# SLG3NT3353

## 4x Output 25 MHz Oscillator

### General Description

The SLG3NT3353 uses a 25 MHz Reference Crystal to provide four 25 MHz clock outputs.

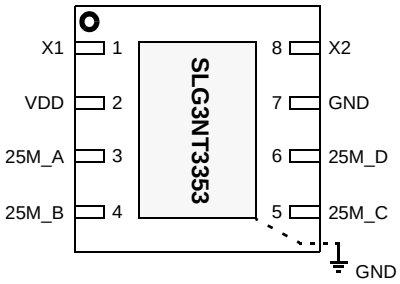
### Features

- Improved performance over temperature
- Supports Industrial temperature range
- Smaller package and layout foot print
- 8-pin TDFN: 2 x 2 x 0.75 mm, 0.5 mm pitch
- Pb-Free / Halogen-Free / RoHS compliant

### Output Summary

- 4x 25 MHz clock outputs (2.0 mA)

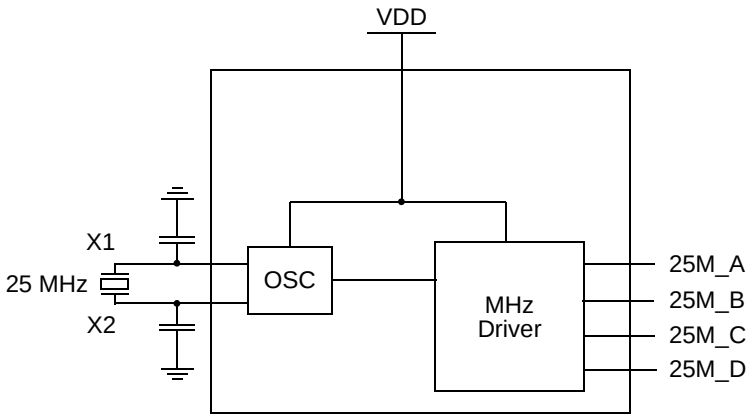
### Pin Configuration




**8-pin TDFN**

**(Top View)**

### Block Diagram



## Pin Description

| Pin # | Pin Name | Type[1] | Pin Description[2] |
|---|---|---|---|
| 1 | X1 | I | **Crystal Interface:** 25 MHz, OSC input |
| 2 | VDD | PWR | **Power Supply:** 3.3 V for normal operation |
| 3 | 25M_A | O, SE | **Clock Output:** 25 MHz output |
| 4 | 25M_B | O, SE | **Clock Output:** 25 MHz output |
| 5 | 25M_C | O, SE | **Clock Output:** 25 MHz output |
| 6 | 25M_D | O, SE | **Clock Output:** 25 MHz output |
| 7 | GND | GND | **Ground** |
| 8 | X2 | O, SE | **Crystal Interface:** 25 MHz, OSC output |
| Exposed Bottom Pad | GND | GND | **Ground** |

Notes:

1. Type Definitions
   - PWR: power
   - GND: ground
   - I: input
   - O: output
   - SE: single ended signal
2. It is recommended that all Power Supply pins have a decoupling capacitor attached (0.1 μF minimum).

## Absolute Maximum Ratings

| Parameter | Description | Min. | Max. | Unit |
|---|---|---|---|---|
| $V_{DD}$ | Voltage on VDD pin relative to GND | -0.3 | 4.2 | V |
| $T_S$ | Storage Temperature | -65 | 150 | °C |
| $ESD_{HBM}$ | ESD Protection (Human Body Model) | 2000 | -- | V |
| MSL | Moisture Sensitivity Level | 1 | | |

Note: Stresses greater than 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 these or any other conditions above those indicated in the operational sections of this specification is not implied. Exposure to absolute maximum rating conditions for extended periods may affect reliability.

