

System Reset (with battery back-up) Monolithic IC MM1026, 1245, 1080, 1134

Outline

These ICs protect S-RAM data in back-up mode (CS signal makes R-SAM CE pin low and \overline{CE} pin high) when power supply voltage goes below a certain set voltage (detection voltage 3.5V, 4.2V or 4.5V typ.). Further, it switches from main power supply to battery back-up when power supply voltage drops. Conversely, when power supply rises, it first switches the S-RAM from battery back-up to main power supply (switching voltage 3.3V typ.), then from back-up mode to normal mode (CS signal makes S-RAM CE pin high and CE pin low). These signal processes provide reliable protection against data damage.

Features

MM1026

- Power supply switching circuit (switching between main power supply and battery)
- CS control for S-RAM (normal mode : S-RAM can be accessed; back-up mode: S-RAM can not be accessed low current consumption mode)
- Reset output

MM1245

- Power supply switching circuit
- CS control for S-RAM
- CS control signal delay, power supply line chattering removal approx. 1S max.
- Supply current from main power supply can be increased by external power transistor

MM1080

- Power supply switching circuit
- CS control for S-RAM
- Low current consumption 60 μ A typ.

MM1134

- Power supply switching circuit
- CS control for S-RAM
- Gate circuit with CS signal

Characteristics

1. Battery back-up

- | | | |
|---|----------------|------------------|
| 1. Low IC current consumption (loss current) | | 0.3 μ A typ. |
| 2. Drop voltage inside IC (input/output voltage difference) | $I_o=100\mu A$ | 0.3V typ. |
| 3. Reverse current (reverse leak current) | | 0.1 μ A max. |

2. Normal operation

- | | | |
|---|---------------|-----------|
| 1. Drop voltage inside IC (input/output voltage difference) | $I_o=50\mu A$ | 0.2V typ. |
| 2. Output voltage $V_{CC}=5V$ | $I_o=50mA$ | 4.8V typ. |
| 3. Battery- V_{CC} switching voltage | | 3.3V typ. |

- | | |
|---|---------------|
| 4. Detection voltage (CS, \overline{CS} , reset output) | A : 3.5V typ. |
| | B : 4.2V typ. |
| | C : 4.5V typ. |

Package

DIP-8B (MM××××□ D)

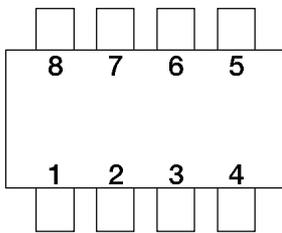
SOP-8C (MM××××□ F)

*□ contains detection voltage rank.

Applications

1. Memory cards (S-RAM cards)
2. PCs, word processors
3. Fax machines, photocopiers, other office equipment
4. Sequence controllers, other FA equipment
5. Video games and other equipment with S-RAMs

