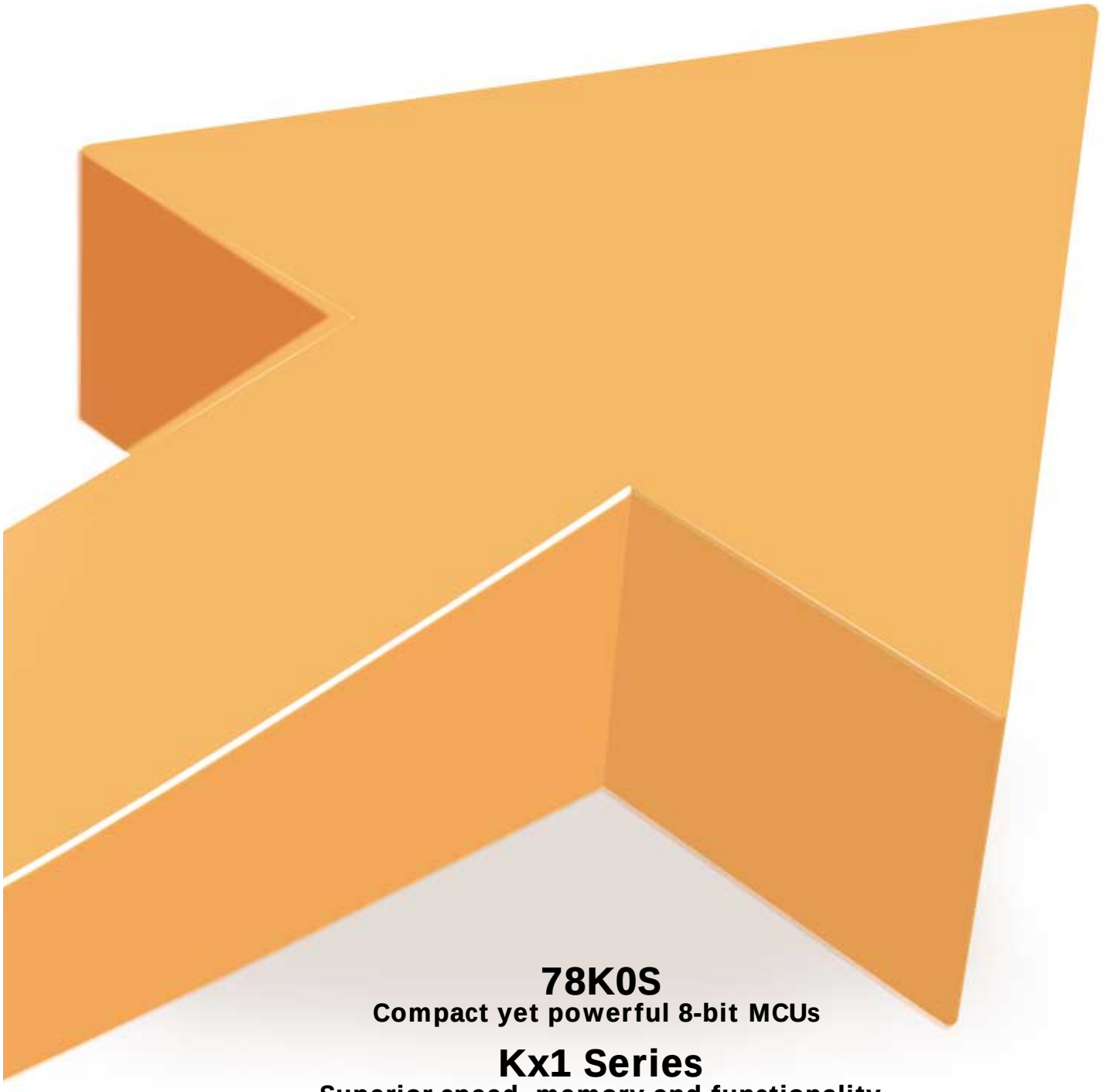
Empowered by Innovation NEC

# Two Great Forces in the 8-bit Realm



## 78K0S
**Compact yet powerful 8-bit MCUs**

## Kx1 Series
**Superior speed, memory and functionality**

*Empower your creativity*
78K
Embedded Controller

# 78K0S and Kx1 Series

78K0/Kx1
78K0/Kx1+
78K0S/Kx1+

## NEC will continue to provide the following benefits

Future-proof cost-performance

Low power consumption
(one of the best of W/W venders)

Smooth migration lineup and future's Roadmap
(new concept Kx1 series in available)

## By using the industry's most advanced technology and having market-oriented ideas

## MCU Features

| | 75X/75XL | 78K0S | 78K0 |
|---|---|---|---|
| CPU | 4-bit | 8-bit | 8-bit |
| ROM | Internal ROM+RAM | Internal ROM+RAM | Internal ROM+RAM |
| RAM | 64K bytes(max) | 64K bytes(max) | 64K bytes(max) |
| Multiplier | — | Hardware option | 8×8=16 by inst. |
| Instruction Cycle | 0.96/0.67μs | 0.4/0.2μs | 0.4/0.238/0.166μs |
| Power Supply | 2.7/1.8 to 5.5V | 1.8 to 5.5V | 1.8 to 5.5V |
| C-language Compiler | — | ○ | ○ |

# 78K0S

### Ideal for upgrading from 4- to 8-bits

◎ Easy upgrade to our 78K0 family
◎ Best fit for compact applications, such as car accessories, remote controls, home appliances and PC peripherals
◎ Wide range of LCD-control functions such as power-on-reset, voltage booster and A/D converter
◎ On-chip flash memory versions
◎ Speed up current CORE from 4Q/01(5MHz→10MHz※1)

※1 D78907x/10xA/11xA/16x/17x

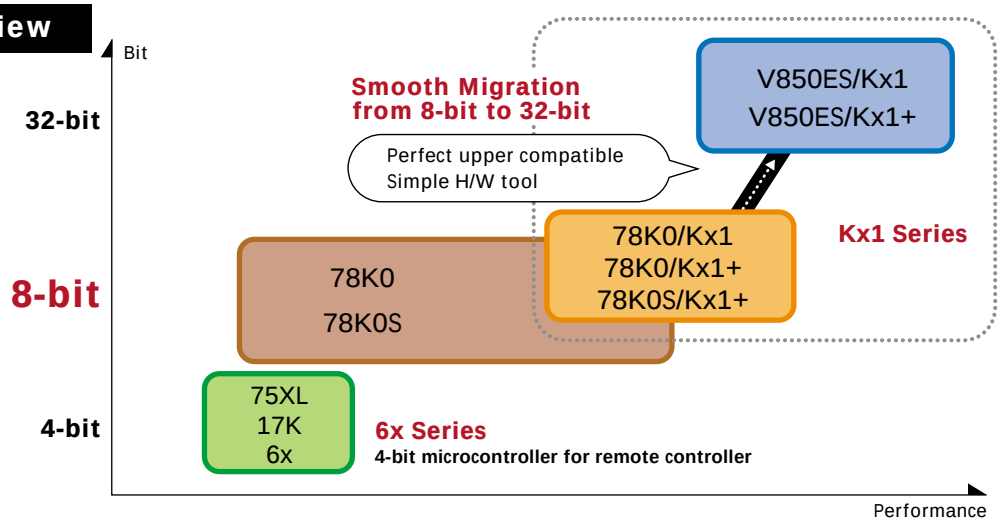
# 78K0

### Enhanced performance for consumer and automotive electronics

◎ Enhanced version of our best-selling 78K0 family
◎ Ideal choice for consumer electronics, automotive use and other 8-bit applications
◎ Various ASSPs available:built-in functions include automotive bus, 10bit timer for inverter motor control
◎ On-chip flash memory versions
◎ Higher speed than conventional 78K0(8.38MHz→12MHz※2)

