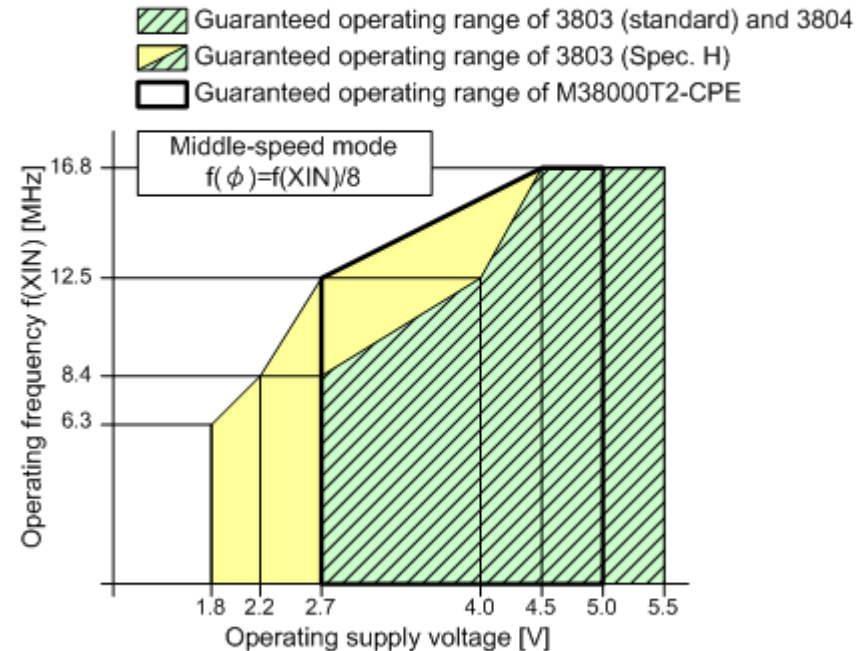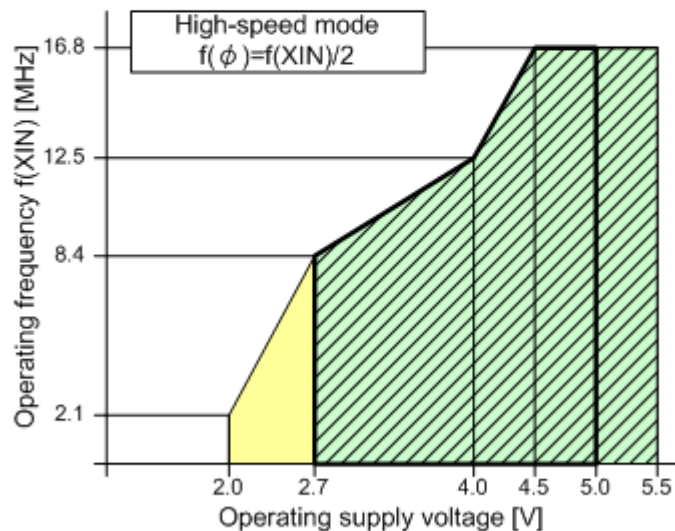# Guaranteed operating range of 38000 Series 3803,3804 Group

2004-01-16 Rev.1.00

As the specifications of the mass-produced MCUs vary according to its memory types (mask ROM or flash etc.), be sure to check the data sheet of your MCU.

Applicable group:
3803 (Standard, Spec. H), 3804 Group

Guaranteed operating range of 3803 (standard) and 3804
Guaranteed operating range of 3803 (Spec. H)
Guaranteed operating range of M38000T2-CPE



High-speed mode
$f(\phi)=f(XIN)/2$

Operating frequency f(XIN) [MHz]
Operating supply voltage [V]

Middle-speed mode
$f(\phi)=f(XIN)/8$

Operating frequency f(XIN) [MHz]
Operating supply voltage [V]

