## FEATURES

- Compatible with the ISO 11898-2:2024 and SAE J2284-1~ SAE J2284-5 standard
- Thermally protected
- ±42V BUS Protection
- Transmit Data (TXD) dominant time-out function
- Low-power standby mode with wake-up function
- SIT1044GT/3 and SIT1044GTK/3 I/O pins support 1.8V, 3.3V and 5V MCU
- Undervoltage protection on pins VCC and VIO
- Timing guaranteed for data rates up to 5 Mbps in the CAN FD fast phase
- High ElectroMagnetic Immunity
- Unpowered state disengages from the bus
- Available in SOP8 and DFN3*3-8 packages.

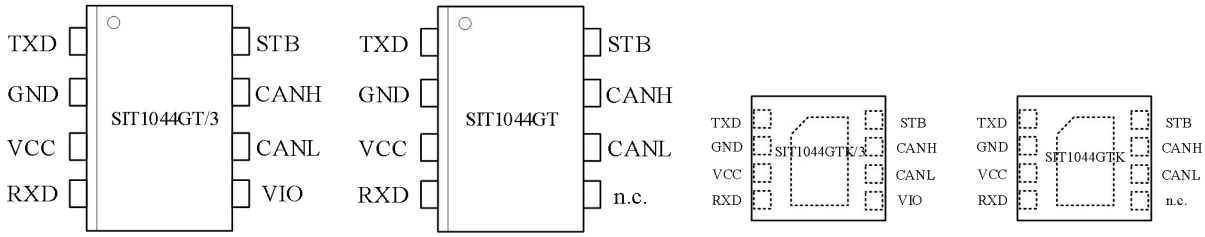
## DESCRIPTION

SIT1044G is an interface chip used between the CAN protocol controller and the physical bus. It can be used for industrial control field. It supports 5Mbps (CAN FD), and has the ability to perform differential signal transmission between bus and the CAN protocol controller.

SIT1044G is fully compatible with the SIT1044 and other family products. SIT1044G features improved bus signal symmetry and lower electromagnetic radiation performance.

| PARAMETER | SYMBOL | CONDITIONS | VALUE | UNIT |
|---|---|---|---|---|
| **Bus supply voltage** | VCC | 4.5 | 5.5 | V |
| **MCU side port supply voltage** | VIO | 1.7 | 5.5 | V |
| **CANH/CANL input or output voltage** | $V_{can}$ | -42 | +42 | V |
| **Bus differential voltage** | $V_{diff}$ | 1.5 | 3.0 | V |
| **Virtual junction temperature** | $T_j$ | -40 | 150 | ℃ |

## PIN CONFIGURATION




## PIN DESCRIPTION

| PIN | SYMBOL | DESCRIPTION |
|---|---|---|
| **1** | TXD | transmit data input |
| **2** | GND | ground |
| **3** | VCC | supply voltage |
| **4** | RXD | receive data output |
| **5** | VIO | transceiver I/O level conversion power supply voltage (SIT1044GT/3, SIT1044GTK/3) |
| | n.c. | Not connected in SIT1044GT and SIT1044GTK version. |
| **6** | CANL | LOW-level CAN-bus line |
| **7** | CANH | HIGH-level CAN-bus line |
| **8** | STB | standby mode control input, low level is high speed mode |

Note: The metal pad on the back of the DFN3*3-8 package is recommended to be grounded.

## LIMITING VALUES

| PARAMETER | SYMBOL | CONDITIONS | VALUE | UNIT |
|---|---|---|---|---|
| **Supply voltage** | VCC, VIO | pins VCC, VIO | -0.3~+7 | V |
| **MCU side port** | $V_{TXD}$, $V_{RXD}$, $V_{STB}$ | pins TXD, RXD, STB | -0.3~+7 | V |
| **Bus side input voltage** | $V_{CANL}$, $V_{CANH}$ | pins CANH, CANL | -42~+42 | V |
| **Bus differential breakdown voltage** | $V_{CANH-CANL}$ | | -42~+42 | V |
| **Contact discharge model (IEC)** | $V_{ESD\_IEC}$ | pins CANH, CANL | -8~+8 | kV |
| **Human body model (HBM)** | $V_{ESD\_HBM}$ | All pins | -4~+4 | kV |
| | | pins CANH and CANL | -8~+8 | kV |
| **Charged device model (CDM)** | $V_{ESD\_CDM}$ | All pins | -2000~+2000 | V |
| **Transient voltage** (2) | $V_{trt}$ | Pulse 1 | -100 | V |
| | | Pulse 2a | 75 | V |
| | | Pulse 3a | -150 | V |
| | | Pulse 3b | 100 | V |
| **Storage temperature** | $T_{stg}$ | | -55~150 | ℃ |
| **Virtual junction temperature** | $T_j$ | | -40~150 | ℃ |

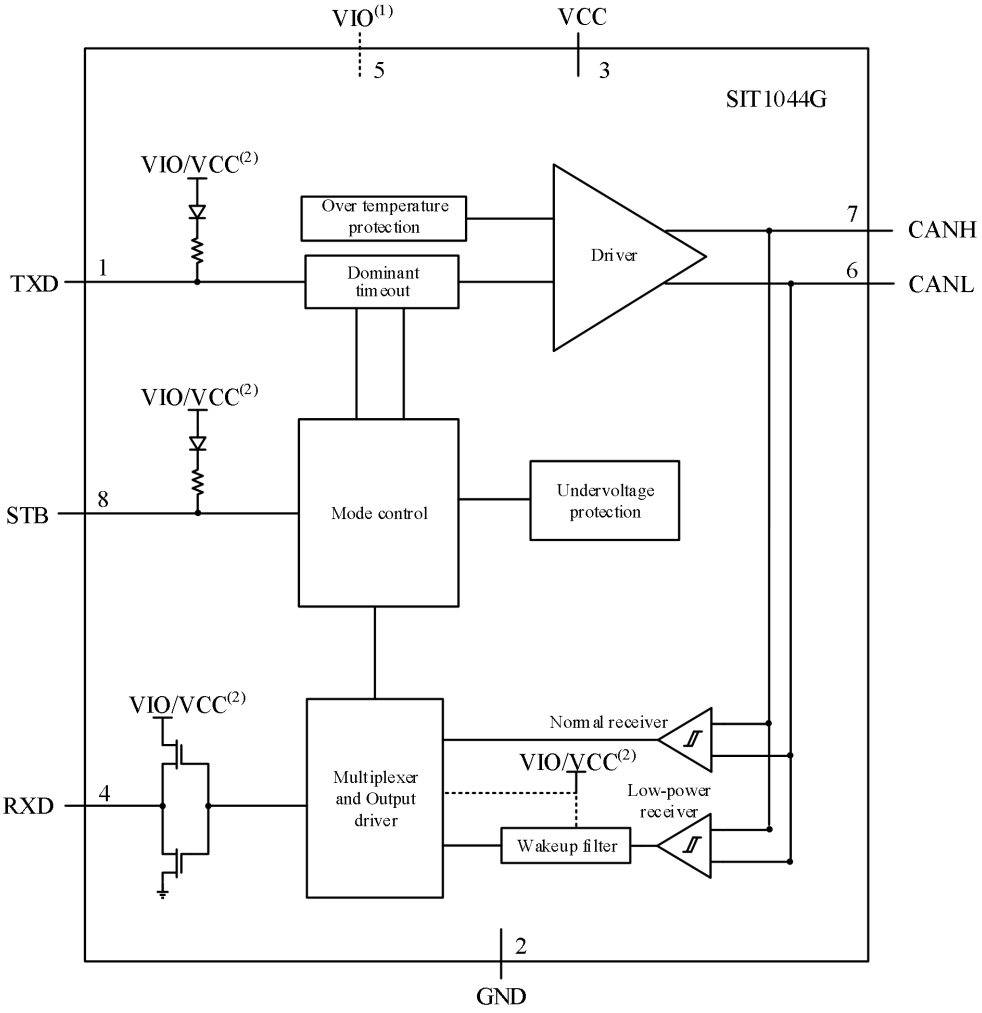
(1) The maximum limit parameters mean that exceeding these values may cause irreversible damage to the device. Under these conditions, it is not conducive to the normal operation of the device. The continuous operation of the device at the maximum allowable rating may affect the reliability of the device. The reference point for all voltages is ground.

