



## STG3684A

Low voltage 0.5  $\Omega$  max dual SPDT switch  
with break-before-make

### Features

- Ultra low power dissipation:  
 $I_{CC} = 0.2 \mu A$  (max.) at  $T_A = 85^\circ C$
- Low ON resistance  $V_{IN} = 0 V$ :
  - $R_{ON} = 0.50 \Omega$  (max.  $T_A = 25^\circ C$ )  
at  $V_{CC} = 4.3 V$
  - $R_{ON} = 0.50 \Omega$  (max.  $T_A = 25^\circ C$ )  
at  $V_{CC} = 3.6 V$
- Wide operating voltage range:  
 $V_{CC}$  (OPR) = 1.65 to 4.3 V single supply
- 4.3 V tolerant and 1.8 V compatible  
threshold on digital control input  
at  $V_{CC} = 2.3$  to 4.3 V
- Latch-up performance exceeds 300 mA  
(JESD 17)
- ESD performance:  
HMB > 2 kV (MIL STD 883 method 3015)

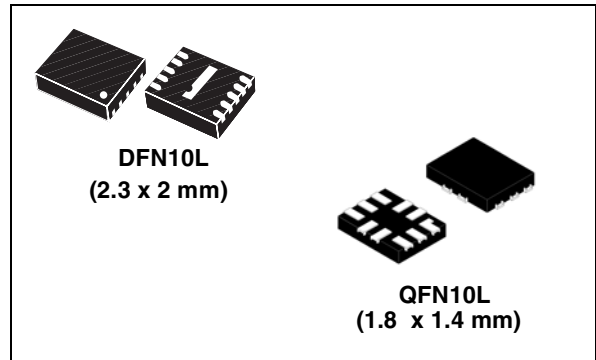


Table 1. Device summary

| Order code  | Package                  | Packing       |
|-------------|--------------------------|---------------|
| STG3684AUTR | QFN10L<br>(1.8 x 1.4 mm) | Tape and reel |
| STG3684ADTR | DFN10L<br>(2.3 x 2 mm)   | Tape and reel |

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# 1 Description

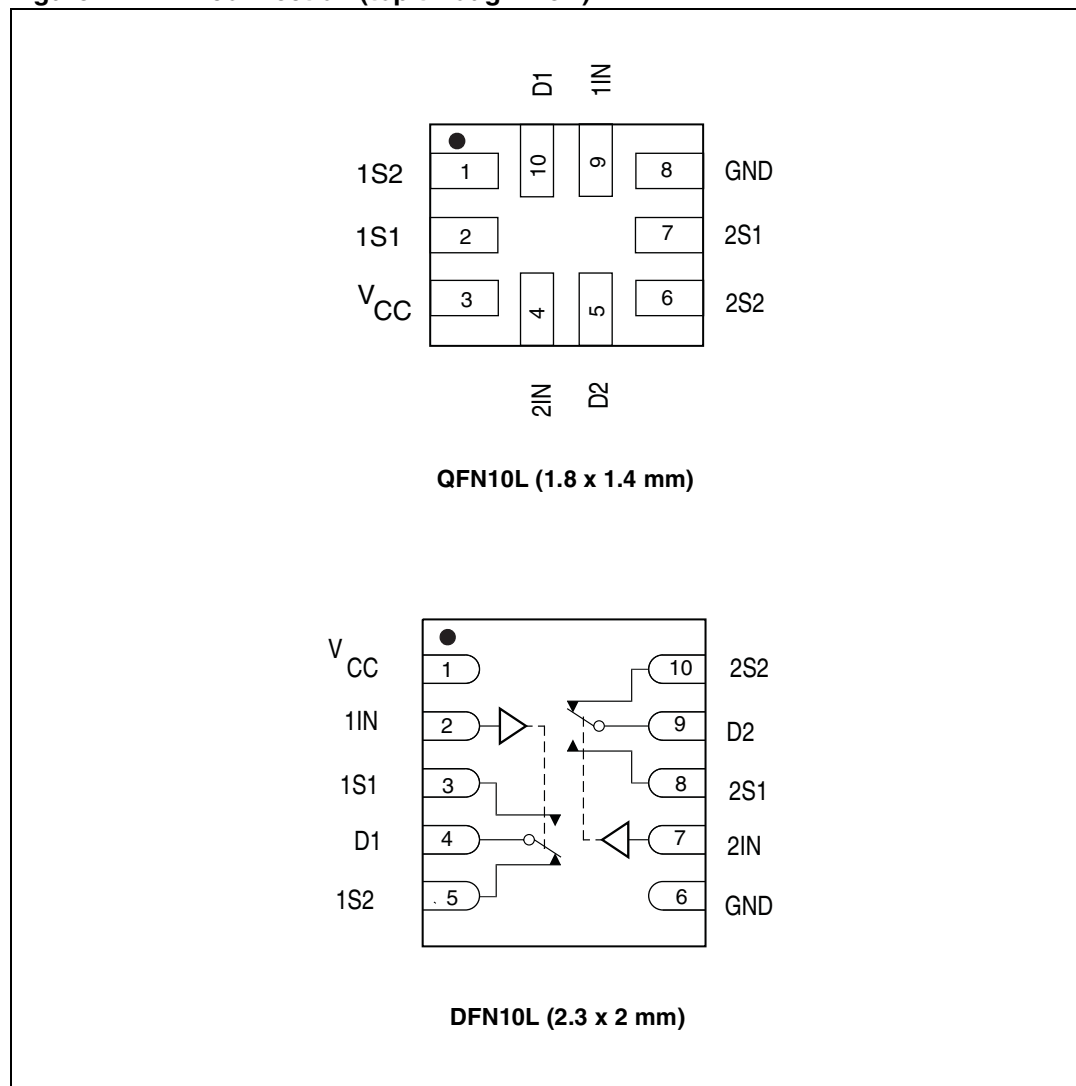
The STG3684A is a high-speed CMOS dual analog SPDT (single-pole dual-throw) switch or dual 2:1 multiplexer/demultiplexer bus switch fabricated using silicon gate C<sup>2</sup>MOS technology. Designed to operate from 1.65 to 4.3 V, this device is ideal for portable applications.

It offers very low ON resistance ( $R_{ON} < 0.5 \Omega$ ) at  $V_{CC} = 3.6$  V. The nIN inputs are provided to control the independent channel switches nS1 and nS2. The switches nS1 are ON (connected to common ports Dn) when the nIN input is held high and OFF (state of high impedance exists between the two ports) when nIN is held low. The switches nS2 are ON (connected to common ports Dn) when the nIN input is held low and OFF (state of high impedance exists between the two ports) when IN is held high. Additional key features are fast switching speed, break-before-make delay time and ultra low power consumption. All inputs and outputs are equipped with protection circuits against static discharge, giving them ESD and excess transient voltage immunity.

## 2 Pin settings

### 2.1 Pin connection

Figure 1. Pin connection (top through view)



## 2.2 Pin description

**Table 2. Pin description**

| Pin number |        | Symbol          | Name and function       |
|------------|--------|-----------------|-------------------------|
| QFN10L     | DFN10L |                 |                         |
| 1          | 5      | 1S2             | Independent channel     |
| 2          | 3      | 1S1             | Independent channel     |
| 3          | 1      | V <sub>CC</sub> | Positive voltage supply |
| 4          | 7      | 2IN             | Control                 |
| 5          | 9      | D2              | Common channel          |
| 6          | 10     | 2S2             | Independent channel     |
| 7          | 8      | 2S1             | Independent channel     |
| 8          | 6      | GND             | Ground (0 V)            |
| 9          | 2      | 1IN             | Control                 |
| 10         | 4      | D1              | Common channel          |

*Note:* Exposed pad must be soldered to a floating plane. Do NOT connect to power or ground.

### 3 Input equivalent circuit and truth table

Figure 2. Input equivalent circuit

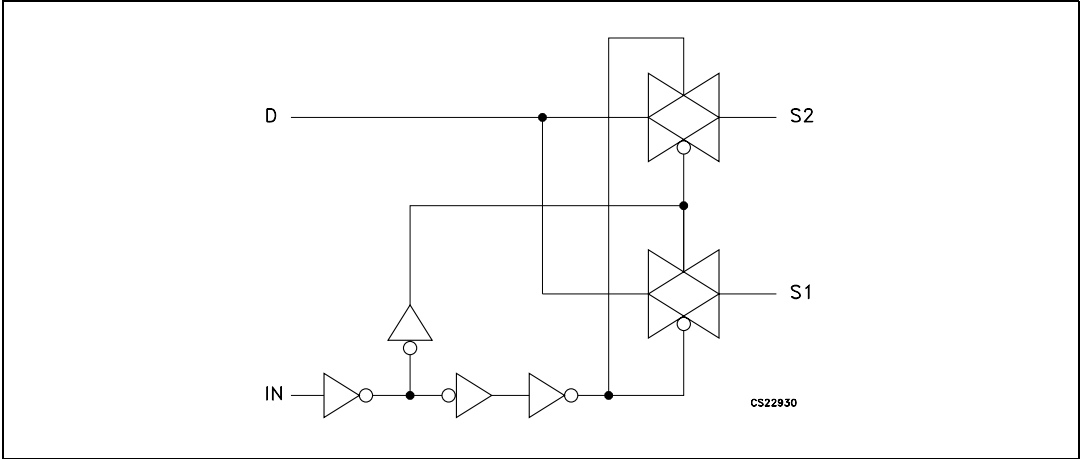


Table 3. Truth table

| IN | Switch S1          | Switch S2          |
|----|--------------------|--------------------|
| H  | ON                 | OFF <sup>(1)</sup> |
| L  | OFF <sup>(1)</sup> | ON                 |

1. High impedance.

## 4 Maximum rating

Stressing the device above the rating listed in the “Absolute maximum ratings” table may cause permanent damage to the device. These are stress ratings only and operation of the device at these or any other conditions above those indicated in the Operating sections of this specification is not implied. Exposure to absolute maximum rating conditions for extended periods may affect device reliability. Refer also to the STMicroelectronics SURE Program and other relevant quality documents.