Pin Assignment

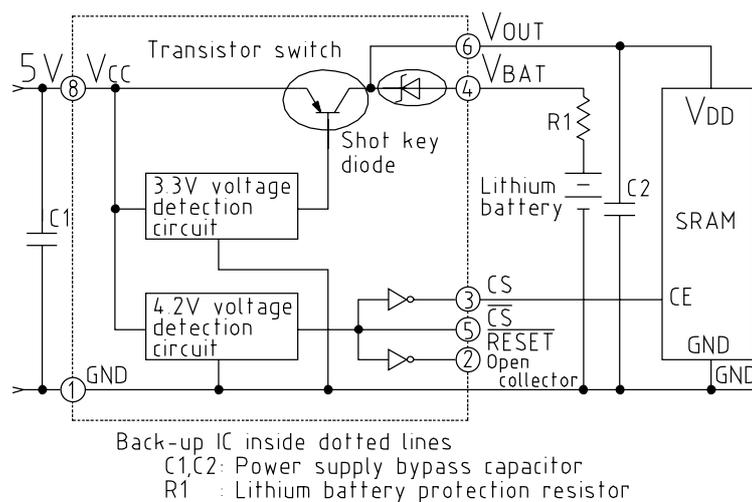


DIP-8P(C)/SOP-8P(C)/SOP-8P(C) Taping

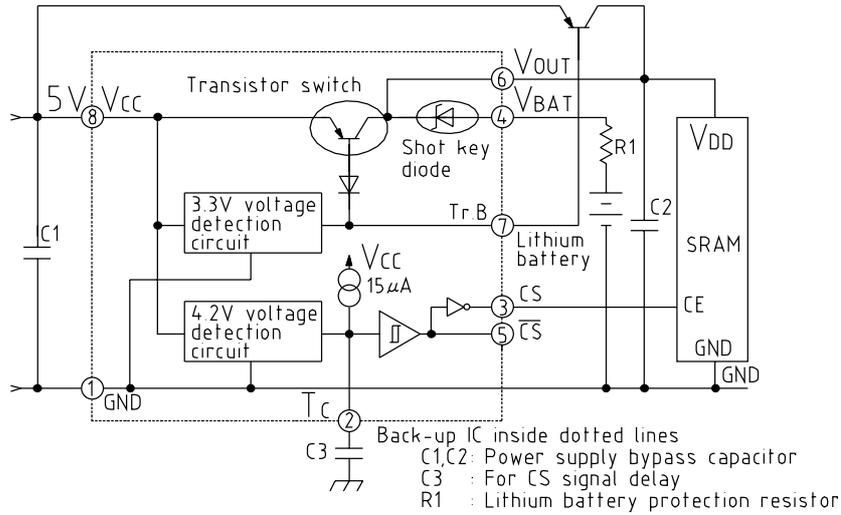
Pin no.	Pin name			
	MM1026	MM1245	MM1080	MM1134
1	GND	GND	GND	GND
2	$\overline{\text{RESET}}$	T _c	NC	$\overline{\text{RESET}}$
3	CS	CS	CS	CS
4	V _{BATT}	V _{BATT}	V _{BATT}	V _{BATT}
5	$\overline{\text{CS}}$	$\overline{\text{CS}}$	NC	$\overline{\text{CS}}$
6	V _{OUT}	V _{OUT}	V _{OUT}	V _{OUT}
7	NC	Tr.B	NC	Y
8	V _{CC}	V _{CC}	V _{CC}	V _{CC}