※2 D78002xA/003xA/007x/098x

## Overview



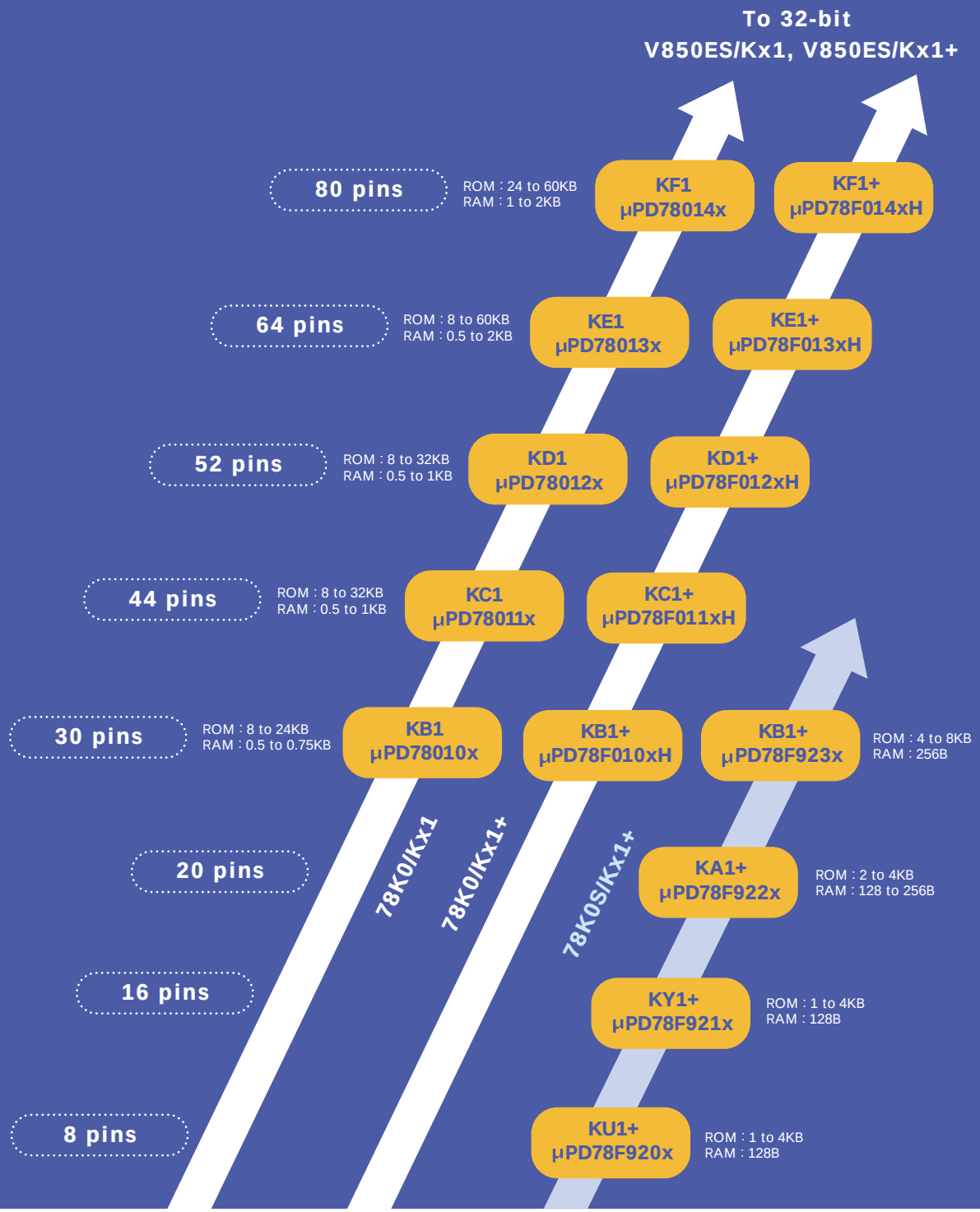
# Kx1 series

78K0/Kx1 78K0/Kx1+ 78K0S/Kx1+

**Brushed up peripherals POC/LVI, WDT, On-chip Ring-OSC**

- **Unique and powerful reset functions**
  - Power-on clear and low voltage detection
  - Reset output for external ICs
- **On-chip Ring oscillator**
  - Fast start-up
  - Watchdog independent of the CPU clock
  - High speed ring-oscillator (8MHz) for 78K0S/Kx1+
- **Higher speed, Lower EMI noise**
  - When 5V and 10MHz, less than 70dBm (reference values)
- **Assured future expansion**
  - Common peripheral functions incorporated
  - Perfect upper compatible (8→32-bit)
  - Simple H/W tools

## Road map



## MCU Features

| | 78K0/Kx1 | 78K0/Kx1+ | 78K0S/Kx1+ |
|---|---|---|---|
| CPU | 8-bit 78K0 core | 8-bit 78K0 core | 8-bit 78K0S core |
| ROM | Internal ROM+RAM | Internal ROM+RAM | Internal ROM+RAM |
| RAM | 64K bytes(max) | 64K bytes(max) | 64K bytes(max) |
| Multiplier [bit] | 16×16, 32÷16 (KE1, KF1, KE1+, KF1+) | | 8×8 (KB1+) |
| Instruction Cycle | 0.166μs | 0.125μs | 0.2μs |
| Power Supply | 2.5 to 5.5V | 2.0 to 5.5V | 2.0 to 5.5V |
| C-language Compiler | ○ | ○ | ○ |
| Number of Pins | 30/44/52/64/80-pins | | 8/16/20/30-pins |
| Mask ROM version | Available | None | |
| Flash memory | 2 power supplies | Single power supply & self-programming | |
| On-chip ring-OSC | 240kHz (TYP.) | | 8MHz and 240kHz (TYP.) |
| On-chip debug | None (supported in Kx1+) | On-chip debug chip available | None |
| On-chip regulator | Provided (KE1, KF1) | None | |
| UART (LIN bus) | Provided (all products) | | Provided (KB1+, KA1+) |
| Power-on reset (POC) | 2 level selectable | Fixed to 1 level | |

# 78K0/Kx1

### New concept microcontroller, and smooth migration

- ◎ Same core and same instruction as our 78K0 series
- ◎ Extensive memory and package selection
- ◎ Adupting common peripheral functions in Kx1 series
- ◎ External IC functions for high-reliability system are integrated on one chip
- ◎ Total system cost reduction by security function enhancement
- ◎ Mask ROM and flash memory versions
- ◎ High speed operation (Max. 12MHz)