## Recommended Operating Temperature

| Parameter | Description | Min. | Max. | Unit |
|---|---|---|---|---|
| $T_O$ | Operating Temperature | -40 | 85 | °C |

## Recommended 25 MHz Reference Crystal Specifications

| Description | Conditions | Min | Typ | Max | Unit |
|---|---|---|---|---|---|
| Initial Frequency | | -- | 25 | -- | MHz |
| Frequency Tolerance | @ 25 °C | -- | -- | ±10 | ppm |
| Frequency Stability over Operating Temperature Range | @ -40 °C to 85 °C | -- | -- | ±10 | ppm |
| Frequency Aging | per year | -- | -- | ±1[1] | ppm |
| Drive Level | | -- | -- | 100 | µW |
| Crystal Load Capacitance | Parallel Resonance | 8 | | | pF |
| Fundamental Mode AT Cut Crystal | | -- | -- | -- | |

Notes:
1. Vendor Specific: Frequency aging may be different per crystal used. Check with crystal vendor for specific value. SLG3NT3353 outputs will track the crystal frequency aging as stated in other sections of this datasheet.

## 25 MHz Clock Output Characteristics

$T_A$ = 25 °C, $V_{DD}$ = 3.3 V (unless otherwise stated)

| Symbol | Description | Conditions | Min | Typ | Max | Unit |
|---|---|---|---|---|---|---|
| $F_{INI}$ | Initial Frequency | | -- | 25 | -- | MHz |
| $F_{ERRI}$ | Frequency Error at Room Temperature | @ 25 °C | Reference Crystal[1] | | | ppm |
| $F_{ERRT}$ | Frequency Error over Operating Temperature Range | @ -40 °C to 85 °C | Reference Crystal[1] | | | ppm |
| $F_{AGE}$ | Frequency Aging | per year | Reference Crystal[1] | | | ppm |
| DC | Duty Cycle | 0.5 x $V_{DDIO\_24M\_A}$ | 45 | 50 | 55 | % |
| $V_{OH}$ | Output Voltage HIGH | $I_{OH}$ = 1 mA | 2.6 | -- | -- | V |
| $V_{OL}$ | Output Voltage LOW | $I_{OL}$ = -1 mA | -- | -- | 0.7 | V |

Notes:
1. This parameter tracks Reference Crystal characteristics.

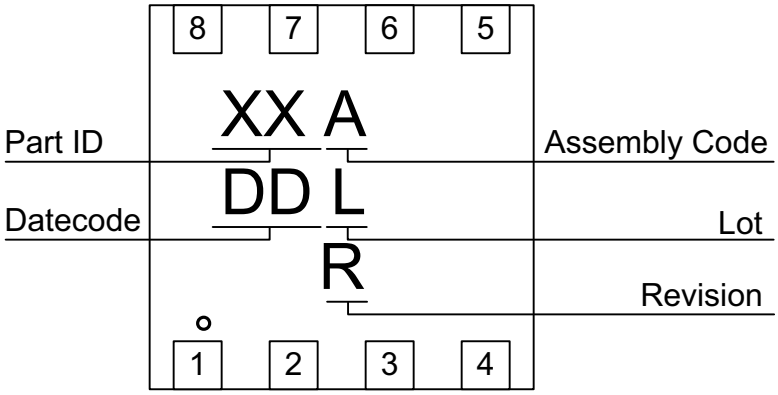
## Power Supply Electrical Specifications (VDD)

$T_A$ = 25 °C

| Symbol | Description | Conditions | Min | Typ | Max | Unit |
|---|---|---|---|---|---|---|
| $V_{DD}$ | Operating Voltage for VDD | | 3.0 | 3.3 | 3.6 | V |
| $I_{VDD}$[1] | $V_{DD}$ current consumption in normal operation | $V_{DD}$ = 3.3 V, No Load | -- | 2.0 | -- | mA |

Notes:
1. Average current depends on application and output load.

