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TK8812

Two Key Touch Detector

DATA SHEET Rev 0.91

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AMENDMENT HISTORY

| Version | Date | Description |
|---------|----------|--------------------|
| V0.90 | May,2020 | New release. |
| V0.91 | Aug,2020 | Modify Device List |

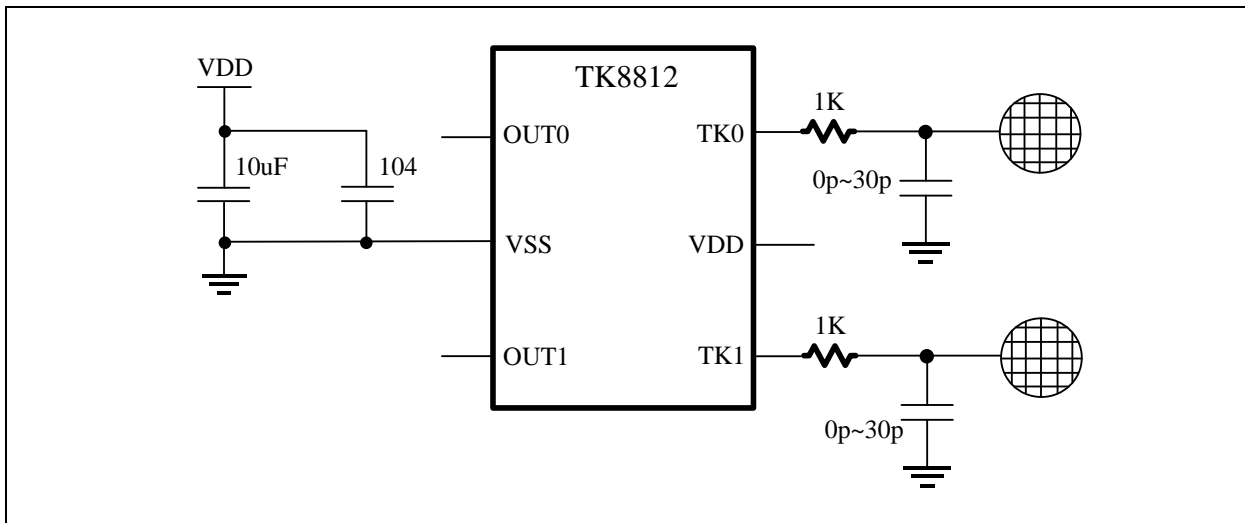
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FEATURES

1. Two Key Touch Detector
2. Operation Voltage: 2.2V~5.5V
3. Operation Current(TK8812C1): Normal mode =3.6uA, Low Power mode=1.7uA @V_{DD}=3V
4. Enter Low Power mode after no activity for 10 second
5. Response Time: Normal mode < 60mS; Low Power mode < 120mS
6. Sensitivity adjusted by TK pin capacitor (0pF~30pF)
7. Selectable output level: Active High, Active Low or Open Drain
8. 8 second key press timeout reset
9. Built-in 2.3V LDO
10. LVR=2.0V
11. SOT23-6 package

APPLICATION CIRCUIT



PIN ASSIGNMENT

PIN DESCRIPTION

| Name | In/Out | Pin Description |
|------------|--------|----------------------------|
| OUT0, OUT1 | O | Touch Key output |
| TK0, TK1 | I | Touch Key input |
| VDD, VSS | P | Power input pin and ground |

DEVICE LIST

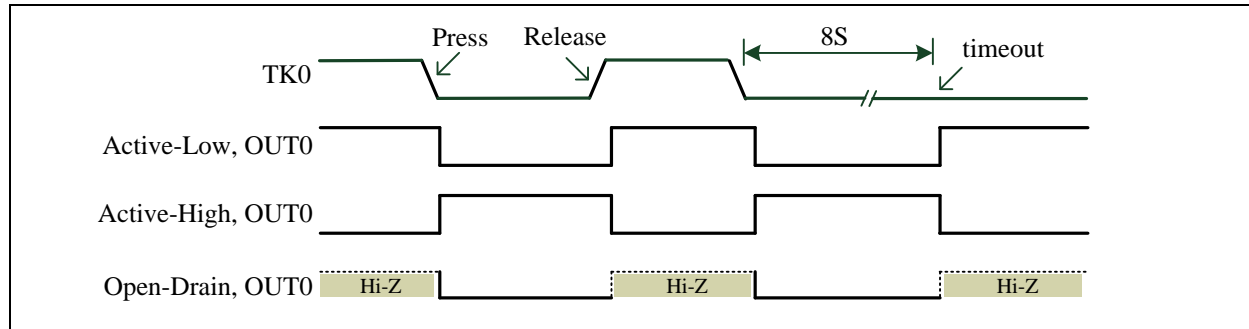
| | Max. time for key press timeout | OUT pin output level | Sensitivity | 2.3V LDO |
|----------|---------------------------------|-----------------------|-------------|----------|
| TK8812B1 | 8S | CMOS Active High | High | Enable |
| | | | | |
| TK8812C1 | 8S | CMOS Active Low | High | Enable |
| | | | | |
| TK8812D1 | 8S | Open Drain Active Low | High | Enable |
| | | | | |

Note: The standard parts TK8812C1 and TK8812D1 are recommended.