**Table 4. Absolute maximum ratings**

| Symbol                | Parameter                                               | Value                  | Unit |
|-----------------------|---------------------------------------------------------|------------------------|------|
| $V_{CC}$              | Supply voltage                                          | -0.5 to 5.5            | V    |
| $V_I$                 | DC input voltage                                        | -0.5 to $V_{CC} + 0.5$ | V    |
| $V_{IC}$              | DC control input voltage                                | -0.5 to 5.5            | V    |
| $V_O$                 | DC output voltage                                       | -0.5 to $V_{CC} + 0.5$ | V    |
| $I_{IKC}$             | DC input diode current on control pin ( $V_{IN} < 0$ V) | -50                    | mA   |
| $I_{IK}$              | DC Input diode current ( $V_{IN} < 0$ V)                | $\pm 50$               | mA   |
| $I_{OK}$              | DC output diode current                                 | $\pm 20$               | mA   |
| $I_O$                 | DC output current                                       | $\pm 300$              | mA   |
| $I_{OP}$              | DC output current peak (pulse at 1 ms, 10% duty cycle)  | $\pm 500$              | mA   |
| $I_{CC}$ or $I_{GND}$ | DC $V_{CC}$ or ground current                           | $\pm 100$              | mA   |
| $P_D$                 | Power dissipation at $T_A = 70$ °C                      | 1120                   | mW   |
| $T_{STG}$             | Storage temperature                                     | -65 to 150             | °C   |
| $T_L$                 | Lead temperature (10 sec)                               | 300                    | °C   |

## Recommended operating conditions

**Table 5. Recommended operating conditions**

| Symbol   | Parameter                              |                            | Value         | Unit |
|----------|----------------------------------------|----------------------------|---------------|------|
| $V_{CC}$ | Supply voltage                         |                            | 1.65 to 4.3   | V    |
| $V_I$    | Input voltage                          |                            | 0 to $V_{CC}$ | V    |
| $V_{IC}$ | Control input voltage                  |                            | 0 to 4.3      | V    |
| $V_O$    | Output voltage                         |                            | 0 to $V_{CC}$ | V    |
| $T_{op}$ | Operating temperature                  |                            | -40 to 85     | °C   |
| dt/dv    | Input rise and fall time control input | $V_{CC} = 1.65$ to $2.7$ V | 0 to 20       | ns/V |
|          |                                        | $V_{CC} = 3.0$ to $4.3$ V  | 0 to 10       |      |

## 5 Electrical characteristics

Table 6. DC specifications

| Symbol            | Parameter                                               | V <sub>CC</sub> (V) | Test condition                                                     | Value                  |      |       |                      |      | Unit |
|-------------------|---------------------------------------------------------|---------------------|--------------------------------------------------------------------|------------------------|------|-------|----------------------|------|------|
|                   |                                                         |                     |                                                                    | T <sub>A</sub> = 25 °C |      |       | -40 to 85 °C         |      |      |
|                   |                                                         |                     |                                                                    | Min                    | Typ  | Max   | Min                  | Max  |      |
| V <sub>IH</sub>   | High level input voltage                                | 1.65 – 1.95         |                                                                    | 0.65 V <sub>CC</sub>   |      |       | 0.65 V <sub>CC</sub> |      | V    |
|                   |                                                         | 2.3 – 2.5           |                                                                    | 1.2                    |      |       | 1.2                  |      |      |
|                   |                                                         | 2.7 – 3.0           |                                                                    | 1.3                    |      |       | 1.3                  |      |      |
|                   |                                                         | 3.0 – 3.6           |                                                                    | 1.4                    |      |       | 1.4                  |      |      |
|                   |                                                         | 4.3                 |                                                                    | 1.5                    |      |       | 1.5                  |      |      |
| V <sub>IL</sub>   | Low level input voltage                                 | 1.65 – 1.95         |                                                                    |                        |      | 0.25  |                      | 0.25 | V    |
|                   |                                                         | 2.3 – 2.5           |                                                                    |                        |      | 0.25  |                      | 0.25 |      |
|                   |                                                         | 2.7 – 3.0           |                                                                    |                        |      | 0.25  |                      | 0.25 |      |
|                   |                                                         | 3.0 – 3.6           |                                                                    |                        |      | 0.30  |                      | 0.30 |      |
|                   |                                                         | 4.3                 |                                                                    |                        |      | 0.40  |                      | 0.40 |      |
| R <sub>ON</sub>   | Switch ON resistance                                    | 4.3                 | V <sub>S</sub> = 0 V to V <sub>CC</sub><br>I <sub>S</sub> = 100 mA |                        | 0.45 | 0.50  |                      | 0.60 | Ω    |
|                   |                                                         | 3.6                 |                                                                    |                        | 0.45 | 0.50  |                      | 0.60 |      |
|                   |                                                         | 3.0                 |                                                                    |                        | 0.50 | 0.55  |                      | 0.60 |      |
|                   |                                                         | 2.3                 |                                                                    |                        | 0.60 | 0.70  |                      | 0.80 |      |
|                   |                                                         | 1.8                 |                                                                    |                        | 0.80 | 0.9   |                      | 1.0  |      |
| ΔR <sub>ON</sub>  | ON resistance match between channels <sup>(1),(2)</sup> | 2.7                 | V <sub>S</sub> = 1.5 V<br>I <sub>S</sub> = 100 mA                  |                        | 0.1  |       |                      |      | Ω    |
| R <sub>FLAT</sub> | ON resistance flatness <sup>(3)</sup>                   | 4.3                 | V <sub>S</sub> = 1.5 V<br>I <sub>S</sub> = 100 mA                  |                        | 0.15 | 0.20  |                      | 0.20 | Ω    |
|                   |                                                         | 3.6                 |                                                                    |                        | 0.15 | 0.20  |                      | 0.20 |      |
|                   |                                                         | 3.0                 |                                                                    |                        | 0.15 | 0.20  |                      | 0.20 |      |
|                   |                                                         | 2.7                 |                                                                    |                        | 0.15 | 0.20  |                      | 0.20 |      |
|                   |                                                         | 2.3                 |                                                                    |                        | 0.20 | 0.25  |                      | 0.25 |      |
|                   |                                                         | 1.65                |                                                                    |                        | 0.35 | 0.45  |                      | 0.45 |      |
| I <sub>OFF</sub>  | OFF state leakage current (nSn), (Dn)                   | 4.3                 | V <sub>S</sub> = 0.3 or 4 V                                        |                        |      | ±20   |                      | ±100 | nA   |
| I <sub>IN</sub>   | Input leakage current                                   | 0 – 4.3             | V <sub>IN</sub> = 0 to 4.3 V                                       |                        |      | ±0.05 |                      | ±1   | μA   |
| I <sub>CC</sub>   | Quiescent supply current <sup>(1)</sup>                 | 1.65 – 4.3          | V <sub>IN</sub> = V <sub>CC</sub> or GND                           |                        |      | ±0.05 |                      | ±0.2 | μA   |

Table 6. DC specifications (continued)

| Symbol            | Parameter                                    | V <sub>CC</sub> (V) | Test condition                               | Value                  |     |     |              |      | Unit |
|-------------------|----------------------------------------------|---------------------|----------------------------------------------|------------------------|-----|-----|--------------|------|------|
|                   |                                              |                     |                                              | T <sub>A</sub> = 25 °C |     |     | -40 to 85 °C |      |      |
|                   |                                              |                     |                                              | Min                    | Typ | Max | Min          | Max  |      |
| I <sub>CCLV</sub> | Quiescent supply current low voltage driving | 4.3                 | V <sub>1IN</sub> , V <sub>2IN</sub> = 1.65 V |                        | ±37 | ±50 |              | ±100 | μA   |
|                   |                                              |                     | V <sub>1IN</sub> , V <sub>2IN</sub> = 1.80 V |                        | ±33 | ±40 |              | ±50  |      |
|                   |                                              |                     | V <sub>1IN</sub> , V <sub>2IN</sub> = 2.60 V |                        | ±12 | ±20 |              | ±30  |      |

1. Guaranteed by design.
2.  $\Delta R_{ON} = R_{ON(max)} - R_{ON(min)}$ .
3. Flatness is defined as the difference between the maximum and minimum value of on-resistance as measured over the specified analog signal ranges.