Block Diagram

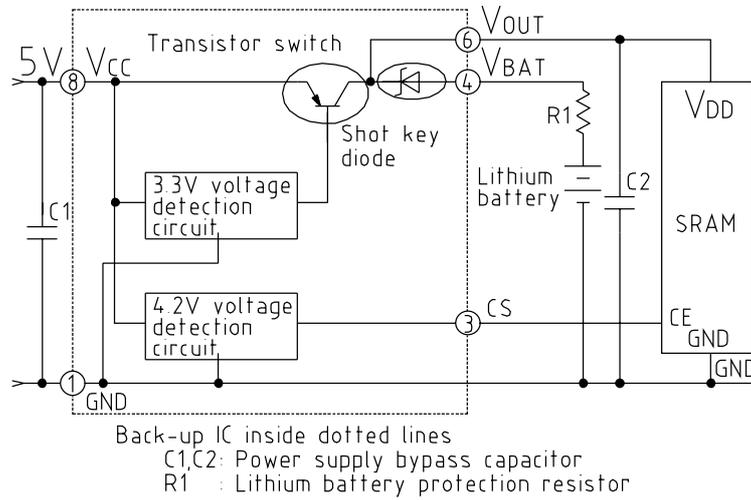
MM1026



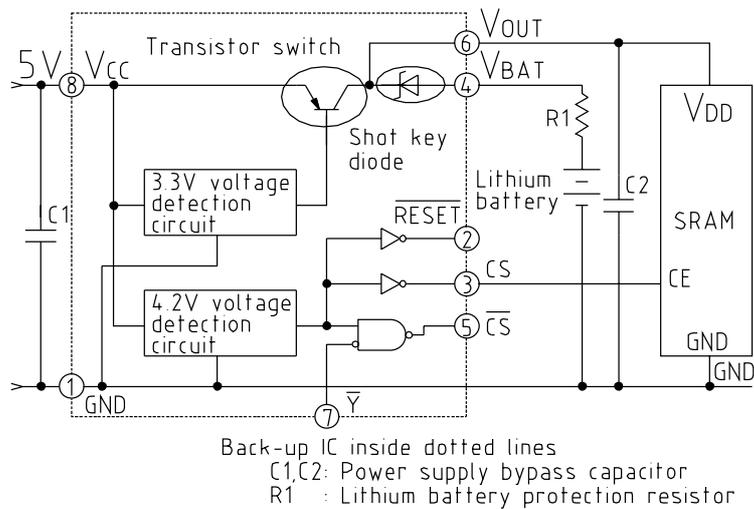
MM1245



MM1080

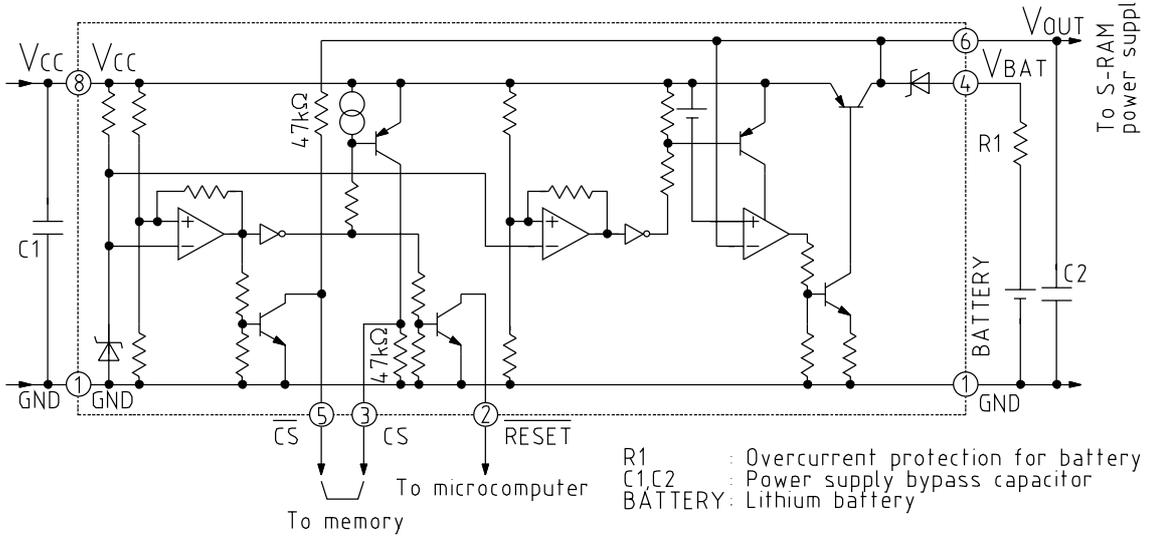


MM1134

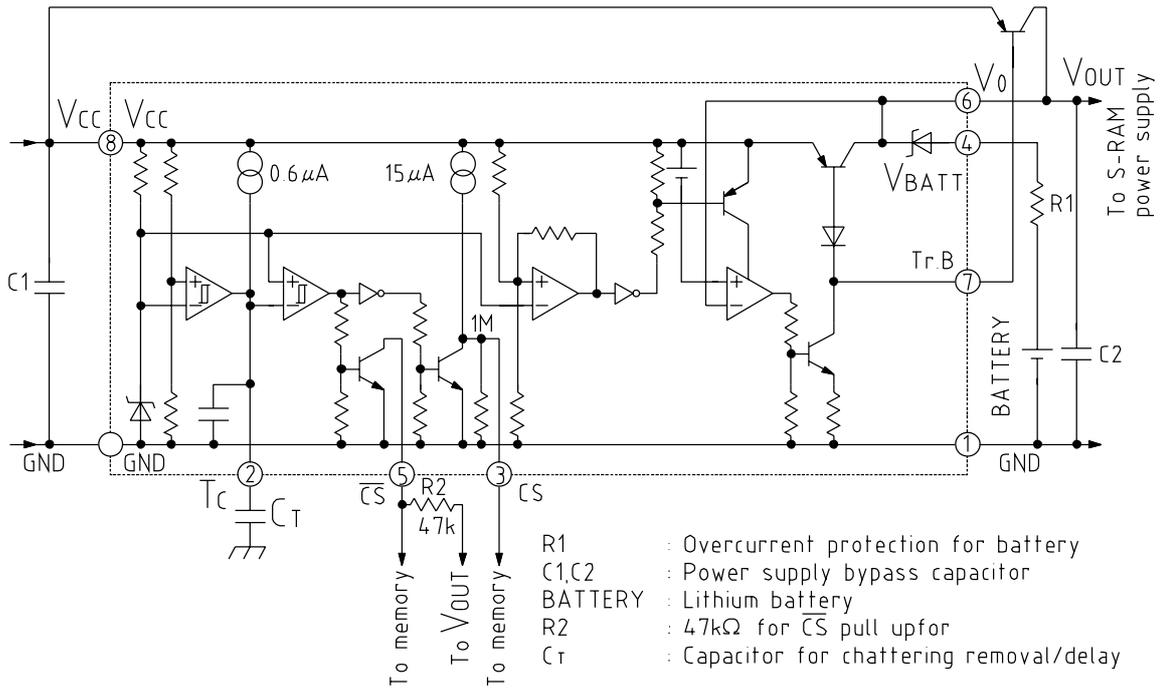


Equivalent Circuit Diagram

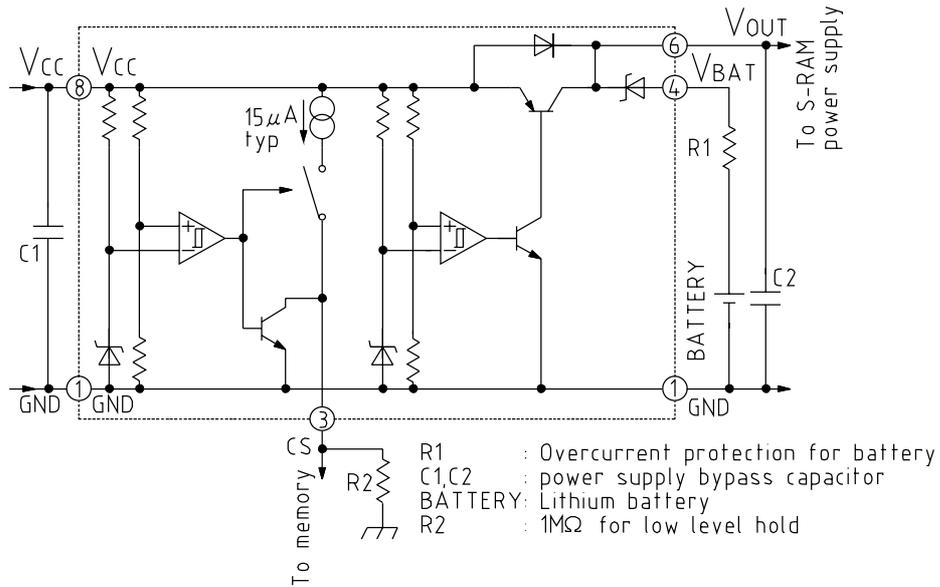
MM1026