* Be sure to use the emulator MCU M38049RLSS.
* The evaluation at a voltage lower than 2.7 V and higher than 5 V is not available in combination with the M38000T2-CPE.
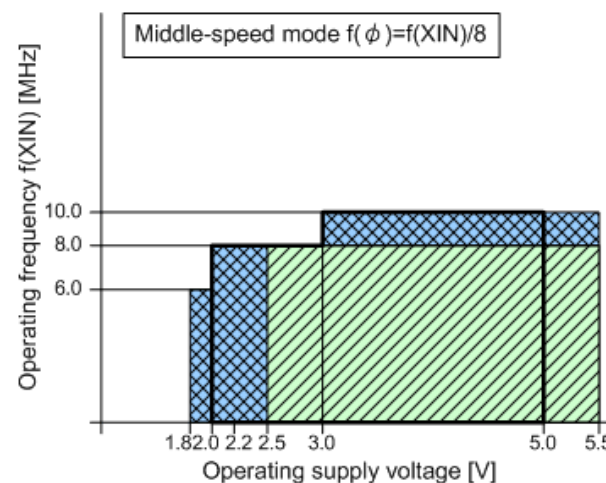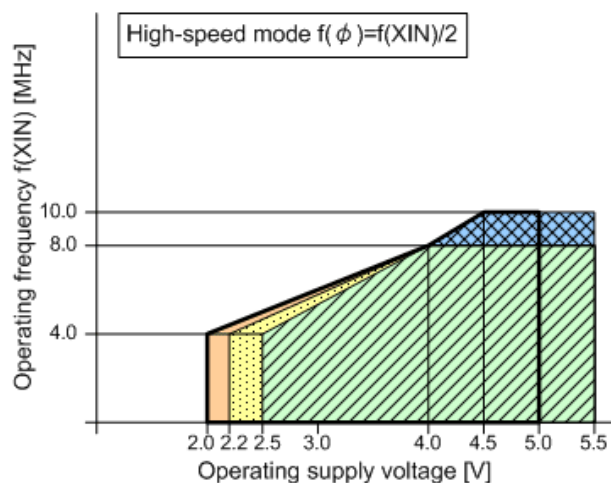
## Guaranteed operating range of 38000 Series 3822 Group

2004-01-16 Rev.1.00

As the specifications of the mass-produced MCUs vary according to its memory types (mask ROM or flash etc.), be sure to check the data sheet of your MCU.

Guaranteed operating range of standard product
Guaranteed operating range of M version
Guaranteed operating range of H version
Guaranteed operating range of A version
Guaranteed operating range of M38000T2-CPE

Applicable group:
3822 Group (Standard, M, H and A version)

High-speed mode f($\phi$)=f(XIN)/2

Middle-speed mode f($\phi$)=f(XIN)/8



* Be sure to use the emulator MCU M38227RFS.
* The M38227RFS is a standard type MCU.
  When debugging the 3822 Group M, H and A version MCU using the M38227RFS, be concerned about the difference of specifications of the MCUs.
* The evaluation at a voltage lower than 2.0 V and higher than 5 V is not available in combination with the M38000T2-CPE.
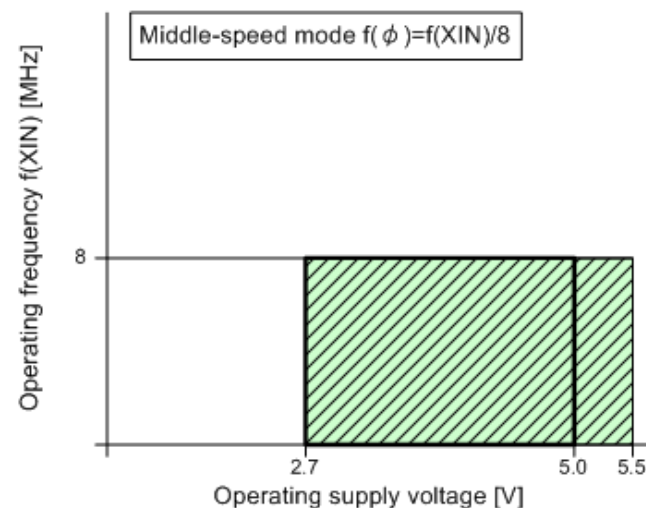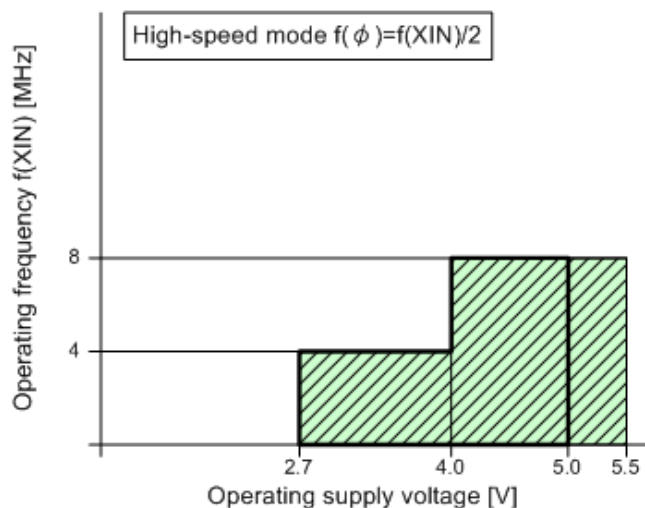
## Guaranteed operating range of 38000 Series 3850 Group (Standard, Spec.H), 3851 Group