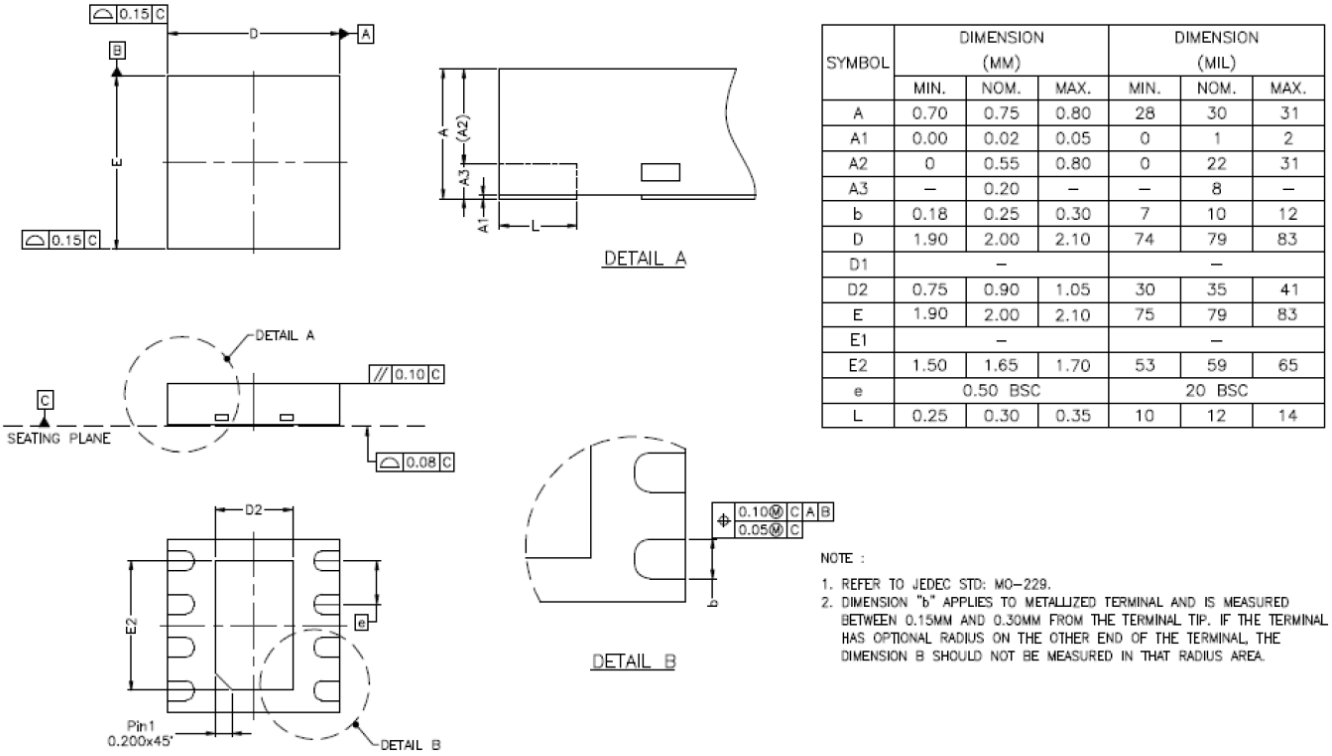
## Package Top Marking System Definition




XX – Part ID Field: identifies the specific device configuration
A – Assembly Code Field: Assembly Location of the device.
DD – Date Code Field: Coded date of manufacture
L – Lot Code: Designates Lot #
R – Revision Code: Device Revision

## Package Drawing and Dimensions

**8 Lead TDFN Package**
**JEDEC MO-229, Variation WCCD**




| SYMBOL | DIMENSION (MM) | | | DIMENSION (MIL) | | |
|---|---|---|---|---|---|---|
| | MIN. | NOM. | MAX. | MIN. | NOM. | MAX. |
| A | 0.70 | 0.75 | 0.80 | 28 | 30 | 31 |
| A1 | 0.00 | 0.02 | 0.05 | 0 | 1 | 2 |
| A2 | 0 | 0.55 | 0.80 | 0 | 22 | 31 |
| A3 | – | 0.20 | – | – | 8 | – |
| b | 0.18 | 0.25 | 0.30 | 7 | 10 | 12 |
| D | 1.90 | 2.00 | 2.10 | 74 | 79 | 83 |
| D1 | | – | | | – | |
| D2 | 0.75 | 0.90 | 1.05 | 30 | 35 | 41 |
| E | 1.90 | 2.00 | 2.10 | 75 | 79 | 83 |
| E1 | | – | | | – | |
| E2 | 1.50 | 1.65 | 1.70 | 53 | 59 | 65 |
| e | | 0.50 BSC | | | 20 BSC | |
| L | 0.25 | 0.30 | 0.35 | 10 | 12 | 14 |

