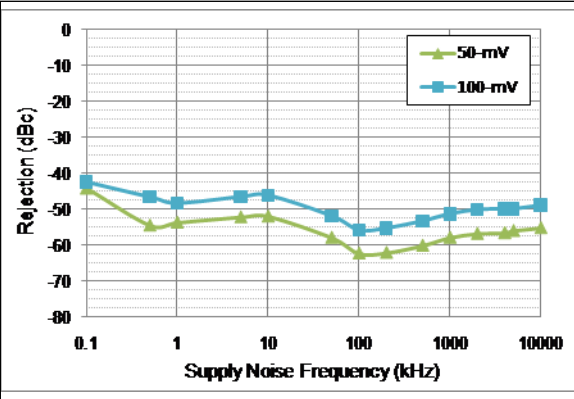


FIGURE 3-1: Power Supply Rejection Ratio.

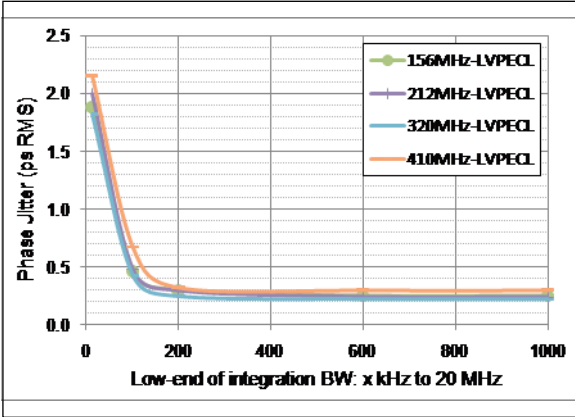


FIGURE 3-2: Phase Jitter (Integrated Phase Noise).

3.1 Output Waveform

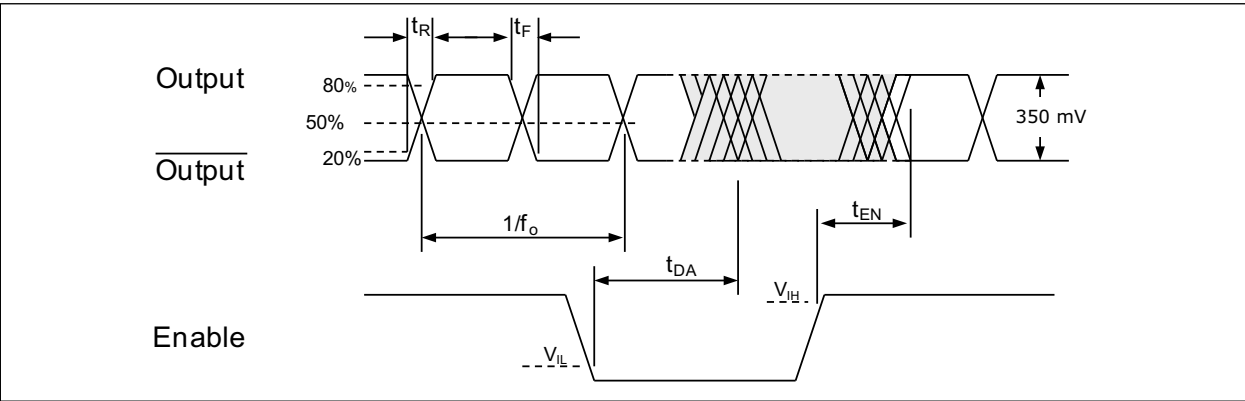
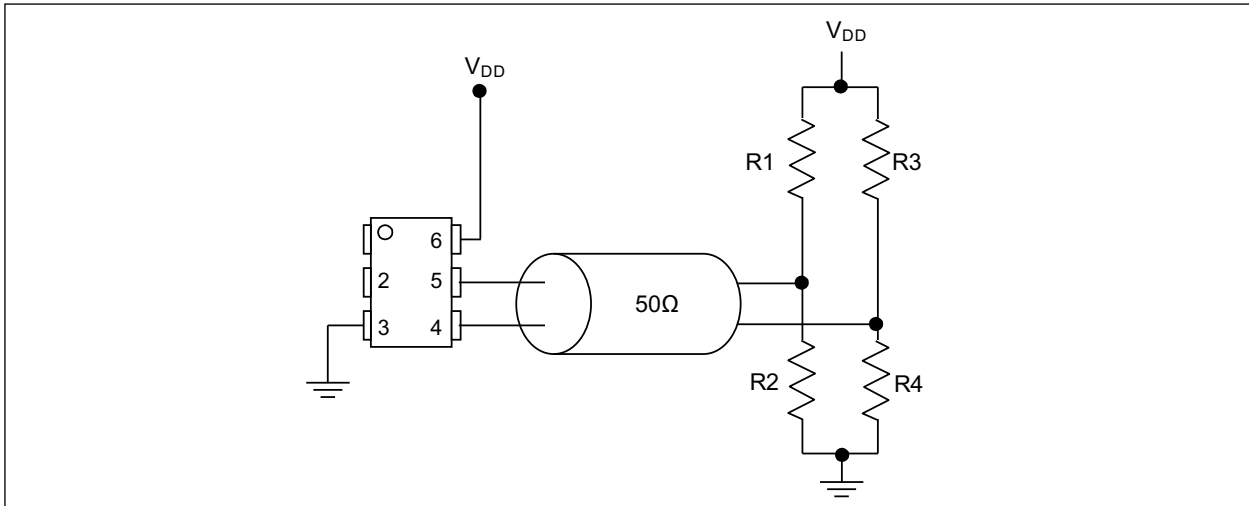


FIGURE 3-3: Output Waveform.

## 3.2 Typical Termination Scheme



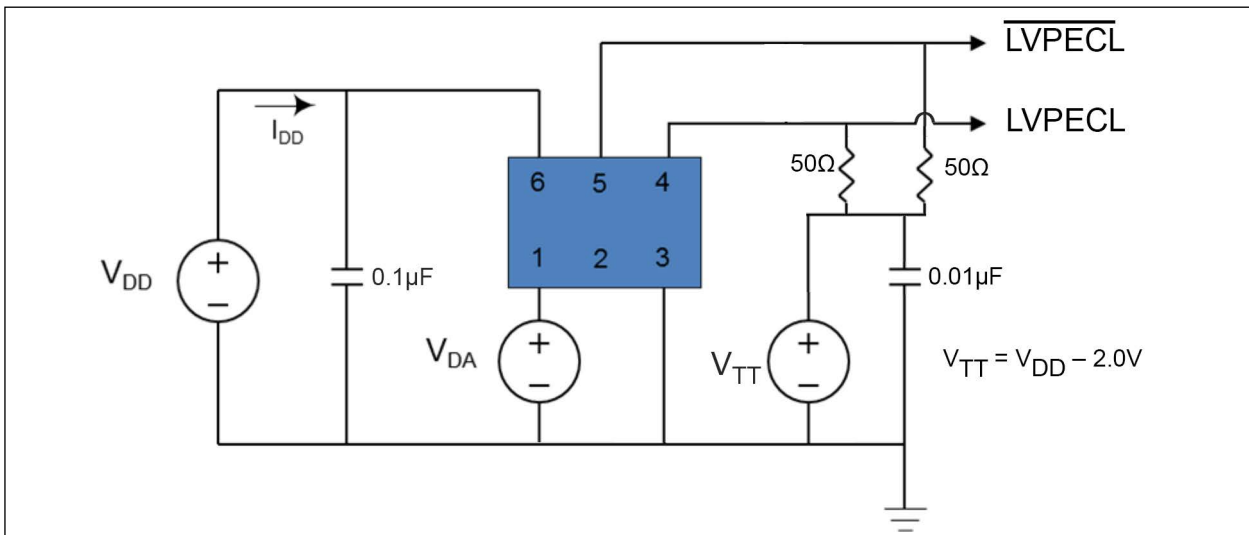
**FIGURE 3-4:** Typical Termination Scheme.

The values for R1, R2, R3, and R4 in the termination scheme depend on what  $V_{DD}$  is used. Table 3-1 lists the recommended values for each resistor depending on  $V_{DD}$ .