# 78K0/Kx1+

### Improved flash memory creates new application fields

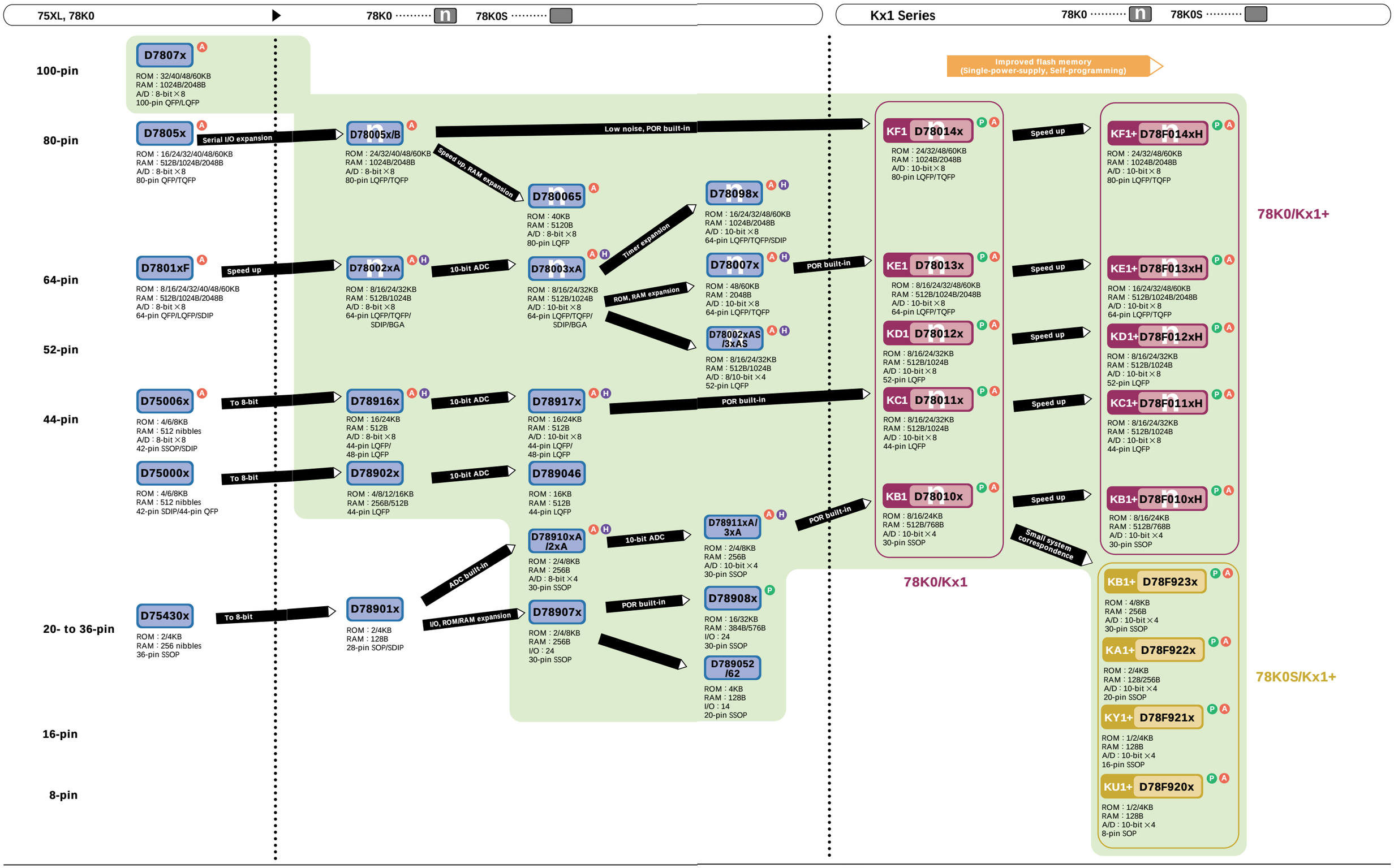
- ◎ Enhanced version of our best-selling 78K0/Kx1
- ◎ Single-power-supply flash memory
- ◎ Self-programming function for re-writing the data
- ◎ EEPROM emulation function for using as a non-volatile memory for storing data
- ◎ Higher speed operation (Max. 16MHz)

# 78K0S/Kx1+

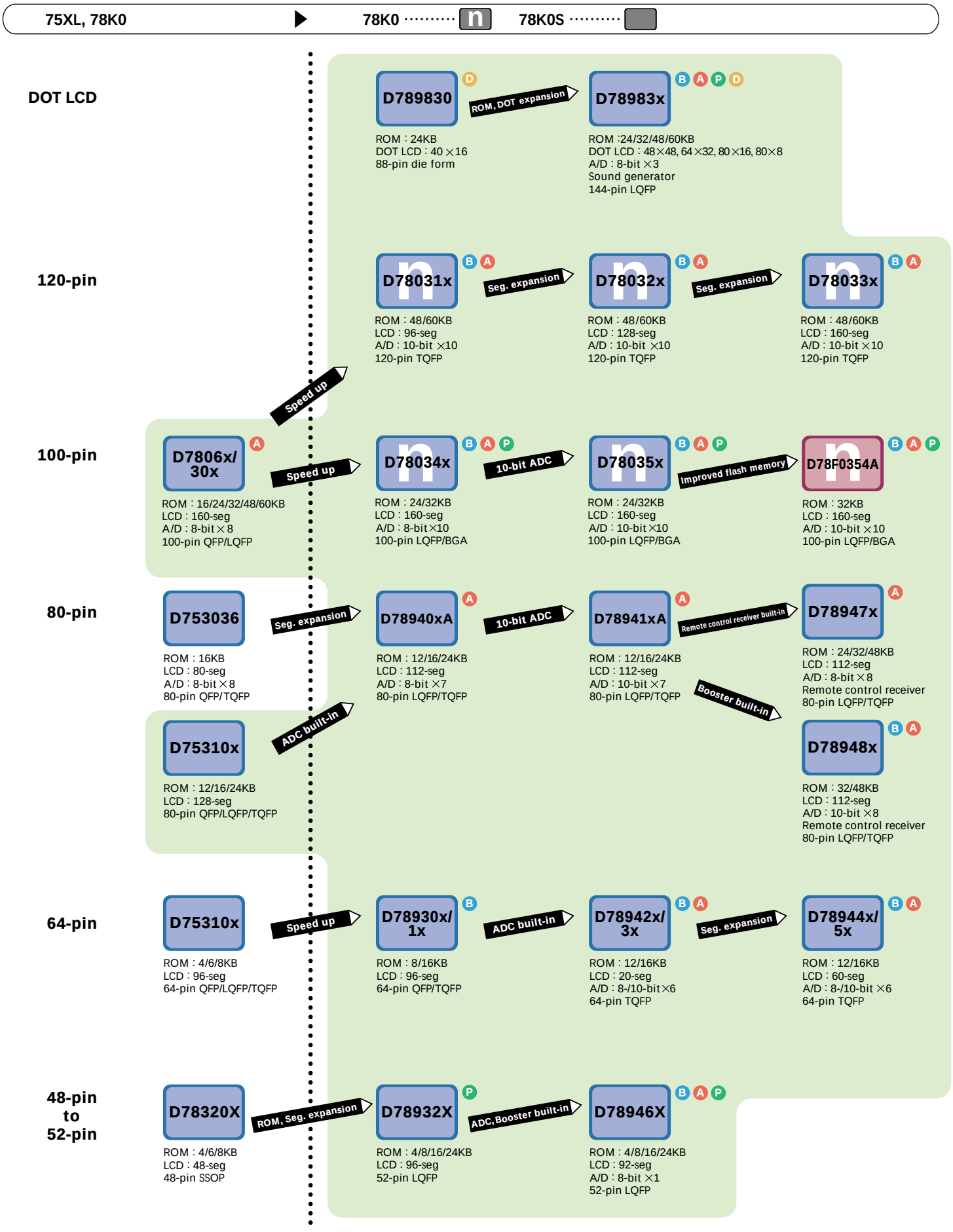
### For small size and low power consumption systems

