

## Ultra Small Voltage Detector with High Precision Delay Circuit and Manual Reset Function

### ■ GENERAL DESCRIPTION

XC6127 series is ultra small highly accurate voltage detector with delay circuit built-in. The device includes a highly accurate reference voltage source, manufactured using CMOS process technology and laser trimming technologies, it maintains high accuracy, low power consumption, and accurate releases delay time over the full operation temperature range.

The release delay time periods are internally set in a range from 50ms to 800ms. Moreover, with the manual reset function, reset can be asserted at any time. The device is available in both CMOS and N-channel open drain output configurations. Also detect logic is available in both RESETB (Active Low) and RESET (Active High).

Ultra small package USPN-4 is ideally suited for small design of portable devices and high densely mounting applications. The conventional packages SSOT-24, SOT-25 is also available for upper compatible replacements.

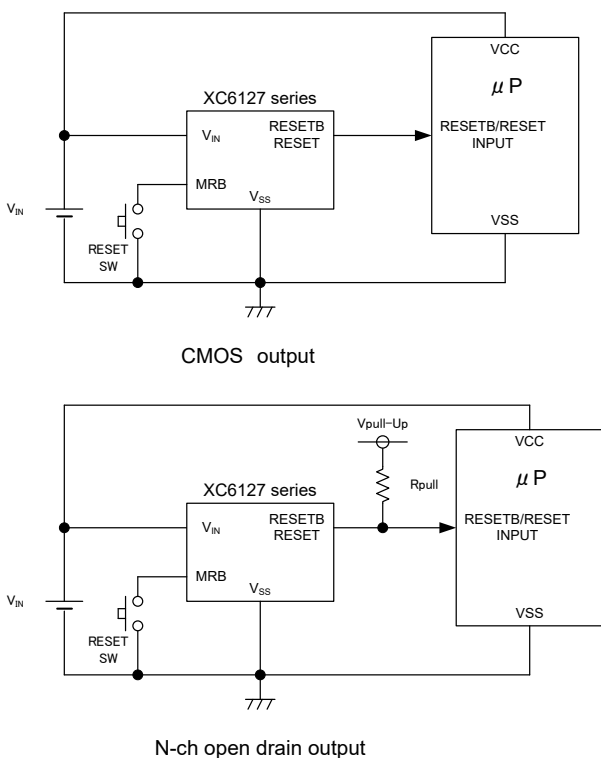
### ■ APPLICATIONS

- Microprocessor logic reset circuitry
- System battery life and charge voltage monitors
- Memory battery back-up circuits
- Power-on reset circuits
- Power failure Detection
- Delay circuit

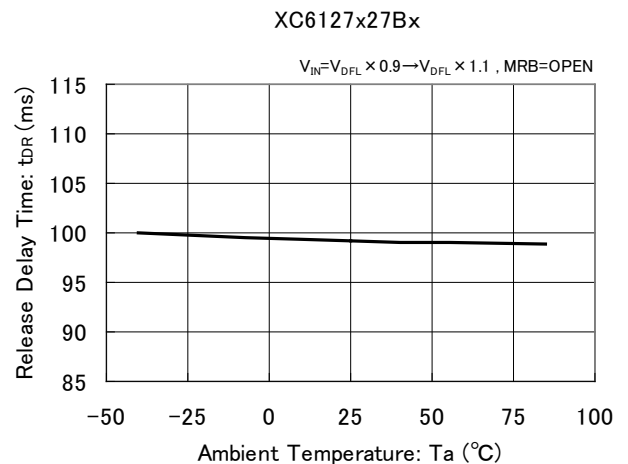
### ■ FEATURES

|                               |   |
|-------------------------------|---|
| High Accuracy                 | : ±0.8% (25°C)  |
| Temperature Characteristics   | : ±50ppm/°C   |
| Low Power Consumption         | : 0.6 μA TYP. (Detect: V <sub>DF</sub> =1.8V, V <sub>IN</sub> =1.62V)<br>0.7 μA TYP. (Release: V <sub>DF</sub> =1.8V, V <sub>IN</sub> =1.98V) |
| Operating Voltage Range       | : 0.7V ~ 6.0V   |
| Detect Voltage Range          | : 1.5V ~ 5.5V (0.1V increments)   |
| Manual Reset Input            | : MRB Pin (Built-in Pull-up resistance)   |
| Output Configuration          | : N-channel open drain or CMOS  |
| Output Logic                  | : RESETB (Active Low)<br>RESET (Active High)  |
| Release Delay Time            | : 50ms/100ms/200ms/400ms/800ms±15%  |
| Operating Ambient Temperature | : -40°C ~ 85°C  |
| Packages                      | : USPN-4, SSOT-24, SOT-25   |
| Environmentally Friendly      | : EU RoHS Compliant, Pb Free  |

### ■ TYPICAL APPLICATION CIRCUIT

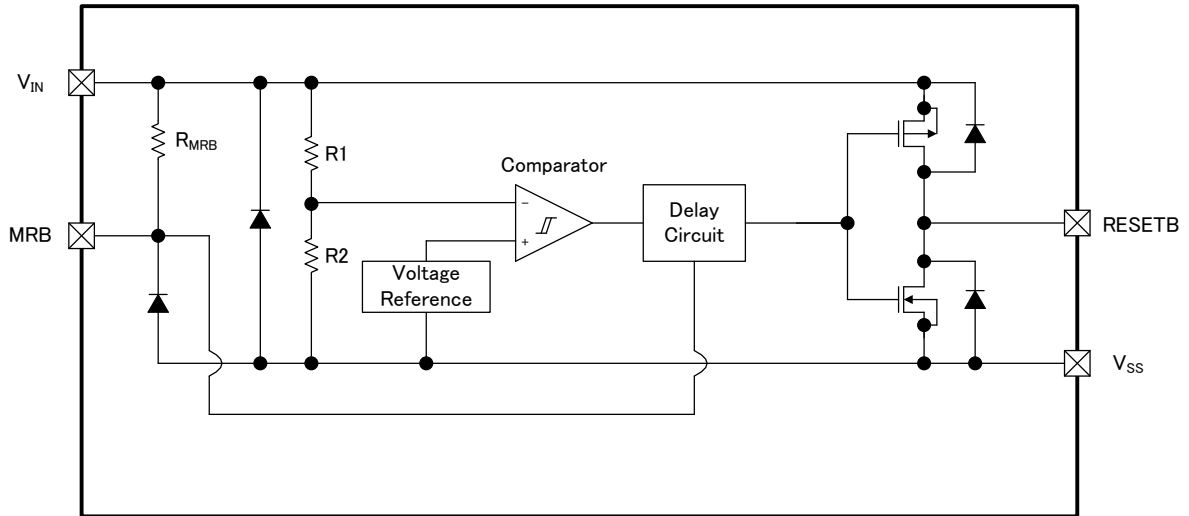


### ■ TYPICAL PERFORMANCE CHARACTERISTICS



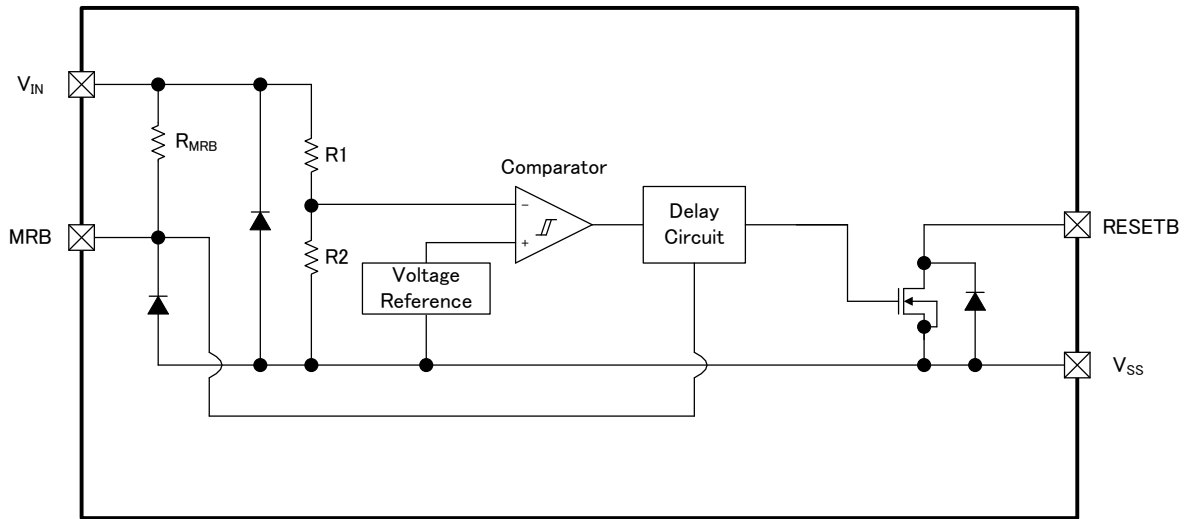
## ■ BLOCK DIAGRAMS

1) XC6127 Series, Type CxxA/CxxB/CxxC/CxxD/CxxE (CMOS Output, Output Logic: Active Low)



\* Diodes inside the circuits are ESD protection diodes and parasitic diodes.

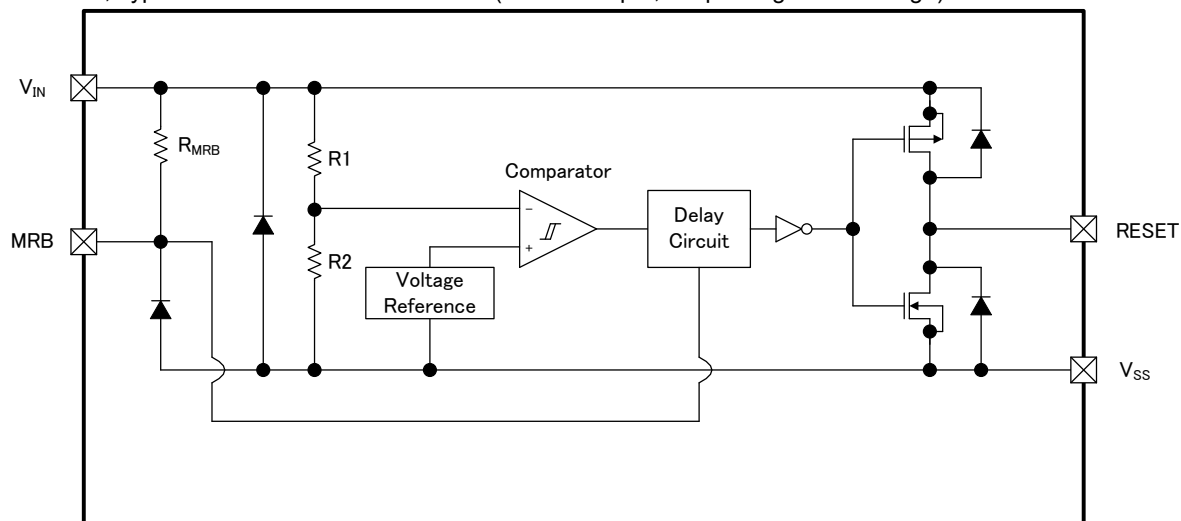
2) XC6127 Series, Type NxxA/NxxB/NxxC/NxxD/NxxE (N-ch Open Drain Output, Output Logic: Active Low)



\* Diodes inside the circuits are ESD protection diodes

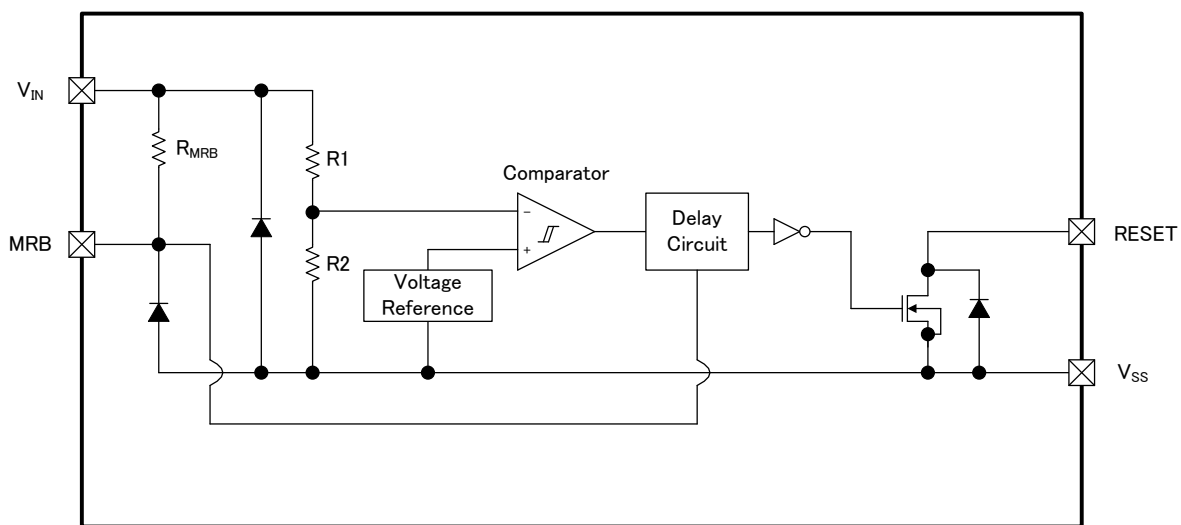
**■ BLOCK DIAGRAMS (Continued)**

3) XC6127 Series, Type CxxF/CxxG/CxxH/CxxJ/CxxK (CMOS Output, Output Logic: Active High)



\* Diodes inside the circuits are ESD protection diodes and parasitic diodes.

