M62015L,FP
M62016L,FP

LOW POWER 2 OUTPUT SYSTEM RESET IC

DESCRIPTION

The M62015, M62016 are semiconductor integrated circuits whose optimum use is for the detection of the rise and fall in the power supply to a microcomputer system in order to reset or release the microcomputer system.

The M62015, M62016 carry out voltage detection in 2 steps and have 2 output pins. As Bi-CMOS process and low power dissipating circuits are employed, they output optimum signals through each output pin to a system that requires RAM backup.

These ICs also support the backup mode of Mitsubishi microcomputer the M16C.

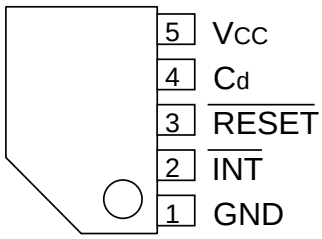
FEATURES

- Bi-CMOS process realizes a configuration of low current dissipating circuits.
  - Circuit current
    - I_{CC}=3µA (Typ. , normal mode, V_{CC}=3.0V)
    - I_{CC}=1µA (Typ. , backup mode, V_{CC}=2.5V)
- Two-step detection of supply voltage
  - Detection voltage in normal mode V_S=2.7V (Typ.)
  - Detection voltage in backup mode V_{BATT}=2.0V (Typ.)
- Two outputs
  - Reset output ($\overline{RESET}$) : Output of compulsive reset signal
  - Interruption output ($\overline{INT}$) : Output of interruption signal
- Output forms
  - CMOS output : M62015
  - Open drain : M62016

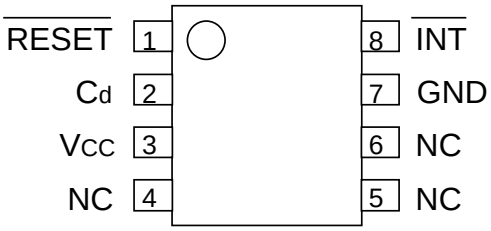
APPLICATION

Prevention of malfunction of microcomputer systems in electronic, equipment such as OA equipment, industrial equipment, and home-use electronic appliances.

PIN CONFIGURATION (TOP VIEW)