Table 7. AC electrical characteristics (C<sub>L</sub> = 35 pF, R<sub>L</sub> = 50 Ω, t<sub>r</sub> = t<sub>f</sub> ≤ 6 ns)

| Symbol                                 | Parameter                    | V <sub>CC</sub> (V) | Test condition                                                            | Value                  |      |     |              |     | Unit |
|----------------------------------------|------------------------------|---------------------|---------------------------------------------------------------------------|------------------------|------|-----|--------------|-----|------|
|                                        |                              |                     |                                                                           | T <sub>A</sub> = 25 °C |      |     | -40 to 85 °C |     |      |
|                                        |                              |                     |                                                                           | Min                    | Typ  | Max | Min          | Max |      |
| t <sub>PLH</sub> ,<br>t <sub>PHL</sub> | Propagation delay            | 1.65 – 1.95         |                                                                           |                        | 0.45 |     |              |     | ns   |
|                                        |                              | 2.3 – 2.7           |                                                                           |                        | 0.40 |     |              |     |      |
|                                        |                              | 3.0 – 3.3           |                                                                           |                        | 0.30 |     |              |     |      |
|                                        |                              | 3.6 – 4.3           |                                                                           |                        | 0.30 |     |              |     |      |
| t <sub>ON</sub>                        | Turn-ON time                 | 1.65 – 1.95         | V <sub>S</sub> = 0.8 V                                                    |                        | 120  |     |              |     | ns   |
|                                        |                              | 2.3 – 2.7           | V <sub>S</sub> = 1.5 V                                                    |                        | 65   | 85  |              | 90  |      |
|                                        |                              | 3.0 – 3.3           |                                                                           |                        | 42   | 55  |              | 65  |      |
|                                        |                              | 3.6 – 4.3           |                                                                           |                        | 40   | 55  |              | 65  |      |
| t <sub>OFF</sub>                       | Turn-OFF time                | 1.65 – 1.95         | V <sub>S</sub> = 0.8 V                                                    |                        | 45   |     |              |     | ns   |
|                                        |                              | 2.3 – 2.7           | V <sub>S</sub> = 1.5 V                                                    |                        | 18   | 30  |              | 40  |      |
|                                        |                              | 3.0 – 3.3           |                                                                           |                        | 16   | 30  |              | 40  |      |
|                                        |                              | 3.6 – 4.3           |                                                                           |                        | 15   | 30  |              | 40  |      |
| t <sub>D</sub>                         | Break-before make time delay | 1.65 – 1.95         | C <sub>L</sub> = 35 pF<br>R <sub>L</sub> = 50 Ω<br>V <sub>S</sub> = 1.5 V | 2                      | 80   |     |              |     | ns   |
|                                        |                              | 2.3 – 2.7           |                                                                           | 2                      | 60   |     |              |     |      |
|                                        |                              | 3.0 – 3.3           |                                                                           | 2                      | 55   |     |              |     |      |
|                                        |                              | 3.6 – 4.3           |                                                                           | 2                      | 50   |     |              |     |      |

**Table 7. AC electrical characteristics ( $C_L = 35$  pF,  $R_L = 50\ \Omega$ ,  $t_r = t_f \leq 6$  ns) (continued)**

| Symbol | Parameter        | V <sub>CC</sub> (V) | Test condition                                                                                       | Value                  |     |     |              |     | Unit |
|--------|------------------|---------------------|------------------------------------------------------------------------------------------------------|------------------------|-----|-----|--------------|-----|------|
|        |                  |                     |                                                                                                      | T <sub>A</sub> = 25 °C |     |     | -40 to 85 °C |     |      |
|        |                  |                     |                                                                                                      | Min                    | Typ | Max | Min          | Max |      |
| Q      | Charge injection | 1.65 –1.95          | C <sub>L</sub> = 100 pF<br>R <sub>L</sub> = 1 MΩ<br>V <sub>GEN</sub> = 0 V<br>R <sub>GEN</sub> = 0 Ω |                        | 43  |     |              |     | pC   |
|        |                  | 2.3 –2.7            |                                                                                                      |                        | 51  |     |              |     |      |
|        |                  | 3.0 –3.3            |                                                                                                      |                        | 51  |     |              |     |      |
|        |                  | 3.6 –4.3            |                                                                                                      |                        | 49  |     |              |     |      |

**Table 8. Analog switch characteristics ( $C_L = 5$  pF,  $R_L = 50\ \Omega$ ,  $T_A = 25\ ^\circ\text{C}$ )**

| Symbol          | Parameter                                 | V <sub>CC</sub> (V) | Test condition                                                                      | Value                  |      |     |              |     | Unit |
|-----------------|-------------------------------------------|---------------------|-------------------------------------------------------------------------------------|------------------------|------|-----|--------------|-----|------|
|                 |                                           |                     |                                                                                     | T <sub>A</sub> = 25 °C |      |     | -40 to 85 °C |     |      |
|                 |                                           |                     |                                                                                     | Min                    | Typ  | Max | Min          | Max |      |
| OIRR            | Off isolation <sup>(1)</sup>              | 1.65 –4.3           | V <sub>S</sub> = 1 V <sub>RMS</sub><br>f = 100 kHz                                  |                        | -66  |     |              |     | dB   |
| Xtalk           | Crosstalk                                 | 1.65 –4.3           | V <sub>S</sub> = 1 V <sub>RMS</sub><br>f = 100 kHz                                  |                        | -72  |     |              |     | dB   |
| THD             | Total harmonic distortion                 | 2.3 –4.3            | R <sub>L</sub> = 600 Ω<br>V <sub>IN</sub> = 2V <sub>PP</sub><br>f = 20 Hz to 20 kHz |                        | 0.02 |     |              |     | %    |
| BW              | -3 dB bandwidth                           | 1.65 –4.3           | R <sub>L</sub> = 50 Ω                                                               |                        | 55   |     |              |     | MHz  |
| C <sub>IN</sub> | Control pin input capacitance             |                     |                                                                                     |                        | 5    |     |              |     | pF   |
| C <sub>Sn</sub> | Sn port capacitance                       | 3.3                 | f = 1 MHz                                                                           |                        | 40   |     |              |     |      |
| C <sub>D</sub>  | D port capacitance when switch is enabled | 3.3                 | f = 1 MHz                                                                           |                        | 114  |     |              |     |      |