4) XC6127 Series, Type NxxF/NxxG/NxxH/NxxJ/NxxK (N-ch Open Drain Output, Output Logic: Active High).



\* Diodes inside the circuits are ESD protection diodes.

## PRODUCT CLASSIFICATION

### Ordering Information

XC6127①②③④⑤⑥-⑦<sup>(\*)</sup>

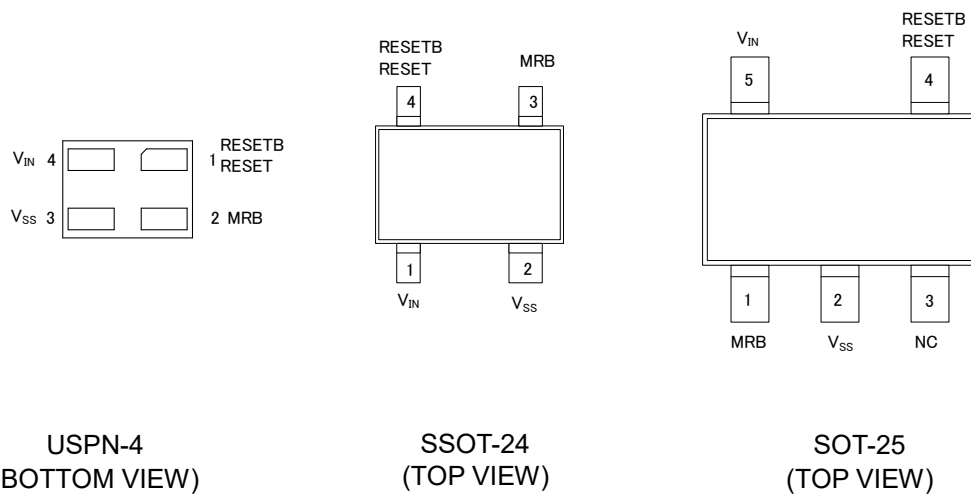
| DESIGNATOR          | ITEM                  | SYMBOL  | DESCRIPTION                                  |
|---------------------|-----------------------|---------|--|
| ①                   | Output Configuration  | C       | CMOS output                                  |
|                     |                       | N       | N-ch open drain output                       |
| ②③                  | Detect Voltage        | 15 ~ 55 | e.g. 2.7V → ②=2, ③=7                         |
| ④                   | Type                  | A       | Reset Active Low, Release Delay Time: 50ms   |
|                     |                       | B       | Reset Active Low, Release Delay Time: 100ms  |
|                     |                       | C       | Reset Active Low, Release Delay Time: 200ms  |
|                     |                       | D       | Reset Active Low, Release Delay Time: 400ms  |
|                     |                       | E       | Reset Active Low, Release Delay Time: 800ms  |
|                     |                       | F       | Reset Active High, Release Delay Time: 50ms  |
|                     |                       | G       | Reset Active High, Release Delay Time: 100ms |
|                     |                       | H       | Reset Active High, Release Delay Time: 200ms |
|                     |                       | J       | Reset Active High, Release Delay Time: 400ms |
|                     |                       | K       | Reset Active High, Release Delay Time: 800ms |
| ⑤⑥-⑦ <sup>(*)</sup> | Packages (Order Unit) | 7R-G    | USPN-4 (5,000pcs/Reel)                       |
|                     |                       | MR-G    | SOT-25 (3,000pcs/Reel)                       |
|                     |                       | NR-G    | SSOT-24 (3,000pcs/Reel)                      |

<sup>(\*)</sup> The "-G" suffix denotes Halogen and Antimony free as well as being fully EU RoHS compliant.

### 2) Selection Guide

| TYPE | Release Delay Time | Output Logic |
|------|--------------------|--------------|
| A    | 50ms               | Active Low   |
| B    | 100ms              | Active Low   |
| C    | 200ms              | Active Low   |
| D    | 400ms              | Active Low   |
| E    | 800ms              | Active Low   |
| F    | 50ms               | Active High  |
| G    | 100ms              | Active High  |
| H    | 200ms              | Active High  |
| J    | 400ms              | Active High  |
| K    | 800ms              | Active High  |

## ■ PIN CONFIGURATION



## ■ PIN ASSIGNMENT

| PIN NUMBER |         |        | PIN NAME        | FUNCTIONS                                  |
|------------|---------|--------|-----------------|--|
| USPN-4     | SSOT-24 | SOT-25 |                 |  |
| 1          | 4       | 4      | RESETB          | Signal Output (Active Low) <sup>(*)</sup>  |
|            |         |        | RESET           | Signal Output (Active High) <sup>(*)</sup> |
| 2          | 3       | 1      | MRB             | Manual Reset Input                         |
| 3          | 2       | 2      | V <sub>SS</sub> | Ground                                     |
| 4          | 1       | 5      | V <sub>IN</sub> | Power Input                                |
| -          | -       | 3      | NC              | No Connection                              |

<sup>(\*)</sup> Type A ~ E (Refer to the ④ in Ordering Information table)

<sup>(\*)</sup> Type F ~ K (Refer to the ④ in Ordering Information table)

## ■ FUNCTION CHART

| PIN NAME | SIGNAL | STATUS           |
|----------|--------|------------------|
| MRB      | L      | Forced Reset     |
|          | H      | Normal Operation |
|          | OPEN   | Normal Operation |

## ■ ABSOLUTE MAXIMUM RATINGS

| PARAMETER   |             | SYMBOL    | RATINGS  | UNITS            |
|---|-------------|-----------|--|------------------|
| Input Voltage                                     |             | $V_{IN}$  | $V_{SS} - 0.3 \sim V_{SS} + 6.5$                   | V                |
| MRB Input Voltage                                 |             | $V_{MRB}$ | $V_{SS} \sim V_{SS} + 6.5$                         | V                |
| Output Current                                    |             | (*)       | 20   | mA               |
| Output Voltage                                    | XC6127C (*) | (*)       | $V_{SS} - 0.3 \sim V_{IN} + 0.3 \leq V_{SS} + 6.5$ | V                |
|   | XC6127N (*) |           | $V_{SS} - 0.3 \sim V_{SS} + 6.5$                   |                  |
| Power Dissipation<br>( $T_a = 25^\circ\text{C}$ ) | USPN-4      | Pd        | 100  | mW               |
|   |             |           | 600 (40mm x 40mm Standard board) (*)               |                  |
|   | SOT-25      |           | 250  |                  |
|   |             |           | 600 (40mm x 40mm Standard board) (*)               |                  |
|   | SSOT-24     |           | 760 (JESD51-7 board) (*)                           |                  |
|   |             |           | 150  |                  |
|   |             |           | 500 (40mm x 40mm Standard board) (*)               |                  |
| Operating Ambient Temperature                     |             | $T_{opr}$ | -40 ~ 85   | $^\circ\text{C}$ |
| Storage Temperature                               |             | $T_{stg}$ | -55 ~ 125  | $^\circ\text{C}$ |

(\*) SYMBOL is different for each product.

$I_{R\text{OUT}}$ : Type XC6127CxxA/CxxB/CxxC/CxxD/CxxE, Type XC6127NxxA/NxxB/NxxC/NxxD/NxxE

$I_{R\text{OUT}}$ : Type XC6127CxxF/CxxG/CxxH/CxxJ/CxxK, Type XC6127NxxF/NxxG/NxxH/NxxJ/NxxK

(\*) CMOS Output

(\*) N-ch Open Drain Output

(\*) SYMBOL is different for each product.

$V_{\text{RESETB}}$ : Type XC6127CxxA/CxxB/CxxC/CxxD/CxxE, Type XC6127NxxA/NxxB/NxxC/NxxD/NxxE

$V_{\text{RESET}}$ : Type XC6127CxxF/CxxG/CxxH/CxxJ/CxxK, Type XC6127NxxF/NxxG/NxxH/NxxJ/NxxK

(\*) This power dissipation figure shown is PCB mounted and is for reference only.

The mounting condition is please refer to PACKAGING INFORMATION.

## ELECTRICAL CHARACTERISTICS

● XC6127CxxA/CxxB/CxxC/CxxD/CxxE, XC6127NxxA/NxxB/NxxC/NxxD/NxxE (Output Logic: Active Low)

Ta=25°C

| PARAMETER                                 | SYMBOL  | CONDITIONS   | MIN.  | TYP.                   | MAX.                      | UNITS  | CIRCUIT |
|---|---|--|---|------------------------|---------------------------|--------|---------|
| Operating Voltage                         | V <sub>IN</sub>   | V <sub>DF(T)</sub> <sup>(*)</sup> =1.5 ~ 5.5V, MRB=OPEN <sup>(**)</sup>                  | 0.7 <sup>(***)</sup>  |                        | 6.0                       | V      | -       |
| Detect Voltage                            | V <sub>DFL</sub>  | V <sub>DF(T)</sub> =1.5 ~ 5.5V, MRB=OPEN   | V <sub>DF(T)</sub> ×0.992   | V <sub>DF(T)</sub>     | V <sub>DF(T)</sub> ×1.008 | V      | ①       |
|   |   |  | E-1 <sup>(***)</sup>  |                        |                           |        |         |
| Hysteresis Width                          | V <sub>HYS</sub>  |  | V <sub>DFL</sub> ×0.02  | V <sub>DFL</sub> ×0.05 | V <sub>DFL</sub> ×0.08    | V      | ①       |
| Supply Current 1                          | I <sub>SS1</sub>  | V <sub>IN</sub> =V <sub>DFL</sub> ×0.9, MRB=OPEN   | -   | 0.6                    | 1.4                       | μA     | ②       |
|   |   | V <sub>DF(T)</sub> =1.5 ~ 1.8V   | -   | 0.7                    | 1.6                       |        |         |
|   |   | V <sub>DF(T)</sub> =1.9 ~ 3.0V   | -   | 1.0                    | 1.9                       |        |         |
| Supply Current 2                          | I <sub>SS2</sub>  | V <sub>IN</sub> =V <sub>DFL</sub> ×1.1 <sup>(***)</sup> , MRB=OPEN                       | -   | 0.7                    | 1.6                       | μA     | ②       |
|   |   | V <sub>DF(T)</sub> =1.5 ~ 1.8V   | -   | 0.8                    | 1.9                       |        |         |
|   |   | V <sub>DF(T)</sub> =1.9 ~ 3.0V   | -   | 1.1                    | 2.35                      |        |         |
| RESETB<br>Output Current                  | I <sub>RBOUT1</sub>   | V <sub>IN</sub> =0.7V, V <sub>RESETB</sub> =0.5V(Nch), MRB=OPEN                          | 0.014   | 0.2                    | -                         | mA     | ③       |
|   |   | V <sub>IN</sub> =1.0V, V <sub>RESETB</sub> =0.5V(Nch), MRB=OPEN                          | 0.5   | 1.6                    | -                         |        |         |
|   |   | V <sub>IN</sub> =2.0V <sup>(***)</sup> , V <sub>RESETB</sub> =0.5V(Nch), MRB=OPEN        | 4.4   | 7.0                    | -                         |        |         |
|   |   | V <sub>IN</sub> =3.0V <sup>(***)</sup> , V <sub>RESETB</sub> =0.5V(Nch), MRB=OPEN        | 7.0   | 9.0                    | -                         |        |         |
|   |   | V <sub>IN</sub> =4.0V <sup>(***)</sup> , V <sub>RESETB</sub> =0.5V(Nch), MRB=OPEN        | 8.5   | 11.0                   | -                         |        |         |
|   |   | V <sub>IN</sub> =5.0V <sup>(***)</sup> , V <sub>RESETB</sub> =0.5V(Nch), MRB=OPEN        | 9.0   | 12.0                   | -                         |        |         |
|   | I <sub>RBOUT2</sub> <sup>(***)</sup>                          | V <sub>IN</sub> =6.0V, V <sub>RESETB</sub> =5.5V(Pch), MRB=OPEN                          | -   | -4.5                   | -3.0                      | mA     | ③       |
| RESETB<br>Leakage<br>Current              | CMOS<br>Output(Pch)   | I <sub>LEAK</sub>  | V <sub>IN</sub> =V <sub>DFL</sub> ×0.9, V <sub>RESETB</sub> =0V, MRB=OPEN | -                      | -0.01                     | μA     | ③       |
|   | Nch Open<br>Drain Output                                      |  | V <sub>IN</sub> =6.0V, V <sub>RESETB</sub> =6.0V, MRB=OPEN                | -                      | 0.01                      | 0.15   |         |
| Temperature Characteristics               | ΔV <sub>DFL</sub> /<br>(ΔT <sub>opr</sub> ·V <sub>DFL</sub> ) | -40°C ≤ T <sub>opr</sub> ≤ 85°C  | -   | ±50                    | -                         | ppm/°C | ①       |
| Detect Delay Time <sup>(***)</sup>        | t <sub>DF</sub>   | V <sub>IN</sub> =V <sub>DFL</sub> ×1.1→V <sub>DFL</sub> ×0.9 <sup>(***)</sup> , MRB=OPEN | -   | -                      | 100                       | μs     | ④       |
| Release Delay Time <sup>(***)</sup>       | t <sub>DR</sub>   | V <sub>IN</sub> =V <sub>DFL</sub> ×0.9→V <sub>DFL</sub> ×1.1 <sup>(***)</sup> , MRB=OPEN | E-2 <sup>(***)</sup>  |                        |                           | ms     | ④       |
| MRB "Low" Level Voltage <sup>(***)</sup>  | V <sub>MRL</sub>  | V <sub>DFL</sub> ×1.1 ≤ V <sub>IN</sub> ≤ 6.0V   | V <sub>SS</sub>   | -                      | 0.3                       | V      | ⑤       |
| MRB "High" Level Voltage <sup>(***)</sup> | V <sub>MRH</sub>  | V <sub>DFL</sub> ×1.1 ≤ V <sub>IN</sub> ≤ 6.0V   | 1.0   | -                      | 6.0                       | V      | ⑤       |
| MRB pull-up Resistance                    | R <sub>MRB</sub>  |  | 0.4   | 0.8                    | 3.0                       | MΩ     | ⑥       |
| Minimum MRB Pulse Width                   | T <sub>MRB</sub>  | V <sub>IN</sub> =6.0V,<br>Applied pulse to MRB pin,                                      | 150   | -                      | -                         | ns     | ⑦       |

(\*) V<sub>DF(T)</sub>: Nominal detect voltage

(\*\*) For the N-ch Open Drain, R<sub>pull</sub>=100kΩ, V<sub>pull-Up</sub>=V<sub>IN</sub>

R<sub>pull</sub>: An External Pull-up resistor

V<sub>pull-Up</sub>: Pull-up Voltage

(\*\*\*) V<sub>IN</sub> voltage for V<sub>OUT</sub> ≤ 0.3V is under detect state.