2004-01-16 Rev.1.00

As the specifications of the mass-produced MCUs vary according to its memory types (mask ROM or flash etc.), be sure to check the data sheet of your MCU.

Applicable group:
3850 (Standard, Spec. H), 3851 Group

Guaranteed operating range of mass-produced MCU
Guaranteed operating range of M38000T2-CPE

High-speed mode f($\phi$)=f(XIN)/2

Middle-speed mode f($\phi$)=f(XIN)/8



* Be sure to use the emulator MCU M38517RSS.
* The M38517RSS is a Spec. H MCU.
  When debugging the 3850 Group standard type MCU using the M38517RSS, be concerned about the difference of the specifications of the MCUs.
* The evaluation at a voltage higher than 5 V is not available in combination with the M38000T2-CPE.
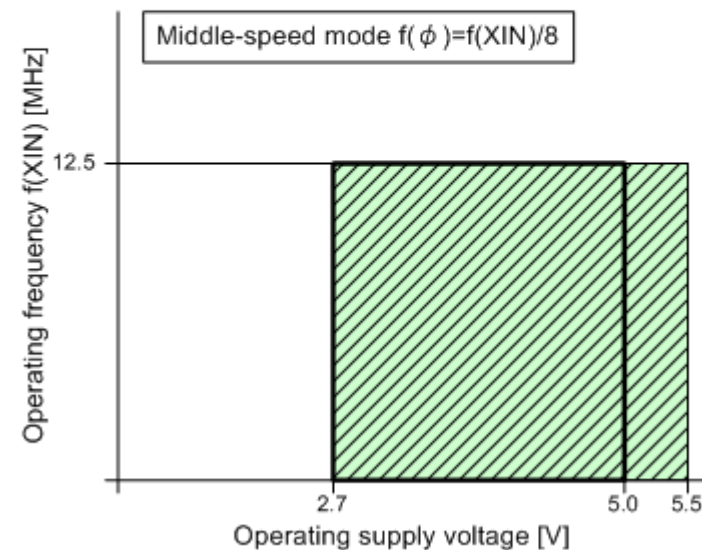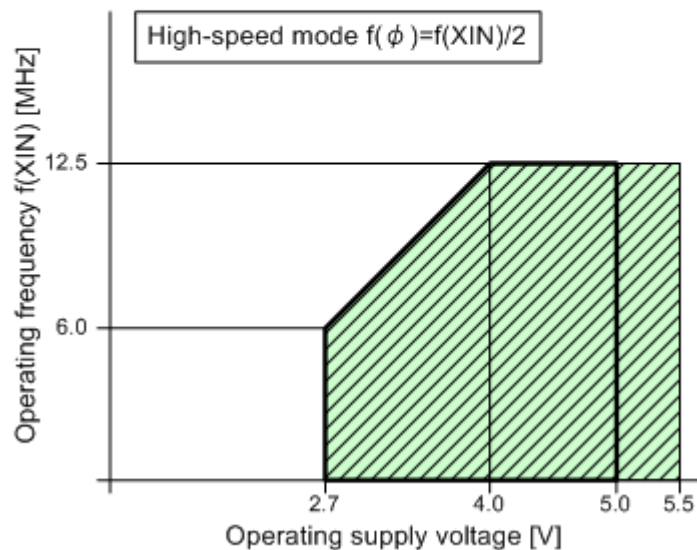
## Guaranteed operating range of 38000 Series 3850 Group (Spec.A)

2004-01-16 Rev.1.00

As the specifications of the mass-produced MCUs vary according to its memory types (mask ROM or flash etc.), be sure to check the data sheet of your MCU.