**TABLE 3-1: RECOMMENDED RESISTOR VALUES**

| $V_{DD}$ | R1, R3 | R2, R4 |
|----------|--------|--------|
| 3.3V     | 130Ω   | 82Ω    |
| 2.5V     | 249Ω   | 62Ω    |

## 3.3 Test Circuit



**FIGURE 3-5:** Test Circuit.

3.4 Recommended Board Layout

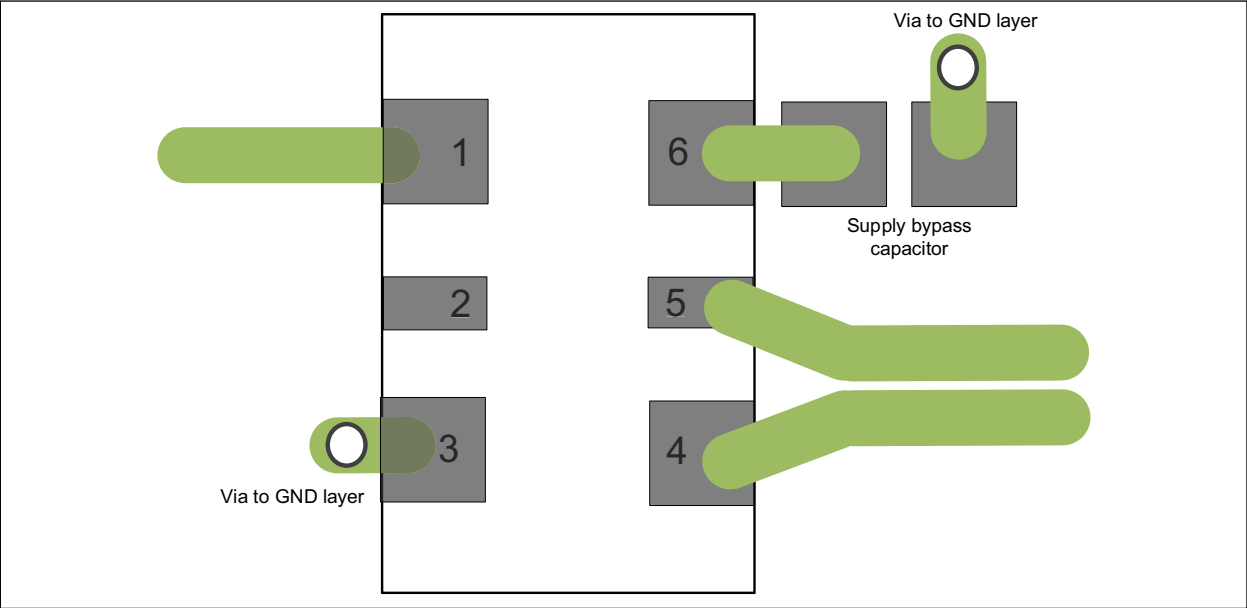
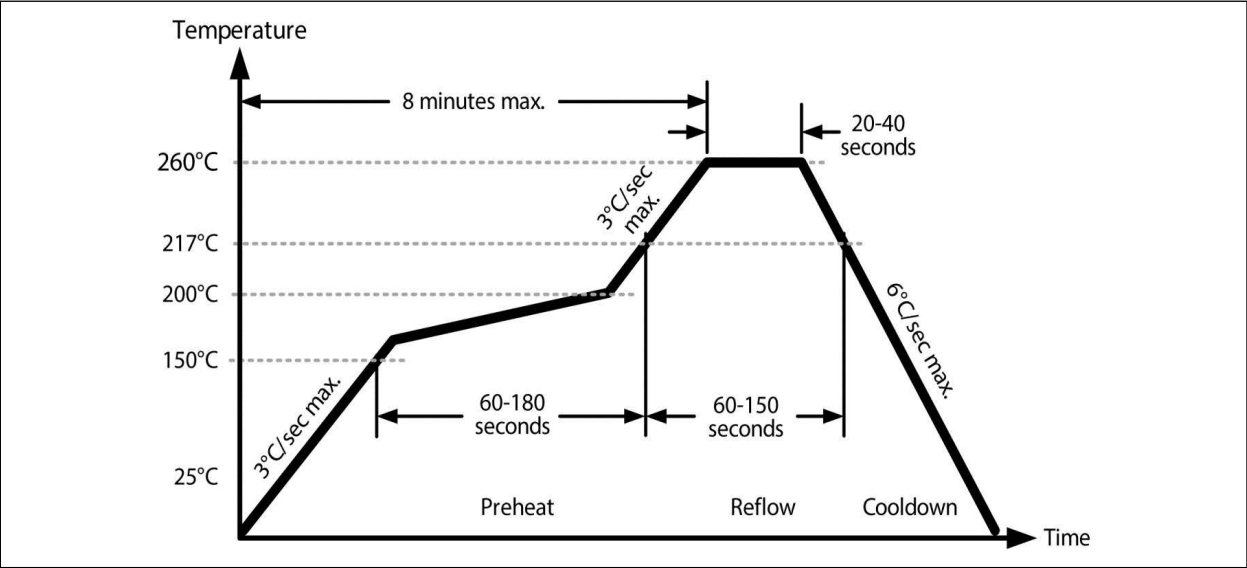


FIGURE 3-6: Recommended Board Layout.

3.5 Solder Reflow Profile

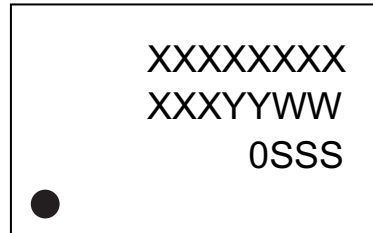


| MSL 1 @ 260°C refer to JSTD-020C  |                |
|-----------------------------------|----------------|
| Ramp-Up Rate (200°C to Peak Temp) | 3°C/sec. max.  |
| Preheat Time 150°C to 200°C       | 60-180 sec.    |
| Time Maintained above 217°C       | 60-150 sec.    |
| Peak Temperature                  | 255°C to 260°C |
| Time within 5°C of Actual Peak    | 20-40 sec.     |
| Ramp-Down Rate                    | 6°C/sec. max.  |
| Time 25°C to Peak Temperature     | 8 minutes max. |

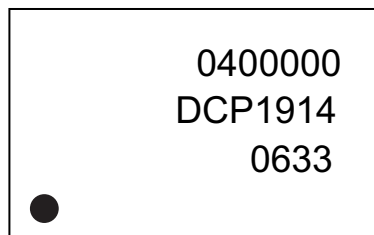
## 4.0 PACKAGE MARKING INFORMATION

### 4.1 Package Marking Information

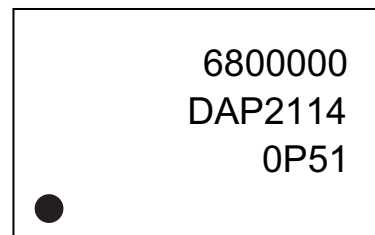
6-Lead LVPECL\*



Example 1\*



Example 2\*



|                |                                                                                                                                                                                                                                                            |                                                                                                                    |
|----------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------|
| <b>Legend:</b> | XX...X                                                                                                                                                                                                                                                     | Product code or customer-specific information                                                                      |
|                | Y                                                                                                                                                                                                                                                          | Year code (last digit of calendar year)                                                                            |
|                | YY                                                                                                                                                                                                                                                         | Year code (last 2 digits of calendar year)                                                                         |
|                | WW                                                                                                                                                                                                                                                         | Week code (week of January 1 is week '01')                                                                         |
|                | SSS                                                                                                                                                                                                                                                        | Alphanumeric traceability code                                                                                     |
|                | (e3)                                                                                                                                                                                                                                                       | Pb-free JEDEC® designator for Matte Tin (Sn)                                                                       |
|                | *                                                                                                                                                                                                                                                          | This package is Pb-free. The Pb-free JEDEC designator ((e3)) can be found on the outer packaging for this package. |
|                | •, ▲, ▼                                                                                                                                                                                                                                                    | Pin one index is identified by a dot, delta up, or delta down (triangle mark).                                     |
| <b>Note:</b>   | In the event the full Microchip part number cannot be marked on one line, it will be carried over to the next line, thus limiting the number of available characters for customer-specific information. Package may or may not include the corporate logo. |                                                                                                                    |
|                | Underbar ( _ ) and/or Overbar ( ¯ ) symbol may not be to scale.                                                                                                                                                                                            |                                                                                                                    |