(2) Verified by an external test house according to IEC 62228-3; parameters for standard pulses defined in ISO7637.

## THERMAL CHARACTERISTICS

| PARAMETER | SYMBOL | CONDITIONS | VALUE | UNIT |
|---|---|---|---|---|
| $R_{\theta JA}$ | Junction-to-ambient thermal resistance | SOP8 | 95 | ℃/W |
| | | DFN3*3-8 | 65 | ℃/W |
| $R_{\theta JC}$ | Junction-to-case thermal resistance | SOP8 | 46 | ℃/W |
| | | DFN3*3-8 | 35 | ℃/W |

# INTERNAL CIRCUIT BLOCK DIAGRAM




(1) VIO is only available in SIT1044GT/3 and SIT1044GTK/3 version, pin 5 is not connected in SIT1044GT and SIT1044GTK.

(2) VIO is in SIT1044GT/3 and SIT1044GTK/3 version and VCC is in SIT1044GT and SIT1044GTK.

## STATIC CHARACTERISTICS

Unless specified otherwise; all values are tested in recommended operating conditions: $T_j$=-40℃~150℃, VCC=4.5V~5.5V, VIO=1.7V~5.5V (SIT1044GT/3 and SIT1044GTK/3), $R_L$=60Ω.

| PARAMETER | SYMBOL | CONDITION | MIN. | TYP. | MAX. | UNIT |
|---|---|---|---|---|---|---|
| **Supply: pin VCC** | | | | | | |
| Supply voltage | VCC | | 4.5 | - | 5.5 | V |
| Standby undervoltage detection voltage | $V_{uvd(stb)}$ | | 3.4 | - | 4.5 | V |
| Standby undervoltage hysteresis voltage | $V_{uvdhys(stb)}$ | | 50 | - | - | mV |
| Switch-off undervoltage detection voltage | $V_{uvd(swoff)}$ | SIT1044GT/3 and SIT1044GTK/3 | 1.2 | - | 1.7 | V |
| VCC supply current | $I_{CC}$ | Normal mode; dominant; $t<t_{to(dom)TXD}$; $V_{TXD}$=0V | - | 40 | 70 | mA |
| | | Normal mode; dominant; short circuit on bus lines; $V_{TXD}$=0V; -3V< ($V_{CANH}$=$V_{CANL}$) <+40V | - | - | 125 | mA |
| | | Normal mode; recessive; $V_{TXD}$=VIO (1) | - | 5.1 | 10 | mA |
| | | Standby mode; SIT1044GT/3 and SIT1044GTK/3 | - | - | 2 | μA |
| | | Standby mode; SIT1044GT and SIT1044GTK | - | - | 26 | μA |
| **I/O level adapter supply; pin VIO (SIT1044GT/3 and SIT1044GTK/3)** | | | | | | |
| Supply voltage | VIO | | 1.7 | | 5.5 | V |
| Switch-off undervoltage detection voltage | $V_{uvd(swoff)}$ | | 1.2 | | 1.7 | V |
| VIO supply current | $I_{IO}$ | Normal mode; dominant; $V_{TXD}$=0V | | 220 | 760 | μA |
| | | Normal mode; recessive; $V_{TXD}$=VIO (1) | | 110 | 460 | μA |
| | | Standby mode | | | 24 | μA |
| **Pin TXD characteristics** | | | | | | |
| HIGH-level input voltage | $V_{IH}$ | SIT1044GT/3 and SIT1044GTK/3 | 0.7VIO (1) | - | - | V |
| LOW-level input voltage | $V_{IL}$ | SIT1044GT/3 and SIT1044GTK/3 | - | - | 0.3VIO (1) | V |
| Hysteresis voltage | $V_{hys(TXD)}$ | SIT1044GT/3 and SIT1044GTK/3 | 50 | - | - | mV |
| Pull-up resistance | $R_{pu}$ | 2.8V<VIO<5.5V | 20 | - | 80 | kΩ |
| Unpowered leakage current on pin TXD | $I_O$(off) | VCC=VIO=0V TXD=5V | -1 | | 1 | μA |
| Input capacitance | $C_i$ | (2) | - | - | 10 | pF |
| **Pin RXD characteristics** | | | | | | |
| HIGH-level output current | $I_{OH(RXD)}$ | $V_{RXD}$=VIO-0.4V (1) | -10 | - | -1 | mA |
| LOW-level output current | $I_{OL(RXD)}$ | Bus dominant; $V_{RXD}$=0.4V | 1 | - | 10 | mA |
| **Pin STB characteristics** | | | | | | |