Applicable group:
3850 Group ( Spec. A )

[////] Guaranteed operating range of mass-produced MCU
[ ] Guaranteed operating range of M38000T2-CPE

High-speed mode f($\phi$)=f(XIN)/2

Middle-speed mode f($\phi$)=f(XIN)/8

Operating frequency f(XIN) [MHz]

12.5

6.0

2.7   4.0   5.0  5.5
Operating supply voltage [V]

Operating frequency f(XIN) [MHz]

12.5

2.7            5.0  5.5
Operating supply voltage [V]

* Be sure to use the emulator MCU M38507ARLSS.
* The evaluation at a voltage higher than 5 V is not available in combination with the M38000T2-CPE.
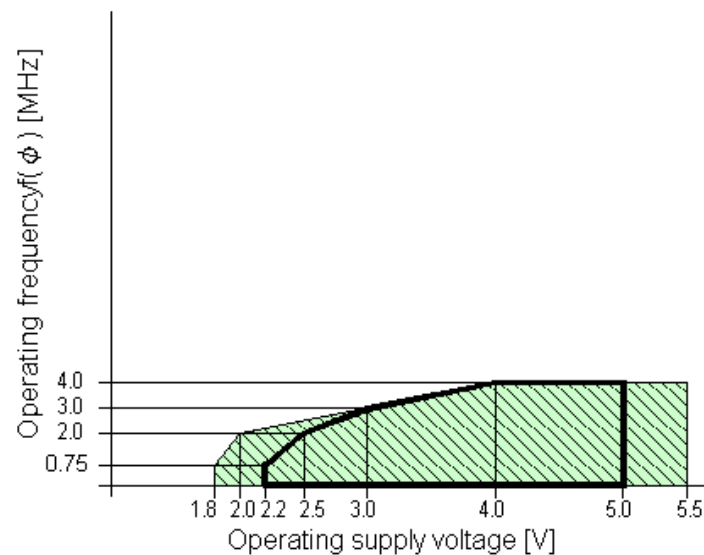
## Guaranteed operating range of 38000 Series 38C1 Group

2004-03-01 Rev.1.00

As the specifications of the mass-produced MCUs vary according to its memory types (mask ROM or flash etc.), be sure to check the data sheet of your MCU.

Applicable group:
38C1 Group

▨ Guaranteed operating range of mass-produced MCU
☐ Guaranteed operating range of M38000T2-CPE



*   Be sure to use the emulator MCU M38C13RLFS.
*   The evaluation at a voltage higher than 5 V is not available in combination with the M38000T2-CPE.
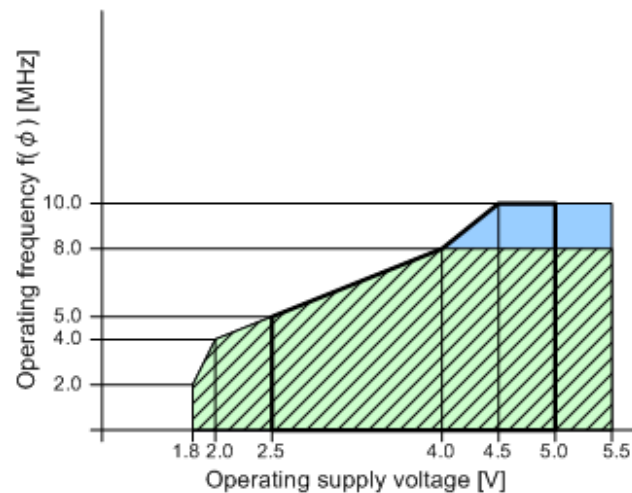
## Guaranteed operating range of 38000 Series 38C2 Group

2004-01-16 Rev.1.00

As the specifications of the mass-produced MCUs vary according to its memory types (mask ROM or flash etc.), be sure to check the data sheet of your MCU.

