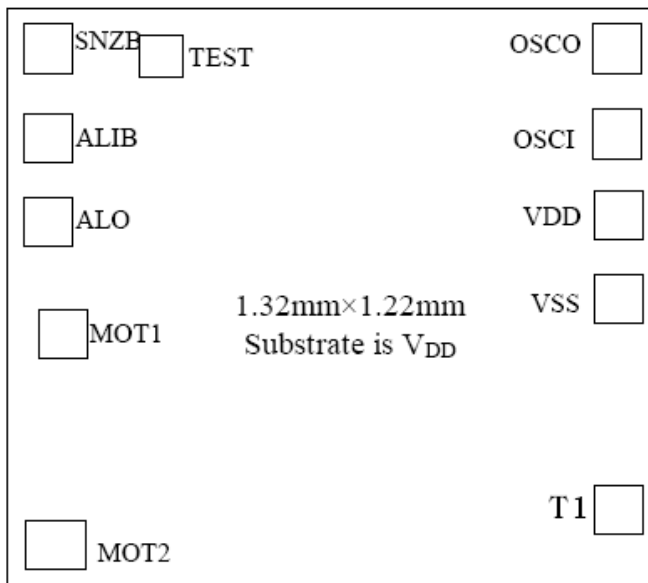


The DL1135 series are analog clock ICs that derive their timing from a 32KHz oscillator element. They feature alarm output snooze function and alarm auto-stop function. They can be configured to match a wide variety of clock specifications, alarm functions outputs.

Features

- Single 1.5V battery operation
- 32,768 Hz crystal frequency
- Low power dissipation
- Built-in trim capacitor
- Output for 1Hz or 16Hz stepper motor with selectable pulse width
- 256 second snooze interval
- 128 second alarm output auto-stop function (Mask Option)
- Alarm outputs compatible with both electronic sound alarms and motor bells
- 4-step increasing volume alarm output
- ALIB and SNZB use different pins
- Built-in debounce circuit (ALIB/SNZB pin)
- Fast test functions
- Power-on-clear function

PAD LAYOUT

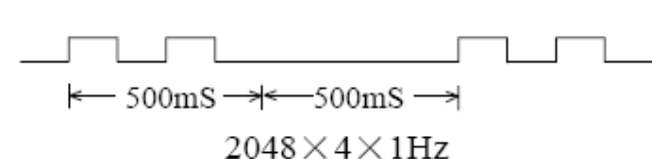
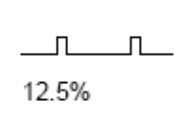
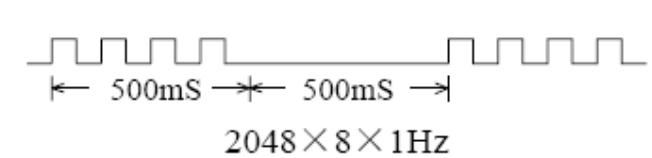

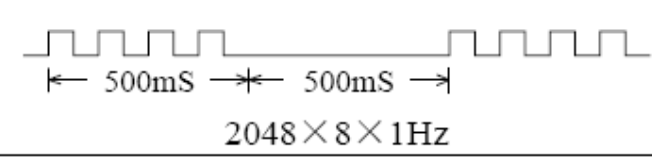
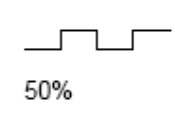
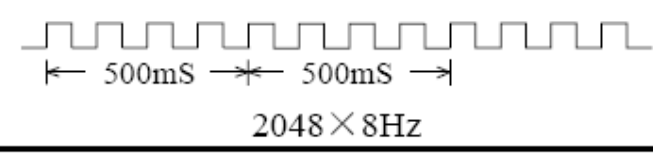



| PAD No. | PAD Name. | X | Y |
|---------|-----------|------|------|
| 1 | SNZB | 75 | 1075 |
| 2 | ALIB | 75 | 911 |
| 3 | ALO | 75 | 760 |
| 4 | MOT1 | 105 | 553 |
| 5 | MOT2 | 93 | 75 |
| 6 | T1 | 1175 | 186 |
| 7 | VSS | 1175 | 628 |
| 8 | VDD | 1175 | 778 |
| 9 | OSCI | 1175 | 923 |
| 10 | OSCO | 1175 | 1075 |
| 11 | TEST | 249 | 1065 |

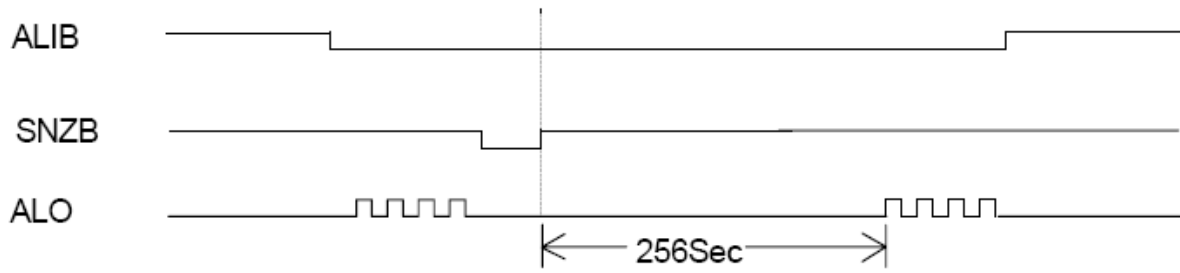
TYPE LIST

| | | | |
|--------|--------|---------------|-----------------|
| TYPE | ALO | MOT frequency | MOT pulse width |
| DL1135 | 4 step | 16Hz | 31.25ms |

