

LM6402G, LM6405G n channel e/d mos LSI

CIRCUIT DRAWING
No. 1001

SINGLE-CHIP 4-BIT MICROCOMPUTER FOR USE IN CONTROLLER APPLICATIONS



General Description

- The LM6402G/6405G are single-chip 4-bit N channel MOS microcomputers intended for use in control-oriented applications. They contain a ROM (2048 bytes (2K bytes)), a RAM (128 x 4 bits), an ALU, I/O ports (35 pins), a timer, a clock generator, a PLA. They are improved versions of the LM6402A/6405A and the LM6402H/6405H, in which a prescaler for system clock is contained and 3 options of frequency division are allowed. Other functions are the same as those of the LM6402A/6405A and the LM6402H/6405H. The following table shows a comparison between the LM6402/5G and the LM6402/5A, H in terms of newly added functions.

Item	LM6402/5 A, H	LM6402/5 G
Minimum cycle time	5 μ s or 10 μ s	3 μ s
OSC	800k or 400k CF oscillation	Option 800, 400kHz CF oscillation 1/1 prescaler CR oscillation 1/1 prescaler 4MHz CF oscillation 1/3 prescaler 4MHz CF, 4.19MHz crystal oscillation 1/4 prescaler External oscillation 1/1, 1/3, 1/4 prescaler
I/O voltage	+12V	+15V
Output current maximum rating (Peak current per pin IOL)	Other than E, F = 4mA E, F = 40mA	Other than E, F = 30mA E, F = 50mA

Note: 3.58MHz CF oscillation and 3.58MHz crystal oscillation are under development.

Hardware features (Reduction in external parts)

- Clock generator, frequency divider (3 options of 1/1, 1/3, or 1/4 division) (Ceramic oscillation, crystal oscillation, CR oscillation available: $f_{max} = 4.2\text{MHz}$)
- Cycle time: 3 μ s
- Input/output common ports (7 ports/27 pins)
- Flexible output configuration (Open drain, pull-up resistor attached)
- Input threshold voltage select (Normal, high threshold)
- LED driver-contained output ports (All ports are capable of delivering large current.)
- 24-character PLA
- Initial reset and external interrupt input pins containing Schmitt gate
- 1K bytes/2K bytes pin compatible
- Single 5V supply, N channel, E/D MOS

Software features (Effective use of ROM capacity)

- 4-level subroutine nesting
- Interrupt function (External/internal)
- Programmable timer with wide setting range
- (Timer, pulse count, pulse width measure)
- Powerful instruction set of 82 instructions
- 1K bytes/2K bytes instruction compatible

Evaluation chip

- Evaluation chip LM6499 and adapter board (EVA-TB1G, EXT) for prescaler option evaluation are available for use in the application development of the LM6402G/6405G.