- ◎ Same core and same instruction as our 78K0S series (Easy upgrade to our 78K0 series)
- ◎ Best fit for compact applications, such as sensor applications and switch applications
- ◎ Improved flash memory is incorporated
- ◎ On-chip high speed ring-oscirator (8MHz)
- ◎ Speed up current CORE (Max. 10MHz)

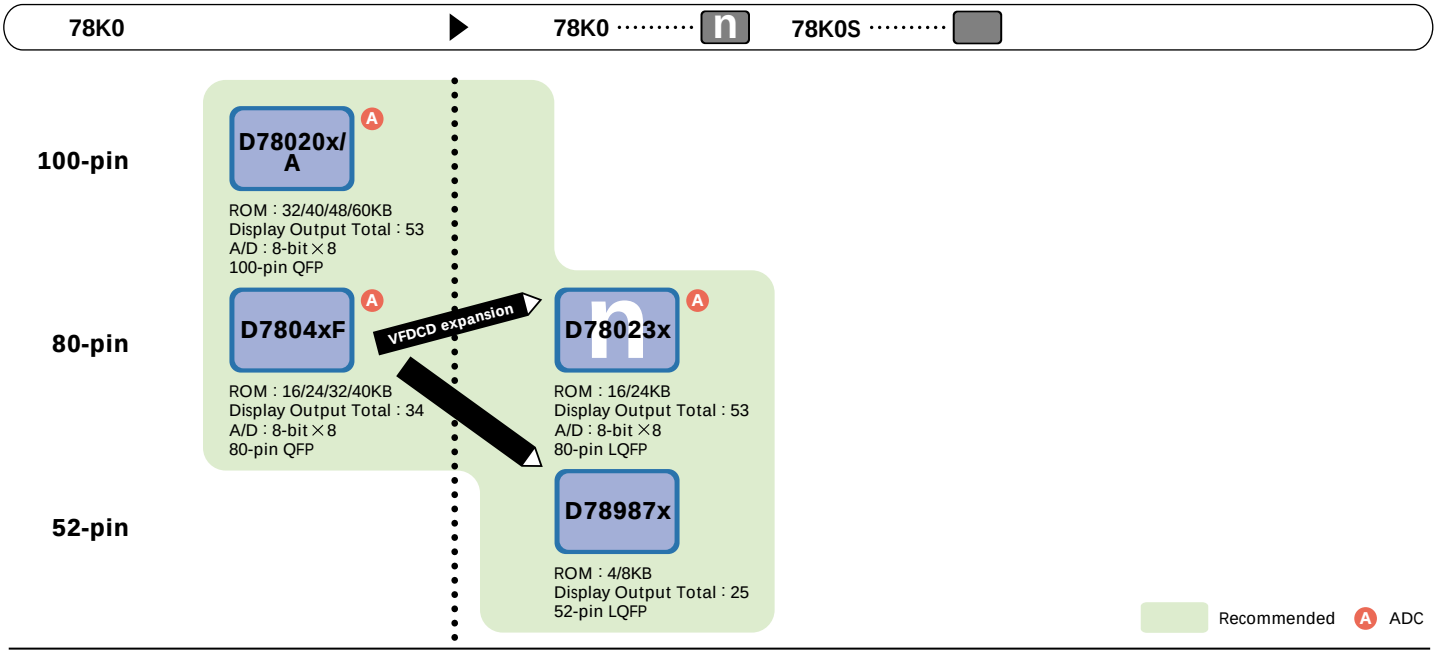
# Multi-purpose MCUs



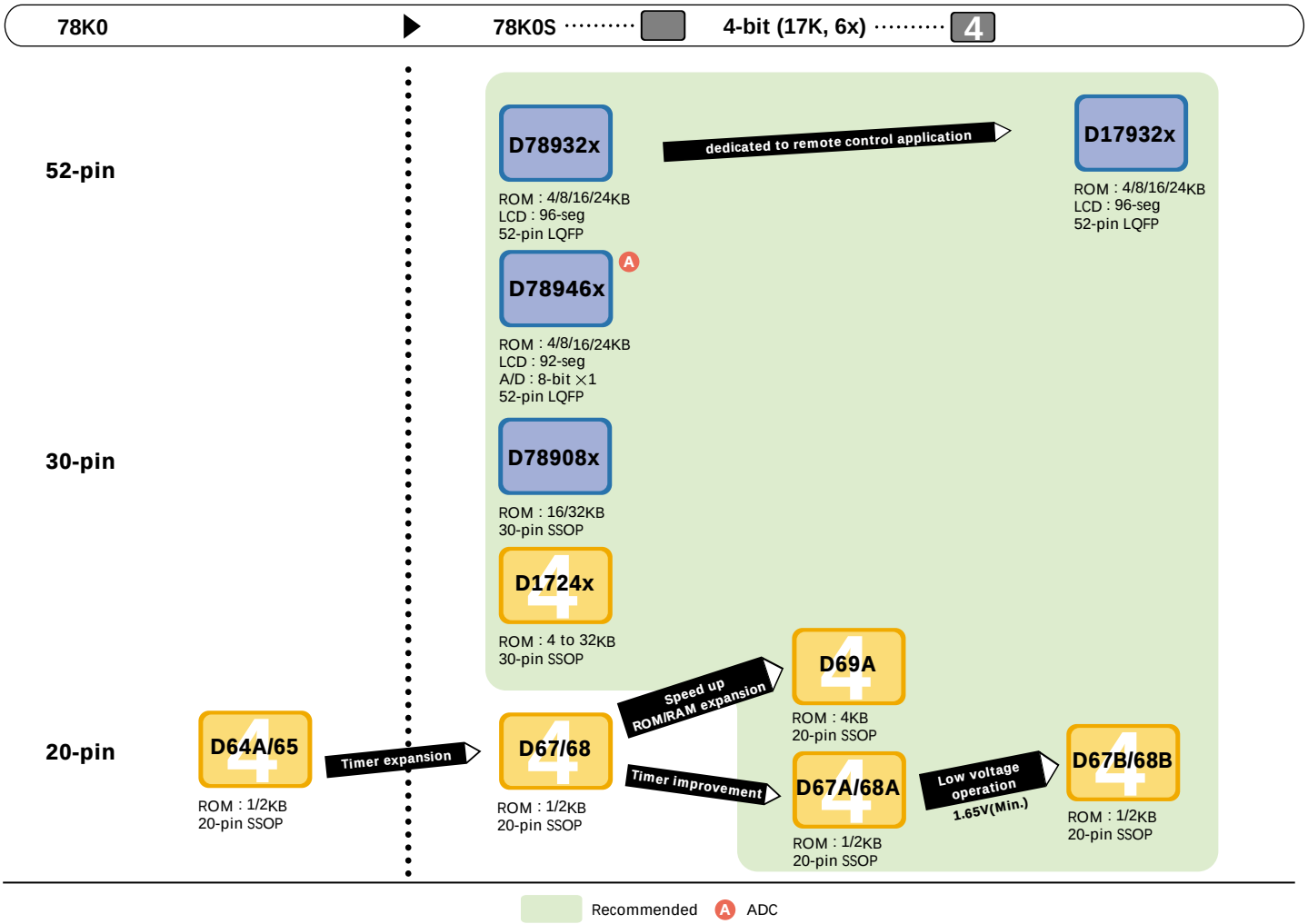
# LCD control


75XL, 78K0
78K0
n
78K0S
DOT LCD
D789830
D
ROM, DOT expansion
D78983x
B A P D
ROM : 24KB
DOT LCD : 40 × 16
88-pin die form
ROM :24/32/48/60KB
DOT LCD : 48×48, 64×32, 80×16, 80×8
A/D : 8-bit ×3
Sound generator
144-pin LQFP
120-pin
D78031x
B A
Seg. expansion
D78032x
B A
Seg. expansion
D78033x
B A
ROM : 48/60KB
LCD : 96-seg
A/D : 10-bit ×10
120-pin TQFP
ROM : 48/60KB
LCD : 128-seg
A/D : 10-bit ×10
120-pin TQFP
ROM : 48/60KB
LCD : 160-seg
A/D : 10-bit ×10
120-pin TQFP
Speed up
100-pin
D7806x/ 30x
A
Speed up
D78034x
B A P
10-bit ADC
D78035x
B A P
Improved flash memory
D78F0354A
B A P
ROM : 16/24/32/48/60KB
LCD : 160-seg
A/D : 8-bit × 8
100-pin QFP/LQFP
ROM : 24/32KB
LCD : 160-seg
A/D : 8-bit ×10
100-pin LQFP/BGA
ROM : 24/32KB
LCD : 160-seg
A/D : 10-bit ×10
100-pin LQFP/BGA
ROM : 32KB
LCD : 160-seg
A/D : 10-bit ×10
100-pin LQFP/BGA
80-pin
D753036
Seg. expansion
D78940xA
A
10-bit ADC
D78941xA
A
Remote control receiver built-in
D78947x
A
ROM : 16KB
LCD : 80-seg
A/D : 8-bit × 8
80-pin QFP/TQFP
ROM : 12/16/24KB
LCD : 112-seg
A/D : 8-bit ×7
80-pin LQFP/TQFP
ROM : 12/16/24KB
LCD : 112-seg
A/D : 10-bit ×7
80-pin LQFP/TQFP
ROM : 24/32/48KB
LCD : 112-seg
A/D : 8-bit × 8
Remote control receiver
80-pin LQFP/TQFP
ADC built-in
D75310x
Booster built-in
D78948x
B A
ROM : 12/16/24KB
LCD : 128-seg
80-pin QFP/LQFP/TQFP
ROM : 32/48KB
LCD : 112-seg
A/D : 10-bit ×8
Remote control receiver
80-pin LQFP/TQFP
64-pin
D75310x
Speed up
D78930x/ 1x
B
ADC built-in
D78942x/ 3x
B A
Seg. expansion
D78944x/ 5x
B A
ROM : 4/6/8KB
LCD : 96-seg
64-pin QFP/LQFP/TQFP
ROM : 8/16KB
LCD : 96-seg