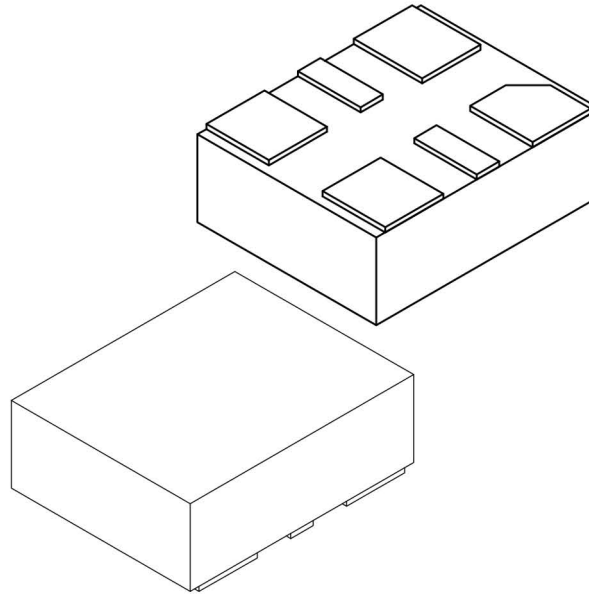
**Note:** Devices may not include a top-line frequency marking. Product identity and output frequency are defined by the ordering code and accompanying documentation. Devices without a frequency marking remain fully compliant with all applicable datasheet specifications.

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**6-Lead Very Thin Dual Flatpack No-Leads (J7A) - 2.5x2.0 mm Body [VDFN]**

**Note:** For the most current package drawings, please see the Microchip Packaging Specification located at <http://www.microchip.com/packaging>



| Units               |    | MILLIMETERS |       |       |
|---------------------|----|-------------|-------|-------|
| Dimension Limits    |    | MIN         | NOM   | MAX   |
| Number of Terminals | N  | 6           |       |       |
| Pitch               | e  | 0.825 BSC   |       |       |
| Overall Height      | A  | 0.80        | 0.85  | 0.90  |
| Standoff            | A1 | 0.00        | 0.02  | 0.05  |
| Overall Length      | D  | 2.50 BSC    |       |       |
| Overall Width       | E  | 2.00 BSC    |       |       |
| Terminal Width      | b1 | 0.60        | 0.65  | 0.70  |
| Terminal Width      | b2 | 0.20        | 0.25  | 0.30  |
| Terminal Length     | L1 | 0.60        | 0.70  | 0.80  |
| Terminal Length     | L2 | 0.665       | 0.765 | 0.865 |

**Notes:**

1. Pin 1 visual index feature may vary, but must be located within the hatched area.
2. Package is saw singulated
3. Dimensioning and tolerancing per ASME Y14.5M

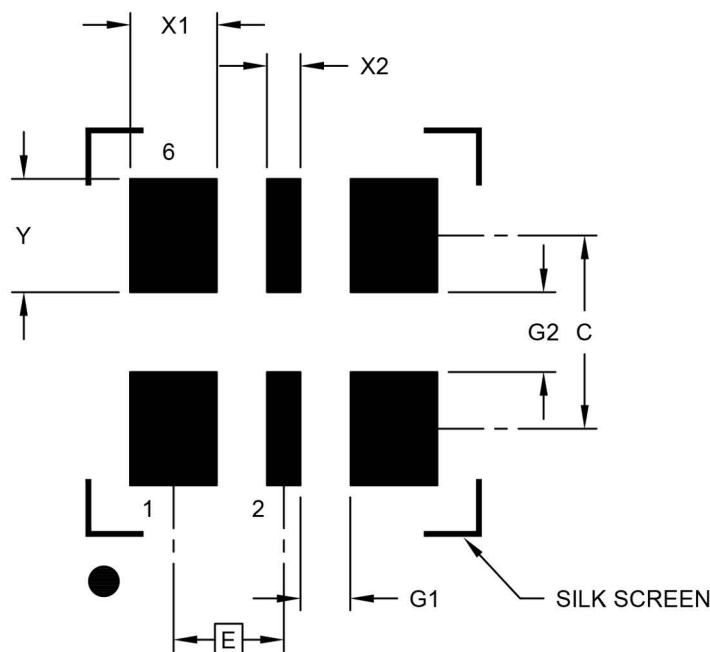
BSC: Basic Dimension. Theoretically exact value shown without tolerances.

REF: Reference Dimension, usually without tolerance, for information purposes only.

Microchip Technology Drawing C04-1005-J7A Rev E Sheet 2 of 2

## 6-Lead Very Thin Dual Flatpack No-Leads (J7A) - 2.5x2.0 mm Body [VDFN]

**Note:** For the most current package drawings, please see the Microchip Packaging Specification located at <http://www.microchip.com/packaging>



RECOMMENDED LAND PATTERN

| Units                       |    | MILLIMETERS |      |      |
|-----------------------------|----|-------------|------|------|
| Dimension Limits            |    | MIN         | NOM  | MAX  |
| Contact Pitch               | E  | 0.825 BSC   |      |      |
| Contact Pad Width (X4)      | X1 |             |      | 0.65 |
| Contact Pad Width (X2)      | X2 |             |      | 0.25 |
| Contact Pad Length (X6)     | Y  |             |      | 0.85 |
| Contact Pad Spacing         | C  |             | 1.45 |      |
| Space Between Contacts (X4) | G1 | 0.38        |      |      |
| Space Between Contacts (X3) | G2 | 0.60        |      |      |

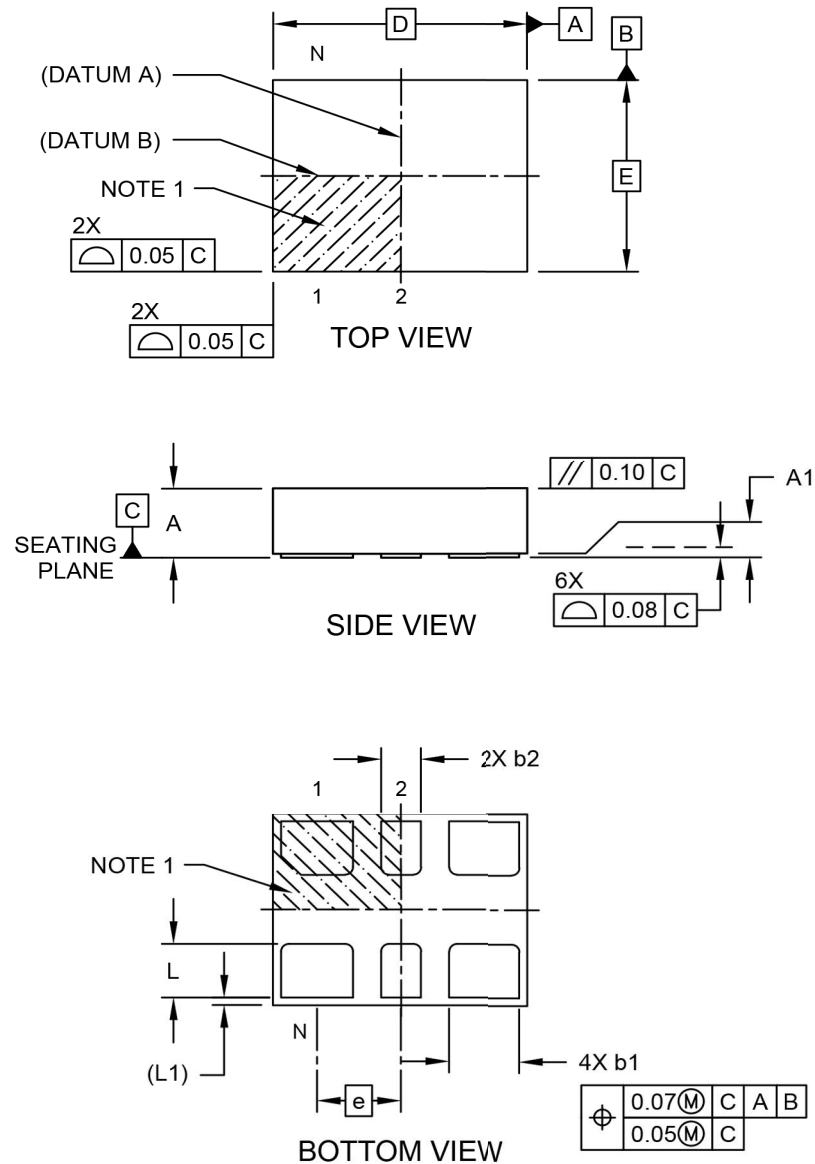
**Notes:**

- Dimensioning and tolerancing per ASME Y14.5M  
BSC: Basic Dimension. Theoretically exact value shown without tolerances.
- For best soldering results, thermal vias, if used, should be filled or tented to avoid solder loss during reflow process