1. Off Isolation =  $20 \log_{10} (V_D/V_S)$ ,  $V_D$  = output.  $V_S$  = input at off switch.

## 6 Test circuit

Figure 3. ON resistance

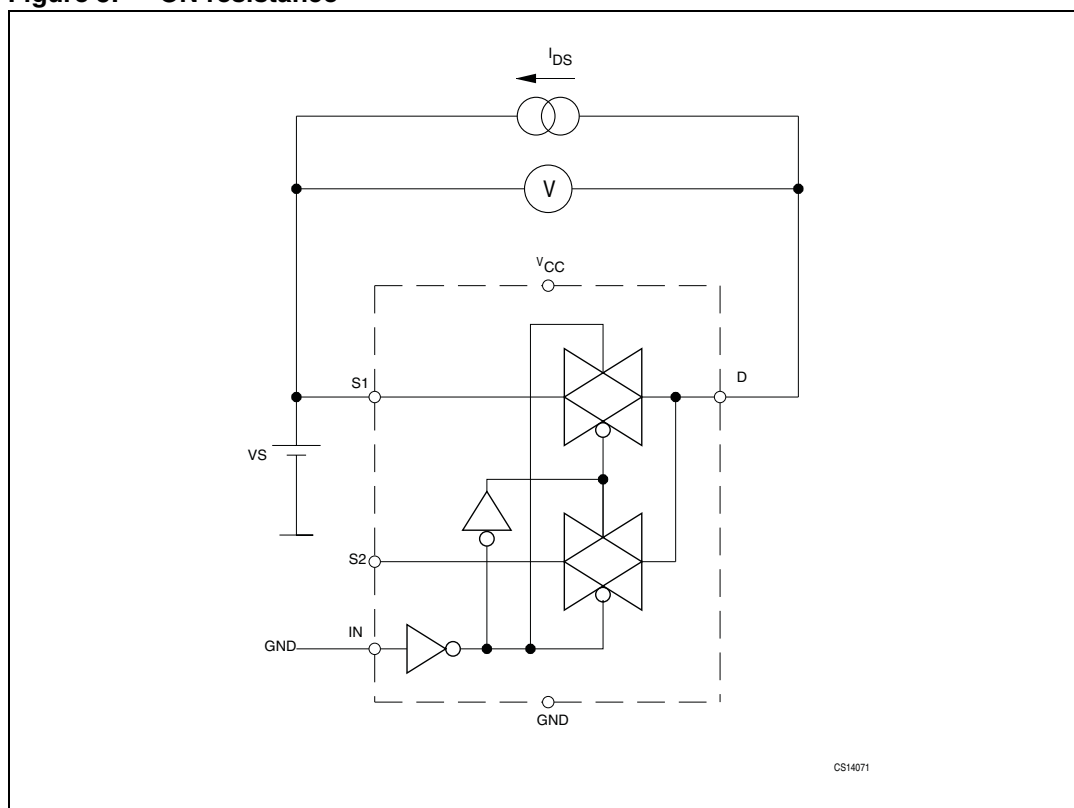


Figure 4. OFF leakage

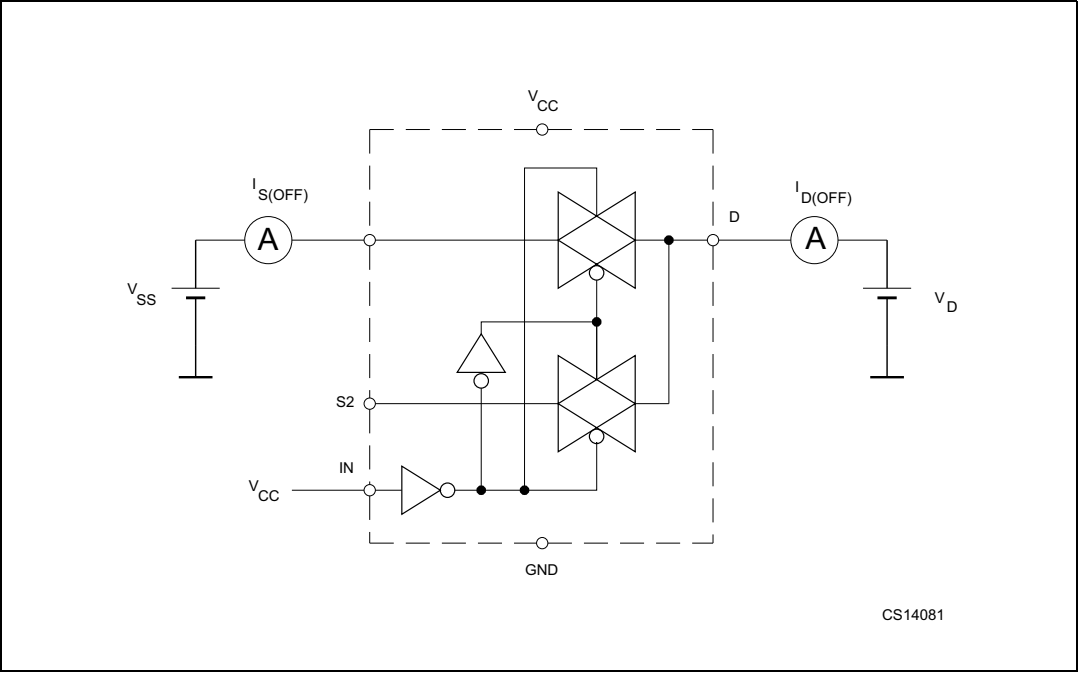


Figure 5. OFF isolation

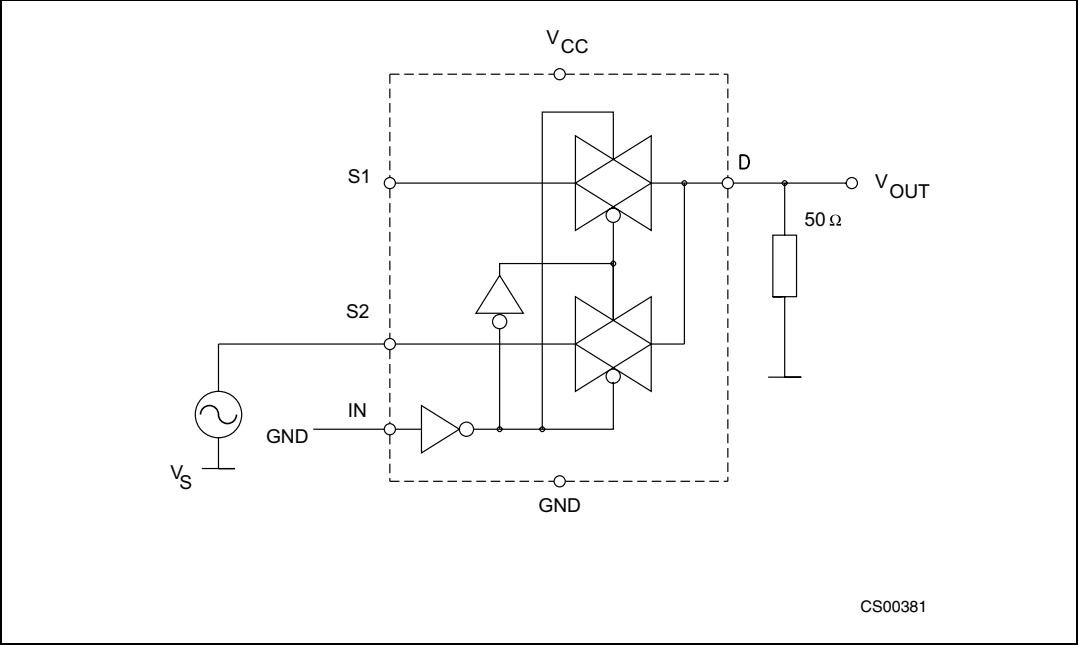


Figure 6. Bandwidth

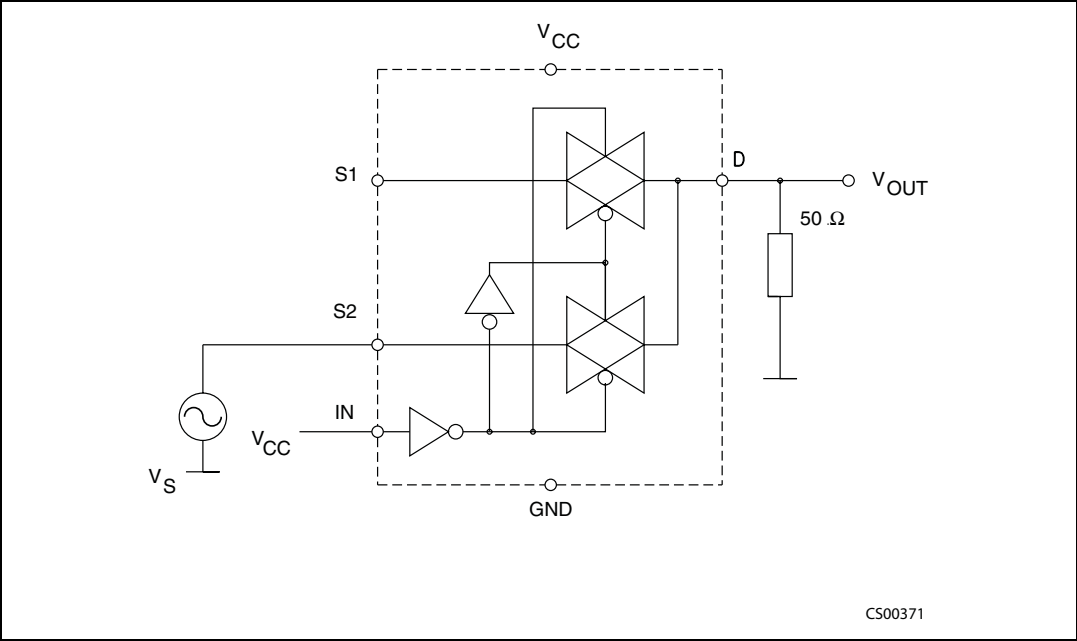


Figure 7. Channel-to-channel crosstalk

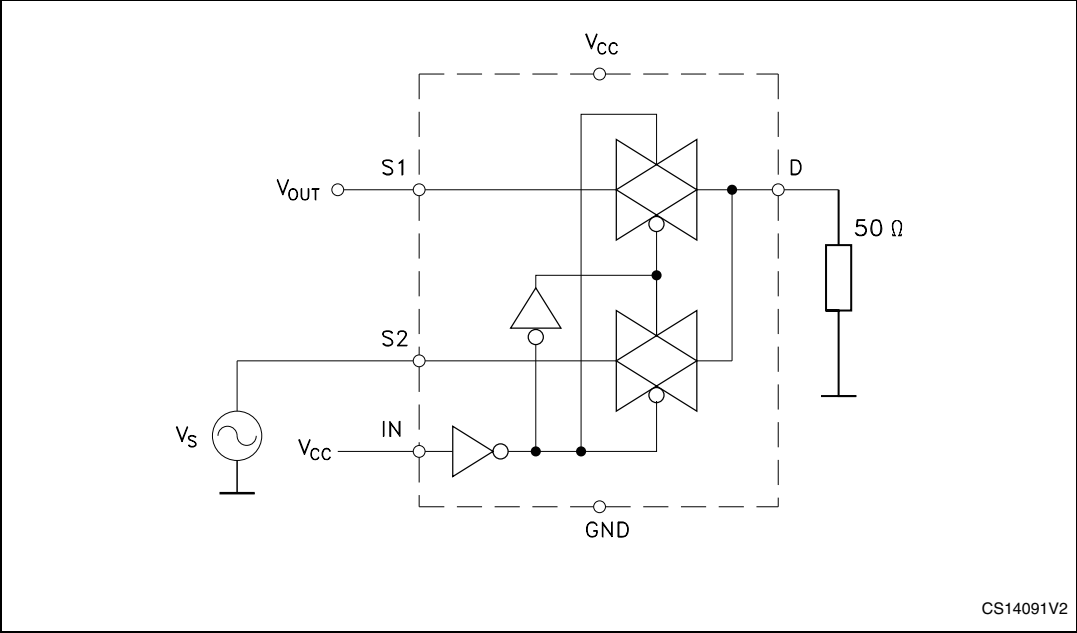
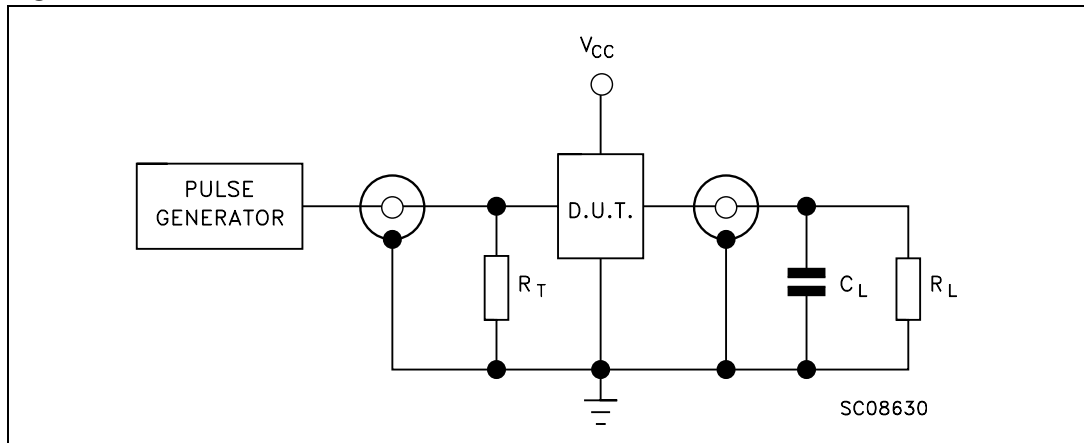


Figure 8. Test circuit



1.  $C_L = 5/35$  pF or equivalent (includes jig and probe capacitance).  
 $R_L = 50 \Omega$  or equivalent.  
 $R_T = Z_{OUT}$  of pulse generator (typically  $50 \Omega$ ).