(\*\*\*) For the detail value, please refer to "Voltage Table" in P10.

(\*\*\*) V<sub>DF(T)</sub> = 5.5V where V<sub>IN</sub>=6.0V

(\*\*\*) For V<sub>DF(T)</sub> > 2.0V products.

(\*\*\*) For V<sub>DF(T)</sub> > 3.0V products.

(\*\*\*) For V<sub>DF(T)</sub> > 4.0V products.

(\*\*\*) For V<sub>DF(T)</sub> > 5.0V products.

(\*\*\*) For the XC6127C (CMOS output)

(\*\*\*) A time between V<sub>IN</sub>=V<sub>DFL</sub> and V<sub>RESETB</sub>=V<sub>DFL</sub>×0.45 when V<sub>IN</sub> falls.

(\*\*\*) A time between V<sub>IN</sub>=V<sub>DFL</sub>+V<sub>HYS</sub> and V<sub>RESETB</sub>=V<sub>DFL</sub>×0.55 when V<sub>IN</sub> rises.

(\*\*\*) For the detail value, please refer to "Release Delay Time" in P11.

(\*\*\*) For MRB pin, please do not apply the voltage below V<sub>SS</sub>.

## ELECTRICAL CHARACTERISTICS (Continued)

●XC6127CxxF/CxxG/CxxH/CxxJ/CxxK, XC6127NxxF/NxxG/NxxH/NxxJ/NxxK (Output Logic: Active High)

Ta=25°C

| PARAMETER                                |                           | SYMBOL  | CONDITIONS   | MIN.                      | TYP.                   | MAX.                      | UNITS  | CIRCUIT |
|--|---------------------------|---|--|---------------------------|------------------------|---------------------------|--------|---------|
| Operating Voltage                        |                           | V <sub>IN</sub>   | V <sub>DF(T)</sub> <sup>(1)</sup> =1.5 ~ 5.5V, MRB=OPEN <sup>(2)</sup>   | 0.7 <sup>(3)</sup>        |                        | 6.0                       | V      | —       |
| Detect Voltage                           |                           | V <sub>DFH</sub>  | V <sub>DF(T)</sub> =1.5 ~ 5.5V, MRB=OPEN   | V <sub>DF(T)</sub> ×0.992 | V <sub>DF(T)</sub>     | V <sub>DF(T)</sub> ×1.008 | V      | ①       |
| Hysteresis Width                         |                           | V <sub>HYS</sub>  |  | V <sub>DFH</sub> ×0.02    | V <sub>DFH</sub> ×0.05 | V <sub>DFH</sub> ×0.08    | V      | ①       |
| Supply Current 1                         |                           | I <sub>SS1</sub>  | V <sub>IN</sub> =V <sub>DFH</sub> ×0.9, MRB=OPEN<br>V <sub>DF(T)</sub> =1.5 ~ 1.8V<br>V <sub>DF(T)</sub> =1.9 ~ 3.0V<br>V <sub>DF(T)</sub> =3.1 ~ 5.5V                 | -<br>-<br>-               | 0.6<br>0.7<br>1.0      | 1.4<br>1.6<br>1.9         | μA     | ②       |
| Supply Current 2                         |                           | I <sub>SS2</sub>  | V <sub>IN</sub> =V <sub>DFH</sub> ×1.1 <sup>(5)</sup> , MRB=OPEN<br>V <sub>DF(T)</sub> =1.5 ~ 1.8V<br>V <sub>DF(T)</sub> =1.9 ~ 3.0V<br>V <sub>DF(T)</sub> =3.1 ~ 5.5V | -<br>-<br>-               | 0.7<br>0.8<br>1.1      | 1.6<br>1.9<br>2.35        | μA     | ②       |
| RESET<br>Output Current                  |                           | I <sub>ROUT1</sub>  | V <sub>IN</sub> =1.65V <sup>(6)</sup> , V <sub>RESET</sub> =0.5V(Nch), MRB=OPEN  | 0.5                       | 1.6                    | -                         | mA     | ③       |
|  |                           |   | V <sub>IN</sub> =2.0V <sup>(7)</sup> , V <sub>RESET</sub> =0.5V(Nch), MRB=OPEN   | 4.4                       | 7.0                    | -                         |        |         |
|  |                           |   | V <sub>IN</sub> =3.0V <sup>(8)</sup> , V <sub>RESET</sub> =0.5V(Nch), MRB=OPEN   | 7.0                       | 9.0                    | -                         |        |         |
|  |                           |   | V <sub>IN</sub> =4.0V <sup>(9)</sup> , V <sub>RESET</sub> =0.5V(Nch), MRB=OPEN   | 8.5                       | 11.0                   | -                         |        |         |
|  |                           |   | V <sub>IN</sub> =5.0V <sup>(10)</sup> , V <sub>RESET</sub> =0.5V(Nch), MRB=OPEN  | 9.0                       | 12.0                   | -                         |        |         |
|  |                           |   | V <sub>IN</sub> =6.0V, V <sub>RESET</sub> =0.5V(Nch), MRB=OPEN   | 9.0                       | 12.0                   | -                         |        |         |
|  |                           | I <sub>ROUT2</sub><br><sup>(11)</sup>                         | V <sub>IN</sub> =0.7V, V <sub>RESET</sub> =0.2V(Pch), MRB=OPEN   | -                         | -0.07                  | -0.001                    | mA     | ③       |
|  |                           |   | V <sub>IN</sub> =1.0V, V <sub>RESET</sub> =0.5V(Pch), MRB=OPEN   | -                         | -0.4                   | -0.09                     |        |         |
|  |                           |   | V <sub>IN</sub> =2.0V <sup>(12)</sup> , V <sub>RESET</sub> =1.5V(Pch), MRB=OPEN  | -                         | -2.0                   | -1.3                      |        |         |
|  |                           |   | V <sub>IN</sub> =3.0V <sup>(13)</sup> , V <sub>RESET</sub> =2.5V(Pch), MRB=OPEN  | -                         | -3.0                   | -1.8                      |        |         |
|  |                           |   | V <sub>IN</sub> =4.0V <sup>(14)</sup> , V <sub>RESET</sub> =3.5V(Pch), MRB=OPEN  | -                         | -4.0                   | -2.5                      |        |         |
|  |                           |   | V <sub>IN</sub> =5.0V <sup>(15)</sup> , V <sub>RESET</sub> =4.5V(Pch), MRB=OPEN  | -                         | -4.5                   | -3.0                      |        |         |
| RESET<br>Leakage<br>Current              | CMOS<br>Output (P-ch)     | I <sub>LEAK</sub>   | V <sub>IN</sub> =6.0V, V <sub>RESET</sub> =0V, MRB=OPEN  | -                         | -0.01                  | -                         | μA     | ③       |
|  | N-ch Open<br>Drain Output |   | V <sub>IN</sub> =V <sub>DFH</sub> ×0.9, V <sub>RESET</sub> =6.0V, MRB=OPEN   | -                         | 0.01                   | 0.15                      |        |         |
| Temperature<br>Characteristics           |                           | ΔV <sub>DFH</sub> /<br>(ΔT <sub>opr</sub> ·V <sub>DFH</sub> ) | -40°C ≤ T <sub>opr</sub> ≤ 85°C  | -                         | ±50                    | -                         | ppm/°C | ①       |
| Detect Delay Time <sup>(16)</sup>        |                           | t <sub>DF</sub>   | V <sub>IN</sub> =V <sub>DFH</sub> ×1.1→V <sub>DFH</sub> ×0.9 <sup>(16)</sup> , MRB=OPEN  | -                         | -                      | E-3 <sup>(17)</sup>       | μs     | ④       |
| Release Delay Time <sup>(18)</sup>       |                           | t <sub>DR</sub>   | V <sub>IN</sub> =V <sub>DFH</sub> ×0.9→V <sub>DFH</sub> ×1.1 <sup>(18)</sup> , MRB=OPEN  | E-2 <sup>(19)</sup>       |                        |                           | ms     | ④       |
| MRB "Low" Level Voltage <sup>(20)</sup>  |                           | V <sub>MRL</sub>  | V <sub>DFH</sub> ×1.1 ≤ V <sub>IN</sub> ≤ 6.0V   | V <sub>SS</sub>           | -                      | 0.3                       | V      | ⑤       |
| MRB "High" Level Voltage <sup>(20)</sup> |                           | V <sub>MRLH</sub>   | V <sub>DFH</sub> ×1.1 ≤ V <sub>IN</sub> ≤ 6.0V   | 1.0                       | -                      | 6.0                       | V      | ⑤       |
| MRB pull-up Resistance                   |                           | R <sub>MRB</sub>  |  | 0.4                       | 0.8                    | 3.0                       | MΩ     | ⑥       |
| Minimum MRB Pulse Width                  |                           | T <sub>MRB</sub>  | V <sub>IN</sub> =6.0V, Applied pulse to MRB pin, 6.0V→0V   | 150                       | -                      | -                         | ns     | ⑦       |



## ■ ELECTRICAL CHARACTERISTICS (Continued)

(\*1)  $V_{DF(T)}$ : Nominal detect voltage

(\*2) For the N-ch Open Drain,  $R_{pull}=100k\Omega$ ,  $V_{pull-Up}=V_{IN}$

Rpull: An External Pull-up resistor

Vpull-Up: Pull-up Voltage

(\*3)  $V_{IN}$  voltage for  $V_{OUT}\geq 0.4V$  is under detect state.

(\*4) For the detail value, please refer to "Voltage Table" in P10.

(\*5)  $V_{DF(T)} = 5.5V$  where  $V_{IN}=6.0V$

(\*6) For  $V_{DF(T)}=1.5V$  products.

(\*7) For  $V_{DF(T)}\leq 1.8V$  products.

(\*8) For  $V_{DF(T)}\leq 2.7V$  products.

(\*9) For  $V_{DF(T)}\leq 3.6V$  products.

(\*10) For  $V_{DF(T)}\leq 4.6V$  products.

(\*11) For the XC6127C (CMOS output)

(\*12) For  $V_{DF(T)}> 2.0V$  products.

(\*13) For  $V_{DF(T)}> 3.0V$  products.

(\*14) For  $V_{DF(T)}> 4.0V$  products.

(\*15) For  $V_{DF(T)}> 5.0V$  products.

(\*16) A time between  $V_{IN}=V_{DFH}$  and  $V_{RESET}=V_{DFH} \times 0.45$  when  $V_{IN}$  falls.

(\*17) For the detail value, please refer to "Detect Delay Time" in P11.

(\*18) A time between  $V_{IN}=V_{DFH}+V_{HYS}$  and  $V_{RESET}=V_{DFH} \times 0.55$  when  $V_{IN}$  rises.

(\*19) For the detail value, please refer to "Release Delay Time" in P11.

(\*20) For MRB pin, please do not apply the voltage below  $V_{SS}$ .