Applicable group:
38C2 Group (Standard, A version)

Guaranteed operating range of mass-produced MCU (standard)
Guaranteed operating range of mass-produced MCU (A version)
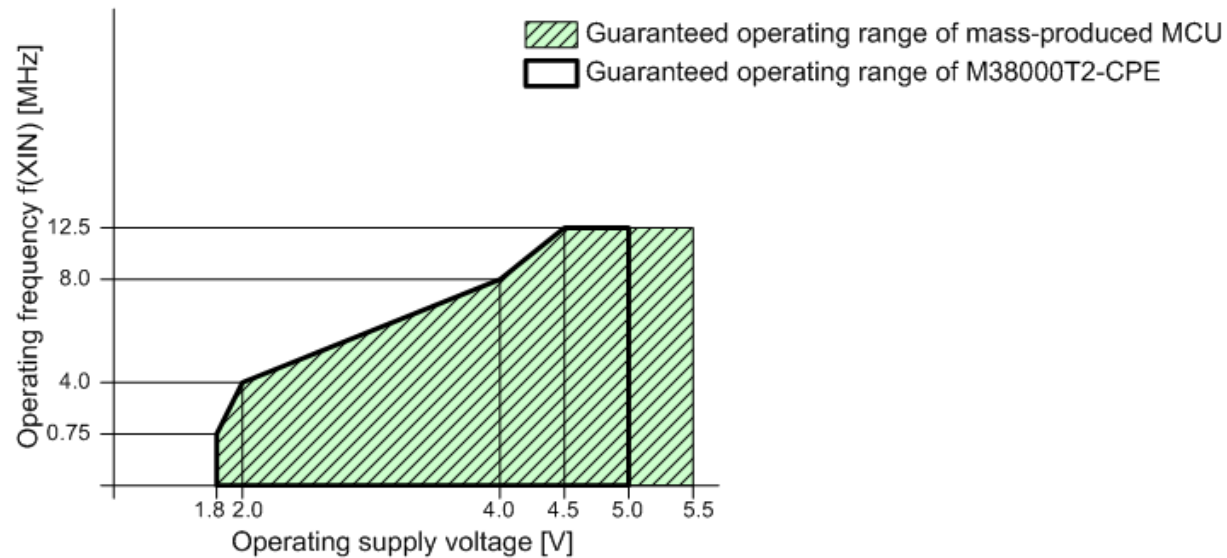Guaranteed operating range of M38000T2-CPE



* Be sure to use the emulator MCU M38C29RLFS.
* The M38C29RLFS is an A version MCU.
  When debugging the 38C2 Group standard type MCU using the M38C2RLFS, be concerned about the difference of the specifications of the MCUs.
* The evaluation at a voltage higher than 5 V is not available in combination with the M38000T2-CPE.
* The evaluation at a voltage lower than 2.5 V is not available in combination with the M38000T2-CPE.

## Guaranteed operating range of 38000 Series 38C5 Group

2004-02-17 Rev.1.00

Applicable group:
38C5 Group

As the specifications of the mass-produced MCUs vary according to its memory types (mask ROM or flash etc.), be sure to check the data sheet of your MCU.

Guaranteed operating range of mass-produced MCU
Guaranteed operating range of M38000T2-CPE



* Be sure to use the emulator MCU M38C59T-RLFS.
* The evaluation at a voltage higher than 5.0 V is not available in combination with the M38000T2-CPE.