Figure 9. Break-before-make time delay

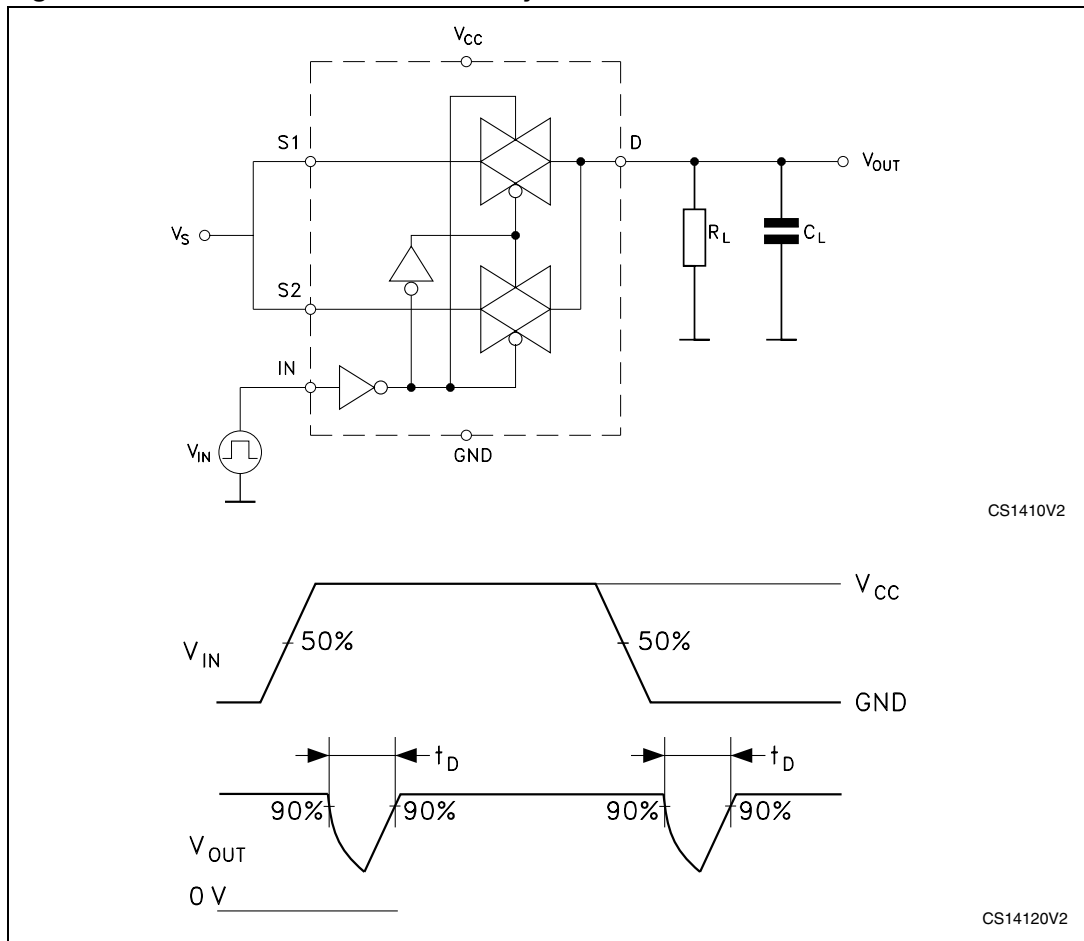


Figure 10. Charge injection ( $V_{GEN} = 0\text{ V}$ ,  $R_{GEN} = 0\ \Omega$ ,  $R_L = 1\text{ M}\Omega$ ,  $C_L = 100\text{ pF}$ )

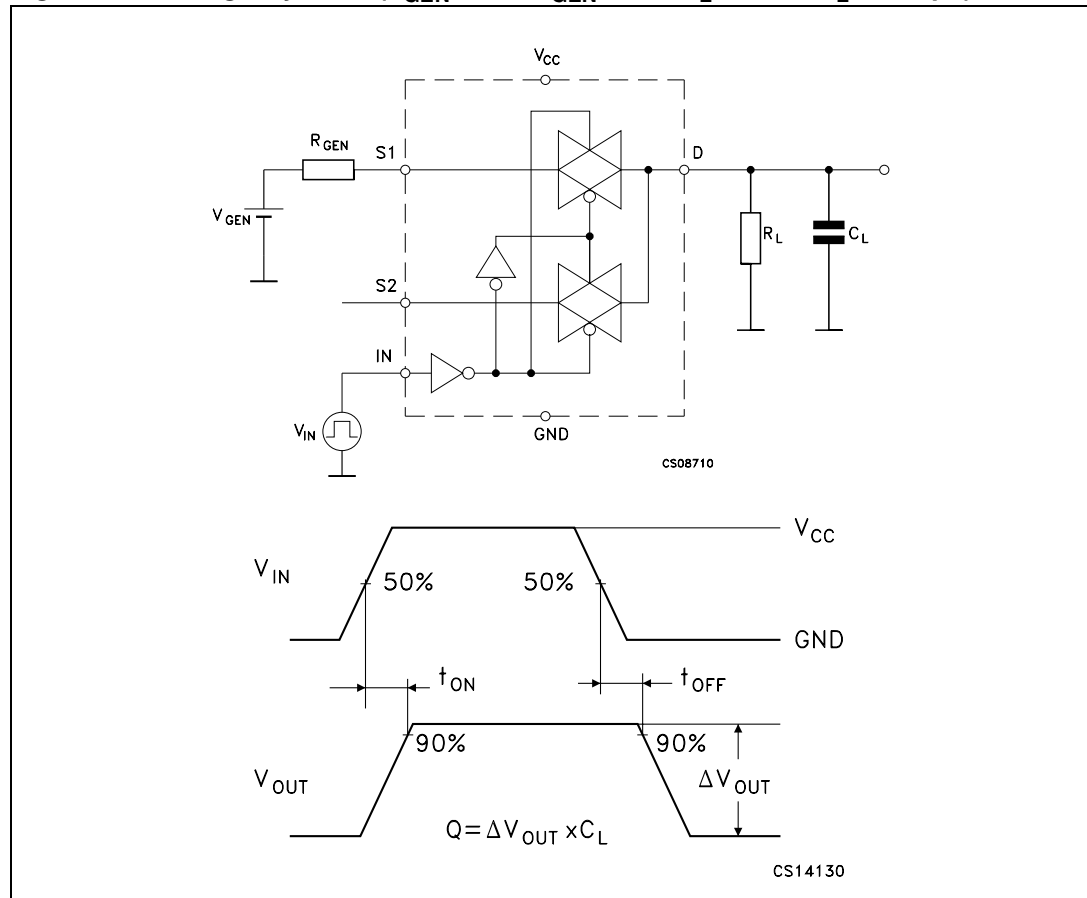
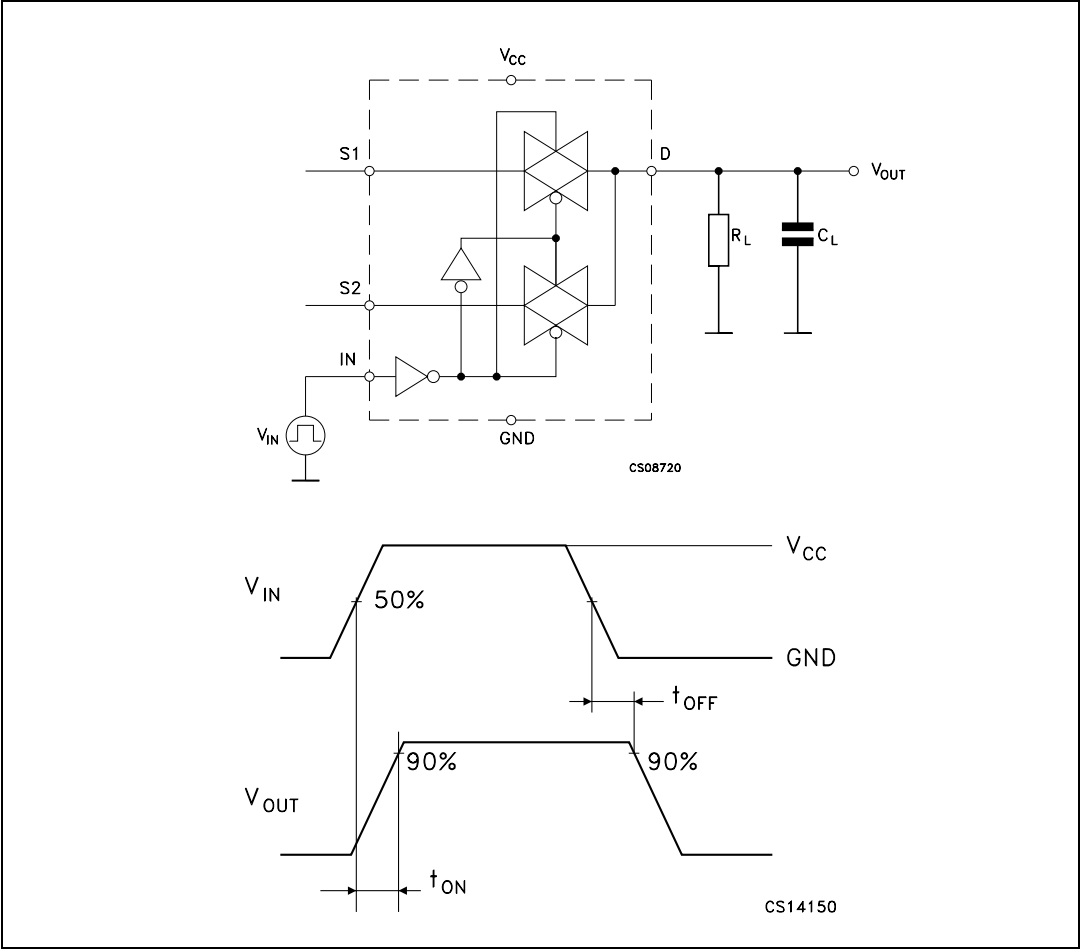


