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## 28/40/44-Pin, 8-Bit CMOS Flash Microcontroller Product Brief

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### High-Performance RISC CPU:

- Only 35 instructions to learn:
  - All single-cycle instructions except branches
- Operating speed:
  - DC – 20 MHz oscillator/clock input
  - DC – 200 ns instruction cycle
- Up to 8K x 14 words of Flash Program Memory
- Up to 368 bytes of data memory (RAM)
- Interrupt capability
- 8-level deep hardware stack
- Direct, Indirect and Relative Addressing modes
- Processor read access to program memory
- Pinout compatible to other 28/40-pin PIC16CXXX and PIC16FXXX microcontrollers

### Special Microcontroller Features:

- Precision Internal Oscillator:
  - 16 MHz or 500 kHz operation
  - Factory calibrated to  $\pm 1\%$ , typical
  - Software tunable
  - Software selectable  $\div 1$ ,  $\div 2$ ,  $\div 4$  or  $\div 8$  divider
- Power-Saving Sleep mode
- Industrial and Extended temperature range
- Power-on Reset (POR)
- Power-up Timer (PWRT) and Oscillator Start-up Timer (OST)
- Brown-out Reset (BOR)
  - Selectable between two trip points
  - Disable in Sleep option
- Multiplexed Master Clear with pull-up/input pin
- Programmable code protection
- High-Endurance Flash cell:
  - 10,000 write Flash endurance (typical)
  - Flash retention: > 40 years
- Wide operating voltage range (1.8V-5.5V)
- On chip 3.2V Regulator
  - External capacitor pin can be used as I/O in lower voltage (1.8V-3.6V) applications.

### Low-Power Features:

- Standby Current:
  - 100 nA @ 2.0V, typical
- Operating Current:
  - 6.0  $\mu$ A @ 32 kHz, 2.0V, typical
  - 54  $\mu$ A @ 1 MHz, 2.0V, typical
- Low-Power Watchdog Timer Current:
  - 1.0  $\mu$ A @ 2.0V, typical

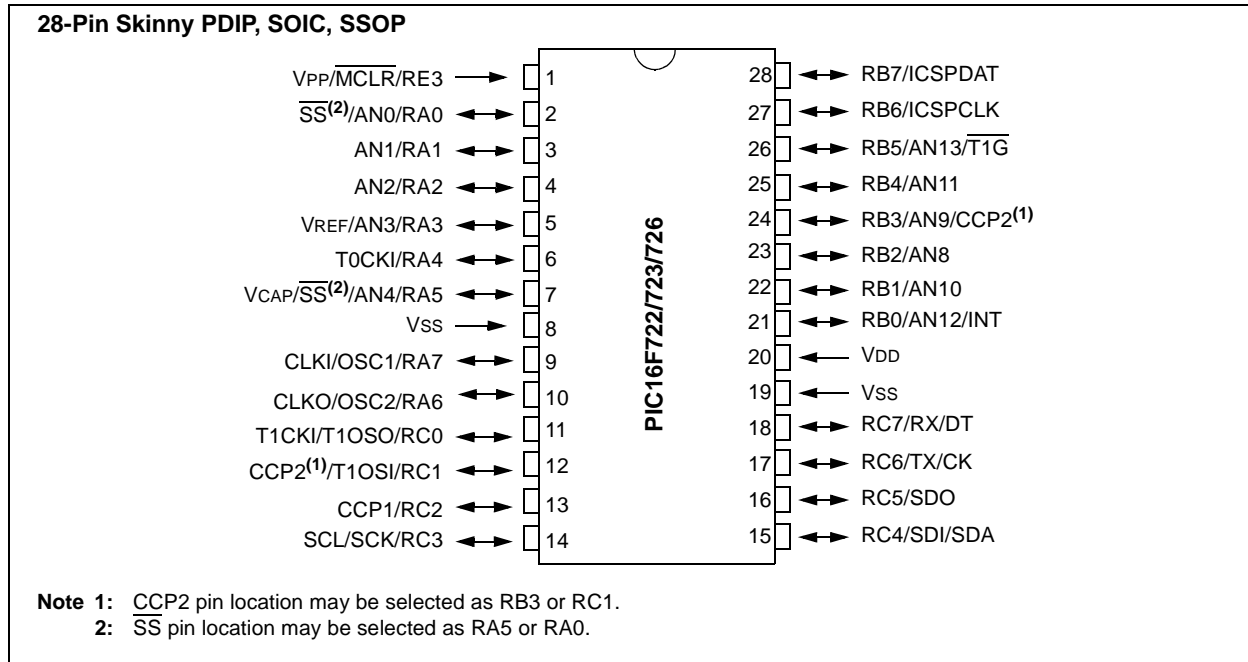
### Peripheral Features:

- Up to 35 I/O pins and 1 input-only pin:
  - High-current source/sink for direct LED drive
  - Interrupt-on-pin change
  - Individually programmable weak pull-ups
- In-Circuit Serial Programming™ (ICSP™) via two pins
- A/D Converter:
  - 8-bit resolution and up to 14 channels
  - Can operate during Sleep
  - Selectable 1.024/2.048/4.096V voltage reference
- Timer0: 8-bit timer/counter with 8-bit programmable prescaler
- Enhanced Timer1
  - Dedicated low-power 32 kHz oscillator
  - 16-bit timer/counter with prescaler
  - External Gate Input mode with toggle and single shot modes
  - Interrupt on gate completion
- Timer2: 8-bit timer/counter with 8-bit period register, prescaler and postscaler
- Two Capture, Compare, PWM modules
  - 16-bit Capture, max. resolution 12.5 ns
  - 16-bit Compare, max. resolution 200 ns
  - 10-bit PWM, max. frequency 20 kHz
- Addressable Universal Synchronous Asynchronous Receiver Transmitter (AUSART)
- Synchronous Serial Port (SSP)
  - SPI (Master/Slave)
  - I<sup>2</sup>C™ (Slave) with Address Mask

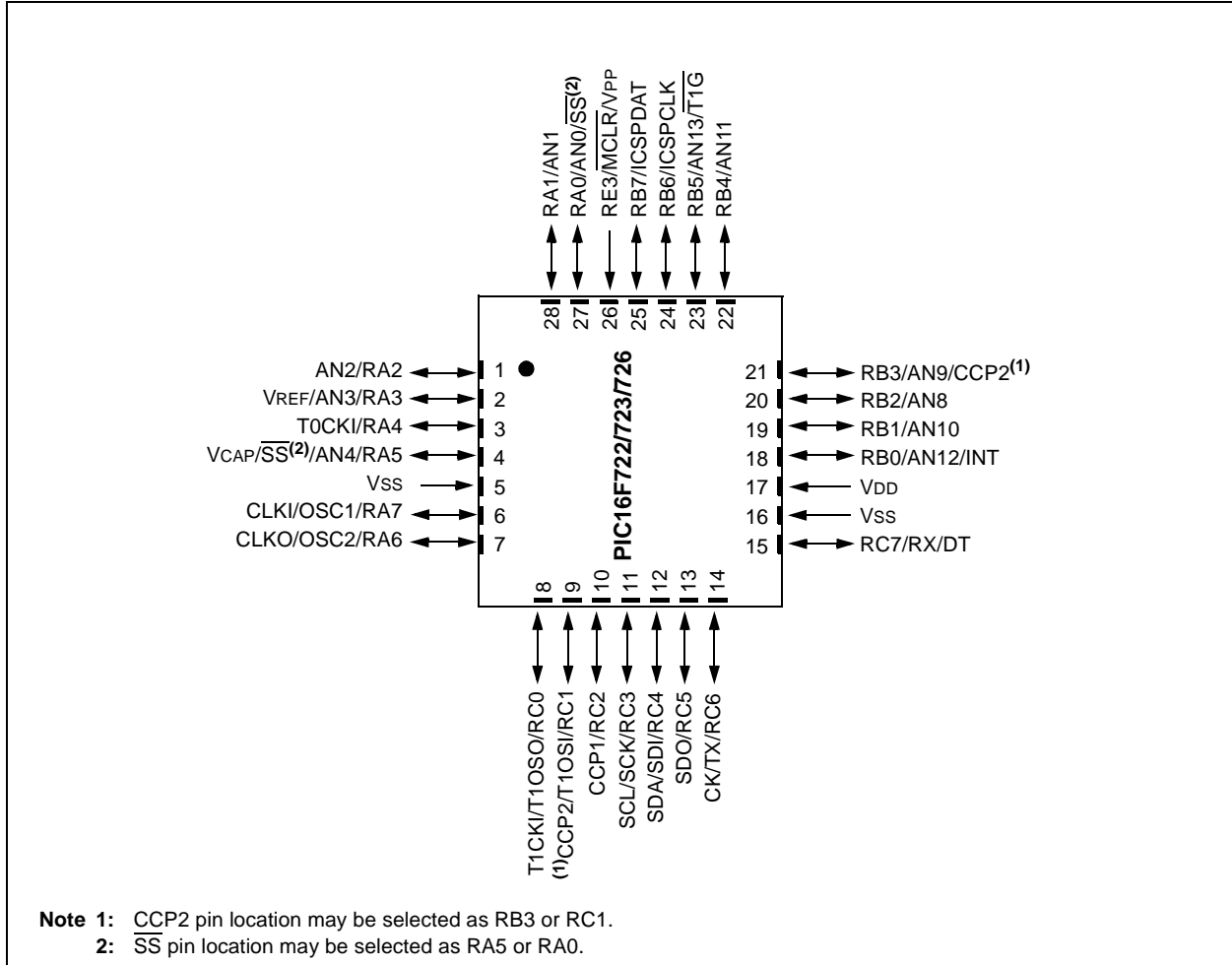
# PIC16F72X

Device	Program Memory Flash (words)	SRAM (bytes)	I/Os	Interrupts	8-bit A/D (ch)	AUSART	CCP	Timers 8/16-bit
PIC16F722	2048	128	25	12	11	Yes	2	2/1
PIC16F723	4096	192	25	12	11	Yes	2	2/1
PIC16F724	4096	192	36	12	14	Yes	2	2/1
PIC16F726	8192	368	25	12	11	Yes	2	2/1
PIC16F727	8192	368	36	12	14	Yes	2	2/1