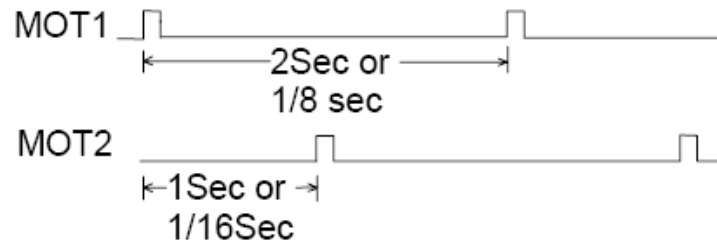
4-step Alarm Waveform

| Time (sec) After Turning Alarm on | Alarm Waveform | Duty (%) of Fundamental Wave |
|-----------------------------------|--|--|
| 1~8 |  <p>500ms 500ms 2048 × 4 × 1Hz</p> |  <p>12.5%</p> |
| 9~16 |  <p>500ms 500ms 2048 × 8 × 1Hz</p> |  <p>25%</p> |
| 17~24 |  <p>500ms 500ms 2048 × 8 × 1Hz</p> |  <p>50%</p> |
| 25~ |  <p>500ms 500ms 2048 × 8Hz</p> |  <p>50%</p> |

Snooze Waveform

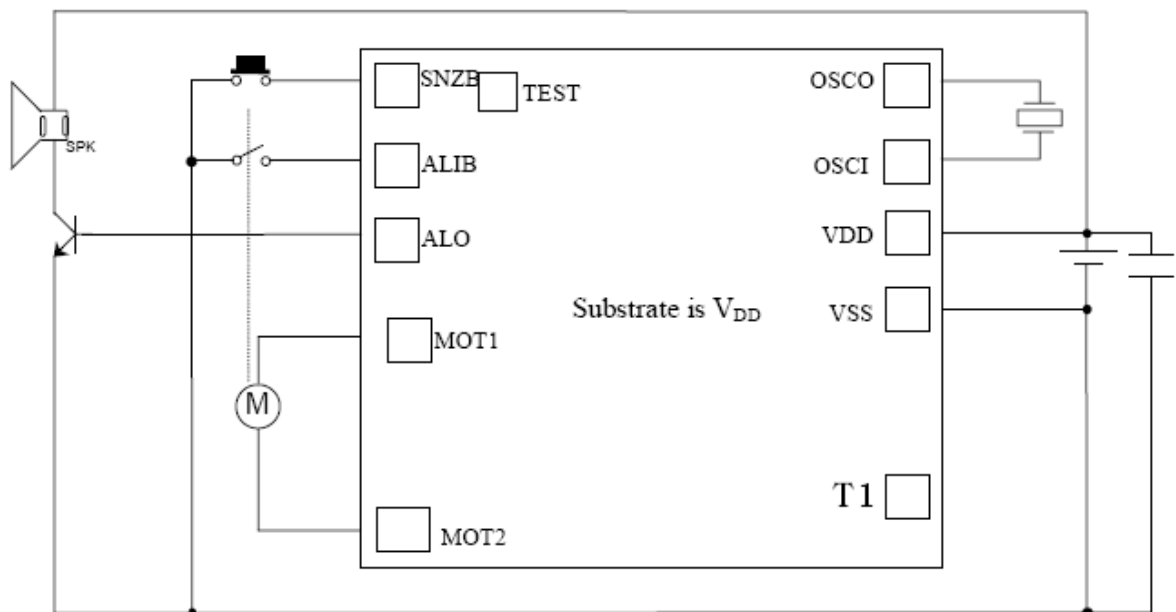


Motor Output Driving



Application Diagram

Speaker application



DC Characteristics(V_{DD}=1.5V, V_{SS}=0V, F_{osc}=32768Hz Ta=25°C unless specified otherwise)

| Item | Symb. | Condition | Min. | Typ. | Max. | Unit |
|-------------------|------------------|------------------------|------|------|------|------|
| Supply Voltage | V _{DD} | | 1.1 | | 1.8 | V |
| Operating Current | I _{DD} | No Load | | 1.2 | 2.0 | μA |
| Output Current | | V _{DD} =1.2V | | | | |
| Motor | I _M | RL=200Ω | 4.5 | | | mA |
| Alarm high | I _{OHA} | V _{OHA} =0.7V | 0.1 | 0.25 | 0.35 | mA |
| Alarm low | I _{OLA} | V _{OLA} =0.5V | 0.1 | 0.25 | 0.35 | mA |
| OSC. Start time | | V _{DD} =1.2V | | | 2 | sec |
| OSC. Stability | Δf/f | ΔV _{DD} =0.1V | | 0.5 | 1 | ppm |
| Internal Cap. | C _d | | | 25 | | pF |
| Internal Cap. | C _g | Mask Option | 5 | | 25 | pF |