64-pin QFP/TQFP
ROM : 12/16KB
LCD : 20-seg
A/D : 8-/10-bit ×6
64-pin TQFP
ROM : 12/16KB
LCD : 60-seg
A/D : 8-/10-bit ×6
64-pin TQFP
48-pin to 52-pin
D78320X
ROM, Seg. expansion
D78932X
P
ADC, Booster built-in
D78946X
B A P
ROM : 4/6/8KB
LCD : 48-seg
48-pin SSOP
ROM : 4/8/16/24KB
LCD : 96-seg
52-pin LQFP
ROM : 4/8/16/24KB
LCD : 92-seg
A/D : 8-bit ×1
52-pin LQFP
New Products
Recommended
B Booster
A ADC
P POR
D DOT

# VFD control




# Remote control



# ASSPs

78K0 ····· n　78K0S ·····

## Utility Meter

**D78095x**
Ultra-low power consumption
LCD : 90-seg
ROM : 48/60KB
100-pin LQFP

**D789881**
Ultra-low power consumption
LCD : 104-seg
ROM : 16KB
64-pin LQFP

## Inverter

**D78098x** (A) (H)
10-bit timer for
AC/DC inverter control
ROM : 16/24/32/48/60KB
64-pin QFP/TQFP/SDIP

**D78F0714** (A)
10-bit timer for
AC/DC inverter control
ROM : 32KB
High-speed (Max. 20MHz)
64-pin TQFP

**D78984x** (A)
10-bit timer for AC
inverter control
ROM : 8/16KB
44-pin LQFP

## USB Keyboard

**D789800**
Universal Serial Bus
ROM : 8KB
44-pin LQFP

## BMU

**D78917xY** (A)
System management bus
A/D : 10-bit×8
ROM : 16/24KB
48-pin TQFP/44-pin LQFP

## Sensor

**D789863/4** (A)
Analog macro for sensor
A/D : 10-bit×3
ROM : 4KB
30-pin SSOP

**Development Year** ▶

New Products　(A) ADC　(H) Extended-specification (High-speed)

# Automotive ASSPs

78K0 ····· n　78K0S ·····

## CAN

**D78081x** B
DCAN(500Kbps)
ROM : 32/48KB
64-pin LQFP/TQFP

**D78082x** D
DCAN(500Kbps)
LCD : 112-seg
Stepper motor control/drive
Cross coil control/drive
ROM : 32/48/60KB
80-pin LQFP

**D780703Y** B C
DCAN(500Kbps)
ROM : 60KB
80-pin LQFP

**D780948A** D
DCAN(500Kbps)
LCD : 160-seg
Sound generator
ROM : 60KB
100-pin QFP

**D789850A** B
DCAN(500Kbps)
ROM : 16KB
30-pin SSOP

**D789852** B
DCAN(500Kbps)
ROM : 24/32KB
44-pin LQFP

## J1850

**D780833Y** B C
J1850 bus interface
ROM : 60KB
80-pin LQFP

**D780834** D
J1850 bus interface
LCD : 160-seg
Stepper motor control/drive
Cross coil control/drive
ROM : 48KB
100-pin LQFP