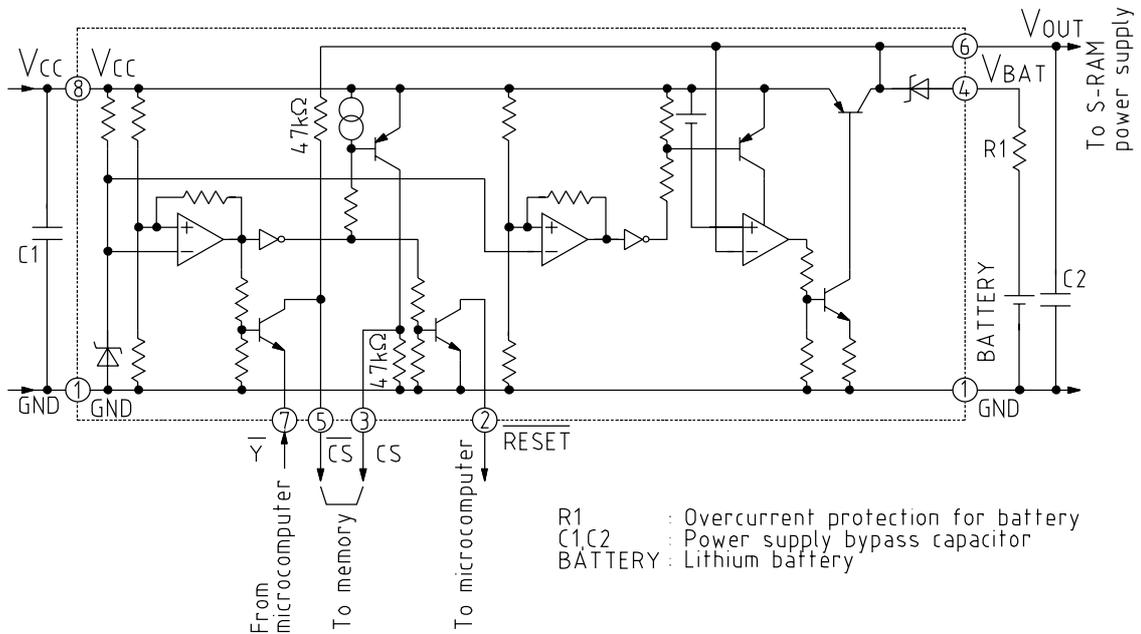
MM1245



MM1080



MM1134



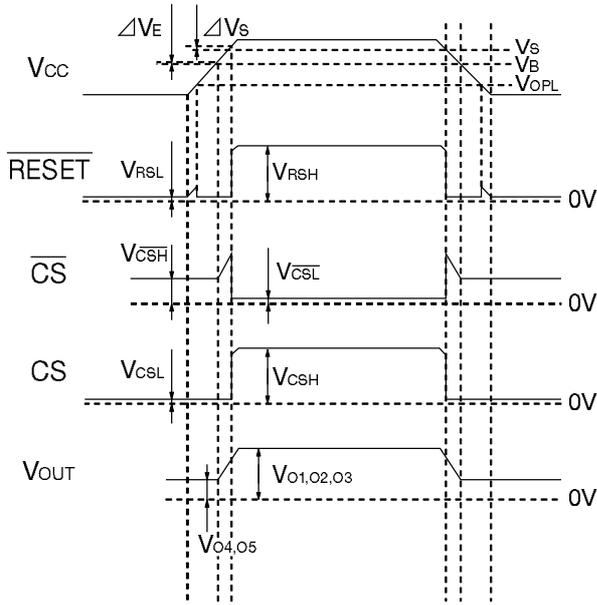
Absolute Maximum Ratings (Ta=25°C)

Item	Symbol	Rating	Units	
Storage temperature	T _{STG}	-40~+125	°C	
Operating temperature	T _{OPR}	-20~+75	°C	
Power supply voltage	V _{CC max.}	7	V	
Operating voltage	V _{CCOP}	7	V	