| PARAMETER | SYMBOL | CONDITION | MIN. | TYP. | MAX. | UNIT |
|---|---|---|---|---|---|---|
| HIGH-level input voltage | $V_{IH}$ | SIT1044GT/3 and SIT1044GTK/3 | 0.7VIO (1) | - | - | V |
| LOW-level input voltage | $V_{IL}$ | SIT1044GT/3 and SIT1044GTK/3 | - | - | 0.3VIO (1) | V |
| Hysteresis voltage | $V_{hys}$ | SIT1044GT/3 and SIT1044GTK/3 | 50 | - | - | mV |
| Pull-up resistance | $R_{pu}$ | 2.8V<VIO<5.5V | 20 | - | 80 | kΩ |
| Unpowered leakage current on pin STB | $I_O$(off) | VCC=VIO=0V; STB=5V | -1 | | 1 | μA |
| Input capacitance | $C_i$ | (2) | - | - | 10 | pF |
| **Overtemperature protection** | | | | | | |
| Shutdown junction temperature | $T_{j(sd)}$ | | - | 190 | - | ℃ |
| Release shutdown junction temperature | $T_{hys}$ | | - | 20 | - | ℃ |
| **Bus lines; pins CANH and CANL** | | | | | | |
| Dominant output voltage on pin CANH | $V_{O(dom)}$ | $t<t_{to(dom)TXD}$; $V_{TXD}$=0V; $R_L$=50Ω to 65Ω | 2.89 | 3.55 | 4.26 | V |
| Dominant output voltage on pin CANL | | | 0.77 | 1.45 | 2.13 | V |
| Transmitter voltage symmetry | $V_{TXsym}$ | $V_{TXsym}=V_{CANH}+V_{CANL}$; $C_{SPLIT}$=4.7nF; $f_{TXD}$=250kHz, 1MHz or 2.5MHz | 0.9VCC | - | 1.1VCC | V |
| Common mode voltage step | $V_{cm(step)}$ | (2) | -150 | - | 150 | mV |
| Peak-to-peak common mode voltage | $V_{cm(p-p)}$ | (2) | -300 | - | 300 | mV |
| Differential output voltage | $V_{O(diff)}$ | Normal mode; $t<t_{to(dom)TXD}$; $V_{TXD}$=0V; $R_L$=50Ω to 65Ω | 1.5 | - | 3 | V |
| | | Normal mode; $t<t_{to(dom)TXD}$; $V_{TXD}$=0V; $R_L$=45Ω to 70Ω | 1.4 | - | 3.3 | V |
| | | Normal mode; dominant; $t<t_{to(dom)TXD}$; $V_{TXD}$=0V; $R_L$=2240Ω | 1.5 | - | 5 | V |
| | | Normal mode; recessive; $V_{TXD}$=VIO (1); No load | -50 | - | +50 | mV |
| | | Normal mode; recessive; $V_{TXD}$=VIO (1); $R_L$ =60Ω | -50 | - | +50 | mV |
| | | Standby mode; dominant; No load | -0.2 | - | +0.2 | V |
| Output voltage | $V_{O(rec)}$ | Normal mode; $V_{TXD}$=VIO (1); No load | 2 | 0.5VCC | 3 | V |
| | | Normal mode; $V_{TXD}$=VIO (1); $R_L$ =60Ω | 2.2 | 0.5VCC | 2.8 | V |
| | | Standby mode; No load | -0.1 | - | +0.1 | V |
| Differential receiver threshold voltage | $V_{th(RX)diff}$ | Normal mode; -12V≤$V_{CANH}$≤12V -12V≤$V_{CANL}$≤12V | 0.5 | - | 0.9 | V |
| | | Standby mode; -12V≤$V_{CANH}$≤12V -12V≤$V_{CANL}$≤12V | 0.4 | - | 1.1 | V |
| Receiver recessive voltage | $V_{rec(RX)}$ | Normal mode; -12V≤$V_{CANH}$≤12V -12V≤$V_{CANL}$≤12V | -4 | - | 0.5 | V |

| PARAMETER | SYMBOL | CONDITION | MIN. | TYP. | MAX. | UNIT |
|---|---|---|---|---|---|---|
| | | Standby mode;<br>-12V≤$V_{CANH}$≤12V<br>-12V≤$V_{CANL}$≤12V | -4 | - | 0.4 | V |
| Receiver dominant voltage | $V_{dom(RX)}$ | Normal mode;<br>-12V≤$V_{CANH}$≤12V<br>-12V≤$V_{CANL}$≤12V | 0.9 | - | 9 | V |
| | | Standby mode;<br>-12V≤$V_{CANH}$≤12V<br>-12V≤$V_{CANL}$≤12V | 1.1 | - | 9 | V |
| Differential receiver hysteresis voltage | $V_{hys(RX)dif}$ | Normal mode;<br>-12V≤$V_{CANH}$≤12V<br>-12V≤$V_{CANL}$≤12V | - | 60 | - | mV |
| Short-circuit output current | $I_{O(SC)}$ | $V_{CANH}$=-15V to 40V;<br>$V_{CANL}$=-15V to 40V | - | - | 115 | mA |
| Recessive short-circuit output current | $I_{O(SC)rec}$ | $V_{CANH}$=-27V to 32V;<br>$V_{CANL}$=-27V to 32V;<br>$V_{TXD}$=VIO for t>$t_{d(TXD-busrec)end}$ | -5 | | 5 | mA |
| Leakage current | $I_L$ | VCC=VIO= 0V or pins shorted to GND via 47kΩ;<br>$T_j$<105°C<br>$V_{CANH}$=$V_{CANL}$=5V | -10 | | 10 | μA |
| Input resistance | $R_i$ | -2V≤$V_{CANH}$≤7V<br>-2V≤$V_{CANL}$≤7V | 25 | 40 | 50 | kΩ |
| Input resistance deviation | $\triangle R_i$ | 0V≤$V_{CANH}$≤5V<br>0V≤$V_{CANL}$≤5V | -3 | | 3 | % |
| Differential input resistance | $R_{ID}$ | -2V≤$V_{CANH}$≤7V<br>-2V≤$V_{CANL}$≤7V | 50 | 80 | 100 | kΩ |
| Common-mode input capacitance | $C_{i(cm)}$ | (2) | - | - | 24 | pF |
| Differential input capacitance | $C_{i(diff)}$ | (2) | - | - | 12 | pF |
| Slew Rate (2) | SR | $R_L$=60Ω, $C_L$=100pF | | | 70 | V/μs |

# DYNAMIC CHARACTERISTICS

Unless specified otherwise; all values are tested in recommended operating conditions: $T_j$=-40℃~150℃, VCC=4.5V~5.5V, VIO=1.7V~5.5V (SIT1044GT/3 and SIT1044GTK/3), $R_L$=60Ω.

| Parameter | Symbol | Conditions | Min. | Typ. | Max. | Unit |
|---|---|---|---|---|---|---|
| **CAN timing characteristics; $t_{bit(TXD)}$≥200ns; Figure 1, Figure 3 and Figure 4** | | | | | | |
| Delay time from TXD to bus dominant | $t_{d(TXD-busdom)}$ | Normal mode | - | - | 80 | ns |
| Delay time from TXD to bus recessive | $t_{d(TXD-busrec)}$ | Normal mode | - | - | 80 | ns |
| Delay time from bus dominant to RXD | $t_{d(busdom-RXD)}$ | Normal mode | - | - | 110 | ns |
| Delay time from bus recessive to RXD | $t_{d(busrec-RXD)}$ | Normal mode | - | - | 110 | ns |
| Delay time from TXD LOW to RXD LOW | $t_{d(TXDL-RXDL)}$ | Normal mode | 40 | - | 190 | ns |
| Delay time from TXD HIGH to RXD HIGH | $t_{d(TXDH-RXDH)}$ | Normal mode | 40 | - | 190 | ns |
| **CAN FD timing characteristics; Figure 1 and Figure 4** | | | | | | |
| Transmitted recessive bit width | $t_{bit(bus)}$ | 2Mbit/s（$t_{bit(TXD)}$=500ns） | 455 | - | 510 | ns |
| | | 5Mbit/s（$t_{bit(TXD)}$=200ns） | 155 | - | 210 | ns |
| Bit time on pin RXD | $t_{bit(RXD)}$ | 2Mbit/s（$t_{bit(TXD)}$=500ns） | 420 | - | 520 | ns |
| | | 5Mbit/s（$t_{bit(TXD)}$=200ns） | 120 | - | 220 | ns |
| Transmitted recessive bit width deviation | $\Delta t_{bit(BUS)}$ | $\Delta t_{bit(BUS)}=t_{bit(bus)}- t_{bit(TXD)}$ | -45 | - | 10 | ns |
| Receiver timing symmetry | $\Delta t_{rec}$ | $\Delta t_{rec}=t_{bit(RXD)}- t_{bit(bus)}$ | -45 | - | 15 | ns |
| Received recessive bit width deviation | $\Delta t_{bit(RXD)}$ | $\Delta t_{bit(RXD)}=t_{bit(RXD)}- t_{bit(TXD)}$ | -80 | - | 20 | ns |
| **TXD dominant time-out time** | | | | | | |
| TXD dominant time-out time | $t_{to(dom)TXD}$ | VTXD=0V; Normal mode | 0.8 | - | 9 | ms |
| **Bus wake-up times; pins CANH and CANL; Figure 10** | | | | | | |
| Bus dominant wake-up time | $t_{wake(busdom)}$ | Standby mode | 0.5 | - | 1.8 | μs |
| Bus recessive wake-up time | $t_{wake(busrec)}$ | Standby mode | 0.5 | - | 1.8 | μs |
| Bus wake-up time-out time | $t_{to(wake)bus}$ | Standby mode | 0.8 | - | 9 | ms |
| **Mode transitions** | | | | | | |
| RXD start up time | $t_{startup(RXD)}$ (2) | Switches to standby mode after waking up | 4 | - | 50 | μs |

