

RENESAS TECHNICAL UPDATE

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|--------------------|---|--------------|----------------------|--|------|
| Product Category | MPU & MCU | Document No. | TN-RX*-A078A/E | Rev. | 1.00 |
| Title | Additions to ROM Characteristics in RX111 Group | | Information Category | Technical Notification | |
| Applicable Product | RX111 Group | Lot No. | Reference Document | RX111 Group User's Manual: Hardware Rev.1.00 (R01UH0365EJ0100) | |
| | | All | | | |

This document describes additions to ROM Characteristics in Electrical Characteristics of RX111 Group User's Manual: Hardware Rev.1.00. The additions are shown in red below.

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Table 36.47 ROM (Flash Memory for Code Storage) Characteristics (2)
: high-speed operating mode, middle-speed operating mode

Conditions: VCC = AVCC0 = 2.7 to 3.6 V, VSS = AVSS0 = VREFL0 = 0 V

Temperature range for the programming/erasure operation: T_a = -40 to +105°C

| Item | Symbol | FCLK = 1 MHz | | | FCLK = 32 MHz | | | Unit | |
|---------------------------------|------------------|-------------------|------|------|---------------|------|------|------|----|
| | | Min. | Typ. | Max. | Min. | Typ. | Max. | | |
| Programming time | 4-byte | t _{P4} | — | 1650 | 4910 | — | 100 | 761 | μs |
| Erase time | 1-Kbyte | t _{E1K} | — | 9.77 | 329 | — | 5.53 | 258 | ms |
| Blank check time | 4-byte | t _{BC4} | — | — | 5000 | — | — | 316 | μs |
| | 1-Kbyte | t _{BC1K} | — | — | 1280 | — | — | 80.7 | ms |
| Erase Suspend Latency | t _{SED} | — | — | 21.6 | — | — | 12.8 | μs | |
| Start-up Area Swap Setting Time | t _{SAS} | — | 14.3 | 545 | — | 6.22 | 432 | ms | |
| Access Window Setting Time | t _{AWS} | — | 14.3 | 545 | — | 6.22 | 432 | ms | |

Table 36.48 ROM (Flash Memory for Code Storage) Characteristics (3)
: middle-speed operating mode

Conditions: VCC = AVCC0 = 1.8 to 3.6 V, VSS = AVSS0 = VREFL0 = 0 V

Temperature range for the programming/erasure operation: T_a = -40 to +105°C

| Item | Symbol | FCLK = 1 MHz | | | FCLK = 8 MHz | | | Unit | |
|---------------------------------|------------------|-------------------|------|------|--------------|------|------|------|----|
| | | Min. | Typ. | Max. | Min. | Typ. | Max. | | |
| Programming time | 4-byte | t _{P4} | — | 1690 | 5380 | — | 290 | 1680 | μs |
| Erase time | 1-Kbyte | t _{E1K} | — | 9.84 | 331 | — | 6.04 | 275 | ms |
| Blank check time | 4-byte | t _{BC4} | — | — | 4980 | — | — | 973 | μs |
| | 1-Kbyte | t _{BC1K} | — | — | 1270 | — | — | 250 | ms |
| Erase Suspend Latency | t _{SED} | — | — | 33.6 | — | — | 25.6 | μs | |
| Start-up Area Swap Setting Time | t _{SAS} | — | 14.9 | 551 | — | 7.82 | 446 | ms | |
| Access Window Setting Time | t _{AWS} | — | 14.9 | 551 | — | 7.82 | 446 | ms | |