FUNCTIONAL DESCRIPTION

1. Output Pin Function

OUT0 and OUT1 are direct mode output. The output voltage level can be active high, active low or open drain, defined by the device's part number.



2. Touch Sensitivity Adjustment

The sensitivity of touch key can be adjusted by the capacitance of TK pin. The adjustment range is from 0pF to 30pF. Smaller capacitance can make higher sensitivity.

3. Key Press Timeout Reset

Long press on the touch key will generate a timeout reset. The maximum time is 8 seconds.

4. Normal mode and Low Power mode

The chip starts at Normal mode after reset. If no event occurred for 10 second, it switches to Low Power mode. It switches to Normal mode after sampling TK pin's capacitance variation event.

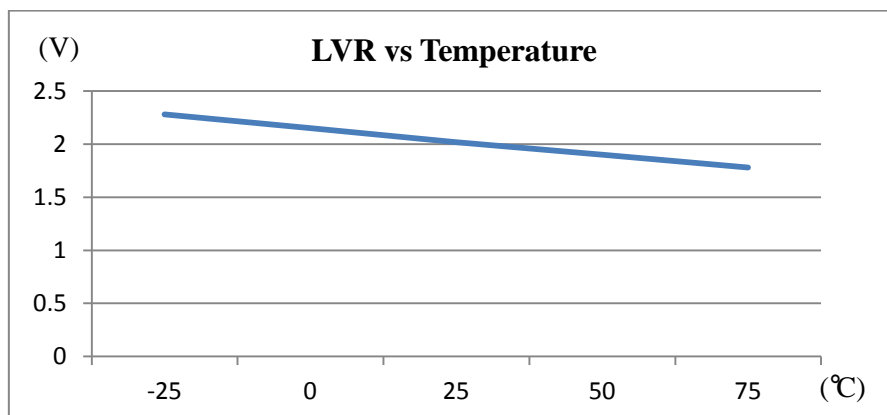
ELECTRICAL CHARACTERISTICS

Absolute Maximum Ratings

| Parameter | Rating | Unit |
|-----------------------|------------------------------|------|
| Supply voltage | $V_{SS}-0.3 \sim V_{SS}+5.5$ | V |
| Input voltage | $V_{SS}-0.3 \sim V_{DD}+0.3$ | |
| Operating temperature | -20 ~ +70 | °C |
| Storage temperature | -65 ~ +150 | |

DC Characteristics (TA=25°C)

| Parameter | Sym | Conditions | | Min | Typ | Max | Unit |
|--|-----------|----------------|--------------------------------|-------------|-----|-------------|------|
| Input High Voltage | V_{IH} | all Input | - | $0.8V_{DD}$ | | | V |
| Input Low Voltage | V_{IL} | | | - | - | $0.2V_{DD}$ | |
| I/O Port Source Current | I_{OH} | all Output | $V_{DD}=3.0V$ $V_{OH}=2.7V$ | - | 5 | - | mA |
| | | | $V_{DD}=5.0V$ $V_{OH}=4.5V$ | - | 10 | - | |
| I/O Port Sink Current | I_{OL} | all Output | $V_{DD}=3.0V$ $V_{OL}=0.3V$ | - | 15 | - | mA |
| | | | $V_{DD}=5.0V$ $V_{OL}=0.5V$ | - | 30 | - | |
| Power Supply Current (TK8812B1/C1/D1) | I_{DD} | Normal mode | $V_{DD}=4.2V$ | - | 4.2 | - | uA |
| | | Low Power mode | $V_{DD}=3.0V$ | - | 3.6 | - | |
| Power Supply Current (TK8812B0/C0/D0) | I_{DD} | Normal mode | $V_{DD}=4.2V$ | - | 2.1 | - | uA |
| | | Low Power mode | $V_{DD}=3.0V$ | - | 1.7 | - | |
| Power Supply Current (TK8812B0/C0/D0) | I_{DD} | Normal mode | $V_{DD}=4.2V$ | - | 10 | - | uA |
| | | Low Power mode | $V_{DD}=3.0V$ | - | 4.9 | - | |
| Timeout Lead Time | T_{LT} | | $V_{DD}=3.0V$ | - | 8 | - | S |
| LVR Voltage | V_{LVR} | TA=25°C | | 1.8 | 2.0 | 2.2 | V |