(1) VIO only in SIT1044GT/3 and SIT1044GTK/3 version.

(2) Guaranteed by design, not tested in production.

## TEST CIRCUIT

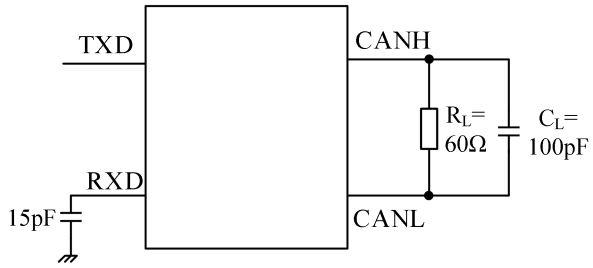



**Figure 1 CAN transceiver timing test circuit**

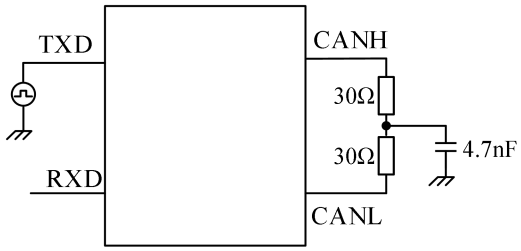



**Figure 2 Test circuit for measuring transceiver driver symmetry**

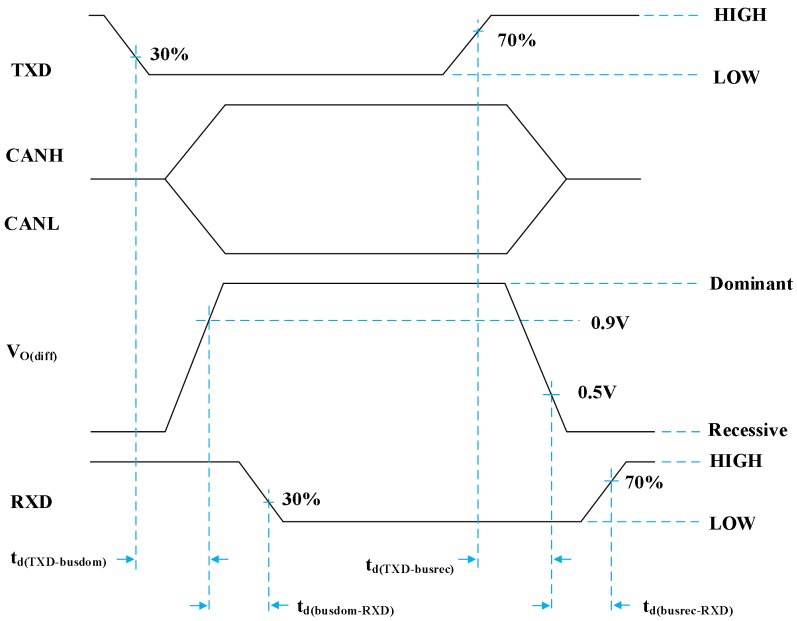



**Figure 3 CAN transceiver timing diagram**

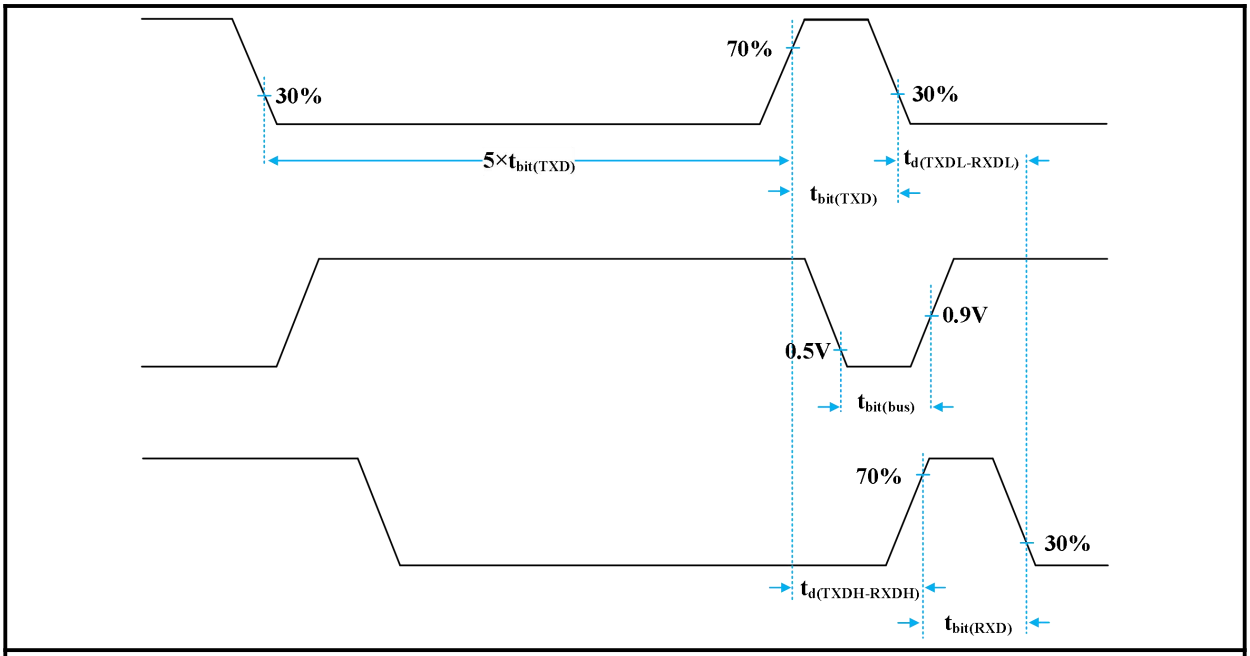
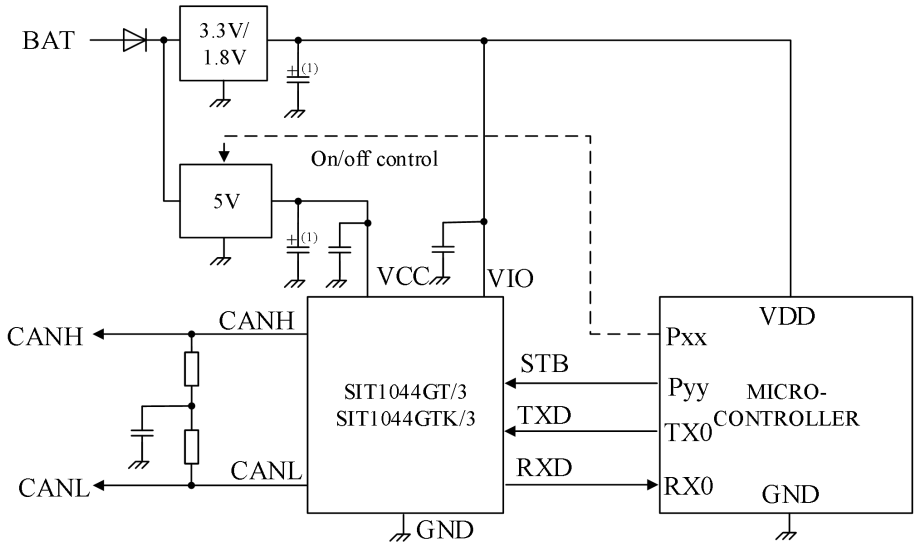