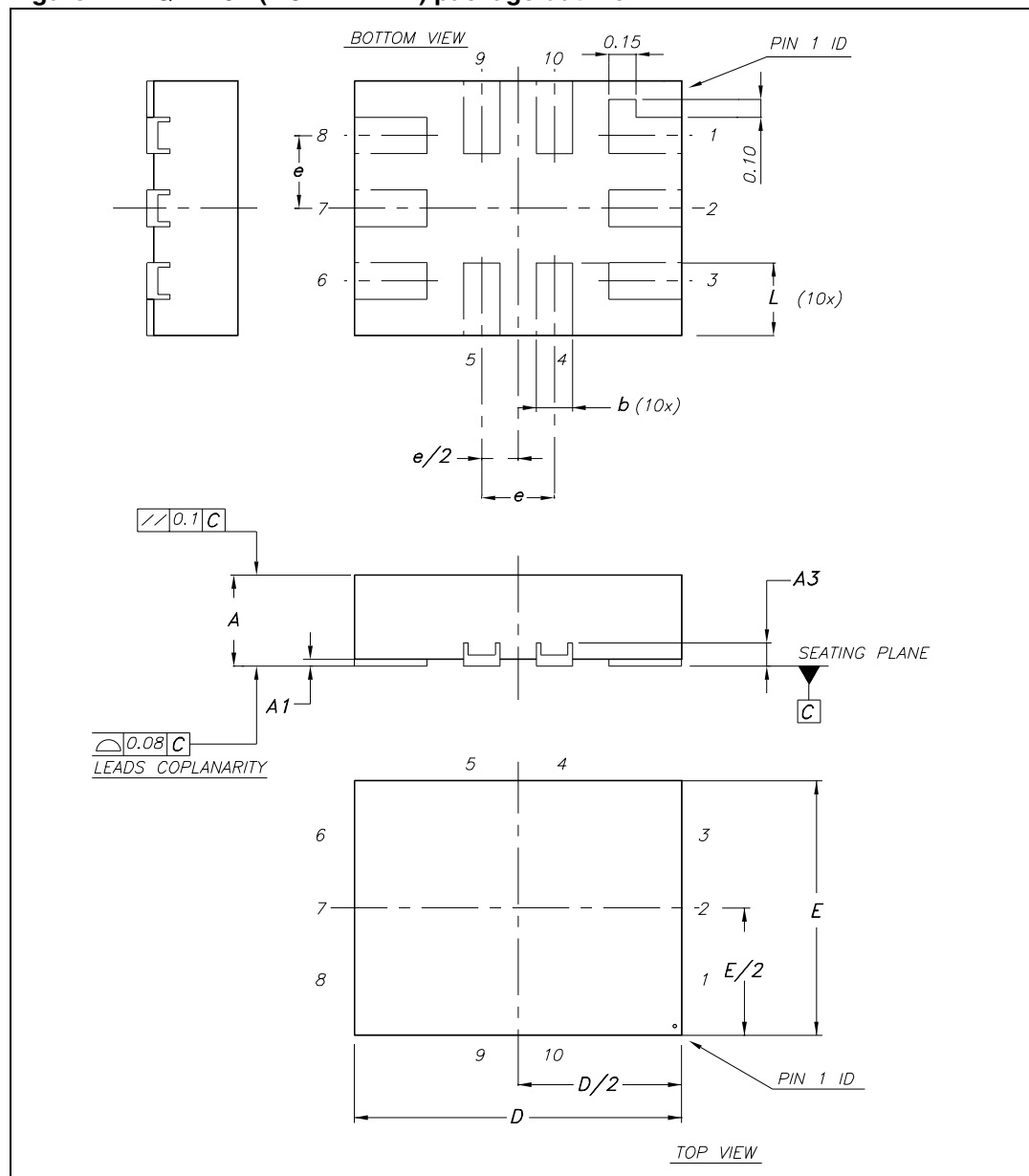
Figure 11. Turn-on, turn-off delay time



## 7 Package mechanical data

In order to meet environmental requirements, ST offers these devices in different grades of ECOPACK® packages, depending on their level of environmental compliance. ECOPACK® specifications, grade definitions and product status are available at: [www.st.com](http://www.st.com). ECOPACK® is an ST trademark.

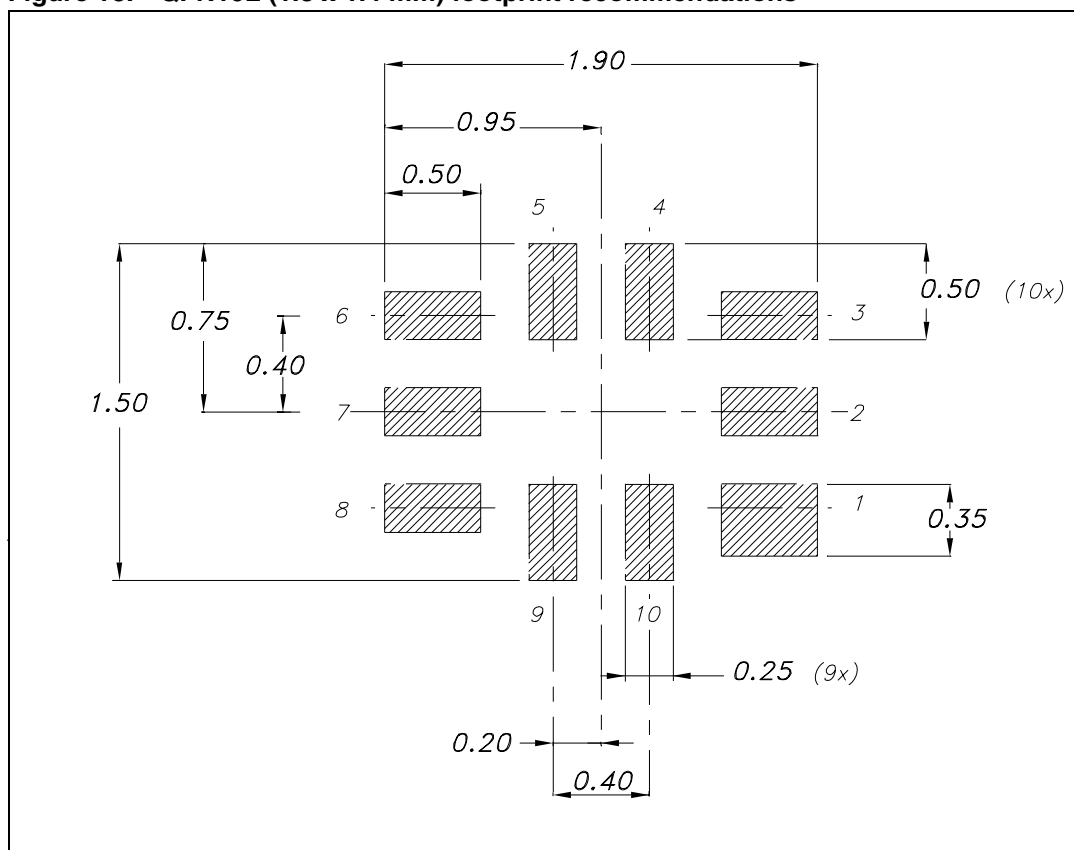
**Figure 12. QFN10L (1.8 x 1.4 mm) package outline**



1. Drawing not to scale.

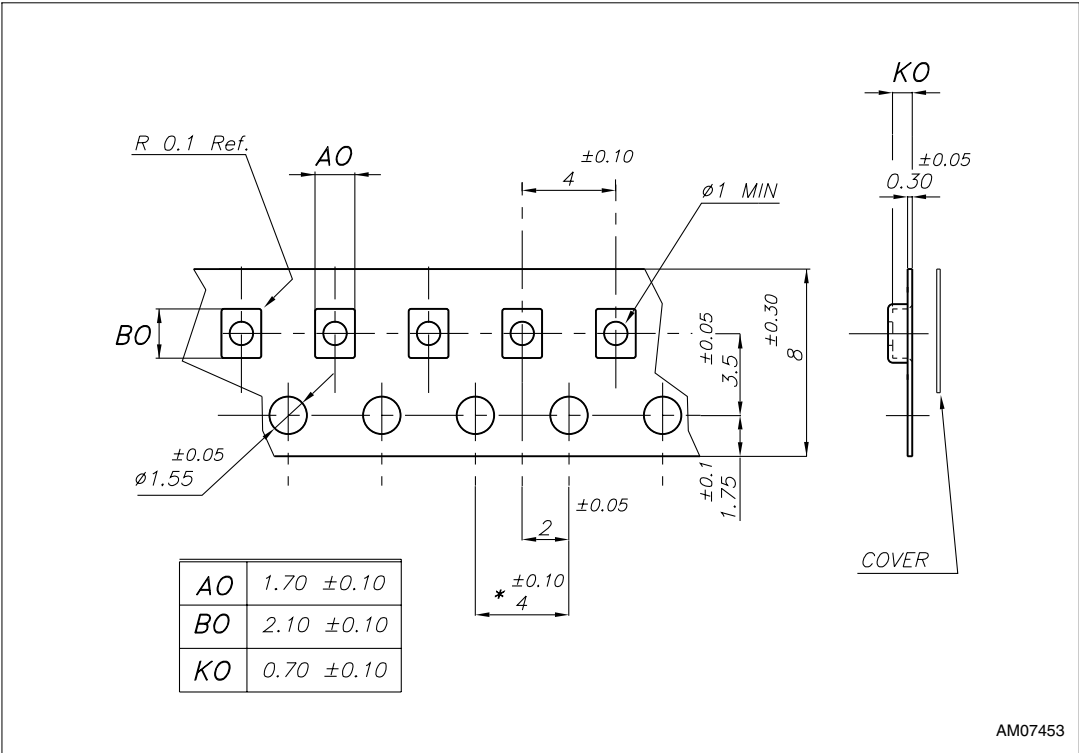
**Table 9. QFN10L (1.8 x 1.4 mm) mechanical data**

| Symbol | millimeters |      |      | inches |       |       |
|--------|-------------|------|------|--------|-------|-------|
|        | Nom         | Min  | Max  | Nom    | Min   | Max   |
| A      | 0.50        | 0.45 | 0.55 | 0.020  | 0.017 | 0.021 |
| A1     | 0.02        | 0    | 0.05 | 0.001  | 0     | 0.002 |
| A3     | 0.127       |      |      | 0.005  | 0     | 0     |
| b      | 0.20        | 0.15 | 0.25 | 0.007  | 0.006 | 0.010 |
| D      | 1.80        | 1.70 | 1.90 | 0.070  | 0.066 | 0.074 |
| E      | 1.40        | 1.30 | 1.50 | 0.055  | 0.051 | 0.059 |
| e      | 0.40        |      |      | 0.015  |       |       |
| L      | 0.40        | 0.30 | 0.50 | 0.015  | 0.011 | 0.020 |

**Figure 13. QFN10L (1.8 x 1.4 mm) footprint recommendations**

1. Drawing not to scale.

Figure 14. QFN10L (1.8 x 1.4 mm) carrier type



1. Drawing not to scale.

Technical drawing of a circular mechanical part, showing the back view and a side view.