Microchip Technology Drawing C04-3005-J7A Rev E

## 6-Lead 3.2 mm × 2.5 mm VDFN (H5A) Package Outline and Recommended Land Pattern

**Note:** For the most current package drawings, please see the Microchip Packaging Specification located at <http://www.microchip.com/packaging>

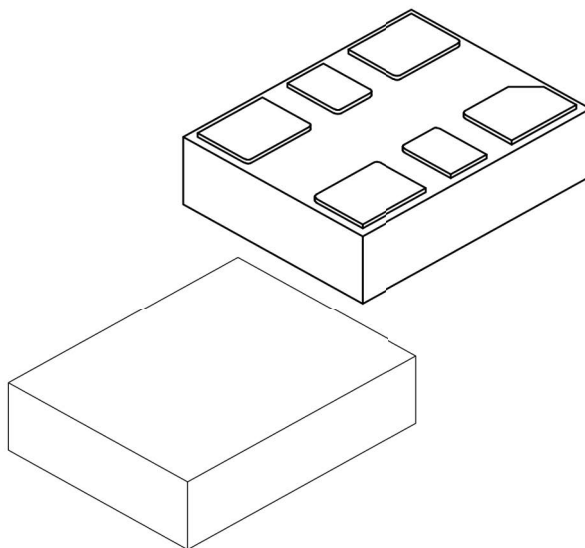


Microchip Technology Drawing C04-1007-H5A Rev C Sheet 1 of 2

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## 6-Lead Very Thin Plastic Dual Flatpack No-Lead (H5A) - 3.2x2.5 mm Body [VDFN]

**Note:** For the most current package drawings, please see the Microchip Packaging Specification located at <http://www.microchip.com/packaging>



| Units               |    | MILLIMETERS |      |      |
|---------------------|----|-------------|------|------|
| Dimension Limits    |    | MIN         | NOM  | MAX  |
| Number of Terminals | N  | 6           |      |      |
| Pitch               | e  | 1.05 BSC    |      |      |
| Overall Height      | A  | 0.80        | 0.85 | 0.90 |
| Standoff            | A1 | 0.00        | 0.02 | 0.05 |
| Overall Length      | D  | 3.20 BSC    |      |      |
| Overall Width       | E  | 2.50 BSC    |      |      |
| Terminal Width      | b1 | 0.85        | 0.90 | 0.95 |
| Terminal Width      | b2 | 0.45        | 0.50 | 0.55 |
| Terminal Length     | L  | 0.65        | 0.70 | 0.75 |
| Terminal Pullback   | L1 | 0.10 REF    |      |      |

**Notes:**

- Pin 1 visual index feature may vary, but must be located within the hatched area.
- Package is saw singulated
- Dimensioning and tolerancing per ASME Y14.5M

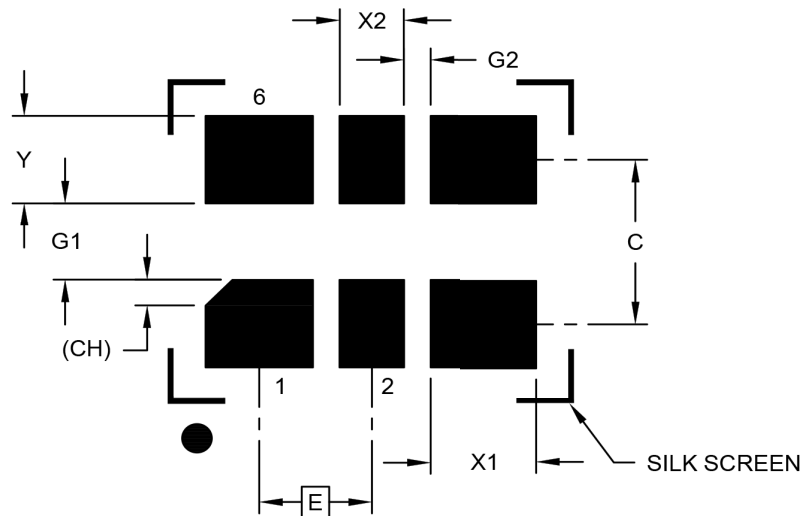
BSC: Basic Dimension. Theoretically exact value shown without tolerances.

REF: Reference Dimension, usually without tolerance, for information purposes only.

Microchip Technology Drawing C04-1007-H5A Rev C Sheet 2 of 2

**6-Lead Very Thin Plastic Dual Flatpack No-Lead (H5A) - 3.2x2.5 mm Body [VDFN]**

**Note:** For the most current package drawings, please see the Microchip Packaging Specification located at <http://www.microchip.com/packaging>



RECOMMENDED LAND PATTERN

|                             | Units | MILLIMETERS |          |      |
|-----------------------------|-------|-------------|----------|------|
|                             |       | MIN         | NOM      | MAX  |
| Contact Pitch               | E     |             | 1.05 BSC |      |
| Contact Pad Spacing         | C     |             | 1.60     |      |
| Contact Pad Width (X4)      | X1    |             |          | 1.00 |
| Contact Pad Width (X2)      | X2    |             |          | 0.60 |
| Contact Pad Length (X6)     | Y     |             |          | 0.85 |
| Space Between Contacts (X4) | G1    | 0.75        |          |      |
| Space Between Contacts (X3) | G2    | 0.25        |          |      |
| Pin 1 Index Chamfer (X4)    | CH    |             | 0.25     |      |

**Notes:**

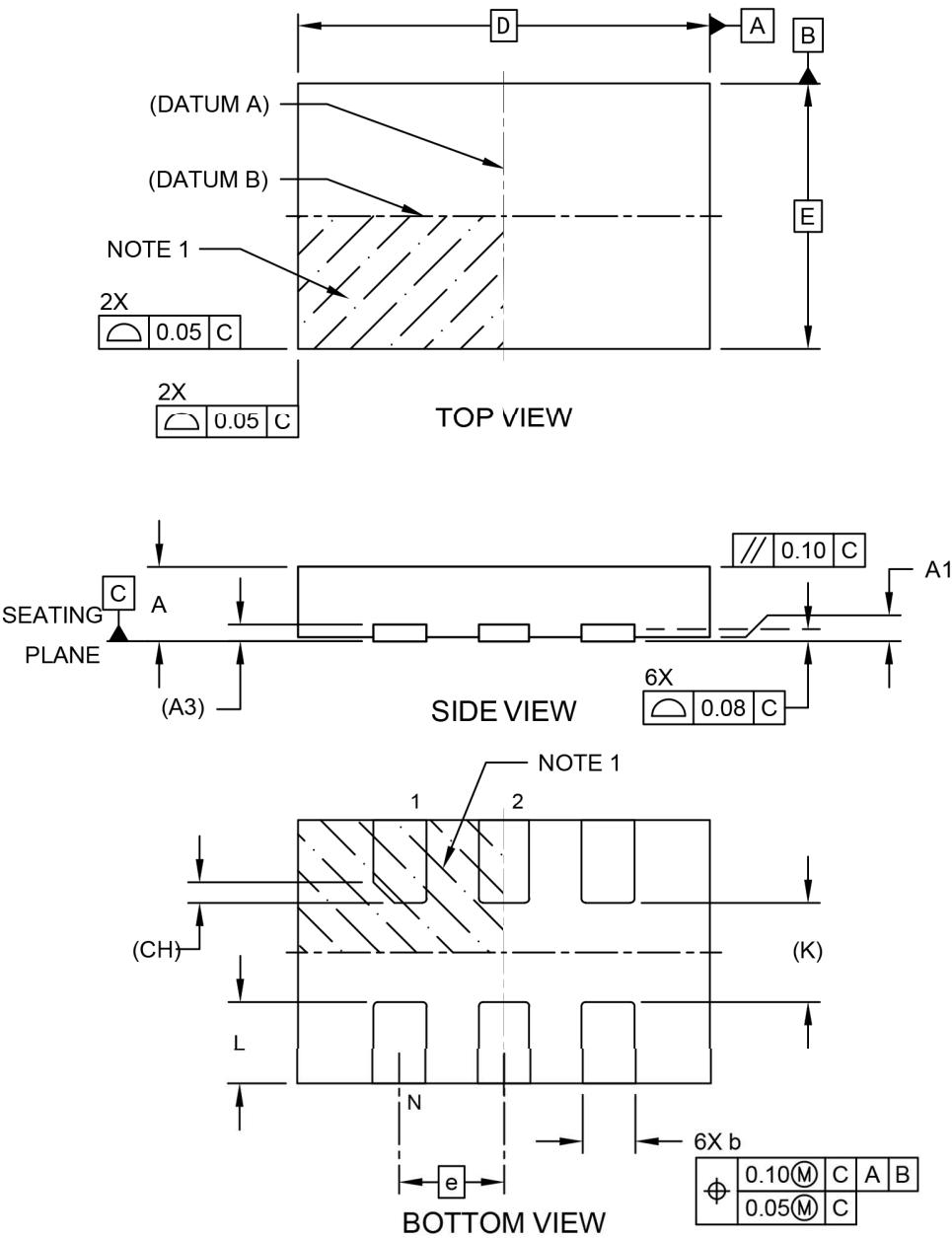
1. Dimensioning and tolerancing per ASME Y14.5M