**FIGURE 1: 28-PIN PDIP/SOIC/SSOP DIAGRAM FOR PIC16F722/723/726**

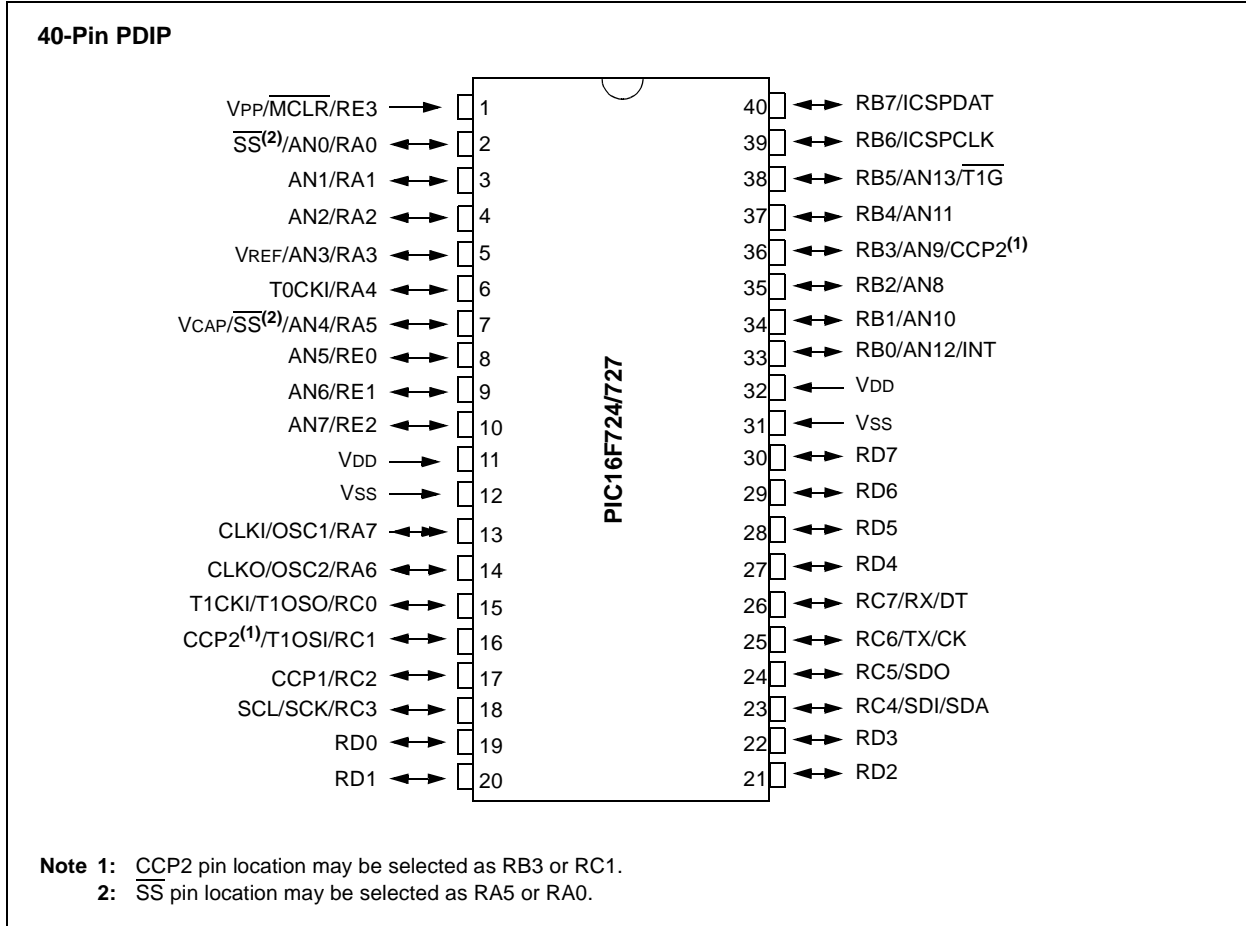


**FIGURE 2: 28-PIN QFN (6X6 MM) PACKAGE DIAGRAM FOR PIC16F722/723/726**