Allowable loss	P _d	300	mW	
Output current	MM1245	I _{o1}	80	
	MM1026			
	MM1134			
Output current	MM1080	I _{o1}	50	mA
Output current		I _{o2}	200	µA

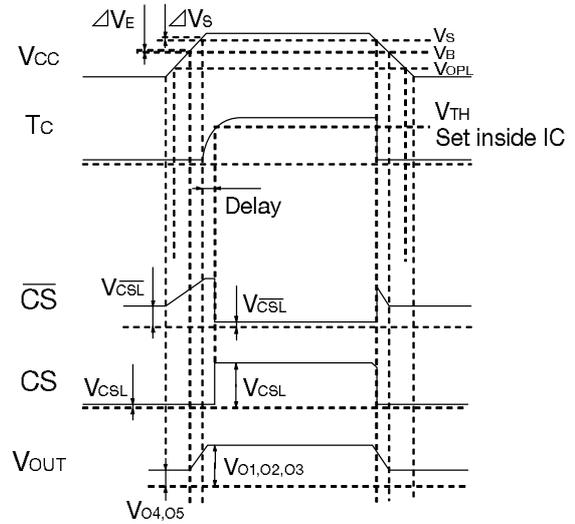
Note : I_{o1} expresses V_{CC} output current value, and I_{o2} expresses V_{BATT} output current value.