BSC: Basic Dimension. Theoretically exact value shown without tolerances.

Microchip Technology Drawing C04-3007-H5A Rev C

6-Lead 3.2 mm × 5.0 mm VDFN (H7A) Package Outline and Recommended Land Pattern

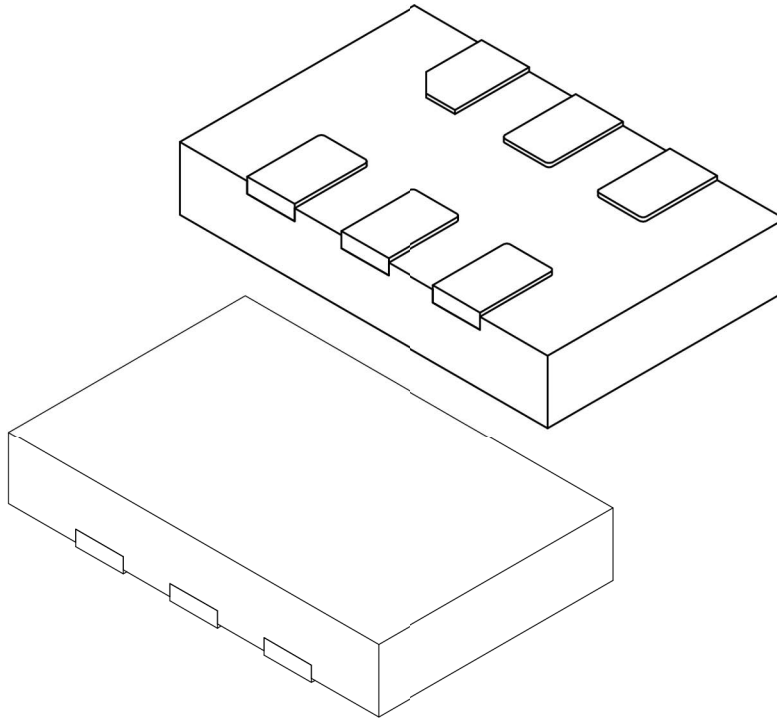
**Note:** For the most current package drawings, please see the Microchip Packaging Specification located at <http://www.microchip.com/packaging>



Microchip Technology Drawing C04-1009-H7A Rev B Sheet 1 of 2

**6-Lead Very Thin Plastic Dual Flat, No Lead Package (H7A) - 3.2x5.0 x0.9 Body [VDFN]**

**Note:** For the most current package drawings, please see the Microchip Packaging Specification located at <http://www.microchip.com/packaging>



| Dimension Limits         | Units | MILLIMETERS |      |      |
|--------------------------|-------|-------------|------|------|
|                          |       | MIN         | NOM  | MAX  |
| Number of Terminals      | N     | 6           |      |      |
| Pitch                    | e     | 1.27 BSC    |      |      |
| Overall Height           | A     | 0.80        | 0.85 | 0.90 |
| Standoff                 | A1    | 0.00        | 0.02 | 0.05 |
| Terminal Thickness       | A3    | 0.203 REF   |      |      |
| Overall Length           | D     | 5.00 BSC    |      |      |
| Overall Width            | E     | 3.20 BSC    |      |      |
| Terminal Width           | b     | 0.59        | 0.64 | 0.69 |
| Terminal Length          | L     | 0.90        | 1.00 | 1.10 |
| Terminal 1 Index Chamfer | CH    | 0.25 REF    |      |      |
| Terminal-to-Terminal     | K     | 1.20 REF    |      |      |

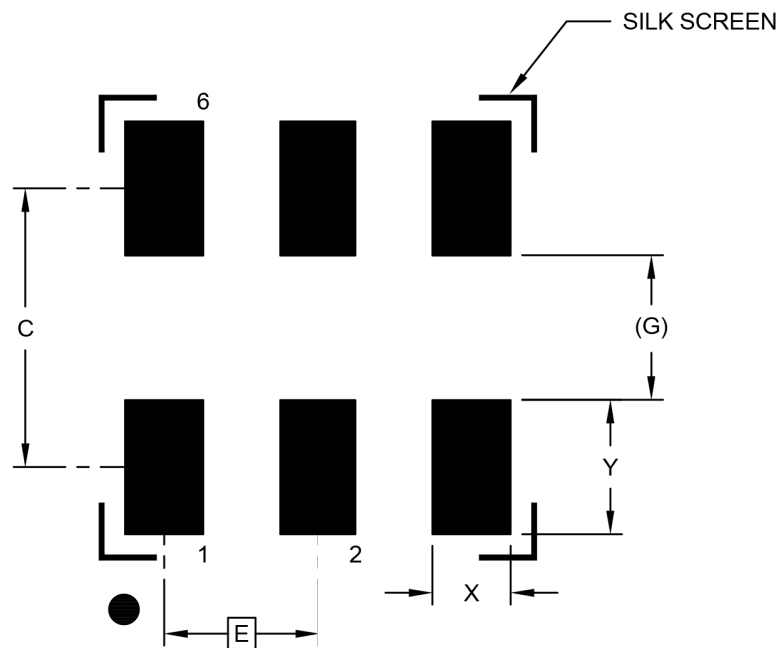
**Notes:**

- Pin 1 visual index feature may vary, but must be located within the hatched area.
- Package is saw singulated
- Dimensioning and tolerancing per ASME Y14.5M
  - BSC: Basic Dimension. Theoretically exact value shown without tolerances.
  - REF: Reference Dimension, usually without tolerance, for information purposes only.