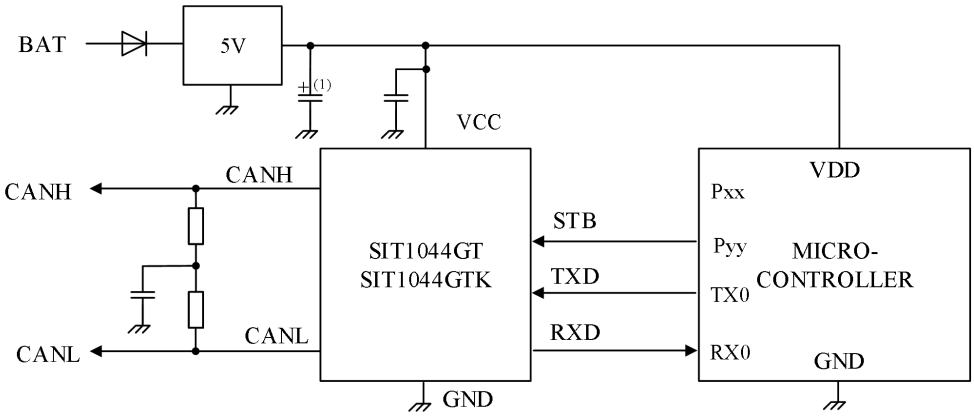

**Figure 4 CAN FD timing definitions according to ISO 11898-2:2024**

## APPLICATION INFORMATION




(1) Optional, depends on regulator.

**Figure 5 Typical SIT1044GT/3 and SIT1044GTK/3 application with a 3.3V/1.8V microcontroller**




(1) Optional, depends on regulator.

**Figure 6 Typical SIT1044G application with a 5V microcontroller**

# ADDITIONAL DESCRIPTION

## 1 Sketch

The SIT1044G is an interface chip designed for use between CAN protocol controllers and the physical bus, applicable in industrial control field. It supports Flexible Data-Rate of up to 5Mbps and features differential signal transmission capability between the bus and the CAN protocol controller.

## 2 Overtemperature protection

The device is protected against overtemperature conditions. If the junction temperature exceeds the shutdown junction temperature, $T_{j(sd)}$, the CAN bus drivers are disabled. When the junction temperature drops below $T_{j(sd)rel}$, the CAN bus drivers recover once TXD has been reset to HIGH and Normal mode is selected (waiting for TXD to go HIGH prevents output driver oscillation due to small variations in temperature).

## 3 Undervoltage protection

If VCC drops below the standby undervoltage detection threshold ($V_{uvd(stb)(VCC)}$), the transceiver switches to Standby mode. The logic state of pin STB is ignored until VCC has recovered.
In SIT1044GT/3 and SIT1044GTK/3 version, if VIO drops below the switch-off undervoltage detection threshold ($V_{uvd(swoff)(VIO)}$), the transceiver switches to Off mode and disengages from the bus (high-ohmic) until VIO has recovered.
In the SIT1044G, if VCC drops below the switch-off undervoltage detection threshold ($V_{uvd(swoff)(VCC)}$) , the transceiver switches to Off mode and disengages from the bus (high-ohmic) until VCC has recovered.

## 4 Operating modes

SIT1044G supports three operating modes, Normal, Standby and Off. The operating mode is selected via pin STB. The following table shows the corresponding mode status.

| Mode | Inputs | | Outputs | |
|---|---|---|---|---|
| | STB | TXD | CAN driver | RXD |
| Normal | LOW | LOW | Dominant | LOW |
| | | HIGH | Recessive | LOW when bus dominant |
| | | | | HIGH when bus recessive |
| Standby | HIGH | X | Biased to ground | Follows BUS when wake-up detected |
| | | | | HIGH when no wake-up detected |
| Off (1) | X | X | High-ohmic state | High-ohmic state |

(1) Off mode is entered when the voltage on pin VIO or pin VCC is below the switch-off undervoltage detection threshold.

### 4.1 Off mode

The SIT1044G switches to Off mode from any mode when the supply voltage falls below the switch-off undervoltage threshold $V_{uvd(swoff)}$. This is the default mode when powered on.
In Off mode, the pins CAN and RXD are in a high-ohmic state.

### 4.2 Standby mode

When the supply voltage rises above the switch-off undervoltage detection threshold, the SIT1044G starts to boot up, triggering an initialization procedure.

Standby mode is selected when pin STB goes HIGH. In this mode, the transceiver is unable to transmit or receive data and a low-power receiver is activated to monitor the bus for a wake-up pattern. The transmitter and Normal-mode receiver blocks are switched off and the bus pins are biased to ground to minimize system supply current. Pin RXD follows the bus after a wake-up request has been detected.

A transition to Normal mode is triggered when STB is forced LOW.

If the supply voltage is below the Standby undervoltage hysteresis voltage $V_{uvd(stb)}$ when STB goes LOW, the SIT1044G will remain in Standby mode.

Pending wake-up events will be cleared and differential data on the bus pins converted to digital data via the low-power receiver and output on pin RXD.

In SIT1044GT/3 and SIT1044GTK/3 version, the low-power receiver is supplied from VIO and can detect CAN bus activity when VIO is above switch-off undervoltage detection voltage $V_{uvd(swoff)}$ (even if VIO is the only available supply voltage).

### 4.3 Normal mode

A LOW level on pin STB selects Normal mode, provided the supply voltage on pin VCC is above the standby undervoltage detection threshold, $V_{uvd(std)}$.