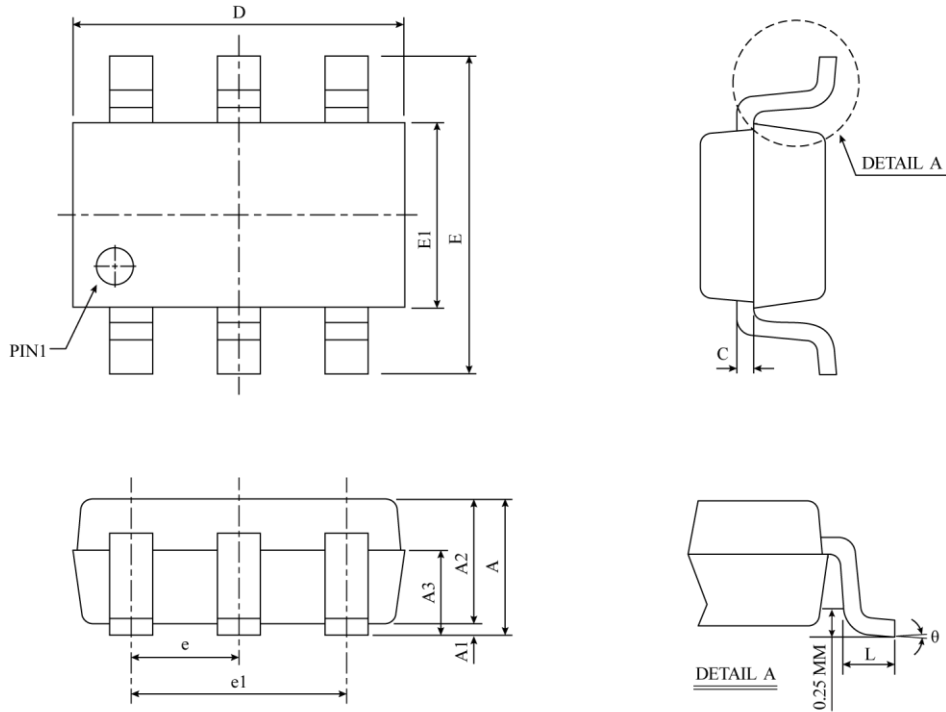


PACKAGE INFORMATION

Please note that the package information provided is for reference only. Since this information is frequently updated, users can contact Sales to consult the latest package information and stocks.

Ordering Information

| Ordering number | Package |
|------------------|---------|
| TK8812B1-205- A8 | SOT23-6 |
| TK8812C1-201- A8 | SOT23-6 |
| TK8812D1-211- A8 | SOT23-6 |

Package Information
●SOT23-6 Package Dimension


| SYMBOL | DIMENSION IN MM | | | DIMENSION IN INCH | | |
|--------|-----------------|------|------|-------------------|-------|-------|
| | MIN | NOM | MAX | MIN | NOM | MAX |
| A | - | - | 1.45 | - | - | 0.057 |
| A1 | 0 | 0.08 | 0.15 | 0 | 0.003 | 0.006 |
| A2 | 0.90 | 1.10 | 1.30 | 0.035 | 0.043 | 0.051 |
| A3 | 0.60 | 0.65 | 0.70 | 0.024 | 0.026 | 0.028 |
| c | 0.12 | 0.16 | 0.19 | 0.005 | 0.006 | 0.007 |
| D | 2.82 | 2.92 | 3.02 | 0.111 | 0.115 | 0.119 |
| E | 2.70 | 2.90 | 3.10 | 0.106 | 0.114 | 0.122 |
| E1 | 1.52 | 1.62 | 1.72 | 0.060 | 0.064 | 0.068 |
| e | 0.85 | 0.95 | 1.05 | 0.033 | 0.037 | 0.041 |
| e1 | 1.80 | 1.90 | 2.00 | 0.071 | 0.075 | 0.079 |
| L | 0.35 | 0.48 | 0.60 | 0.014 | 0.019 | 0.024 |
| θ | 0° | 4° | 8° | 0° | 4° | 8° |
| JEDEC | M0-178 (AB) | | | | | |

△ * NOTES : ALL DIMENSIONS REFER TO JEDEC STANDARD MO-178 AB
DO NOT INCLUDE MOLD FLASH OR PROTRUSIONS.