Microchip Technology Drawing C04-1009-H7A Rev B Sheet 2 of 2

6-Lead Very Thin Plastic Dual Flat, No Lead Package (H7A) - 3.2x5.0 x0.9 Body [VDFN]

**Note:** For the most current package drawings, please see the Microchip Packaging Specification located at <http://www.microchip.com/packaging>



RECOMMENDED LAND PATTERN

| Dimension Limits                | Units | MILLIMETERS |      |      |
|---------------------------------|-------|-------------|------|------|
|                                 |       | MIN         | NOM  | MAX  |
| Contact Pitch                   | E     | 1.27 BSC    |      |      |
| Contact Pad Spacing             | C     |             | 2.30 |      |
| Contact Pad Width (X6)          | X     |             |      | 0.64 |
| Contact Pad Length (X6)         | Y     |             |      | 1.10 |
| Contact Pad to Contact Pad (X4) | G     | 1.20 REF    |      |      |

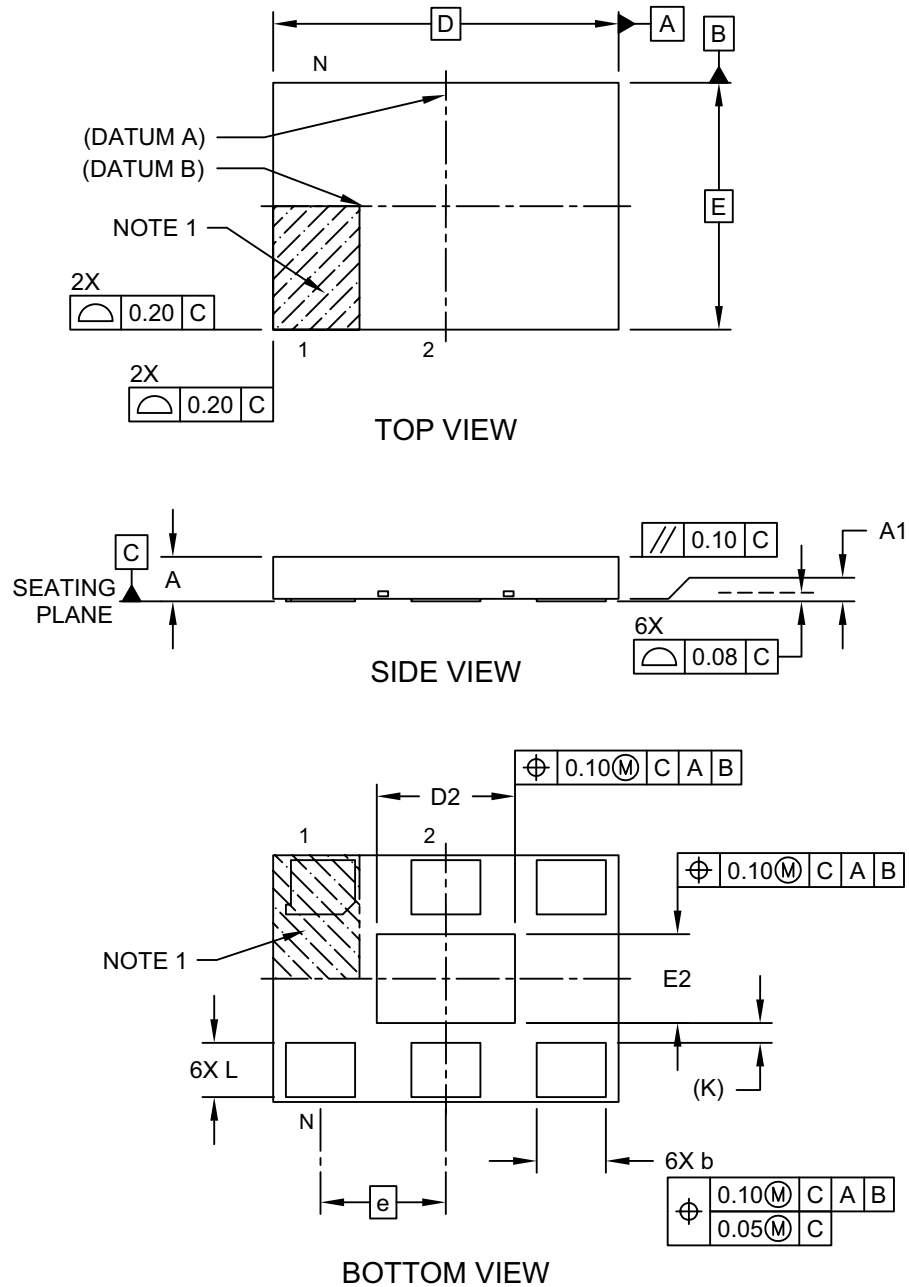
- Notes:
1. Dimensioning and tolerancing per ASME Y14.5M  
BSC: Basic Dimension. Theoretically exact value shown without tolerances.
  2. For best soldering results, thermal vias, if used, should be filled or tented to avoid solder loss during reflow process

Microchip Technology Drawing C04-3009-H7A Rev B



## 6-Lead 7.0 mm × 5.0 mm VDFN (H8A) Package Outline and Recommended Land Pattern

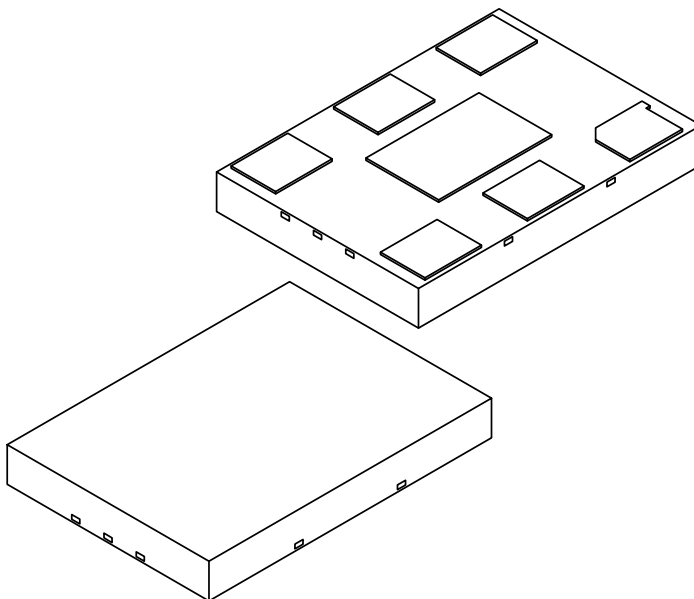
**Note:** For the most current package drawings, please see the Microchip Packaging Specification located at <http://www.microchip.com/packaging>



Microchip Technology Drawing C04-1010A Sheet 1 of 2

## 6-Lead Very Thin Plastic Quad Flat, No Lead Package (H8A) - 7x5 mm Body [VDFN] With 2.8x1.8 mm Exposed Pad

**Note:** For the most current package drawings, please see the Microchip Packaging Specification located at <http://www.microchip.com/packaging>



| Units                   |    | MILLIMETERS |      |      |
|-------------------------|----|-------------|------|------|
| Dimension Limits        |    | MIN         | NOM  | MAX  |
| Number of Terminals     | N  | 6           |      |      |
| Pitch                   | e  | 2.54        |      |      |
| Overall Height          | A  | 0.80        | 0.85 | 0.90 |
| Standoff                | A1 | 0.00        | 0.02 | 0.05 |
| Overall Length          | D  | 7.00 BSC    |      |      |
| Exposed Pad Length      | D2 | 2.70        | 2.80 | 2.90 |
| Overall Width           | E  | 5.00 BSC    |      |      |
| Exposed Pad Width       | E2 | 1.70        | 1.80 | 1.90 |
| Terminal Width          | b  | 1.35        | 1.40 | 1.45 |
| Terminal Length         | L  | 1.00        | 1.10 | 1.20 |
| Terminal-to-Exposed-Pad | K  | 0.20 REF    |      |      |

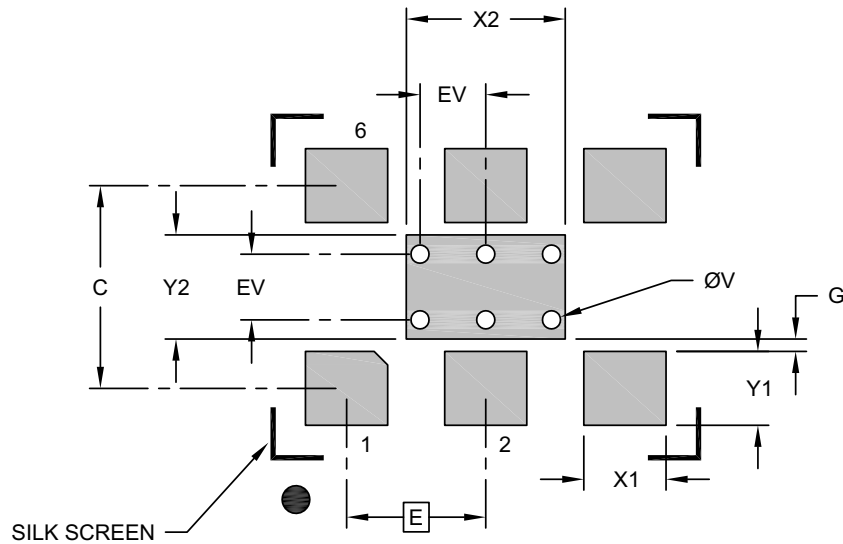
**Notes:**

- Pin 1 visual index feature may vary, but must be located within the hatched area.
- Package is saw singulated
- Dimensioning and tolerancing per ASME Y14.5M  
BSC: Basic Dimension. Theoretically exact value shown without tolerances.  
REF: Reference Dimension, usually without tolerance, for information purposes only.