## IEBus™

**D7809x/B** C
IEBus interface
ROM : 40/48/60KB
80-pin LQFP

**D780702Y** C
IEBus interface
ROM : 60KB
80-pin LQFP

## Dash Board

**D78085x/A** D
LCD : 80-seg
Stepper motor control/drive
Cross coil control/drive
ROM : 32/40KB
80-pin LQFP

## Keyless Entry

**D754144/244**
ROM : 4KB
RAM : 128 nibbles
EEPROM™ : 16B
20-pin SSOP

**D789860/61**
ROM : 4KB
RAM : 128B
EEPROM : 32B
20-pin SSOP

**D789862**
ROM : 16KB
RAM : 512B
EEPROM : 256B
30-pin SSOP

## CD Text

**D780065** C
ROM : 40KB
RAM : 5120B
A/D : 8-bit×8
80-pin LQFP

Development Year ▶

New Products　D Dash Board　B Body Control　C Car Audio

# Product List

## Multi-purpose MCUs

| Series | Part Number | Package | ROM (Kbytes) | RAM (bytes) | EEPROM (bytes) | I/O | Timer | PWM | Serial I/O | ADC | LCD C/D | Sub Clock | Note |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 78K0S/ Kx1+ | KU1+(78F920x) | 8-pin SSOP | 1/2/4 | 128 | — | 6 | 3 | 8-bit×2 | — | 10-bit×4 | — | — | POR,LVI,High-speed Ring-osc |
| | KY1+(78F921x) | 16-pin SSOP | 1/2/4 | 128 | — | 14 | 3 | 8-bit×2 | — | 10-bit×4 | — | — | POR,LVI,High-speed Ring-osc |
| | KA1+(78F922x) | 20-pin SSOP | 2/4 | 128/ 256 | — | 17 | 4 | 8-bit×2 | 1(UART×1) | 10-bit×4 | — | — | LIN,POR,LVI,High-speed Ring-osc |
| | KB1+(78F923x) | 30-pin SSOP | 4/8 | 256 | — | 26 | 4 | 8-bit×2 | 1(UART×1) | 10-bit×4 | — | — | LIN,POR,LVI,High-speed Ring-osc |
| 78K0/ Kx1+ | KB1+(78F010xH) | 30-pin SSOP | 8/16/24 | 512/ 768 | — | 22 | 5 | 8-bit×3 | 2(UART×2)※1 | 10-bit×4 | — | — | LIN,POR,LVI, Ring-osc |
| | KC1+(78F011xH) | 44-pin SSOP | 8/16/24/32 | 512/ 1K | — | 32 | 7 | 8-bit×4 | 2(UART×2) | 10-bit×8 | — | ○ | LIN,POR,LVI, Ring-osc |
| | KD1+(78F012xH) | 52-pin SSOP | 8/16/24/32 | 512/ 1K | — | 39 | 7 | 8-bit×4 | 2(UART×2) | 10-bit×8 | — | ○ | LIN,POR,LVI, Ring-osc |
| | KE1+(78F013xH) | 64-pin SSOP | 8/16/24/32/ 48/60 | 512/ 1K/2K | — | 51 | 8※2 | 8-bit×4 | 3(UART×2)※3 | 10-bit×8 | — | ○ | LIN,POR,LVI, Ring-osc |
| | KF1+(78F014xH) | 80-pin SSOP | 24/32/48/60 | 1K/ 2K | — | 67 | 8※4 | 8-bit×4 | 4(UART×2)※5 | 10-bit×8 | — | ○ | LIN,POR,LVI, Ring-osc |
| 78K0/ Kx1 | KB1(78010x) | 30-pin SSOP | 8/16/24 | 512/ 768 | — | 22 | 5 | 8-bit×3 | 2(UART×2)※1 | 10-bit×4 | — | — | LIN,POR,LVI, Ring-osc |
| | KC1(78011x) | 44-pin LQFP | 8/16/24/32 | 512/ 1K | — | 32 | 7 | 8-bit×4 | 2(UART×2) | 10-bit×8 | — | ○ | LIN,POR,LVI, Ring-osc |
| | KD1(78012x) | 52-pin LQFP | 8/16/24/32 | 512/ 1K | — | 39 | 7 | 8-bit×4 | 2(UART×2) | 10-bit×8 | — | ○ | LIN,POR,LVI, Ring-osc |
| | KE1(78013x) | 64-pin LQFP/ TQFP | 8/16/24/32/ 48/60 | 512/ 1K/2K | — | 51 | 8※2 | 8-bit×4 | 3(UART×2)※3 | 10-bit×8 | — | ○ | LIN,POR,LVI, Ring-osc |
| | KF1(78014x) | 80-pin LQFP/ TQFP | 24/32/48/60 | 1K/ 2K | — | 67 | 8※4 | 8-bit×4 | 4(UART×2)※5 | 10-bit×8 | — | ○ | LIN,POR,LVI, Ring-osc |
| 78K0S | 789052 | 20-pin SSOP | 4 | 128 | — | 14 | 3 | 8-bit×1 | — | — | — | — | Cera |
| | 789062 | 20-pin SSOP | 4 | 128 | — | 14 | 3 | 8-bit×1 | — | — | — | — | RC |
| | 789071/2/4 | 30-pin SSOP | 2/4/8 | 256 | — | 24 | 3 | 8-bit×1 | 1(UART×1) | — | — | — | |
| | 789086/8 | 30-pin SSOP | 16/32 | 384/ 576 | — | 24 | 3 | 8-bit×1 | 1(UART×1) | — | — | — | POR |
| | 789101/2/4A | 30-pin SSOP | 2/4/8 | 256 | — | 20 | 3 | 8-bit×1 | 1(UART×1) | 8-bit×4 | — | — | Cera |
| | 789121/2/4A | 30-pin SSOP | 2/4/8 | 256 | — | 20 | 3 | 8-bit×1 | 1(UART×1) | 8-bit×4 | — | — | RC |
| | 789111/2/4A | 30-pin SSOP | 2/4/8 | 256 | — | 20 | 3 | 8-bit×1 | 1(UART×1) | 10-bit×4 | — | — | Cera |
| | 789131/2/4A | 30-pin SSOP | 2/4/8 | 256 | — | 20 | 3 | 8-bit×1 | 1(UART×1) | 10-bit×4 | — | — | RC |
| | 789022/4/5/6 | 44-pin LQFP | 4/8/12/16 | 256/ 512 | — | 34 | 3 | — | 1(UART×1) | — | — | — | |
| | 789046 | 44-pin LQFP | 16 | 512 | — | 34 | 4 | 8-bit×1 | 1(UART×1) | — | — | ○ | |
| | 789166/7 | 44-pin LQFP/ 48-pin TQFP | 16/24 | 512 | — | 31 | 6 | 8-bit×3 | 1(UART×1) | 8-bit×8 | — | ○ | |
| | 789176/7 | 44-pin LQFP/ 48-pin TQFP | 16/24 | 512 | — | 31 | 6 | 8-bit×3 | 1(UART×1) | 10-bit×8 | — | ○ | |
| 78K0 | 780021/2/3/4AS | 52-pin LQFP | 8/16/24/32 | 512/ 1024 | — | 39 | 5 | 8-bit×2 | 3(UART×1) | 8-bit×4 | — | ○ | |
| | 780031/2/3/4AS | 52-pin LQFP | 8/16/24/32 | 512/ 1024 | — | 39 | 5 | 8-bit×2 | 3(UART×1) | 10-bit×4 | — | ○ | |
| | 780021/2/3/4A | 64-pin LQFP/ TQFP/ SDIP/BGA | 8/16/24/32 | 512/ 1024 | — | 51 | 5 | 8-bit×2 | 3(UART×1) | 8-bit×8 | — | ○ | |
| | 780031/2/3/4A | 64-pin LQFP/ TQFP/ SDIP/BGA | 8/16/24/32 | 512/ 1024 | — | 51 | 5 | 8-bit×2 | 3(UART×1) | 10-bit×8 | — | ○ | |
| | 780076/8 | 64-pin LQFP/TQFP | 48/60 | 2048 | — | 52 | 6 | 8-bit×2 | 3(UART×2) | 10-bit×8 | — | ○ | |
| | 780982/3/4/6/8 | 64-pin LQFP/ TQFP/SDIP | 16/24/32/48/ 60 | 1024/ 2048 | — | 47 | 7 | 8-bit×2 | 3(UART×2) | 10-bit×8 | — | — | |
| | 780053/4/5/6/8 | 80-pin LQFP/TQFP | 24/32/48/60 | 1024/ 2048 | — | 68 | 5 | 14-bit×1 | 3(UART×1) | 8-bit×8 | — | ○ | |
| | 780065 | 80-pin LQFP | 40 | 5120 | — | 60 | 5 | 8-bit×2 | 4(UART×1) | 8-bit×8 | — | ○ | |
| | 78074B/5B/6/8 | 100-pin QFP/LQFP | 32/40/48/60 | 1024/ 2048 | — | 88 | 7 | 14-bit×1 8-bit×2 | 3(UART×1) | 8-bit×8 | — | ○ | |