## Guaranteed operating range of 38000 Series 38K0 Group

2004-01-16 Rev.1.00

As the specifications of the mass-produced MCUs vary according to its memory types (mask ROM or flash etc.), be sure to check the data sheet of your MCU.
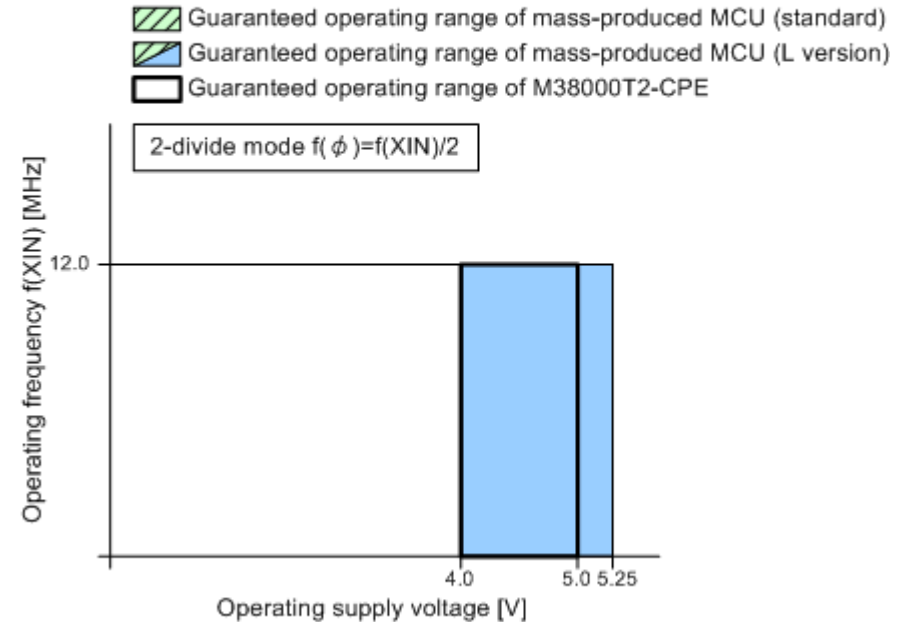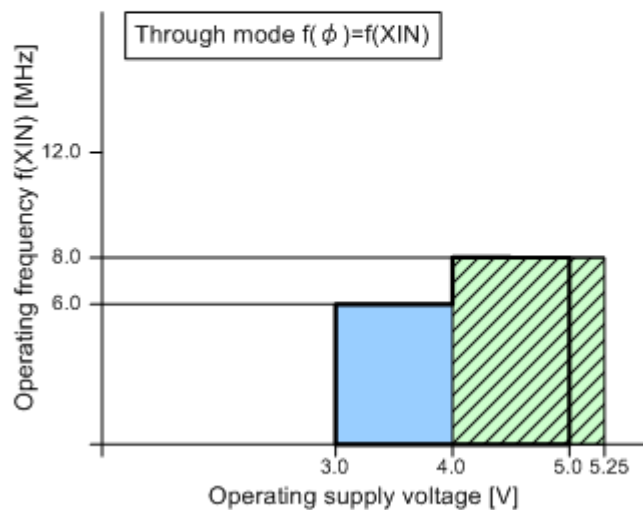
Applicable group:
   38K0 Group (Standard, L version)

Guaranteed operating range of mass-produced MCU (standard)
Guaranteed operating range of mass-produced MCU (L version)
Guaranteed operating range of M38000T2-CPE



Through mode $f(\phi)=f(XIN)$

2-divide mode $f(\phi)=f(XIN)/2$

* Be sure to use the emulator MCU M38K09RFS.
* The evaluation at a voltage higher than 5 V is not available in combination with the M38000T2-CPE.
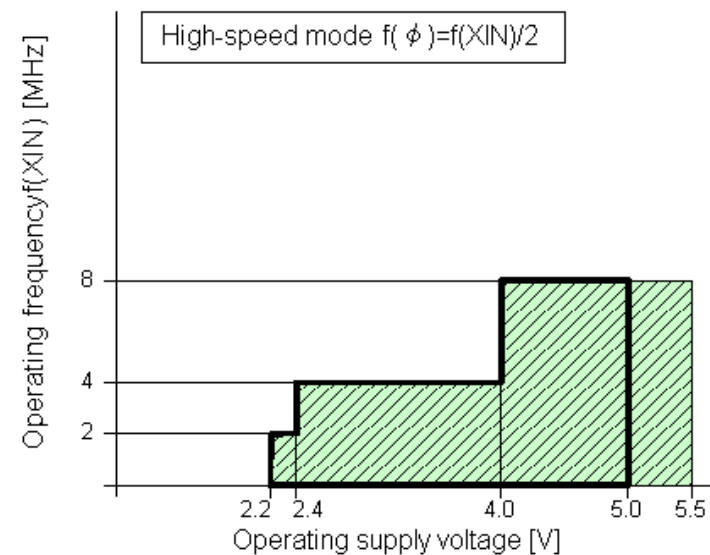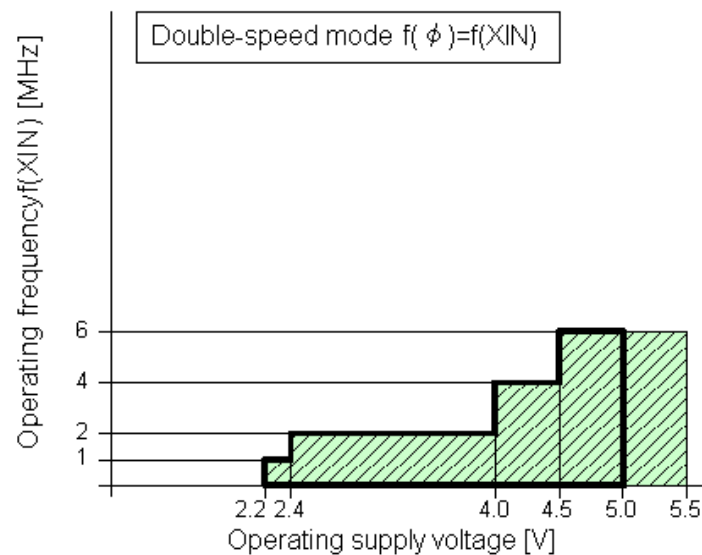
## **Guaranteed operating range of 740 Series 7540 Group**