## ELECTRICAL CHARACTERISTICS (Continued)

Voltage Table 1

| NOMINAL<br>DETECT<br>VOLTAGE<br>(V) | DETECT VOLTAGE<br>(V)<br>E-1         |        |
|-------------------------------------|--------------------------------------|--------|
|                                     | V <sub>DFL</sub> or V <sub>DFH</sub> |        |
|                                     | MIN.                                 | MAX.   |
| V <sub>DF(T)</sub>                  |                                      |        |
| 1.50                                | 1.4880                               | 1.5120 |
| 1.60                                | 1.5872                               | 1.6128 |
| 1.70                                | 1.6864                               | 1.7136 |
| 1.80                                | 1.7856                               | 1.8144 |
| 1.90                                | 1.8848                               | 1.9152 |
| 2.00                                | 1.9840                               | 2.0160 |
| 2.10                                | 2.0832                               | 2.1168 |
| 2.20                                | 2.1824                               | 2.2176 |
| 2.30                                | 2.2816                               | 2.3184 |
| 2.40                                | 2.3808                               | 2.4192 |
| 2.50                                | 2.4800                               | 2.5200 |
| 2.60                                | 2.5792                               | 2.6208 |
| 2.70                                | 2.6784                               | 2.7216 |
| 2.80                                | 2.7776                               | 2.8224 |
| 2.90                                | 2.8768                               | 2.9232 |
| 3.00                                | 2.9760                               | 3.0240 |
| 3.10                                | 3.0752                               | 3.1248 |
| 3.20                                | 3.1744                               | 3.2256 |
| 3.30                                | 3.2736                               | 3.3264 |
| 3.40                                | 3.3728                               | 3.4272 |
| 3.50                                | 3.4720                               | 3.5280 |
| 3.60                                | 3.5712                               | 3.6288 |
| 3.70                                | 3.6704                               | 3.7296 |
| 3.80                                | 3.7696                               | 3.8304 |
| 3.90                                | 3.8688                               | 3.9312 |
| 4.00                                | 3.9680                               | 4.0320 |

Voltage Table 2

| NOMINAL<br>DETECT<br>VOLTAGE<br>(V) | DETECT VOLTAGE<br>(V)<br>E-1         |        |
|-------------------------------------|--------------------------------------|--------|
|                                     | V <sub>DFL</sub> or V <sub>DFH</sub> |        |
|                                     | MIN.                                 | MAX.   |
| V <sub>DF(T)</sub>                  |                                      |        |
| 4.10                                | 4.0672                               | 4.1328 |
| 4.20                                | 4.1664                               | 4.2336 |
| 4.30                                | 4.2656                               | 4.3344 |
| 4.40                                | 4.3648                               | 4.4352 |
| 4.50                                | 4.4640                               | 4.5360 |
| 4.60                                | 4.5632                               | 4.6368 |
| 4.70                                | 4.6624                               | 4.7376 |
| 4.80                                | 4.7616                               | 4.8384 |
| 4.90                                | 4.8608                               | 4.9392 |
| 5.00                                | 4.9600                               | 5.0400 |
| 5.10                                | 5.0592                               | 5.1408 |
| 5.20                                | 5.1584                               | 5.2416 |
| 5.30                                | 5.2576                               | 5.3424 |
| 5.40                                | 5.3568                               | 5.4432 |
| 5.50                                | 5.4560                               | 5.5440 |

## ■ ELECTRICAL CHARACTERISTICS (Continued)

Release Delay Time Table

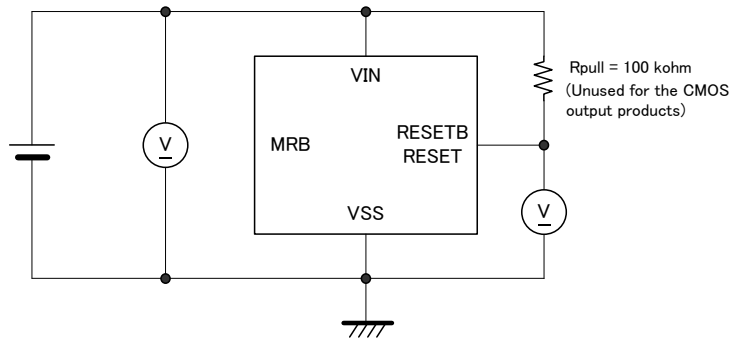
| TYPE                    | RELEASE DELAY TIME<br>(ms) |      |      |
|-------------------------|----------------------------|------|------|
|                         | E-2                        |      |      |
|                         | $t_{DR}$                   |      |      |
|                         | MIN.                       | TYP. | MAX. |
| XC6127CxxA / XC6127NxxA | 42.5                       | 50   | 57.5 |
| XC6127CxxB / XC6127NxxB | 85                         | 100  | 115  |
| XC6127CxxC / XC6127NxxC | 170                        | 200  | 230  |
| XC6127CxxD / XC6127NxxD | 340                        | 400  | 460  |
| XC6127CxxE / XC6127NxxE | 680                        | 800  | 920  |
| XC6127CxxF / XC6127NxxF | 42.5                       | 50   | 57.5 |
| XC6127CxxG / XC6127NxxG | 85                         | 100  | 115  |
| XC6127CxxH / XC6127NxxH | 170                        | 200  | 230  |
| XC6127CxxJ / XC6127NxxJ | 340                        | 400  | 460  |
| XC6127CxxK / XC6127NxxK | 680                        | 800  | 920  |

Detect Delay Time Table

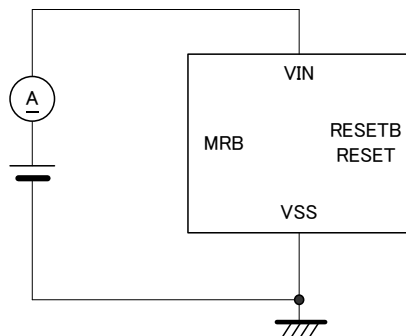
| TYPE                           | DETECT DELAY TIME ( $\mu$ s) |
|--------------------------------|------------------------------|
|                                | E-3                          |
|                                | $t_{DF}$                     |
|                                | MAX.                         |
| XC6127CxxF/CxxG/CxxH/CxxJ/CxxK | 100                          |
| XC6127NxxF/NxxG/NxxH/NxxJ/NxxK | 200                          |

## TEST CIRCUITS

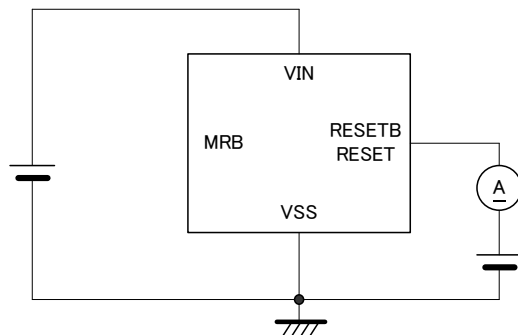
Circuit ①



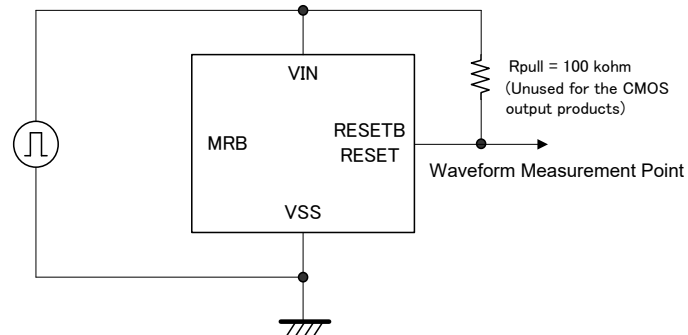
Circuit ②



Circuit ③

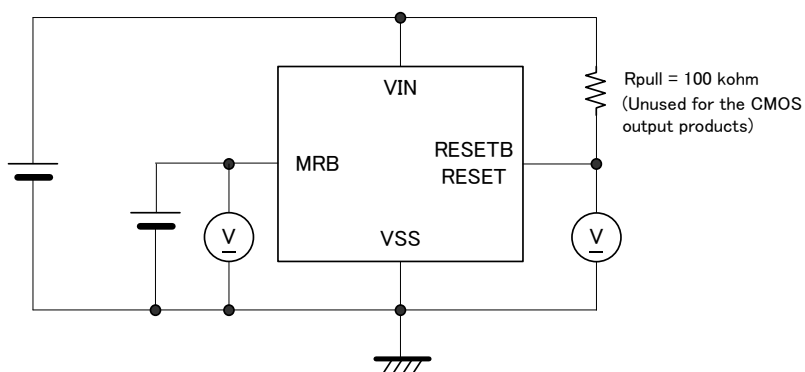


Circuit ④

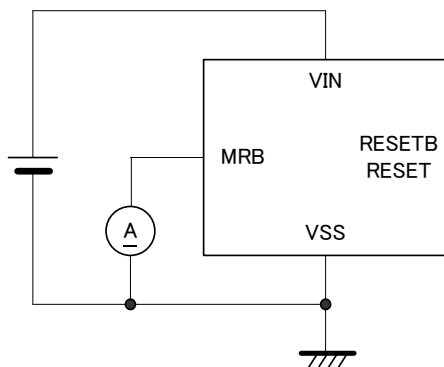


■ TEST CIRCUITS (Continued)

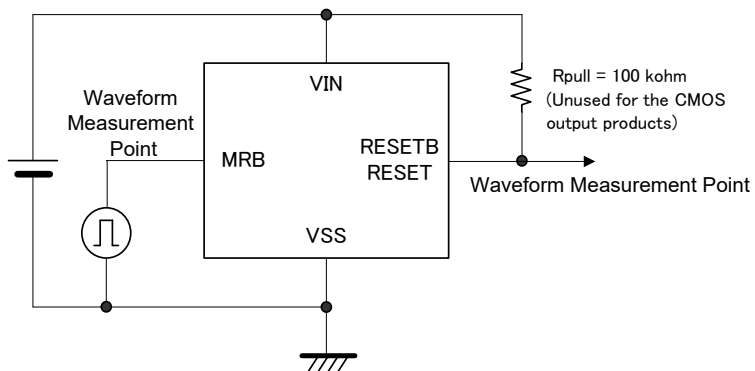
Circuit ⑤



Circuit ⑥



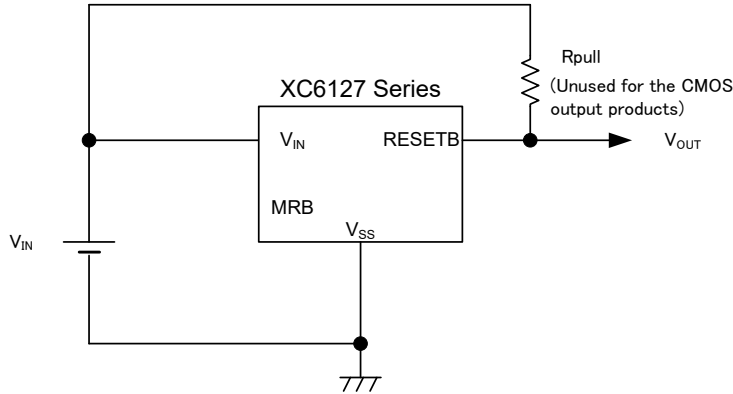
Circuit ⑦



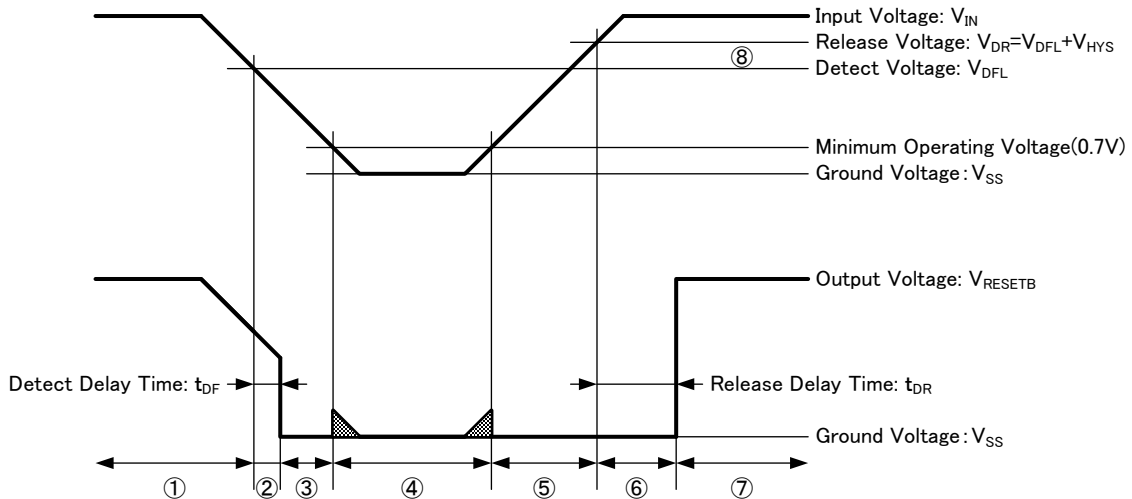
## OPERATIONAL EXPLANATION

1. Detect / Release operation using XC6127CxxA/CxxB/CxxC/CxxD/CxxE, XC6127NxxA/NxxB/NxxC/NxxD/NxxE  
(Output Logic: Active Low)

### Typical Application Circuit



### Timing Chart



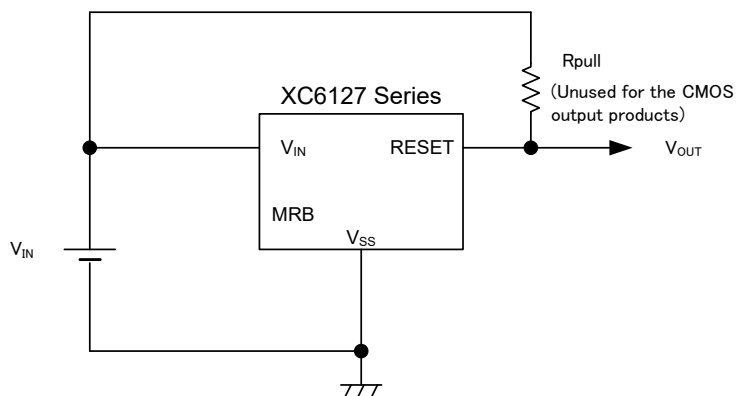
A timing chart is used to explain the operation of the typical application circuit when MRB is open.