※1.UART×1(8K ROM) ※2.7ch(8K/16K ROM) ※3.2ch(8K/16K ROM) ※4.7ch(24K/32K ROM) ※5.3ch(24K/32K ROM)

## LCD control

| Series | Part Number | Package | ROM (Kbytes) | RAM (bytes) | EEPROM (bytes) | I/O | Timer | PWM | Serial I/O | ADC | LCD C/D | Sub Clock | Note |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 78K0S | 789322/4/6/7 | 52-pin LQFP | 4/8/16/24 | 256/ 512 | — | 21 | 4 | 8-bit×1 | 1 | — | 24-seg×4 | ○ | POR |
| | 789462/4/6/7 | 52-pin LQFP | 4/8/16/24 | 256/ 512 | — | 13 | 4 | 8-bit×1 | — | 8-bit×1 | 23-seg×4 | ○ | Booster POR |
| | 789304/6 | 64-pin QFP/ TQFP | 8/16 | 512 | — | 23 | 5 | 8-bit×1 | 2(UART×1) | — | 24-seg×4 | ○ | Booster |
| | 789314/6 | 64-pin QFP/ TQFP | 8/16 | 512 | — | 23 | 5 | 8-bit×1 | 2(UART×1) | — | 24-seg×4 | ○ | Booster RC |
| | 789425/6 | 64-pin LQFP/ TQFP | 12/16 | 512 | — | 40 | 5 | 8-bit×2 | 1(UART×1) | 8-bit×6 10-bit×6 | 5-seg×4 | ○ | Booster |
| | 789435/6 | 64-pin LQFP/ TQFP | 12/16 | 512 | — | 40 | 5 | 8-bit×2 | 1(UART×1) | 8-bit×6 10-bit×6 | 5-seg×4 | ○ | Booster RC |
| | 789445/6 | 64-pin LQFP/ TQFP | 12/16 | 512 | — | 30 | 5 | 8-bit×2 | 1(UART×1) | 8-bit×6 10-bit×6 | 15-seg×4 | ○ | Booster |
| | 789455/6 | 64-pin LQFP/ TQFP | 12/16 | 512 | — | 30 | 5 | 8-bit×2 | 1(UART×1) | 8-bit×6 10-bit×6 | 15-seg×4 | ○ | Booster RC |
| | 789405/6/7A | 80-pin LQFP/ TQFP | 12/16/24 | 512 | — | 43 | 6 | — | 1(UART×1) | 8-bit×7 | 28-seg×4 | ○ | |
| | 789415/6/7A | 80-pin LQFP/ TQFP | 12/16/24 | 512 | — | 43 | 6 | — | 1(UART×1) | 10-bit×7 | 28-seg×4 | ○ | |
| | 789477/8/9 | 80-pin LQFP/ TQFP | 24/32/48 | 768/1024/ 1536 | — | 45 | 6 | 8-bit×1 | 2(UART×1) | 8-bit×8 | 28-seg×4 | ○ | Remote control receiver |
| | 789488/9 | 80-pin LQFP/ TQFP | 32/48 | 1024/ 1536 | — | 45 | 6 | 8-bit×1 | 2(UART×1) | 10-bit×8 | 28-seg×4 | ○ | Booster |
| 78K0 | 78062/3/4 | 100-pin QFP/LQFP | 16/24/32 | 512/ 1024 | — | 57 | 5 | 14-bit×1 | 2(UART×1) | 8-bit×8 | 40-seg×4 | ○ | |
| | 780306/8 | 100-pin QFP/LQFP | 48/60 | 2048 | — | 57 | 5 | 14-bit×1 | 3(UART×1) | 8-bit×8 | 40-seg×4 | ○ | |
| | 780343/4 | 100-pin LQFP/ FPBGA | 24/32 | 1024 | — | 66 | 7 | 8-bit×3 | 3(UART×1) | 8-bit×8 | 40-seg×4 | ○ | |
| | 780353/4 | 100-pin LQFP/ FPBGA | 24/32 | 1024 | — | 66 | 7 | 8-bit×3 | 3(UART×1) | 10-bit×10 | 40-seg×4 | ○ | |
| | 780316/8 | 120-pin TQFP | 48/60 | 2560 | — | 70 | 7 | 8-bit×3 | 2(UART×1) | 10-bit×10 | 24-seg×4 | ○ | Booster |
| | 780326/8 | 120-pin TQFP | 48/60 | 2560 | — | 62 | 7 | 8-bit×3 | 2(UART×1) | 10-bit×10 | 32-seg×4 | ○ | Booster |
| | 780336/8 | 120-pin TQFP | 48/60 | 2560 | — | 54 | 7 | 8-bit×3 | 2(UART×1) | 10-bit×10 | 40-seg×4 | ○ | Booster |
| 78K0S | 789830 | 88-pin die from | 24 | 1024 | — | 30 | 4 | — | 1(UART×1) | — | 40×16 | ○ | DOT LCD |
| | 789832/3/4/5B | 144-pin LQFP | 24/32/48/60 | 2240/ 3264 | — | 37 | 8 | 8-bit×1 | 1(UART×1) | 8bit×3 | 48×48 64×32 80×16 80×8 | ○ | Booster POR,DOT LCD |