**BACK VIEW**

Dimensions and features:

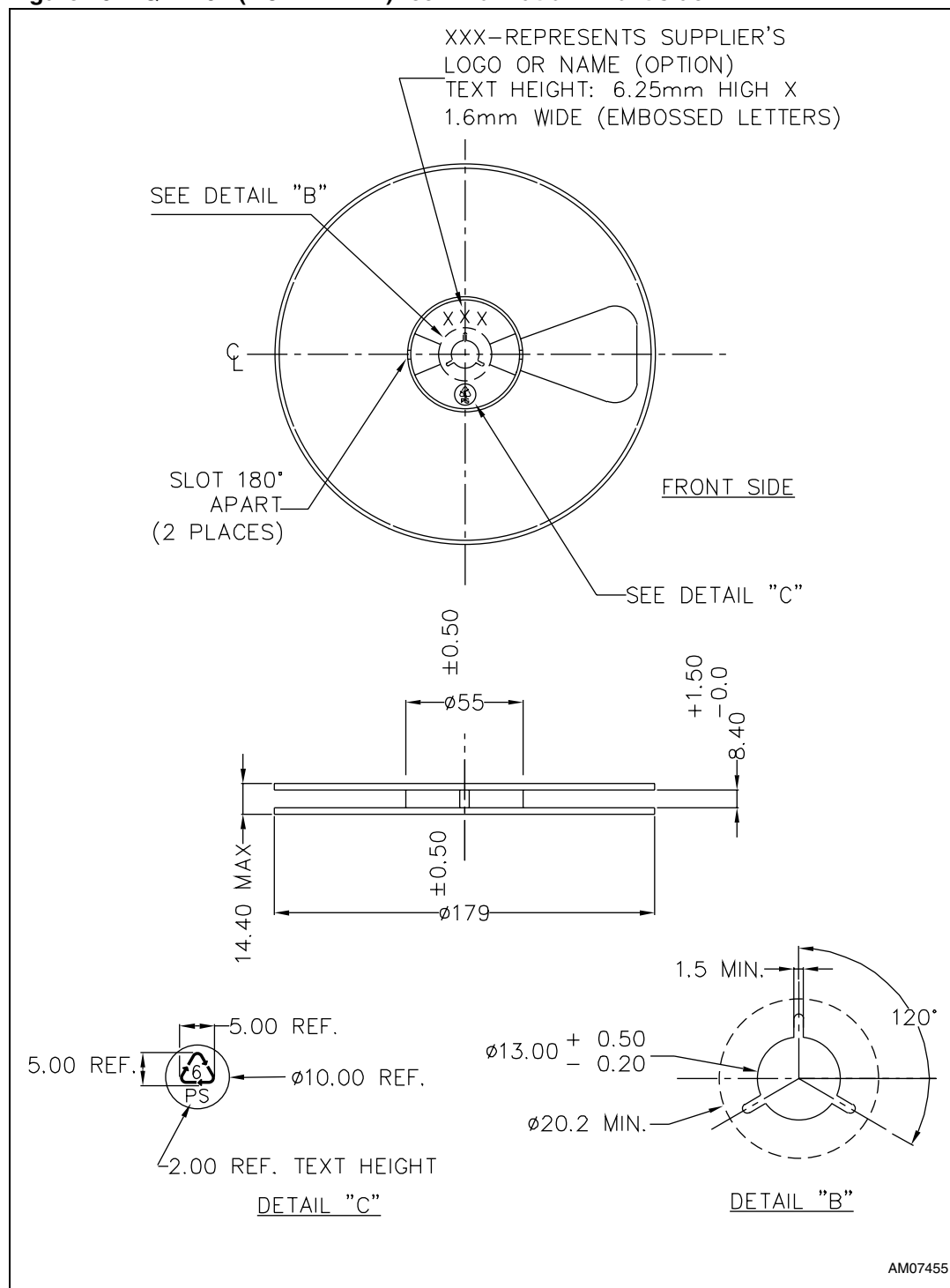
- R 10.65
- R 5.20
- 15°
- 45°
- CL (Center Line)
- EMBOSSSED RIBS  
RAISED 0.25mm  
WIDTH 1.25mm
- $\phi 51.20 \pm 0.30$
- $\phi 164.30 \pm 0.30$
- $\phi 179.00 \pm 0.50$

**Side View Dimensions:**

- 55.00  $\pm 0.50$
- 8.40  $+1.50/-0.0$
- 179.00  $\pm 0.50$
- 14.40 MAX.