- ① In the initial state, an input voltage ( $V_{IN}$ ) higher than the release voltage ( $V_{DR}$ ) is applied, and then  $V_{IN}$  gradually falls.  
While the input voltage ( $V_{IN}$ ) is higher than the detect voltage ( $V_{DFL}$ ), an output voltage ( $V_{RESETB}$ ) equal to the input voltage ( $V_{IN}$ ) goes out.  
\*In the case of an N-ch open drain output product, the RESETB pin is in a high-impedance state, and if the output is pulled up, the output voltage ( $V_{RESETB}$ ) is equal to the pull-up voltage.
- ②③ After the elapse of the detect delay time ( $t_{DF}$ ) that starts when the input voltage ( $V_{IN}$ ) falls below the detect voltage ( $V_{DFL}$ ), an output voltage ( $V_{RESETB}$ ) equal to the ground voltage ( $V_{SS}$ ) goes out (detection state).  
\*This is the same on the N-ch open drain output product.
- ④ The input voltage ( $V_{IN}$ ) drops further, and if it falls below the minimum operating voltage (0.7V), the output becomes undefined state.  
\*When an N-ch open drain output product is used and the output pin is pulled up, an output voltage ( $V_{RESETB}$ ) equal to the pull-up voltage may be output.
- ⑤ The input voltage ( $V_{IN}$ ) rises past the minimum operating voltage (0.7V), and until it reaches the release voltage ( $V_{DR}$ ), the output voltage ( $V_{RESETB}$ ) is equal to the ground voltage.
- ⑥ From the time that the input voltage ( $V_{IN}$ ) becomes higher than the release voltage ( $V_{DR}$ ) until the release delay time ( $t_{DR}$ ) elapses, the output voltage ( $V_{RESETB}$ ) remains at the ground voltage due to the delay circuit.
- ⑦ After the release delay time ( $t_{DR}$ ) elapses, the output voltage ( $V_{RESETB}$ ) is equal to the input voltage ( $V_{IN}$ ) (release state).  
\*In the case of an N-ch open drain output product, the RESETB pin will be in a high impedance state like ①. If the output is pulled up, an output voltage ( $V_{RESETB}$ ) equal to the pull-up voltage will be output.
- ⑧ The difference between the release voltage ( $V_{DR}$ ) and the detect voltage ( $V_{DFL}$ ) is the hysteresis width ( $V_{HYS}$ ).

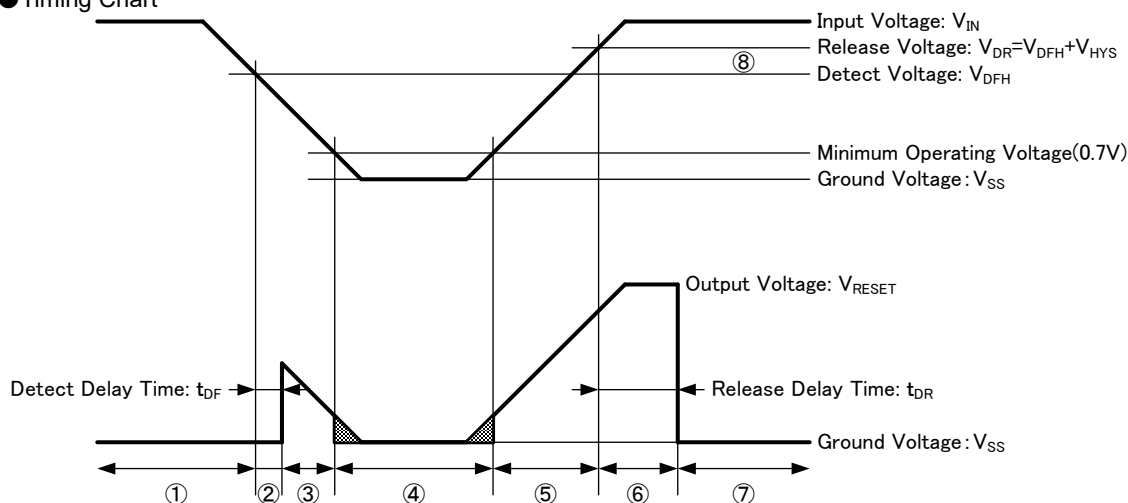
## OPERATIONAL EXPLANATION (Continued)

### 2. XC6127CxxF/CxxG/CxxH/CxxJ/CxxK, XC6127NxxF/NxxG/NxxH/NxxJ/NxxK (Output Logic: Active High)

#### ● Typical Application Circuit



#### ● Timing Chart



A timing chart is used above to explain the operation of the typical application circuit when MRB is open.

- ① In the initial state, an input voltage ( $V_{IN}$ ) higher than the release voltage ( $V_{DR}$ ) is applied, and then  $V_{IN}$  gradually falls.  
While the input voltage ( $V_{IN}$ ) is higher than the detect voltage ( $V_{DFH}$ ), an output voltage ( $V_{RESET}$ ) equal to the ground voltage ( $V_{SS}$ ) goes out.  
\*This is the same on the N-ch open drain output product.
- ②③ After the elapse of the detect delay time ( $t_{DF}$ ) that starts when the input voltage ( $V_{IN}$ ) falls below the detect voltage ( $V_{DFH}$ ), the output voltage ( $V_{RESET}$ ) is equal to the input voltage ( $V_{IN}$ ) (detection state).  
\*In the case of an N-ch open drain output product, the RESET pin is in a high-impedance state, and if the output is pulled up, the output voltage ( $V_{RESET}$ ) is equal to the pull-up voltage.
- ④ The input voltage ( $V_{IN}$ ) drops further, and if it falls below the minimum operating voltage (0.7V), the output becomes undefined state.
- ⑤ The input voltage ( $V_{IN}$ ) rises past the minimum operating voltage (0.7V), and until it reaches the release voltage ( $V_{DR}$ ), the output voltage ( $V_{RESET}$ ) is equal to the  $V_{IN}$  voltage.  
\*In the case of an N-ch open drain output product, the RESET pin is in a high-impedance state, and if the output is pulled up, the output voltage ( $V_{RESET}$ ) is equal to the pull-up voltage.
- ⑥ From the time that the input voltage ( $V_{IN}$ ) becomes higher than the release voltage ( $V_{DR}$ ) until the release delay time ( $t_{DR}$ ) elapses, the output voltage ( $V_{RESET}$ ) remains equal to the  $V_{IN}$  voltage due to the delay circuit.
- ⑦ After the release delay time ( $t_{DR}$ ) elapses, the output voltage ( $V_{RESET}$ ) is equal to the ground voltage ( $V_{SS}$ ) (release state).
- ⑧ The difference between the release voltage ( $V_{DR}$ ) and the detect voltage ( $V_{DFH}$ ) is the hysteresis width ( $V_{HYS}$ ).

## OPERATIONAL EXPLANATION (Continued)

### 3. MRB Pin

The output pin signal can be forcibly changed to the detect state by an input signal to the MRB pin. The operation of the circuit at MRB signal input is explained using a timing chart.

When an H level ( $V_{MRH}$ ) signal and then an L (or less) level ( $V_{MRL}$ ) signal are input to the MRB input voltage ( $V_{MRB}$ ) with a voltage equal to or higher than  $V_{DR}$  applied to the input voltage ( $V_{IN}$ ), the output pin outputs release state <sup>(1)</sup> and then detect state <sup>(2)</sup> signals.

During the release delay time ( $t_{DR}$ ) after the MRB input voltage ( $V_{MRB}$ ) changes from the L level ( $V_{MRL}$ ) to the H level ( $V_{MRH}$ ), the output pin maintains the detection state. After the release delay time ( $t_{DR}$ ) elapses, the output pin outputs the release state signal.

<sup>(1)</sup> The output voltage in the release state is indicated below by product type.

|  |   |
|--|---|
| XC6127xxxA/xxxB/xxxC/xxxD/xxxE types (output logic: Active Low)  | : Input voltage ( $V_{IN}$ ) <sup>(3)</sup> |
| XC6127xxxF/xxxG/xxxH/xxxJ/xxxK types (output logic: Active High) | : Ground voltage ( $V_{SS}$ )               |

<sup>(2)</sup> The output voltage in the detect state is indicated below by product type.

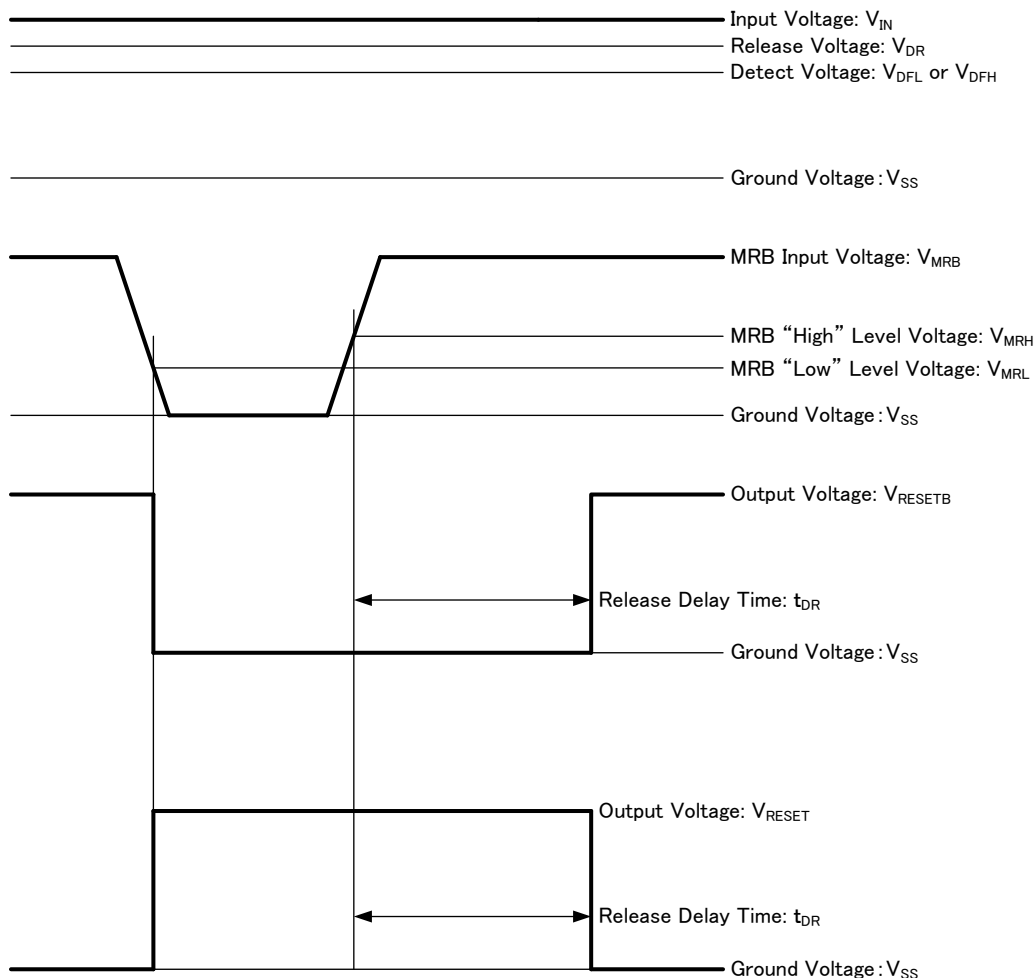
|  |   |
|--|---|
| XC6127xxxA/xxxB/xxxC/xxxD/xxxE types (output logic: Active Low)  | : Ground voltage ( $V_{SS}$ )               |
| XC6127xxxF/xxxG/xxxH/xxxJ/xxxK types (output logic: Active High) | : Input voltage ( $V_{IN}$ ) <sup>(3)</sup> |

<sup>(3)</sup> On an N-ch open drain output product, if the output is pulled up, the output voltage is the pull-up voltage.

<sup>(4)</sup> A pull-up resistance ( $R_{MRB}$ ) is built-in between the MRB pin and the  $V_{IN}$  pin, and thus if a voltage is applied to the MRB pin, current will flow from the  $V_{IN}$  pin to the MRB pin.

<sup>(5)</sup> The voltage input to the MRB pin should be within the range  $V_{SS}$  to 6.0 V.

### ● Timing Chart





## ■ NOTES ON USE

1. Please use this IC within the stated maximum ratings. For temporary, transitional voltage drop or voltage rising phenomenon, the IC is liable to malfunction should the ratings be exceeded.
2. Note that there is a possibility of malfunctioning if the input voltage changes sharply or undergoes repeated, cyclical changes.
3. If the resistance  $R_{IN}$  is connected between the VIN pin and the power supply  $V_{DD}$ , the voltage drop due to the flow through current in the internal circuit and  $R_{IN}$  may cause oscillation when release takes place. When using the CMOS output product, oscillation due to  $R_{IN}$  and the flow through current may occur without relation to release and detection, and thus  $R_{IN}$  should not be connected.
4. When N-ch open drain output is used, the output voltage at detection is determined by the pull-up resistance connected to the output pin. Select the resistance based on the following considerations:

### Using XC6127NxxA/NxxB/NxxC/NxxD/NxxE (output logic: Active Low)

At detection:  $V_{RESETB} = (V_{pull-Up}) / (1 + R_{pull}/R_{ON})$

$V_{pull-Up}$ : Voltage after pull-up

$R_{ON}$  <sup>(1)</sup>: ON resistance of N-ch driver (calculated from  $V_{RESETB}/I_{RBOUT1}$  in electrical characteristics) <sup>(3)</sup>

Example calculation:

When  $V_{IN}=2.0V$  <sup>(2)</sup>,  $R_{ON}=0.5/4.4 \times 10^{-3} \cong 114\Omega$  (MAX.). If you wish to make the  $V_{RESETB}$  voltage at detection 0.1V or lower with  $V_{pull-Up}=3.0V$ ,  $R_{pull}=(V_{pull-Up}/V_{RESETB}-1) \times R_{ON}=(3/0.1-1) \times 114 \cong 3.3k\Omega$ , and thus to make the output voltage at detection 0.1V or less under the above conditions, the pull-up resistance must be 3.3k $\Omega$  or higher.