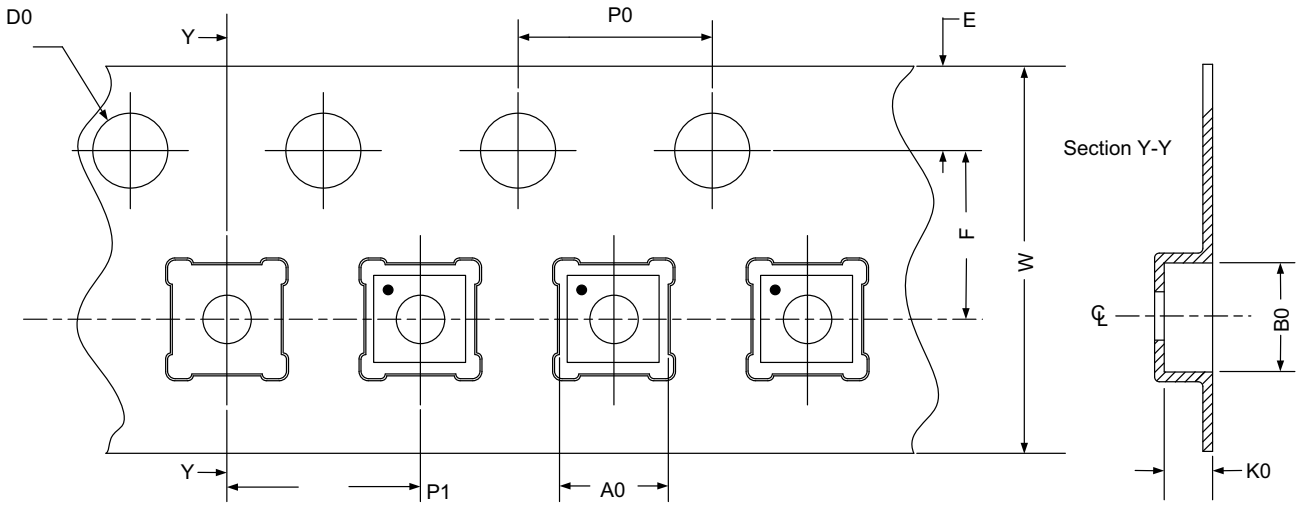
NOTE :
1. REFER TO JEDEC STD: MO–229.
2. DIMENSION "b" APPLIES TO METALLIZED TERMINAL AND IS MEASURED BETWEEN 0.15MM AND 0.30MM FROM THE TERMINAL TIP. IF THE TERMINAL HAS OPTIONAL RADIUS ON THE OTHER END OF THE TERMINAL, THE DIMENSION B SHOULD NOT BE MEASURED IN THAT RADIUS AREA.

## Tape and Reel Specifications

| Package Type | # of Pins | Nominal Package Size [mm] | Max Units | | Reel & Hub Size [mm] | Leader (min) | | Trailer (min) | | Tape Width [mm] | Part Pitch [mm] |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | per Reel | per Box | | Pockets | Length [mm] | Pockets | Length [mm] | | |
| TDFN 8L Green | 8 | 2 x 2 x 0.75 | 3,000 | 3,000 | 178 / 60 | 42 | 400 | 42 | 400 | 8 | 4 |

## Carrier Tape Drawing and Dimensions

| Package Type | Pocket BTM Length | Pocket BTM Width | Pocket Depth | Index Hole Pitch | Pocket Pitch | Index Hole Diameter | Index Hole to Tape Edge | Index Hole to Pocket Center | Tape Width |
|---|---|---|---|---|---|---|---|---|---|
| | A0 | B0 | K0 | P0 | P1 | D0 | E | F | W |
| TDFN 8L Green | 2.3 | 2.3 | 1.05 | 4 | 4 | 1.55 | 1.75 | 3.5 | 8 |




**Refer to EIA-481 specification**

## Recommended Reflow Soldering Profile

Please see IPC/JEDEC J-STD-020: latest revision for reflow profile based on package volume of 3.00 $mm^3$ (nominal). More information can be found at www.jedec.org.

## Silego Website & Support

### Silego Technology Website

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For more information regarding Silego Green products, please visit:

| GreenPAK | GreenFET | GreenCLK |
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| http://greenpak.silego.com/ | http://greenfet.silego.com/ | http://greenclk.silego.com/ |
| http://greenpak2.silego.com/ | http://greenfet2.silego.com/ | http://greenclk2.silego.com/ |
| http://greenpak3.silego.com/ | http://greenfet3.silego.com/ | http://greenclk3.silego.com/ |

Products are also available for purchase directly from Silego at the Silego Online Store at http://store.silego.com/.

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