## VFD control

| Series | Part Number | Package | ROM (Kbytes) | RAM (bytes) | EEPROM (bytes) | I/O | Timer | PWM | Serial I/O | ADC | LCD C/D | Sub Clock | Note |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 78K0S | 789870/1 | 52-pin LQFP | 4/8 | 512 | — | 33 | 5 | — | 1 | — | — | ○ | |
| 78K0 | 780232/3 | 80-pin LQFP | 16/24 | 768 | — | 40 | 4 | 8-bit×2 | 2 | 8-bit×4 | — | — | |
| | 78042/3/4/5F | 80-pin LQFP | 16/24/32/40 | 624/ 1136 | — | 68 | 6 | 14-bit×1 | 2 | 8-bit×8 | — | ○ | |
| | 780204/5/6/8 | 100-pin LQFP | 32/40/48/60 | 1168/ 2192 | — | 74 | 5 | 14-bit×1 | 2 | 8-bit×8 | — | ○ | |

# Product List

## Remote control

| Series | Part Number | Package | ROM (Kbytes) | RAM (bytes) | EEPROM (bytes) | I/O | Timer | PWM | Serial I/O | ADC | LCD C/D | Sub Clock | Note |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 6x Series (4-bit) | 67B/68B | 20-pin SSOP | 1002×10-bit/ 2026×10-bit | 32×4-bit | — | 15 | 1 | 9-bit×1 | — | — | — | — | for infrared remote controller (low voltage) |
| | 69A/6P9 | 20-pin SSOP | 4074×10-bit | 128×4-bit | — | 15 | 1 | 9-bit×1 | — | — | — | — | for infrared remote controller |
| 17K Series (4-bit) | 17240/1/2/3/4/5/6 | 30-pin SSOP | 2048×16-bit to 16384×16-bit | 447×4-bit | — | 15 | 1 | 9-bit×1 | — | — | — | — | for preset remote controller |
| 78K0S Series (8-bit) | 789086/8 | 30-pin SSOP | 16/32 | 256/320×8-bit | — | 24 | 5 | 8-bit×1 | 1(UART×1) | — | — | — | for preset remote controller |
| | 789322/4/6/7 | 52-pin LQFP | 4/8/16/24 | 256/512×8-bit | — | 21 | 4 | 8-bit×1 | 1 | — | 24-seg×4 | ○ | for remote controller with LCD |
| | 789462/4/6/7 | 52-pin LQFP | 4/8/16/24 | 256/512×8-bit | — | 18 | 4 | 8-bit×1 | — | 8-bit×1 | 23-seg×4 | ○ | for remote controller with LCD |
| 179K Series (8-bit) | 179322/4/6/7 | 52-pin LQFP | 4/8/16/24 | 256/512×8-bit | — | 21 | 4 | 8-bit×1 | — | — | 24-seg×4 | ○ | for remote controller with LCD |

## ASSPs

| Series | Part Number | Package | ROM (Kbytes) | RAM (bytes) | EEPROM (bytes) | I/O | Timer | PWM | Serial I/O | ADC | LCD C/D | Sub Clock | Note |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 78K0S | 789841/2 | 44-pin QFP/LQFP | 8/16 | 256 | — | 30 | 6 | 10-bit×6 | 1(UART×1) | 8-bit×8 | — | — | for inverter |
| | 789800 | 44-pin LQFP | 8 | 256 | — | 31 | 3 | — | 2(USB×1) | — | — | — | for USB keyboard |
| | 789176/7Y | 44-pin LQFP/ 48-pin TQFP | 16/24 | 512 | — | 31 | 6 | 8-bit×3 | 2(UART×1, SMB×1) | 10-bit×8 | — | ○ | for BMU |
| | 789881 | 64-pin LQFP | 16 | 512 | — | 28 | 4 | 8-bit×2 | 1(UART×1) | — | 26-seg×4 | ○ | for utility meter |
| | 789863/4 | 20-pin SSOP | 4 | 256 | 64 | 5 | 3 | — | — | 10-bit×3 | — | — | for Sensor |
| 78K0 | 780957/8 | 100-pin LQFP | 48/60 | 2048 | — | 69 | 7 | — | 2(UART×1) | — | 30-seg×3 | ○ | for utility meter |
| | 780982/3/4/6/8 | 64-pin QFP/ TQFP/SDIP | 16/24/32/48/ 60 | 1024/ 2048 | — | 47 | 7 | 10-bit×6 8-bit×3 | 3(UART×2) | 10-bit×8 | — | — | for inverter |
| | 78F0714 | 64-pin TQFP | 32 | 1024 | — | 48 | 7 | 10-bit×6 8-bit×3 | 2(UART×1) | 10-bit×8 | — | — | for inverter |

## Automotive ASSPs

| Series | Part Number | Package | ROM (Kbytes) | RAM (bytes) | EEPROM (bytes) | I/O | Timer | PWM | Serial I/O | ADC | LCD C/D | Sub Clock | Note |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 78K0S | 789850A | 30-pin SSOP | 16 | 768 | — | 18 | 3 | 8-bit×1 | 2(UART×1) | 8-bit×4 | — | ○ | for CAN |
| | 789852 | 44-pin LQFP | 24/32 | 1312 | — | 31 | 5 | 8-bit×3 | 3(UART×2) | 10-bit×8 | — | ○ | |
| 78K0 | 780814/6 | 64-pin LQFP/TQFP | 32/48 | 1504 | — | 46 | 6 | 8-bit×2 | 3(UART×1) | 8-bit×12 | — | ○ | |
| | 780701Y/3Y | 80-pin LQFP | 60 | 3360 | — | 67 | 7 | 8-bit×3 | 4(UART×1, $I^2C$×1) | 8-bit×16 | — | — | |
| | 780824/6/8B | 80-pin LQFP | 32/48/60 | 1504/ 3040 | — | 59 | 6 | 8-bit×2 | 3(UART×1) | 8-bit×5 | 28-seg×4 | — | |
| | 780948A | 100-pin QFP | 60 | 2016 | — | 79 | 6 | 8-bit×2 | 3(UART×1) | 8-bit×8 | 40-seg×3 | — | |
| | 780833Y | 80-pin LQFP | 60 | 3072 | — | 65 | 7 | 8-bit×3 | 4(UART×1, $I^2C$×1) | 8-bit×16 | — | — | for J1850 |
| | 780834 | 100-pin LQFP | 48 | 3072 | — | 79 | 7 | 8-bit×4 | 2(UART×1) | 8-bit×4 | 40-seg×3 | — | |
| | 78095/6/8B | 80-pin LQFP | 40/48/60 | 1056/ 3104 | — | 69 | 5 | 8-bit×2 | 3(UART×1) | 8-bit×8 | — | ○ | for IEBUS |
| | 780702Y | 80-pin LQFP | 60 | 3072 | — | 67 | 7 | 8-bit×3 | 4(UART×1, $I^2C$×1) | 8-bit×16 | — | — | |
| | 780851/2 | 80-pin LQFP | 32/40 | 1536 | — | 56 | 6 | 8-bit×2 | 3(UART×1) | 8-bit×5 | 20-seg×4 | — | for dash board |
| 78K0S | 789860/1 | 20-pin SSOP | 4 | 128 | 32 | 14 | 3 | 8-bit×1 | — | — | — | — | for keyless entry |
| | 789862 | 30-pin SSOP | 16 | 512 | 256 | 22 | 4 | 8-bit×1 | 2(UART×1) | — | — | — | for keyless entry |

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