<sup>(1)</sup> The smaller  $V_{IN}$  is, the larger  $R_{ON}$  becomes.

<sup>(2)</sup> When selecting  $V_{IN}$ , calculate using the lowest value of the input voltage range you will use.

<sup>(3)</sup>  $I_{RBOUT1}$  specified in the electrical characteristics is the value at  $T_a=25^\circ C$ .  $I_{RBOUT1}$  varies depending on the ambient temperature.

To select the pull-up resistance taking ambient temperature into account, please consult us.

At release:  $V_{RESETB} = (V_{pull-Up}) / (1 + R_{pull}/R_{OFF})$

$V_{pull-Up}$ : Voltage after pull-up

$R_{OFF}$ : Resistance value 40M $\Omega$ (MIN.) when N-ch driver is OFF (calculated from  $V_{RESETB}/I_{LEAK}$  in electrical characteristics)

Calculation example:

If you wish to make  $V_{RESETB}$  5.99V or higher with  $V_{pull-Up}=6.0V$

$R_{pull}=(V_{pull-Up}/V_{RESETB}-1) \times R_{OFF}=(6/5.99-1) \times 40 \times 10^6 \cong 66k\Omega$ , and thus to make the output voltage 5.99V or higher at release under the above conditions, the pull-up resistance must be 66k $\Omega$  or less.

### Using the C6127NxxF/NxxG/NxxH/NxxJ/NxxK (output logic: Active High)

At detection :  $V_{RESET}=(V_{pull-Up})/(1+R_{pull}/R_{OFF})$

$V_{pull-Up}$ : Voltage after pull-up

$R_{OFF}$ : When the N-ch driver is OFF, the resistance is 40M $\Omega$ (MIN.) (calculated from  $V_{RESET}/I_{LEAK}$  in the electrical characteristics)

Calculation example:

If you wish to make  $V_{RESET}$  5.99V or higher with  $V_{pull-Up} = 6.0V$

$R_{pull}=(V_{pull-Up}/V_{RESET}-1) \times R_{OFF}=(6/5.99-1) \times 40 \times 10^6 \cong 66k\Omega$  and thus to make the output voltage 5.99V or higher at detection under the above conditions, the pull-up resistance must be 66k $\Omega$  or less.

At release :  $V_{RESET}=(V_{pull-Up})/(1+R_{pull}/R_{ON})$

$V_{pull-Up}$  : Voltage after pull-up

$R_{ON}$  <sup>(1)</sup> : ON resistance of N-ch driver (calculated from  $V_{RESET}/I_{ROUT1}$  in the electrical characteristics) <sup>(3)</sup>

Calculation example:

When  $V_{IN}=2.0V$  <sup>(2)</sup>,  $R_{ON}=0.5/4.4 \times 10^{-3} \cong 114\Omega$  (MAX.). If you wish to make the  $V_{RESET}$  voltage 0.1V or lower at detection with  $V_{pull-Up}=3.0V$ ,

$R_{pull}=(V_{pull-Up}/V_{RESET}-1) \times R_{ON}=(3/0.1-1) \times 114 \cong 3.3k\Omega$  and thus to make the output voltage 0.1V or lower at release under the above conditions, the pull-up resistance must be 3.3k $\Omega$  or higher.

<sup>(1)</sup> The smaller  $V_{IN}$  is the larger  $R_{ON}$  becomes.

<sup>(2)</sup> When selecting  $V_{IN}$ , calculate using the lowest value of the input voltage range you will be using.

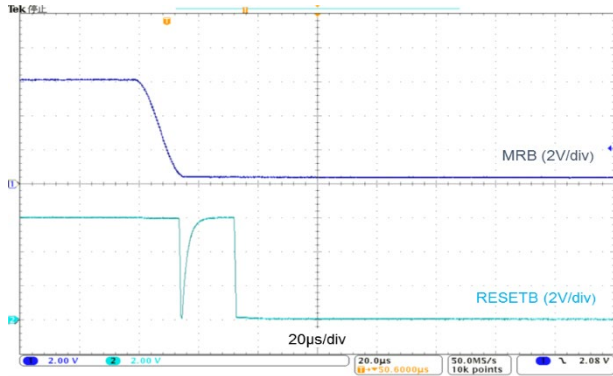
<sup>(3)</sup>  $I_{ROUT1}$  specified in the electrical characteristics is the value at  $T_a=25^\circ C$ .  $I_{ROUT1}$  varies depending on the ambient temperature.

To select the pull-up resistance taking ambient temperature into account, please consult us.

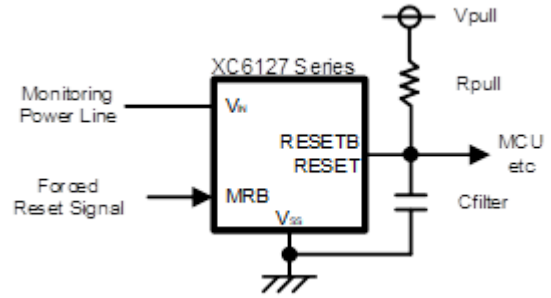
## ■ NOTES ON USE(Continued)

5. If the input signal to the MRB pin is forced to be set to the detection state, the detection signal may be erroneously pulse output to the output within the period until the output pin constantly outputs the detection signal. (See the figure below)

When taking the above measures, connect an output capacitor to the output terminal and smooth the output signal. Please connect the output capacitance (Cfilter) of 0.1μF or more



Example of incorrect output signal (Active Low Type)

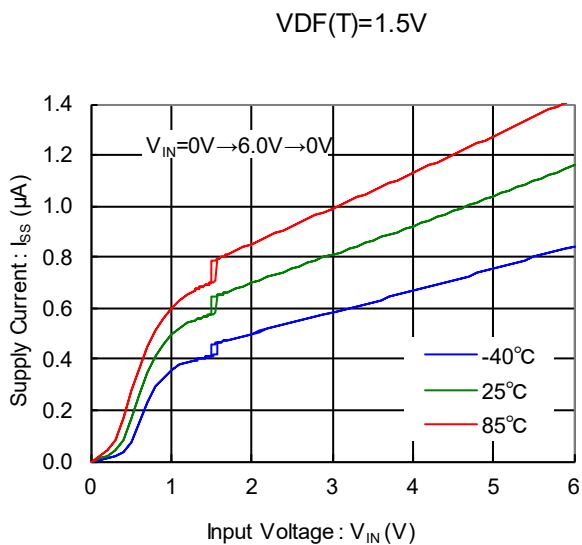


Counter measure circuit example (Nch-Open Drain Type)

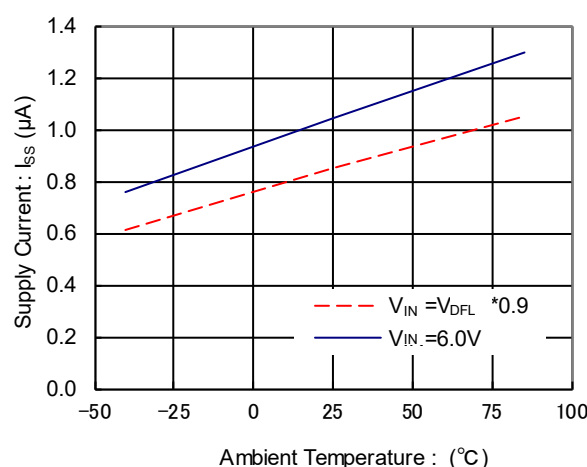
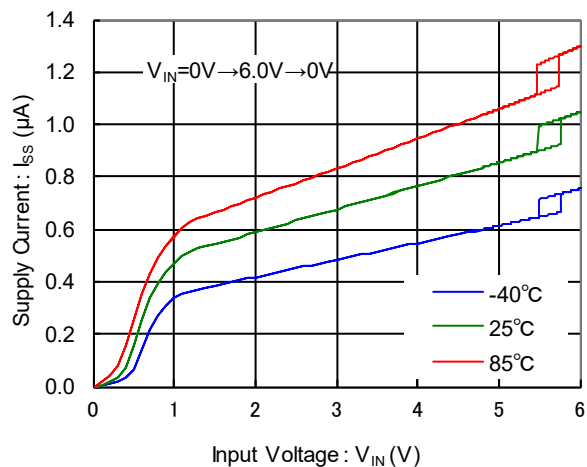
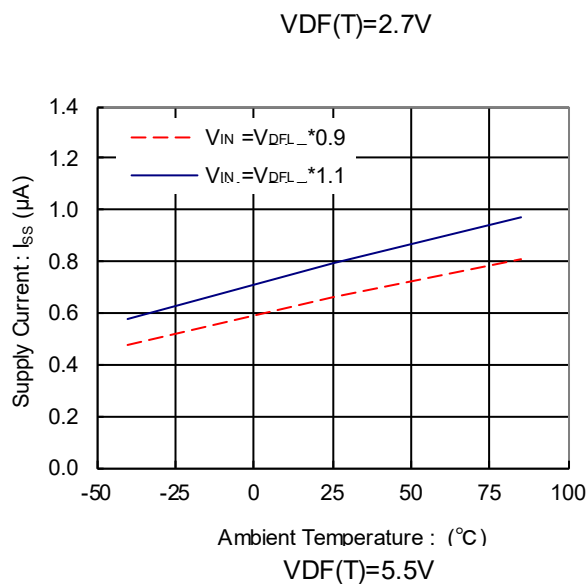
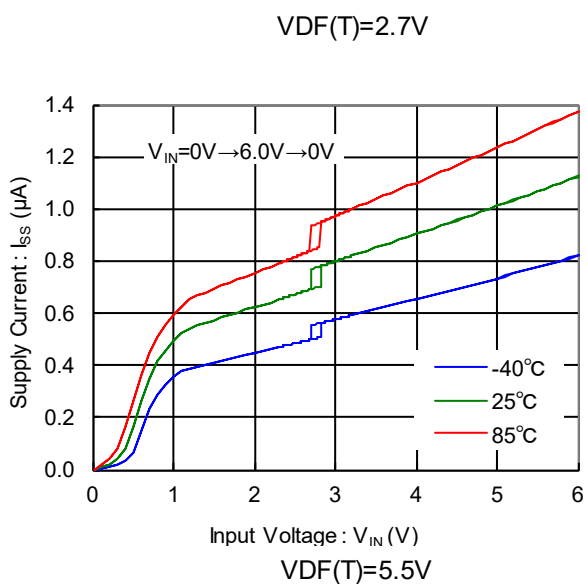
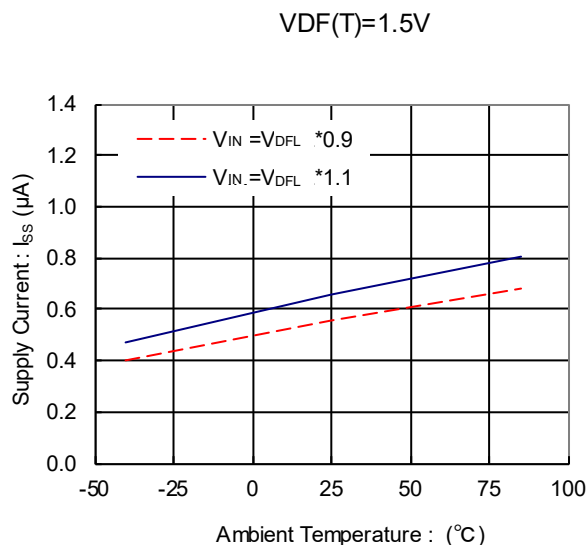
6. We are striving to improve our products and reliability. However, in the unlikely event of an emergency, we recommend fail-safe design and aging treatment, as well as sufficient safety design on the device or system.