In this mode, the transceiver can transmit and receive data via bus lines CANH and CANL. Pin TXD must be HIGH at least once in Normal Mode before transmission can begin. The differential receiver converts the analog data on the bus lines into digital data on pin RXD. The slopes of the output signals on the bus lines into digital data on pin RXD. The differential receiver converts the analog data on the bus lines into digital data on pin RXD. The slopes of the output signals on the bus lines are controlled internally and are optimized in a way that guarantees the lowest possible EME. In order to support high bit rates, especially in CAN FD systems, the Signal Improvement function largely eliminates topology-related reflections and impedance mismatches. In recessive state, the output voltage on the bus pins is VCC/2.

### 4.4 Operating modes and gap-free operation

Gap-free operation guarantees defined behavior at all voltage levels. Supply voltage-to-operating mode mapping is detailed in **Figure 9** in the state diagrams (**Figure 7** and **Figure 8**)。

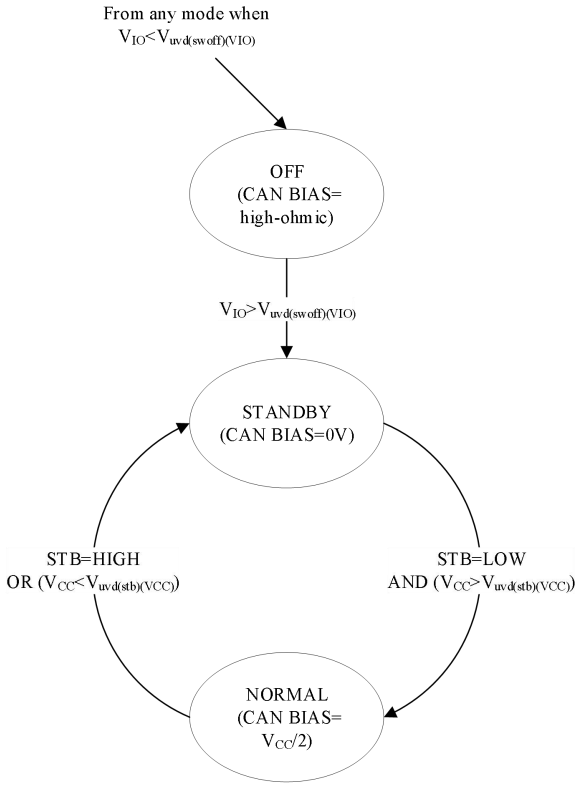



**Figure 7 SIT1044GT/3 and SIT1044GTK/3 state diagram**

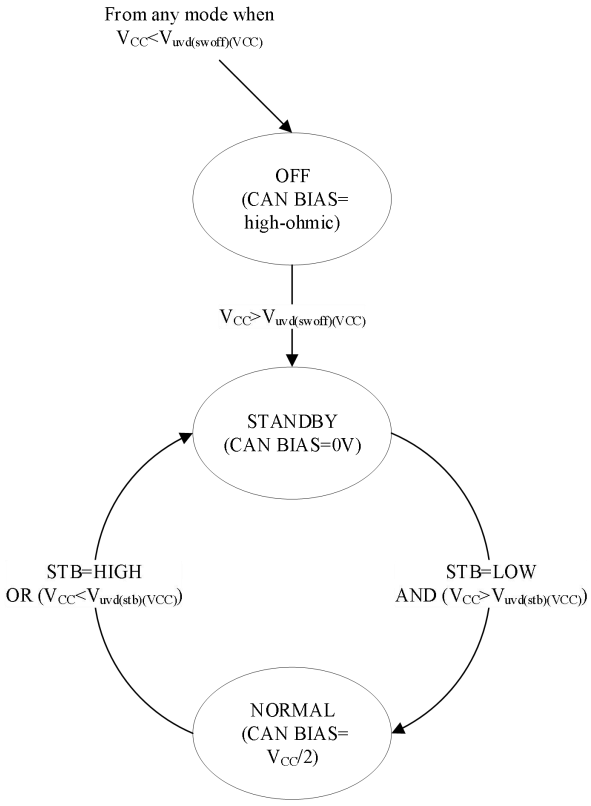



**Figure 8 SIT1044G state diagram**

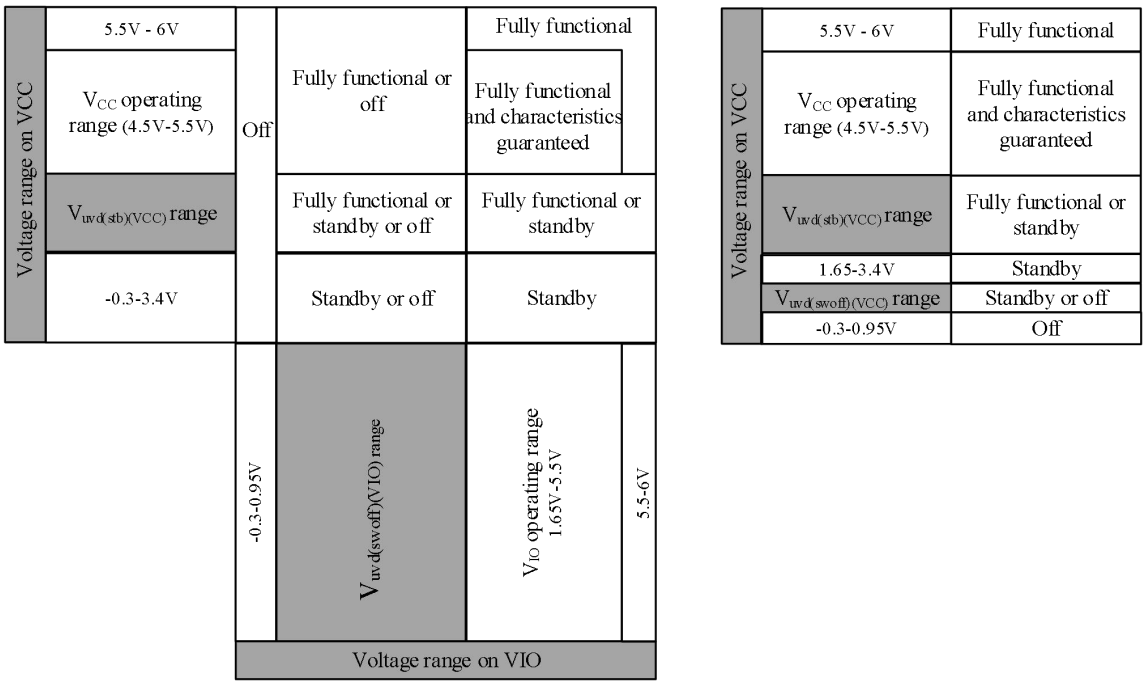


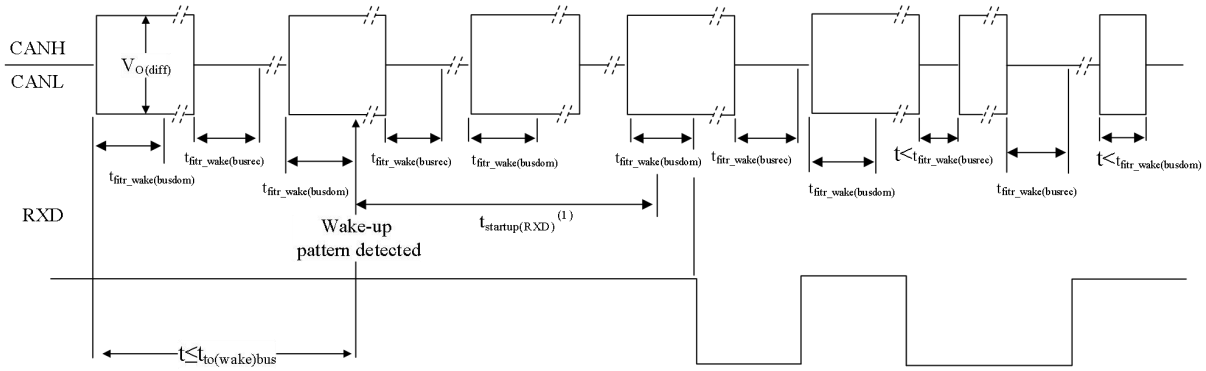

**Figure 9 Supply voltage ranges and gap-free operation**

## 5 Dominant timeout function

A "TXD dominant time-out" timer is started when pin TXD is set LOW. If the LOW state on this pin persists for longer than $t_{to(dom)TXD}$, the transmitter is disabled, releasing the bus lines to recessive state. This function prevents a hardware and/or software application failure from driving the bus lines to a permanent dominant state (blocking all network communications). The TXD dominant time-out timer is reset when pin TXD goes HIGH.