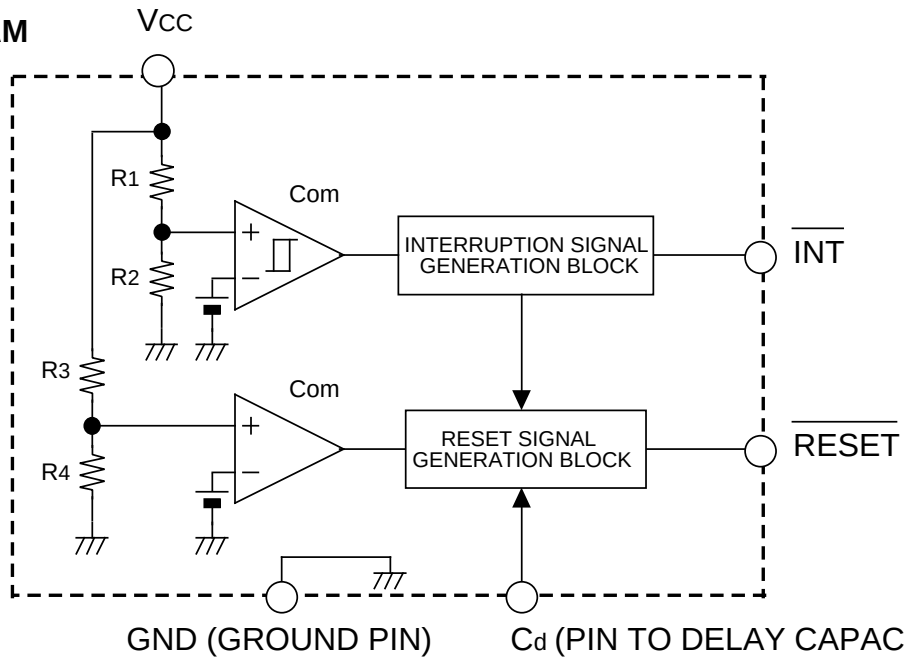
Outline 5P5T



Outline 8P2S-A

NC : NO CONNECTION

BLOCK DIAGRAM



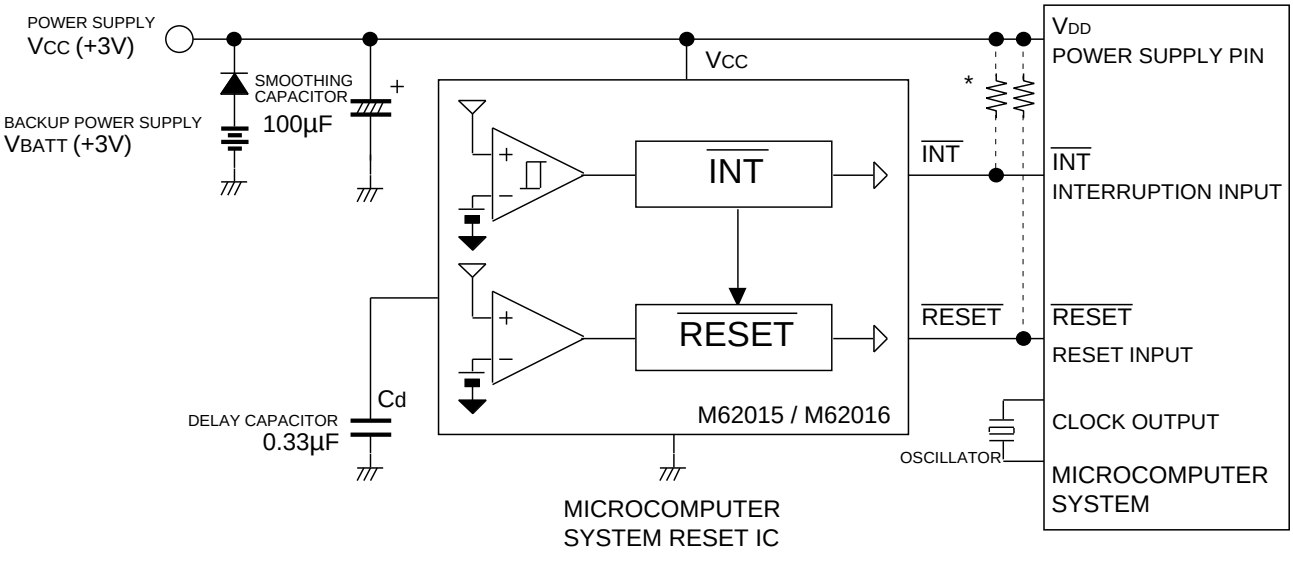
ABSOLUTE MAXIMUM RATINGS (Ta=25°C, unless otherwise noted.)

Symbol	Parameter	Conditions	Ratings	Unit
V_{CC}	Supply voltage		8	V
Isink	Output sink voltage		4	mA
Pd	Power dissipation		440	mW
K_θ	Thermal derating	(Ta ≥ 25°C)	4.4	mW/ °C
Topr	Operating temperature		-20 to +75	°C
Tstg	Storage temperature		-40 to +125	°C

ELECTRICAL CHARACTERISTICS (Ta=25°C, unless otherwise noted.)