## TYPICAL PERFORMANCE CHARACTERISTICS

(1) Supply Current vs. Input Voltage

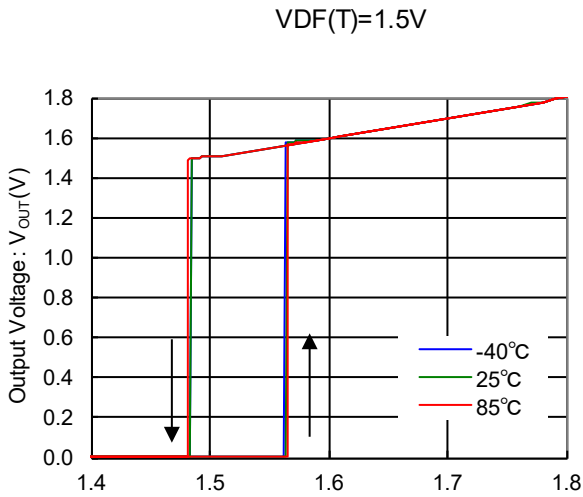


(2) Supply Current vs. Ambient Temperature

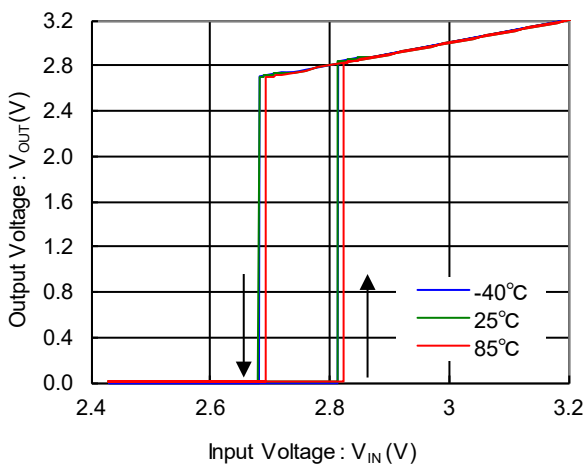


## TYPICAL PERFORMANCE CHARACTERISTICS(Continued)

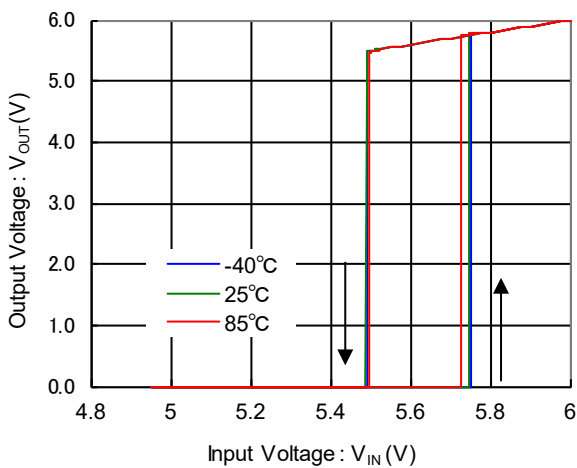
(3) Output Voltage vs. Input Voltage1



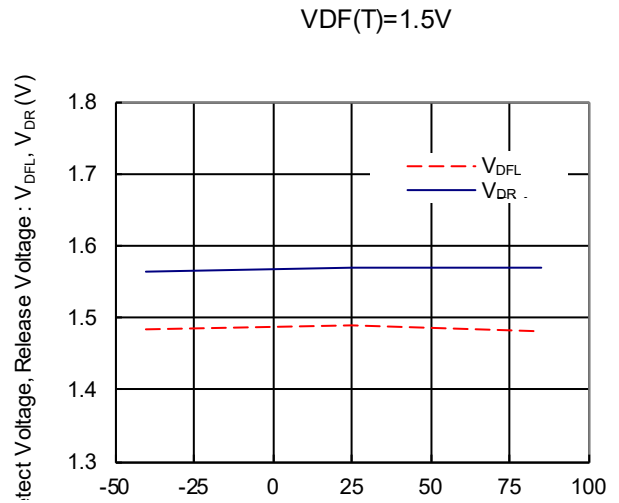
VDF(T)=2.7V



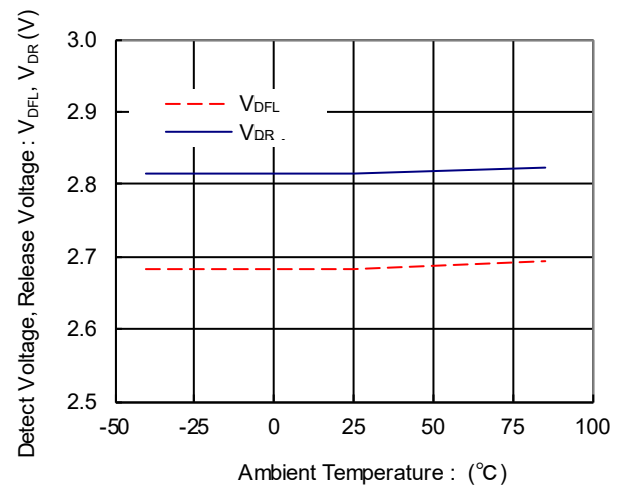
VDF (T) =5.5V



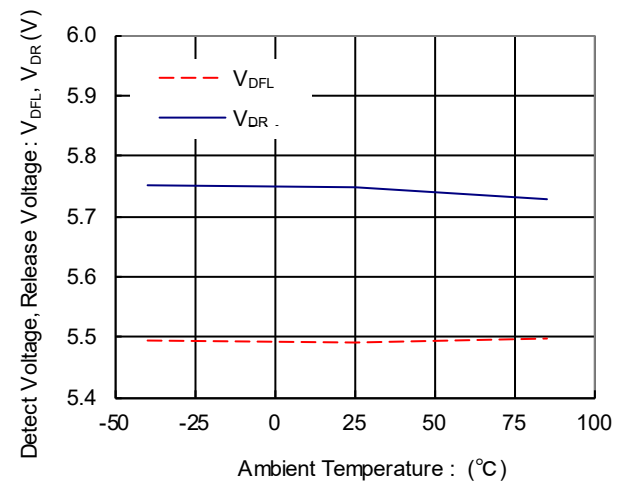
(4) Detect Voltage, Release Voltage vs. Ambient Temperature



VDF(T)=2.7V



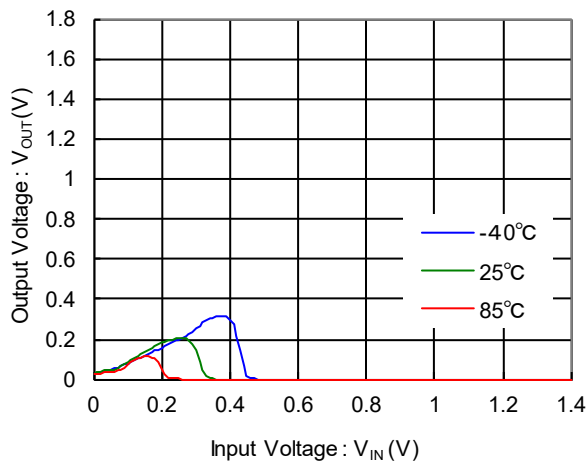
VDF(T)=5.5V



**TYPICAL PERFORMANCE CHARACTERISTICS(Continued)**

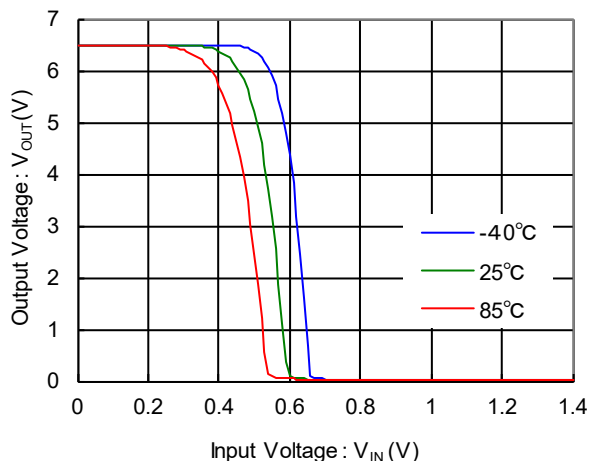
(5) Output Voltage vs. Input Voltage<sub>2</sub>

CMOS Output



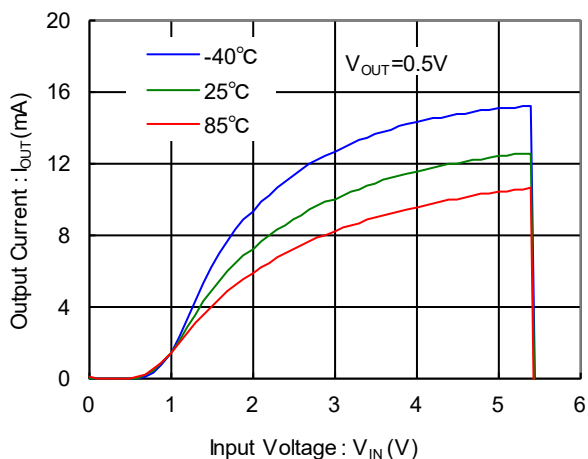
N-ch Open Drain Output

V<sub>pull-Up</sub>=6.5V, R<sub>pull</sub>=100kΩ



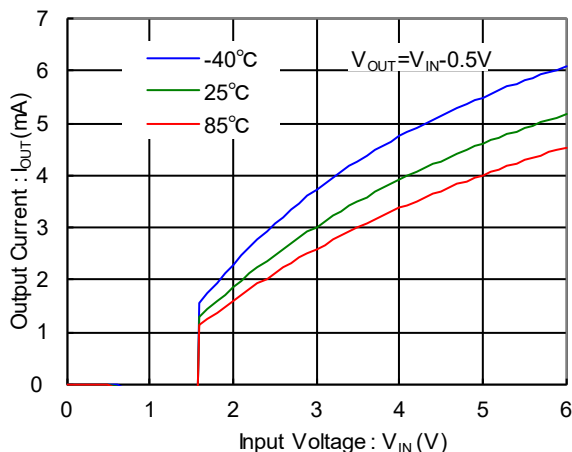
(6) Output Current (Nch Driver) vs. Input Voltage

V<sub>DF(T)</sub>=5.5V



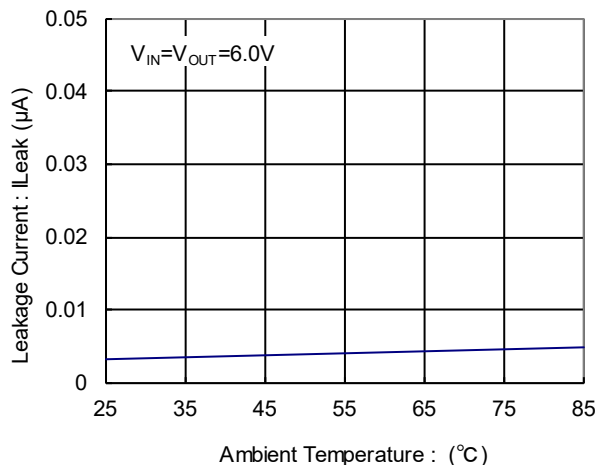
(7) Output Current (Pch Driver) vs. Input Voltage

V<sub>DF(T)</sub>=1.5V



(8) Leakage Current vs. Ambient temperature

N-ch Open Drain Output



## ■ PACKAGING INFORMATION

For the latest package information go to, [www.torexsemi.com/technical-support/packages](http://www.torexsemi.com/technical-support/packages)

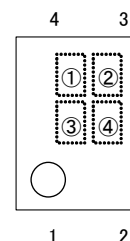
| PACKAGE | OUTLINE / LAND PATTERN      | THERMAL CHARACTERISTICS |   |
|---------|-----------------------------|-------------------------|---|
| SOT-25  | <a href="#">SOT-25 PKG</a>  | Standard Board          | <a href="#">SOT-25 Power Dissipation</a>  |
|         |                             | JESD51-7 Board          |   |
| SSOT-24 | <a href="#">SSOT-24 PKG</a> | Standard Board          | <a href="#">SSOT-24 Power Dissipation</a> |
|         |                             | JESD51-7 Board          |   |
| USPN-4  | <a href="#">USPN-4 PKG</a>  | Standard Board          | <a href="#">USPN-4 Power Dissipation</a>  |

## MARKING RULE

### ●USPN-4

① represents product series and output configuration.

| MARK | OUTPUT CONFIGURATION | PRODUCT SERIES |
|------|----------------------|----------------|
| F    | CMOS                 | XC6127C****-G  |
| H    | Nch                  | XC6127N****-G  |



② represents detect voltage.

| MARK | DETECT VOLTAGE(V) |     | MARK | DETECT VOLTAGE(V) |     | MARK | DETECT VOLTAGE(V) |     |
|------|-------------------|-----|------|-------------------|-----|------|-------------------|-----|
| A    | 1.5               | 1.6 | K    | 2.9               | 3.0 | T    | 4.3               | 4.4 |
| B    | 1.7               | 1.8 | L    | 3.1               | 3.2 | U    | 4.5               | 4.6 |
| C    | 1.9               | 2.0 | M    | 3.3               | 3.4 | V    | 4.7               | 4.8 |
| D    | 2.1               | 2.2 | N    | 3.5               | 3.6 | X    | 4.9               | 5.0 |
| E    | 2.3               | 2.4 | P    | 3.7               | 3.8 | Y    | 5.1               | 5.2 |
| F    | 2.5               | 2.6 | R    | 3.9               | 4.0 | Z    | 5.3               | 5.4 |
| H    | 2.7               | 2.8 | S    | 4.1               | 4.2 | 0    | 5.5               | -   |

③ represents detect voltage range and release delay time / detect logic.

| MARK | DETECT VOLTAGE [V] | RELEASE DELAY TIME/<br>DETECT LOGIC | PRODUCT SERIES                  |                                 |
|------|--------------------|-------------------------------------|---------------------------------|---------------------------------|
| A    | Odd number         | 50ms/Low                            | XC6127*15A**-G ~ XC6127*55A**-G |                                 |
| B    |                    | 100ms/Low                           | XC6127*15B**-G ~ XC6127*55B**-G |                                 |
| C    |                    | 200ms/Low                           | XC6127*15C**-G ~ XC6127*55C**-G |                                 |
| D    |                    | 400ms/Low                           | XC6127*15D**-G ~ XC6127*55D**-G |                                 |
| E    |                    | 800ms/Low                           | XC6127*15E**-G ~ XC6127*55E**-G |                                 |
| F    |                    | 50ms/High                           | XC6127*15F**-G ~ XC6127*55F**-G |                                 |
| H    |                    | 100ms/High                          | XC6127*15G**-G ~ XC6127*55G**-G |                                 |
| K    |                    | 200ms/High                          | XC6127*15H**-G ~ XC6127*55H**-G |                                 |
| L    |                    | 400ms/High                          | XC6127*15J**-G ~ XC6127*55J**-G |                                 |
| M    |                    | 800ms/High                          | XC6127*15K**-G ~ XC6127*55K**-G |                                 |
| N    |                    | Even number                         | 50ms/Low                        | XC6127*16A**-G ~ XC6127*54A**-G |
| P    |                    |                                     | 100ms/Low                       | XC6127*16B**-G ~ XC6127*54B**-G |
| R    |                    |                                     | 200ms/Low                       | XC6127*16C**-G ~ XC6127*54C**-G |
| S    |                    |                                     | 400ms/Low                       | XC6127*16D**-G ~ XC6127*54D**-G |
| T    | 800ms/Low          |                                     | XC6127*16E**-G ~ XC6127*54E**-G |                                 |
| U    | 50ms/High          |                                     | XC6127*16F**-G ~ XC6127*54F**-G |                                 |
| V    | 100ms/High         |                                     | XC6127*16G**-G ~ XC6127*54G**-G |                                 |
| X    | 200ms/High         |                                     | XC6127*16H**-G ~ XC6127*54H**-G |                                 |
| Y    | 400ms/High         |                                     | XC6127*16J**-G ~ XC6127*54J**-G |                                 |
| Z    | 800ms/High         |                                     | XC6127*16K**-G ~ XC6127*54K**-G |                                 |

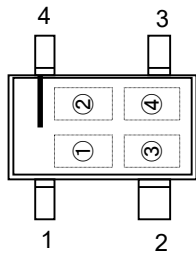
④ represents production lot number.