Microchip Technology Drawing C04-1010A Sheet 2 of 2

## 6-Lead Very Thin Plastic Quad Flat, No Lead Package (H8A) - 7x5 mm Body [VDFN] With 2.8x1.8 mm Exposed Pad

**Note:** For the most current package drawings, please see the Microchip Packaging Specification located at <http://www.microchip.com/packaging>



### RECOMMENDED LAND PATTERN

| Dimension Limits               | Units | MILLIMETERS |      |      |
|--------------------------------|-------|-------------|------|------|
|                                |       | MIN         | NOM  | MAX  |
| Contact Pitch                  | E     | 2.54 BSC    |      |      |
| Optional Center Pad Width      | X2    |             |      | 2.90 |
| Optional Center Pad Length     | Y2    |             |      | 1.90 |
| Contact Pad Spacing            | C     |             | 3.70 |      |
| Contact Pad Width (X6)         | X1    |             |      | 1.50 |
| Contact Pad Length (X6)        | Y1    |             |      | 1.35 |
| Contact Pad to Center Pad (X2) | G     | 0.20        |      |      |
| Thermal Via Diameter (X6)      | V     |             | 0.33 |      |
| Thermal Via Pitch              | EV    |             | 1.20 |      |

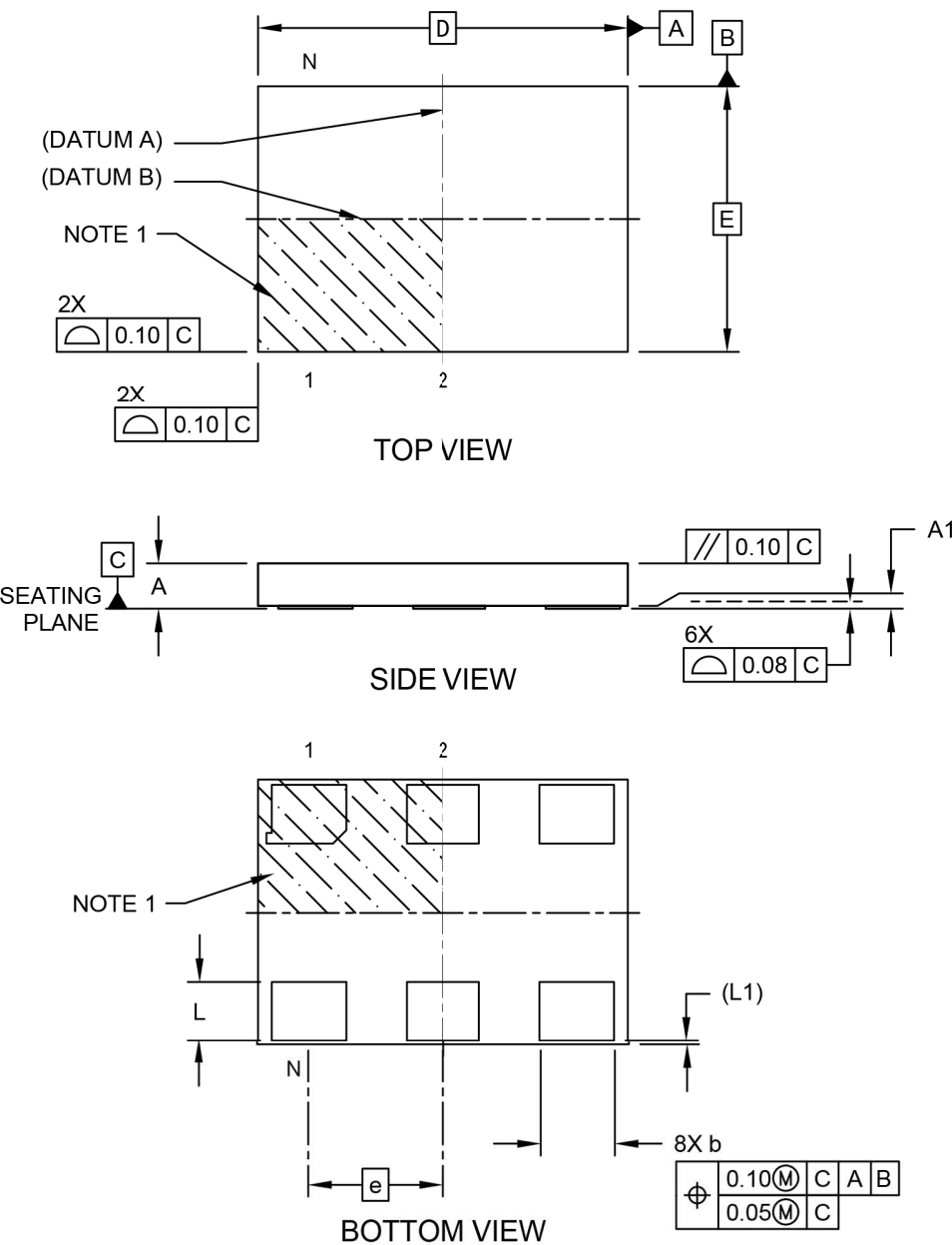
#### Notes:

- Dimensioning and tolerancing per ASME Y14.5M  
BSC: Basic Dimension. Theoretically exact value shown without tolerances.
- For best soldering results, thermal vias, if used, should be filled or tented to avoid solder loss during reflow process

Microchip Technology Drawing C04-3010A

6-Lead 7.0 mm × 5.0 mm VDFN (HPA) Package Outline and Recommended Land Pattern

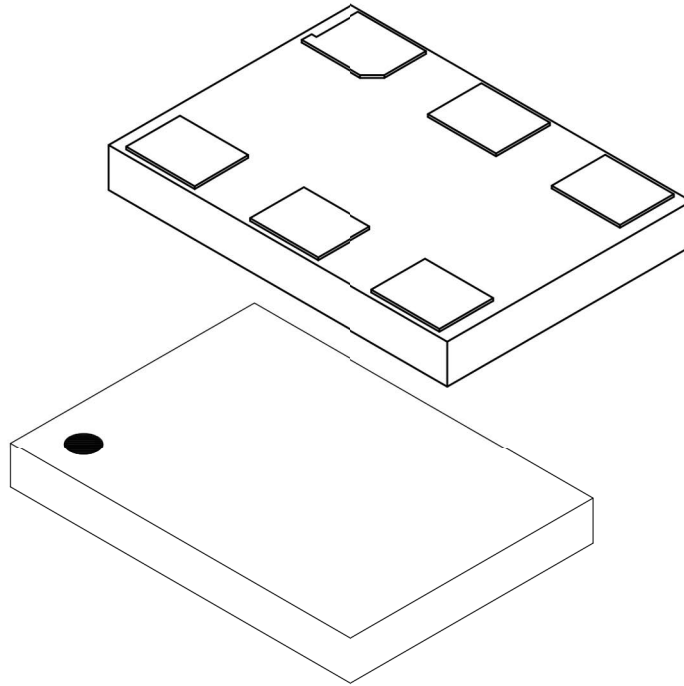
**Note:** For the most current package drawings, please see the Microchip Packaging Specification located at <http://www.microchip.com/packaging>