## 6 Remote wake-up

SIT1044G wakes up from Standby mode when dedicated wake-up pattern is detected on the bus. Wake-up timing is shown in the **Figure 10**.



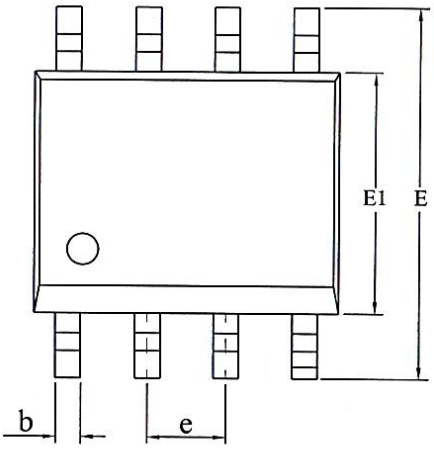

(1) During $t_{startup(RXD)}$, the low-power receiver is on but pin RXD is not active (i.e. HIGH/recessive). The first dominant pulse of width ≥ $t_{filr\_(wake)bus}$ that ends after $t_{startup(RXD)}$ will trigger RXD to go LOW/dominant.

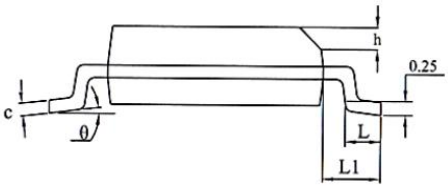
**Figure 10 Wake-up timing**

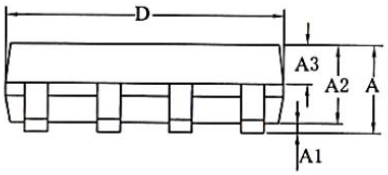
## SOP8 DIMENSIONS

**Package size**

| Symbol | Min./mm | Typ./mm | Max./mm |
|---|---|---|---|
| A | - | - | 1.75 |
| A1 | 0.10 | - | 0.225 |
| A2 | 1.30 | 1.40 | 1.50 |
| A3 | 0.60 | 0.65 | 0.70 |
| b | 0.39 | - | 0.47 |
| D | 4.80 | 4.90 | 5.00 |
| E | 5.80 | 6.00 | 6.20 |
| E1 | 3.80 | 3.90 | 4.00 |
| e | 1.27BSC | | |
| L | 0.50 | - | 0.80 |
| L1 | 1.05REF | | |
| c | 0.20 | - | 0.24 |
| θ | 0° | - | 8° |



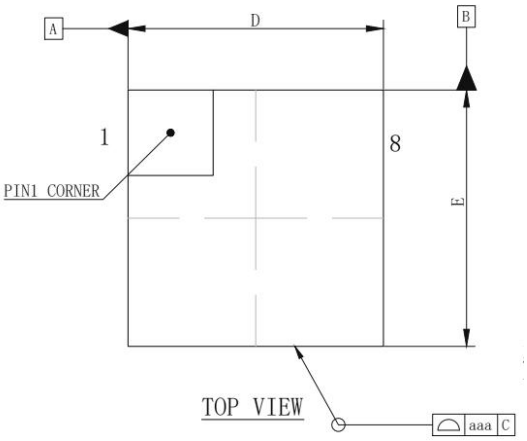



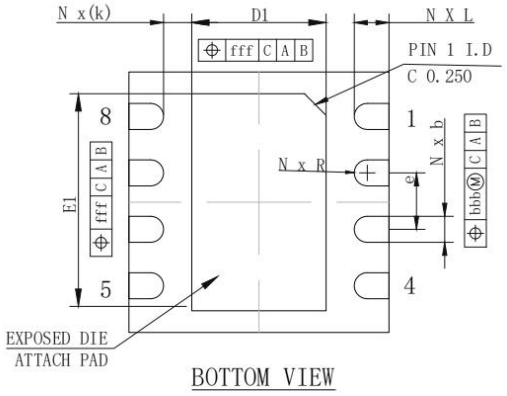



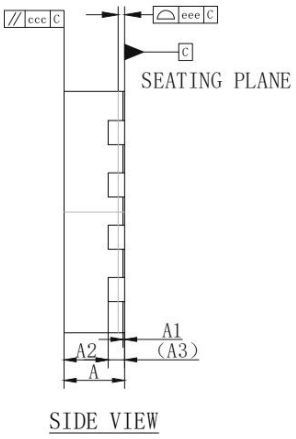
# DFN3*3-8 DIMENSIONS

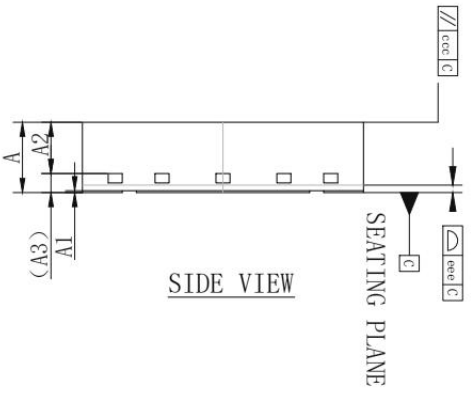
## PACKAGE SIZE

| SYMBOL | MIN/mm | TYP /mm | MAX/mm |
|---|---|---|---|
| D | 2.900 | 3.000 | 3.100 |
| E | 2.900 | 3.000 | 3.100 |
| E1 | 1.450 | 1.550 | 1.650 |
| D1 | 2.400 | 2.500 | 2.600 |
| A | 0.700 | 0.750 | 0.800 |
| A1 | 0.000 | 0.020 | 0.050 |
| A2 | 0.497 | 0.547 | 0.597 |
| A3 | 0.203 REF | | |
| b | 0.250 | 0.300 | 0.350 |
| e | 0.65 BSC | | |
| k | 0.325 REF | | |
| L | 0.350 | 0.400 | 0.450 |
| aaa | 0.100 | | |
| ccc | 0.100 | | |
| eee | 0.080 | | |
| bbb | 0.070 | | |
| fff | 0.100 | | |