0 to 9, A to Z repeated. (G, I, J, O, Q, W excepted.)

\* No character inversion used.

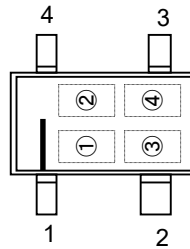
## MARKING RULE (Continued)

### SSOT-24



SSOT-24

(With the orientation bar at the top)



SSOT-24

(With the orientation bar at the bottom)

①-1 represents product series and detect voltage range, output configuration.

| MARK | OUTPUT CONFIGURATION | DETECT VOLTAGE [V] | RELEASE DELAY TIME/ DETECT LOGIC | PRODUCT SERIES                  |
|------|----------------------|--------------------|----------------------------------|---------------------------------|
| 5    | CMOS                 | Odd number         | 50ms/Low                         | XC6127C15A**-G ~ XC6127C55A**-G |
| 6    |                      |                    | 100ms/Low                        | XC6127C15B**-G ~ XC6127C55B**-G |
| 7    |                      |                    | 200ms/Low                        | XC6127C15C**-G ~ XC6127C55C**-G |
| 8    |                      |                    | 400ms/Low                        | XC6127C15D**-G ~ XC6127C55D**-G |
| 9    |                      |                    | 800ms/Low                        | XC6127C15E**-G ~ XC6127C55E**-G |
| A    |                      |                    | 50ms/High                        | XC6127C15F**-G ~ XC6127C55F**-G |
| B    |                      |                    | 100ms/High                       | XC6127C15G**-G ~ XC6127C55G**-G |
| C    |                      |                    | 200ms/High                       | XC6127C15H**-G ~ XC6127C55H**-G |
| D    |                      |                    | 400ms/High                       | XC6127C15J**-G ~ XC6127C55J**-G |
| E    |                      |                    | 800ms/High                       | XC6127C15K**-G ~ XC6127C55K**-G |
| F    |                      | Even number        | 50ms/Low                         | XC6127C16A**-G ~ XC6127C54A**-G |
| H    |                      |                    | 100ms/Low                        | XC6127C16B**-G ~ XC6127C54B**-G |
| K    |                      |                    | 200ms/Low                        | XC6127C16C**-G ~ XC6127C54C**-G |
| N    |                      |                    | 400ms/Low                        | XC6127C16D**-G ~ XC6127C54D**-G |
| P    |                      |                    | 800ms/Low                        | XC6127C16E**-G ~ XC6127C54E**-G |
| R    |                      |                    | 50ms/High                        | XC6127C16F**-G ~ XC6127C54F**-G |
| S    |                      |                    | 100ms/High                       | XC6127C16G**-G ~ XC6127C54G**-G |
| T    |                      |                    | 200ms/High                       | XC6127C16H**-G ~ XC6127C54H**-G |
| U    |                      |                    | 400ms/High                       | XC6127C16J**-G ~ XC6127C54J**-G |
| V    |                      |                    | 800ms/High                       | XC6127C16K**-G ~ XC6127C54K**-G |

\* The products of CMOS output configuration are shipped in the package having the orientation bar marked in the top.



## MARKING RULE (Continued)

①-2 represents product series and detect voltage range, output configuration.

| MARK | OUTPUT CONFIGURATION | DETECT VOLTAGE [V] | RELEASE DELAY TIME/ DETECT LOGIC | 品名表記例                           |
|------|----------------------|--------------------|----------------------------------|---------------------------------|
| 0    | Nch                  | Odd number         | 50ms/Low                         | XC6127N15A**-G ~ XC6127N55A**-G |
| 1    |                      |                    | 100ms/Low                        | XC6127N15B**-G ~ XC6127N55B**-G |
| 2    |                      |                    | 200ms/Low                        | XC6127N15C**-G ~ XC6127N55C**-G |
| 3    |                      |                    | 400ms/Low                        | XC6127N15D**-G ~ XC6127N55D**-G |
| 4    |                      |                    | 800ms/Low                        | XC6127N15E**-G ~ XC6127N55E**-G |
| 5    |                      |                    | 50ms/High                        | XC6127N15F**-G ~ XC6127N55F**-G |
| 6    |                      |                    | 100ms/High                       | XC6127N15G**-G ~ XC6127N55G**-G |
| 7    |                      |                    | 200ms/High                       | XC6127N15H**-G ~ XC6127N55H**-G |
| 8    |                      |                    | 400ms/High                       | XC6127N15J**-G ~ XC6127N55J**-G |
| 9    |                      |                    | 800ms/High                       | XC6127N15K**-G ~ XC6127N55K**-G |
| A    |                      | Even number        | 50ms/Low                         | XC6127N16A**-G ~ XC6127N54A**-G |
| B    |                      |                    | 100ms/Low                        | XC6127N16B**-G ~ XC6127N54B**-G |
| C    |                      |                    | 200ms/Low                        | XC6127N16C**-G ~ XC6127N54C**-G |
| D    |                      |                    | 400ms/Low                        | XC6127N16D**-G ~ XC6127N54D**-G |
| E    |                      |                    | 800ms/Low                        | XC6127N16E**-G ~ XC6127N54E**-G |
| F    |                      |                    | 50ms/High                        | XC6127N16F**-G ~ XC6127N54F**-G |
| H    |                      |                    | 100ms/High                       | XC6127N16G**-G ~ XC6127N54G**-G |
| K    |                      |                    | 200ms/High                       | XC6127N16H**-G ~ XC6127N54H**-G |
| L    |                      |                    | 400ms/High                       | XC6127N16J**-G ~ XC6127N54J**-G |
| M    |                      |                    | 800ms/High                       | XC6127N16K**-G ~ XC6127N54K**-G |

\* The products of Nch output configuration are shipped in the package having the orientation bar marked in the bottom.

② represents detect voltage.

| MARK | DETECT VOLTAGE(V) |     | MARK | DETECT VOLTAGE(V) |     | MARK | DETECT VOLTAGE(V) |     |
|------|-------------------|-----|------|-------------------|-----|------|-------------------|-----|
| A    | 1.5               | 1.6 | K    | 2.9               | 3.0 | T    | 4.3               | 4.4 |
| B    | 1.7               | 1.8 | L    | 3.1               | 3.2 | U    | 4.5               | 4.6 |
| C    | 1.9               | 2.0 | M    | 3.3               | 3.4 | V    | 4.7               | 4.8 |
| D    | 2.1               | 2.2 | N    | 3.5               | 3.6 | X    | 4.9               | 5.0 |
| E    | 2.3               | 2.4 | P    | 3.7               | 3.8 | Y    | 5.1               | 5.2 |
| F    | 2.5               | 2.6 | R    | 3.9               | 4.0 | Z    | 5.3               | 5.4 |
| H    | 2.7               | 2.8 | S    | 4.1               | 4.2 | 0    | 5.5               | -   |

③④ represents production lot number. 01~09, 0A~0Z, 11~9Z, A1~A9, AA~AZ, B1~ZZ repeated.

(G, I, J, O, Q, W excluded.)

\* No character inversion used.

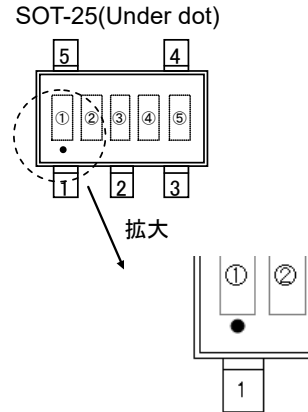
## MARKING RULE (Continued)

### ● SOT-25

① represents product series and output configuration.

| MARK | OUTPUT CONFIGURATION | PRODUCT SERIES |
|------|----------------------|----------------|
| 5    | CMOS                 | XC6127C****-G  |
| 6    | Nch                  | XC6127N****-G  |

\* SOT-25 with the under-dot marking is used.



② represents detect voltage.

| MARK | DETECT VOLTAGE(V) | MARK | DETECT VOLTAGE(V) | MARK | DETECT VOLTAGE(V) |
|------|-------------------|------|-------------------|------|-------------------|
| A    | 1.5               | 1.6  | K                 | 2.9  | 3.0               |
| B    | 1.7               | 1.8  | L                 | 3.1  | 3.2               |
| C    | 1.9               | 2.0  | M                 | 3.3  | 3.4               |
| D    | 2.1               | 2.2  | N                 | 3.5  | 3.6               |
| E    | 2.3               | 2.4  | P                 | 3.7  | 3.8               |
| F    | 2.5               | 2.6  | R                 | 3.9  | 4.0               |
| H    | 2.7               | 2.8  | S                 | 4.1  | 4.2               |
|      |                   |      | T                 | 4.3  | 4.4               |
|      |                   |      | U                 | 4.5  | 4.6               |
|      |                   |      | V                 | 4.7  | 4.8               |
|      |                   |      | X                 | 4.9  | 5.0               |
|      |                   |      | Y                 | 5.1  | 5.2               |
|      |                   |      | Z                 | 5.3  | 5.4               |
|      |                   |      | 0                 | 5.5  | -                 |

③ represents detect voltage range and release delay time / detect logic.

| MARK | DETECT VOLTAGE [V] | RELEASE DELAY TIME/ DETECT LOGIC | PRODUCT SERIES                  |
|------|--------------------|----------------------------------|---------------------------------|
| A    | Odd number         | 50ms/Low                         | XC6127*15A**-G ~ XC6127*55A**-G |
| B    |                    | 100ms/Low                        | XC6127*15B**-G ~ XC6127*55B**-G |
| C    |                    | 200ms/Low                        | XC6127*15C**-G ~ XC6127*55C**-G |
| D    |                    | 400ms/Low                        | XC6127*15D**-G ~ XC6127*55D**-G |
| E    |                    | 800ms/Low                        | XC6127*15E**-G ~ XC6127*55E**-G |
| F    |                    | 50ms/High                        | XC6127*15F**-G ~ XC6127*55F**-G |
| H    |                    | 100ms/High                       | XC6127*15G**-G ~ XC6127*55G**-G |
| K    |                    | 200ms/High                       | XC6127*15H**-G ~ XC6127*55H**-G |
| L    |                    | 400ms/High                       | XC6127*15J**-G ~ XC6127*55J**-G |
| M    |                    | 800ms/High                       | XC6127*15K**-G ~ XC6127*55K**-G |
| N    | Even number        | 50ms/Low                         | XC6127*16A**-G ~ XC6127*54A**-G |
| P    |                    | 100ms/Low                        | XC6127*16B**-G ~ XC6127*54B**-G |
| R    |                    | 200ms/Low                        | XC6127*16C**-G ~ XC6127*54C**-G |
| S    |                    | 400ms/Low                        | XC6127*16D**-G ~ XC6127*54D**-G |
| T    |                    | 800ms/Low                        | XC6127*16E**-G ~ XC6127*54E**-G |
| U    |                    | 50ms/High                        | XC6127*16F**-G ~ XC6127*54F**-G |
| V    |                    | 100ms/High                       | XC6127*16G**-G ~ XC6127*54G**-G |
| X    |                    | 200ms/High                       | XC6127*16H**-G ~ XC6127*54H**-G |
| Y    |                    | 400ms/High                       | XC6127*16J**-G ~ XC6127*54J**-G |
| Z    |                    | 800ms/High                       | XC6127*16K**-G ~ XC6127*54K**-G |

③④ represents production lot number. 01~09, 0A~0Z, 11~9Z, A1~A9, AA~AZ, B1~ZZ repeated.

(G, I, J, O, Q, W excluded.)

\* No character inversion used.

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Наши преимущества:

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- Поставка более 17-ти миллионов наименований электронных компонентов;
- Поставка сложных, дефицитных, либо снятых с производства позиций;
- Оперативные сроки поставки под заказ (от 5 рабочих дней);
- Экспресс доставка в любую точку России;
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- Система менеджмента качества сертифицирована по Международному стандарту ISO 9001;
- Лицензия ФСБ на осуществление работ с использованием сведений, составляющих государственную тайну;
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- Подбор аналогов;
- Консультации по применению компонента;
- Поставка образцов и прототипов;
- Техническая поддержка проекта;
- Защита от снятия компонента с производства.



#### Как с нами связаться

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