Microchip Technology Drawing C04-1227-HPA Rev B Sheet 1 of 2

**6-Lead Very Thin Dual Flatpack, No Lead Package (HPA) - 7x5 mm Body [VDFN]**

**Note:** For the most current package drawings, please see the Microchip Packaging Specification located at <http://www.microchip.com/packaging>



| Dimension Limits    | Units | MILLIMETERS |      |      |
|---------------------|-------|-------------|------|------|
|                     |       | MIN         | NOM  | MAX  |
| Number of Terminals | N     | 6           |      |      |
| Pitch               | e     | 2.54 BSC    |      |      |
| Overall Height      | A     | 0.80        | 0.85 | 0.90 |
| Standoff            | A1    | 0.00        | 0.02 | 0.05 |
| Overall Length      | D     | 7.00 BSC    |      |      |
| Overall Width       | E     | 5.00 BSC    |      |      |
| Terminal Width      | b     | 1.30        | 1.40 | 1.50 |
| Terminal Length     | L     | 1.00        | 1.10 | 1.20 |
| Pullback            | L1    | 0.10 REF    |      |      |

**Notes:**

- Pin 1 visual index feature may vary, but must be located within the hatched area.
- Package is saw singulated
- Dimensioning and tolerancing per ASME Y14.5M

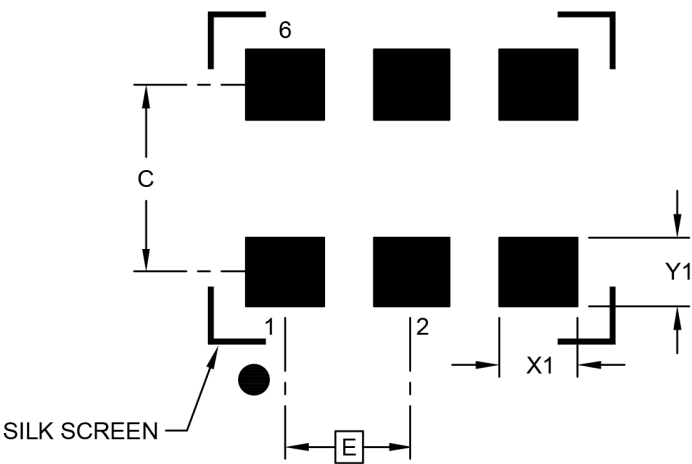
BSC: Basic Dimension. Theoretically exact value shown without tolerances.

REF: Reference Dimension, usually without tolerance, for information purposes only.

Microchip Technology Drawing C04-1227-HPA Rev B Sheet 2 of 2

6-Lead Very Thin Dual Flatpack, No Lead Package (HPA) - 7x5 mm Body [VDFN]

**Note:** For the most current package drawings, please see the Microchip Packaging Specification located at <http://www.microchip.com/packaging>



RECOMMENDED LAND PATTERN

| Urits                   |    | MILLIMETERS |      |      |
|-------------------------|----|-------------|------|------|
| Dimension Limits        |    | MIN         | NOM  | MAX  |
| Contact Pitch           | E  | 2.54 BSC    |      |      |
| Contact Pad Spacing     | C  |             | 3.90 |      |
| Contact Pad Width (X6)  | X1 |             |      | 1.55 |
| Contact Pad Length (X6) | Y1 |             |      | 1.40 |

- Notes:
- 1. Dimensioning and tolerancing per ASME Y14.5M  
BSC: Basic Dimension. Theoretically exact value shown without tolerances.
  - 2. For best soldering results, thermal vias, if used, should be filled or tented to avoid solder loss during reflow process

Microchip Technology Drawing C04-3227-HPA Rev B

## APPENDIX A: REVISION HISTORY

### Revision A (October 2019)

- Initial creation of document DSC1102/22 to Microchip data sheet template DS20006254A.
- Minor text changes throughout.

### Revision B (November 2025)

- Updated [Package Marking Information](#) drawing.
- Updated all package outline drawings (PODs) to the latest versions, and replaced legacy POD for CDFN package with current Microchip VDFN package POD (H7A 5032).
- Replaced CDFN references in [Product Identification System](#) page with current VDFN ones.
- Updated back matter ([Microchip Information](#)).

### Revision C (March 2026)

- Added notes regarding order quantities and packing options to the [Product Identification System](#) section.

### Revision D (July 2026)

- Added a note at the end of the [Package Marking Information](#) section about frequency marking.

NOTES:



## PRODUCT IDENTIFICATION SYSTEM

To order or obtain information, e.g., on pricing or delivery, contact your local Microchip representative or sales office.

| PART NO.                                           |  | X        | X                                                         | X                                          | -XXX.XXXX | X                |
|----------------------------------------------------|--|----------|-----------------------------------------------------------|--------------------------------------------|-----------|------------------|
| Device                                             |  | Package  | Temperature Range                                         | Stability                                  | Frequency | Packaging Option |
| <b>Device:</b>                                     |  | DSC1102: | Low-Jitter Precision LVPECL Oscillator with Standby Pin   |                                            |           |                  |
|                                                    |  | DSC1122: | Low-Jitter Precision LVPECL Oscillator with Output Enable |                                            |           |                  |
| <b>Package:</b>                                    |  | A        | =                                                         | 6-Lead 7.0 mm × 5.0 mm VDFN                |           |                  |
|                                                    |  | B        | =                                                         | 6-Lead 5.0 mm × 3.2 mm VDFN                |           |                  |
|                                                    |  | C        | =                                                         | 6-Lead 3.2 mm × 2.5 mm VDFN                |           |                  |
|                                                    |  | D        | =                                                         | 6-Lead 2.5 mm × 2.0 mm VDFN                |           |                  |
|                                                    |  | N        | =                                                         | 6-Lead 7.0 mm × 5.0 mm VDFN w/o center pad |           |                  |
| <b>Temperature Range:</b>                          |  | E        | =                                                         | -20°C to +70°C (Extended Commercial)       |           |                  |
|                                                    |  | I        | =                                                         | -40°C to +85°C (Industrial)                |           |                  |
|                                                    |  | L        | =                                                         | -40°C to +105°C (Extended Industrial)      |           |                  |
| <b>Stability:</b>                                  |  | 1        | =                                                         | ±50 ppm                                    |           |                  |
|                                                    |  | 2        | =                                                         | ±25 ppm                                    |           |                  |
|                                                    |  | 3        | =                                                         | ±20 ppm                                    |           |                  |
|                                                    |  | 5        | =                                                         | ±10 ppm                                    |           |                  |
| <b>Frequency:</b><br>(Note 1)                      |  | xxx.xxxx | =                                                         | 2.3 MHz to 460 MHz (User Defined)          |           |                  |
| <b>Packing Option:</b><br>(Note 2, Note 3, Note 4) |  | <blank>  | =                                                         | Tube                                       |           |                  |
|                                                    |  | T        | =                                                         | 1000/Reel                                  |           |                  |

**Examples:**

a) DSC1102AE1-053.5000:

DSC1102, 6-Lead 7.0 mm × 5.0 mm VDFN, Ext. Commercial Temp. Range, ±50 ppm Stability, 53.5 MHz Frequency, Tube

b) DSC1122BI2-246.8100T:

DSC1122, 6-Lead 5.0 mm × 3.2 mm VDFN, Industrial Temp. Range, ±25 ppm Stability, 246.81 MHz Frequency, 1000/Reel

c) DSC1102CL5-156.2500:

DSC1102, 6-Lead 3.2 mm × 2.5 mm VDFN, Ext. Industrial Temp. Range, ±10 ppm Stability, 156.25 MHz Frequency, Tube

d) DSC1122DE3-094.5500T:

DSC1122, 6-Lead 2.5 mm × 2.0 mm VDFN, Industrial Temp. Range, ±20 ppm Stability, 94.55 MHz Frequency, 1000/Reel

**Note 1:** Please visit the Microchip [ClockWorks® Configurator](http://clockworks.microchip.com/timing) to configure the part number for customized frequency.

**Note 2:** Tape and Reel identifier only appears in the catalog part number description. This identifier is used for ordering purposes and is not printed on the device package. Check with your Microchip Sales Office for package availability with the Tape and Reel option.

**Note 3:** On orders for bulk CPNs, product may be supplied in either cut tape (without a reel) or tube packaging, depending on availability

**Note 4:** For Tape & Reel orders that are <1000pcs, product may be supplied on cut tape (without a reel) depending on availability.

NOTES:

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