2004-03-01 Rev.1.00

As the specifications of the mass-produced MCUs vary according to its memory types (mask ROM or flash etc.), be sure to check the data sheet of your MCU.

Applicable group:
7540 Group

▨ Guaranteed operating range of mass-produced MCU
▢ Guaranteed operating range of M38000T2-CPE



Double-speed mode f( φ )=f(XIN)

High-speed mode f( φ )=f(XIN)/2

\* Be sure to use the emulator MCU   M37540RSS.
\* The evaluation at a voltage higher than 5 V is not available in combination with the    M38000T2-CPE.
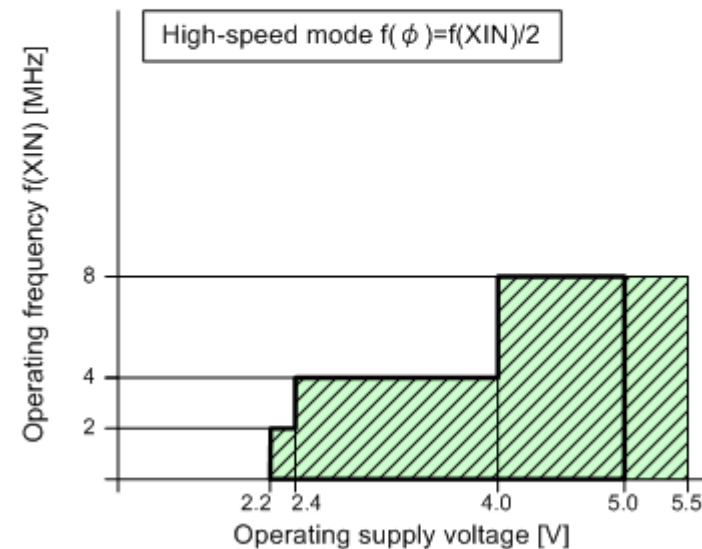
## Guaranteed operating range of 740 Series 7542 Group

2004-01-16 Rev.1.00

As the specifications of the mass-produced
MCUs vary according to its memory types
(mask ROM or flash etc.), be sure to check
the data sheet of your MCU.

Applicable group:
7542 Group

▨ Guaranteed operating range of mass-produced MCU
☐ Guaranteed operating range of M38000T2-CPE

Double-speed mode f(φ)=f(XIN)