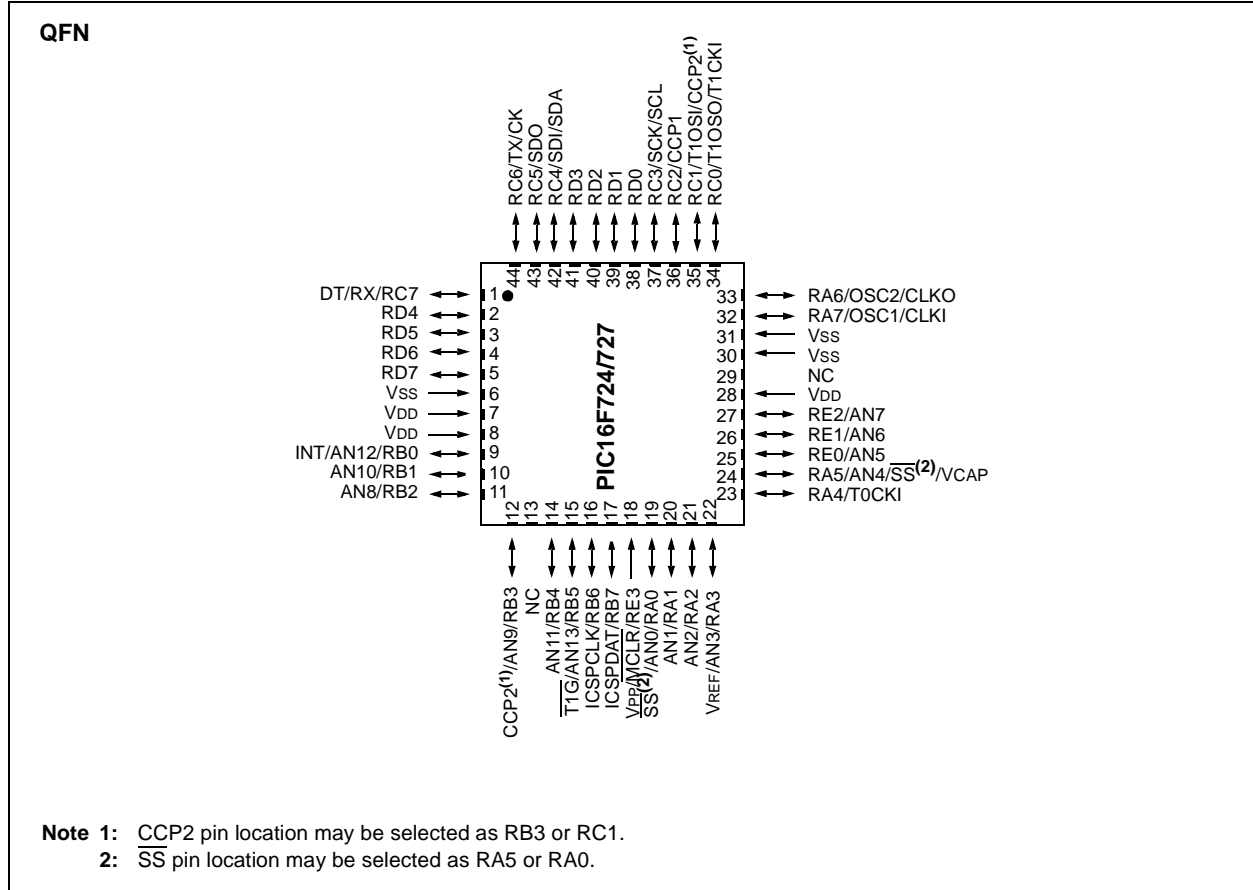


# PIC16F72X

**FIGURE 3: 40-PIN PDIP PACKAGE DIAGRAM FOR PIC16F724/727**

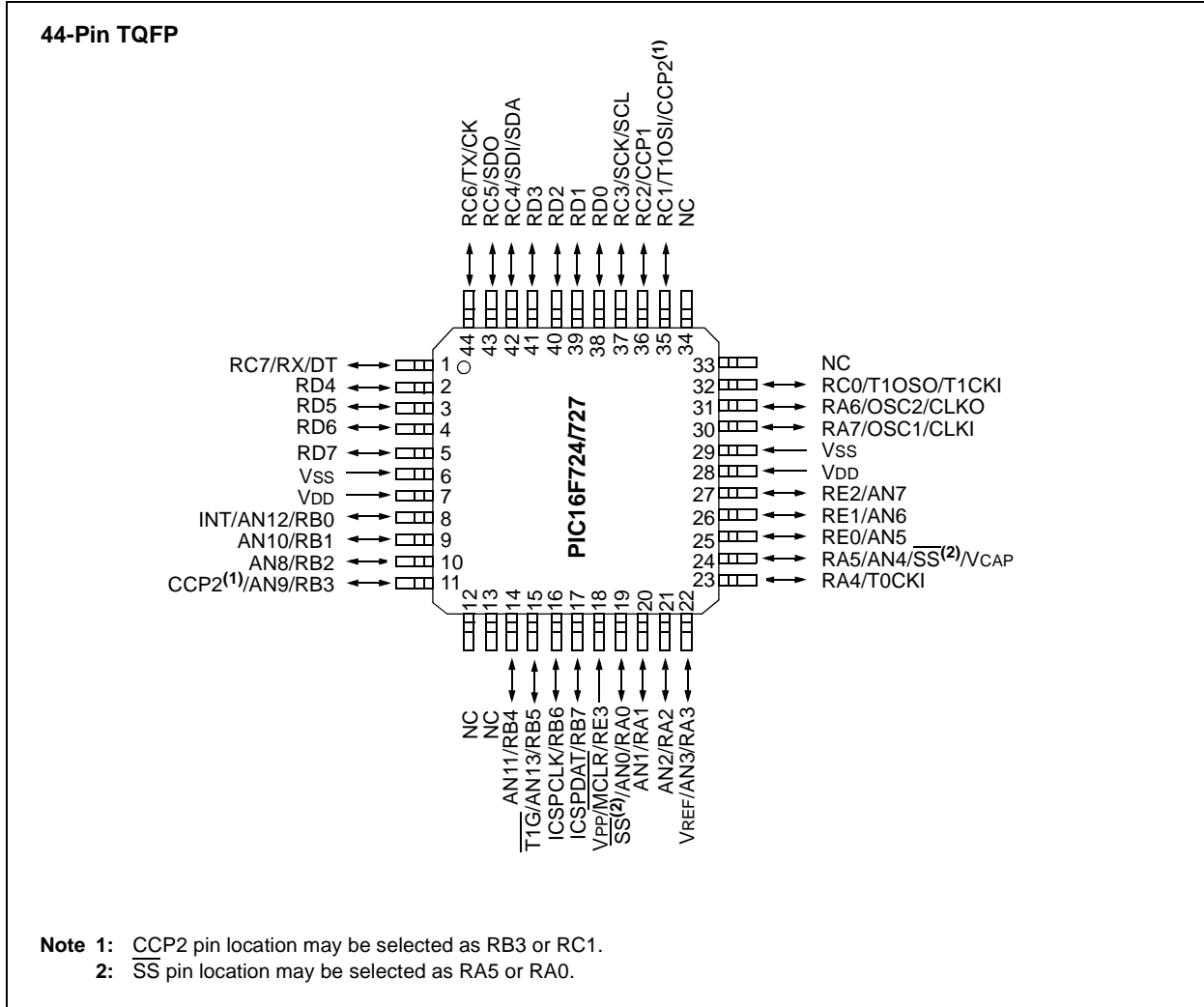


**FIGURE 4: 44-PIN QFN (8X8 MM) PACKAGE DIAGRAM FOR PIC16F724/727**



# PIC16F72X

FIGURE 5: 44-PIN TQFP PACKAGE DIAGRAM FOR PIC16F724/727



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