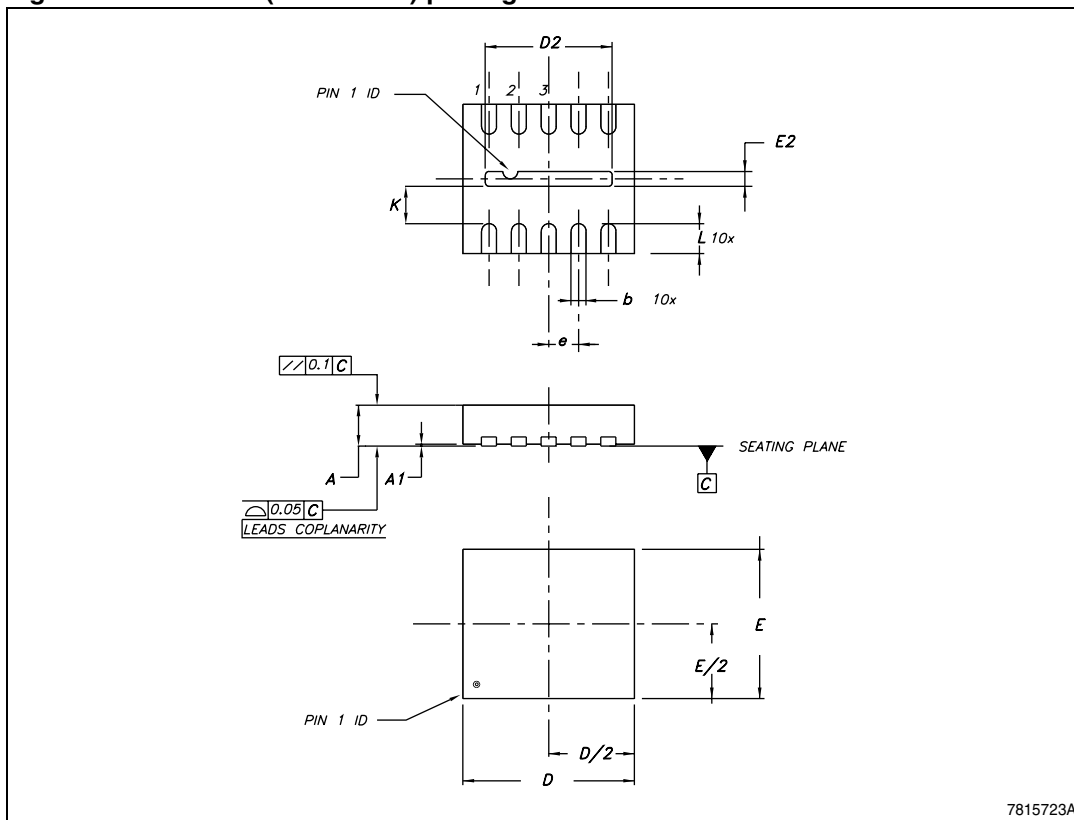
22/29

**Figure 16. QFN10L (1.8 x 1.4 mm) reel information - front side**



1. Drawing not to scale.

Figure 17. DFN10L (2 x 2.3 mm) package outline

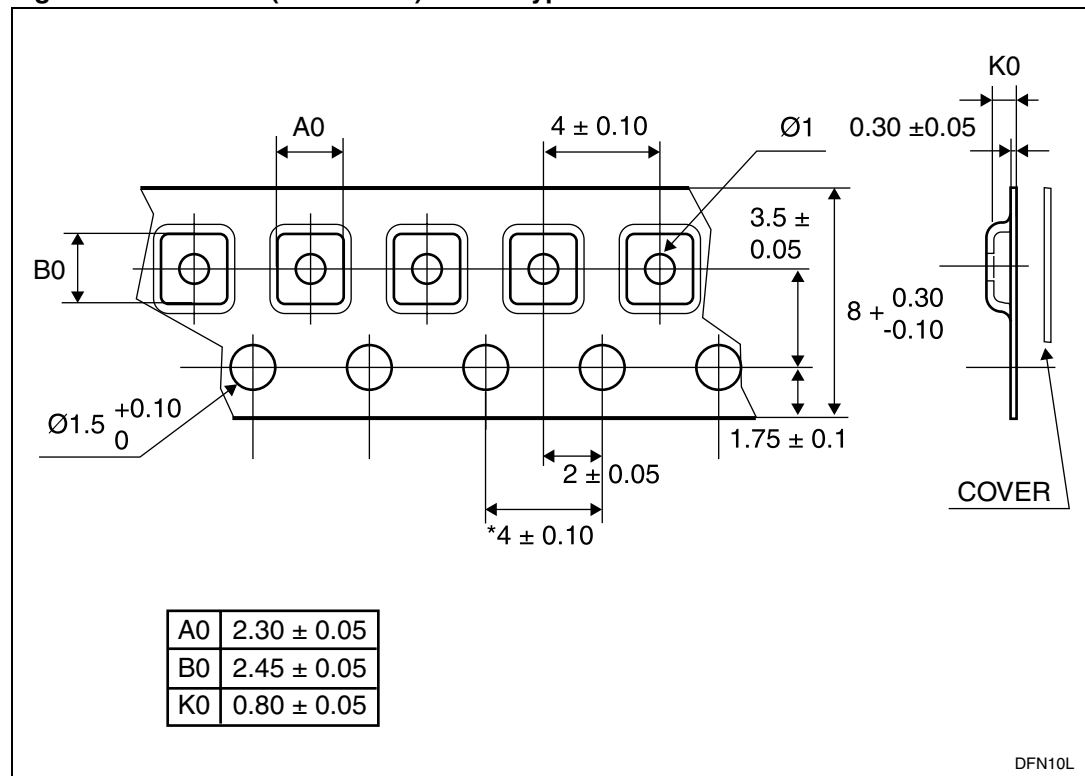


1. Drawing not to scale.

Table 10. DFN10L (2 x 2.3 mm) mechanical data

| Symbol | millimeters |      |      | mils |      |      |
|--------|-------------|------|------|------|------|------|
|        | Min         | Typ  | Max  | Min  | Typ  | Max  |
| A      | 0.50        | 0.55 | 0.60 | 19.7 | 21.7 | 23.6 |
| A1     |             | 0.02 | 0.05 |      | 0.8  | 2.0  |
| b      | 0.15        | 0.20 | 0.25 | 5.9  | 7.9  | 9.8  |
| D      | 2.20        | 2.30 | 2.40 | 86.6 | 90.6 | 94.5 |
| D2     | 1.65        | 1.70 | 1.75 | 65.0 | 66.9 | 68.9 |
| E      | 1.90        | 2    | 2.10 | 74.8 | 78.7 | 82.7 |
| E2     | 0.15        | 0.20 | 0.25 | 5.9  | 7.9  | 9.8  |
| e      |             | 0.40 |      |      | 15.7 |      |
| L      | 0.35        | 0.40 | 0.45 | 13.8 | 15.7 | 17.7 |
| K      | 0.20        |      |      | 7.9  |      |      |

Figure 18. DFN10L (2 x 2.3 mm) carrier type



1. Drawing not to scale.

Technical drawing of a circular fan grille, showing the back view and a side elevation view.

**Back View:**

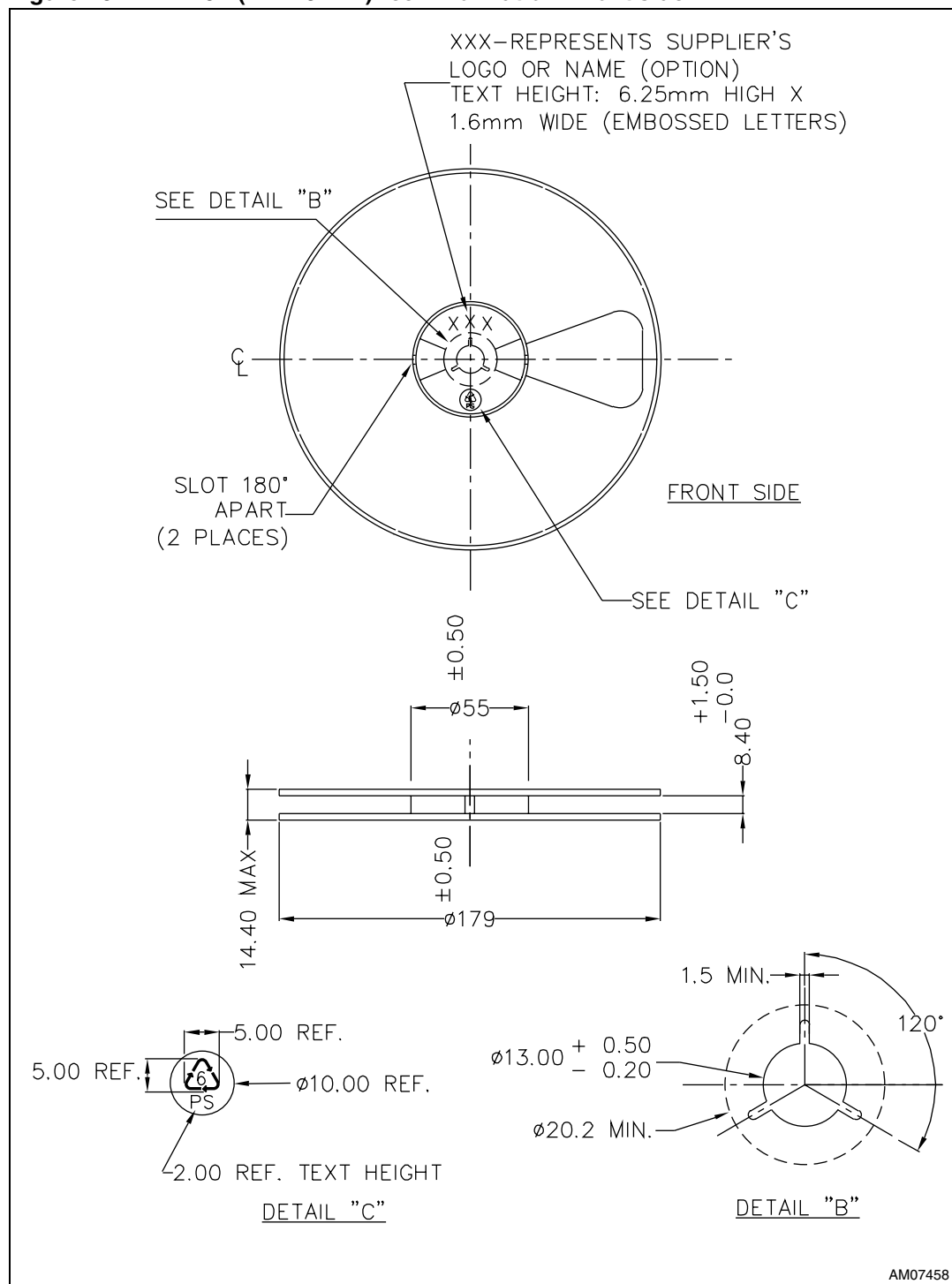
- Overall diameter:  $\phi 179.00 \pm 0.50$
- Inner diameter:  $\phi 164.30 \pm 0.30$
- Outer rim diameter:  $\phi 51.20 \pm 0.30$
- Center of gravity:  $C_L$
- Angles:  $15^\circ$  and  $45^\circ$  are indicated for the ribs.
- Radii:  $R 10.65$  and  $R 5.20$  are indicated for the ribs.
- Feature: **EMBOSED RIBS RAISED 0.25mm WIDTH 1.25mm**

**Side Elevation View:**

- Overall width:  $179.00 \pm 0.50$
- Overall height:  $14.40 \text{ MAX.}$
- Top flange height:  $8.40$
- Top flange thickness:  $+1.50$  /  $-0.00$
- Central opening diameter:  $55.00 \pm 0.50$



**Figure 20. DFN10L (2 x 2.3 mm) reel information - front side**



1. Drawing not to scale.

## 8 Revision history

**Table 11. Document revision history**

| Date         | Revision | Changes                                                                                                                                                                                                                                                                                                       |
|--------------|----------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 04-Jul-2005  | 1        | First release.                                                                                                                                                                                                                                                                                                |
| 22-Aug-2005  | 2        | The $V_{CC}$ and $V_{IC}$ values has been changed on <a href="#">Table 4 on page 9</a> .                                                                                                                                                                                                                      |
| 15-May-2006  | 3        | New template, few updates.                                                                                                                                                                                                                                                                                    |
| 21-Jun-2006  | 4        | Mechanical data updated.                                                                                                                                                                                                                                                                                      |
| 10-Sept-2007 | 5        | Removed STG3684QTR order code, small text changes, updated <a href="#">Figure 3 on page 13</a> , <a href="#">Figure 4 on page 14</a> , <a href="#">Figure 5 on page 14</a> , <a href="#">Figure 6 on page 15</a> , layout restructured.                                                                       |
| 15-Nov-2007  | 6        | Added list of tables and list of figures, updated <a href="#">Features Section on page 1</a> and $T_{op}$ value in <a href="#">Table 5 on page 9</a> , removed the -55 to -125 °C values in <a href="#">Table 6 on page 10</a> and <a href="#">Table 7 on page 11</a> , minor changes to the text and layout. |
| 04-Feb-2011  | 7        | Document reformatted, updated <a href="#">Features, Section 1: Description</a> , <a href="#">Table 6</a> , ECOPACK text, corrected typo in <a href="#">Table 2</a> to <a href="#">Table 8</a> , <a href="#">Figure 7</a> , <a href="#">Figure 9</a> .                                                         |

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