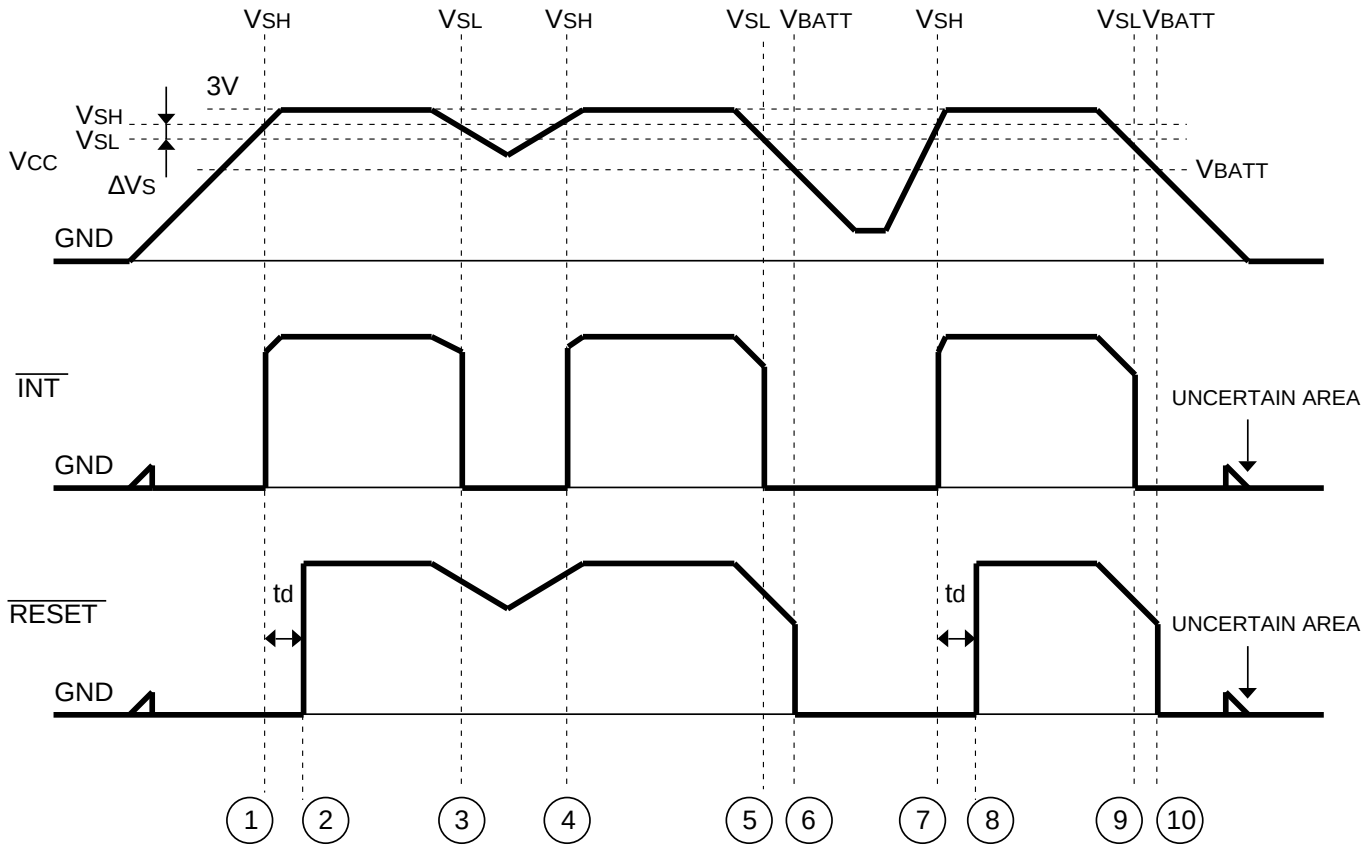
Symbol	Parameter	Test Conditions	Limits			Unit
			Min	Typ	Max	
V_S	Supply voltage	Interruption level during Vcc drop	2.55	2.70	2.85	V
V_{BATT}	Battery voltage	Reset level at backup	1.85	2.00	2.15	V
ΔV_S	Hysteresis voltage	$\Delta V_S = V_{SH} - V_{SH}$		60		mV
I_{CC}	Circuit current	V_{CC}=3.0V : In normal mode		3.0	12	µA
		V_{CC}=2.5V : In backup mode		1.0	4.0	µA
Vsat	Sink ability	V_{CC}=2.5V, Isink=2mA		0.4	0.6	V
td	Delay time	External capacitance Cd=0.33µF		50		ms
$t_{\overline{RESET}}$	Reset output response time	When V_{CC} falling		50		µs
$t_{\overline{INT}}$	Interruption output response time	When V_{CC} falling		40		µs

APPLICATION EXAMPLE



* : A pull-up resistor is required only in the case of open-drain output.

OPERATION DESCRIPTION



(1). If V_{CC} rises to V_{SH}(2.76V), the $\overline{INT}$ output is set to high level.

(2). $\overline{RESET}$ goes high td (s) after V_{SH}

- $td = 1.52 \times 10^5 \times C$ (sec)

(3). If V_{CC} drops to V_{SH} (2.70V), $\overline{INT}$ goes low.

- $\overline{RESET}$ output continues to be held high.

(4). If V_{CC} returns to V_{SH}, the $\overline{INT}$ output is set to high level.

(5). Same as (3)

(6). If V_{CC} becomes lower than V_{BATT} (2.00V), the $\overline{RESET}$ output is set to low thereby resetting the microcomputer and initializing system.

(7). Same as (1)

(8). Same as (2)

(9). Same as (3) and (5)

(10). Same as (6)