High-speed mode f(φ)=f(XIN)/2

* Be sure to use the emulator MCU M37542RSS.
* The evaluation at a voltage higher than 5 V is not available in combination with the M38000T2-CPE.
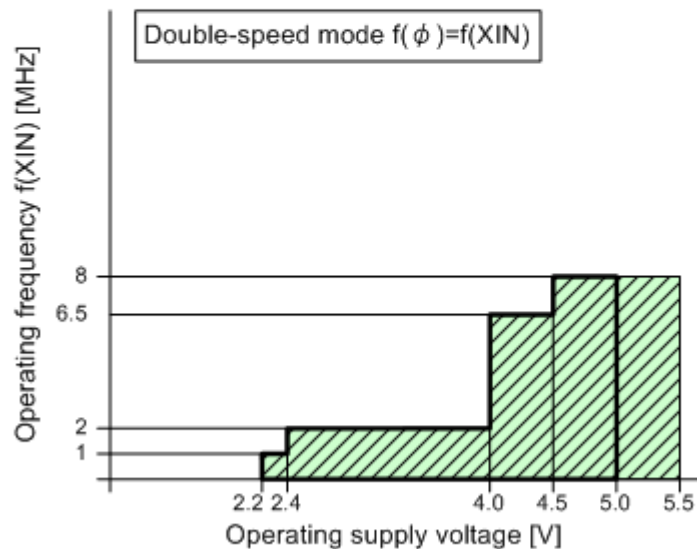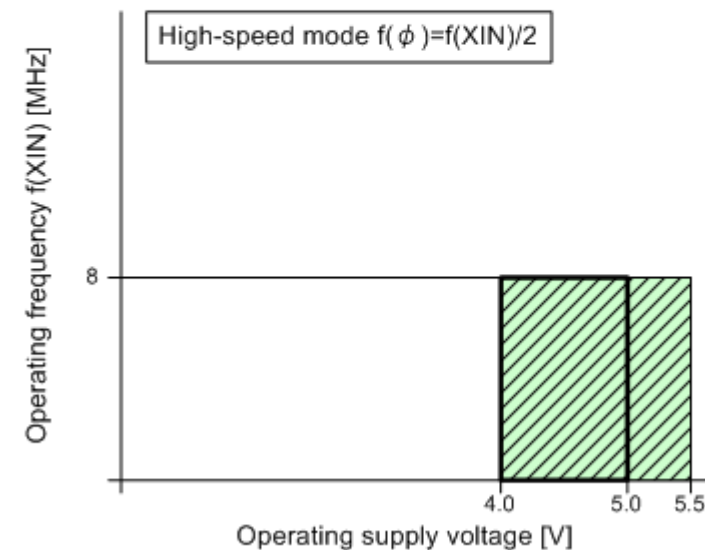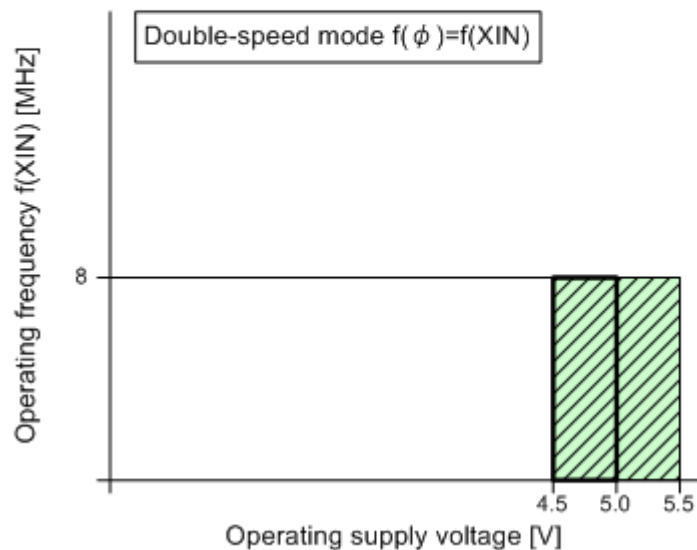
## Guaranteed operating range of 740 Series 7544 Group

2004-01-16 Rev.1.00

As the specifications of the mass-produced MCUs vary according to its memory types (mask ROM or flash etc.), be sure to check the data sheet of your MCU.

Applicable group:
7544 Group

▨ Guaranteed operating range of mass-produced MCU
☐ Guaranteed operating range of M38000T2-CPE

Double-speed mode f($\phi$)=f(XIN)

Operating frequency f(XIN) [MHz]

8

4.5  5.0  5.5
Operating supply voltage [V]

High-speed mode f($\phi$)=f(XIN)/2

Operating frequency f(XIN) [MHz]

8

4.0  5.0  5.5
Operating supply voltage [V]

* Be sure to use the emulator MCU M37544RSS.
* The evaluation at a voltage higher than 5 V is not available in combination with the M38000T2-CPE.

Apr. 1, 2004                               Renesas Solutions Corp.                               11