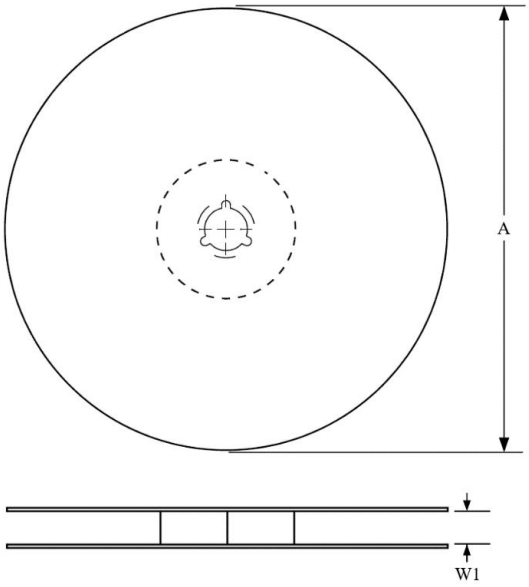


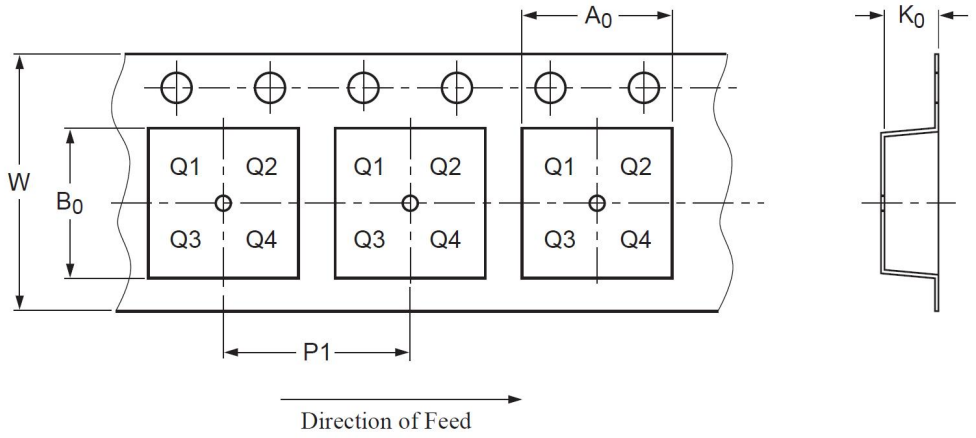



# TAPE AND REEL INFORMATION




| | |
|---|---|
| A0 | Dimension designed to accommodate the component width |
| B0 | Dimension designed to accommodate the component length |
| K0 | Dimension designed to accommodate the component thickness |
| W | Overall width of the carrier tape |
| P1 | Pitch between successive cavity centers |




PIN1 is in quadrant 1

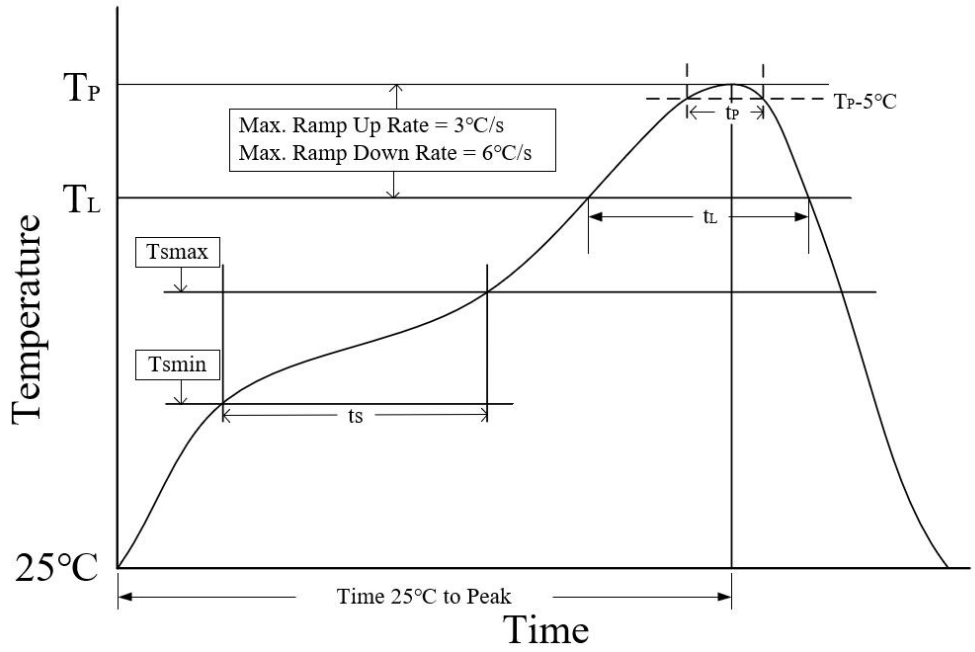
| Package Type | Reel Diameter A (mm) | Tape Width W1 (mm) | A0 (mm) | B0 (mm) | K0 (mm) | P1 (mm) | W (mm) |
|---|---|---|---|---|---|---|---|
| SOP8 | 330±1 | 12.4 | 6.60±0.1 | 5.30±0.10 | 1.90±0.1 | 8.00±0.1 | 12.00±0.1 |
| DFN3*3-8 | 329±1 | 12.4 | 3.30±0.1 | 3.30±0.1 | 1.10±0.1 | 8.00±0.1 | 12.00±0.3 |

# ORDERING INFORMATION

| Type number | Package | MSL | Packing |
|---|---|---|---|
| SIT1044GT/3 | SOP8 | MSL3 | Tape and reel |
| SIT1044GT | SOP8 | MSL3 | Tape and reel |
| SIT1044GTK/3 | DFN3*3-8 | MSL3 | Tape and reel |
| SIT1044GTK | DFN3*3-8 | MSL3 | Tape and reel |

SOP8 is packed with 2500 pieces/disc in braided packaging; Leadless DFN3*3-8 is packed with 5000 pieces/disc in braided packaging.

## REFLOW SOLDERING




| Parameter | Lead-free soldering conditions |
|---|---|
| Ave ramp up rate ($T_L$ to $T_P$) | 3 °C/second max |
| Preheat time ts ($T_{smin}$=150 °C to $T_{smax}$=200 °C) | 60-120 seconds |
| Melting time $t_L$ ($T_L$=217 °C) | 60-150 seconds |
| Peak temp $T_P$ | 260-265 °C |
| 5 °C below peak temperature $t_P$ | 30 seconds |
| Ave cooling rate ($T_P$ to $T_L$) | 6 °C/second max |
| Normal temperature 25°C to peak temperature $T_P$ time | 8 minutes max |

**Important statement**

SIT reserves the right to change the above-mentioned information without prior notice.

# REVISION HISTORY

| Version number | Data sheet status | Revision date |
|---|---|---|
| V1.0 | Initial version. | April 2026 |