Timing Chart

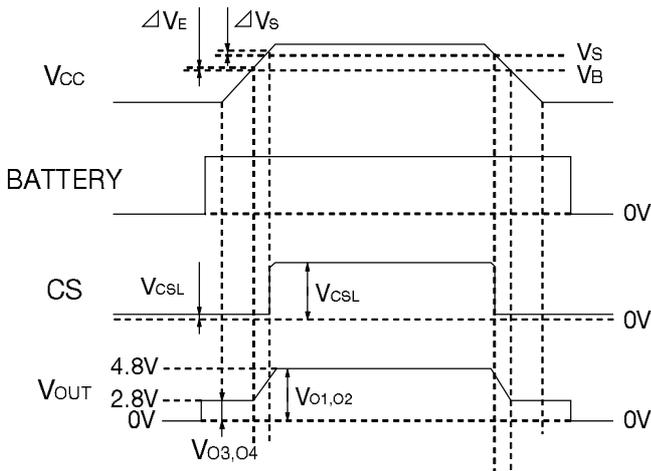
MM1026



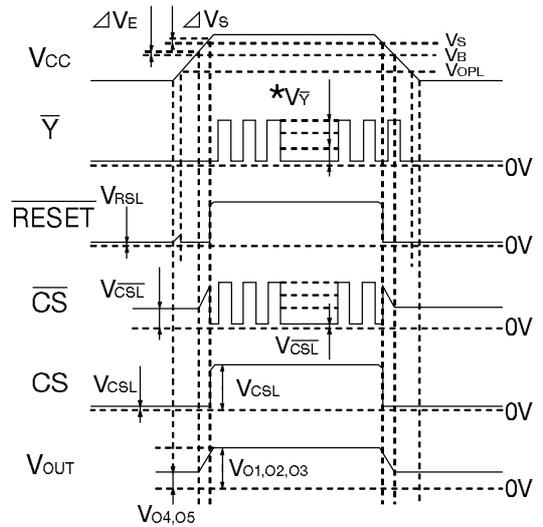
MM1245



MM1080



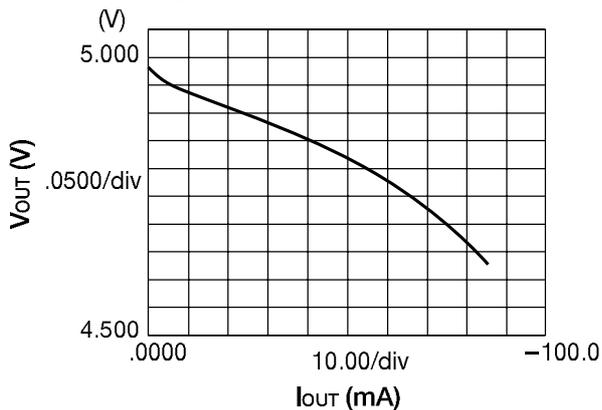
MM1134



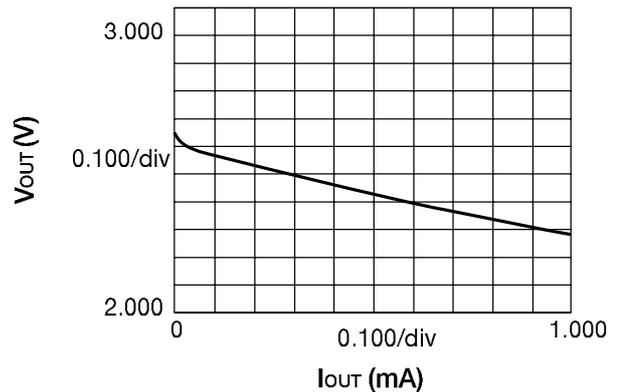
* Use \bar{Y} pin input voltage at less than 5V when $V_{CC} \leq V_s$.

Characteristics (MM1026, MM1134 series)

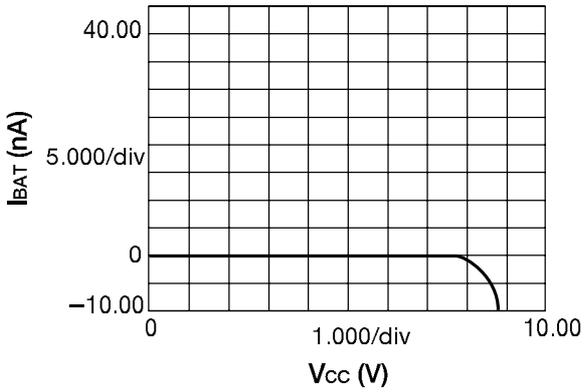
V_{OUT}-I_{OUT} (V_{CC}=5.0V)



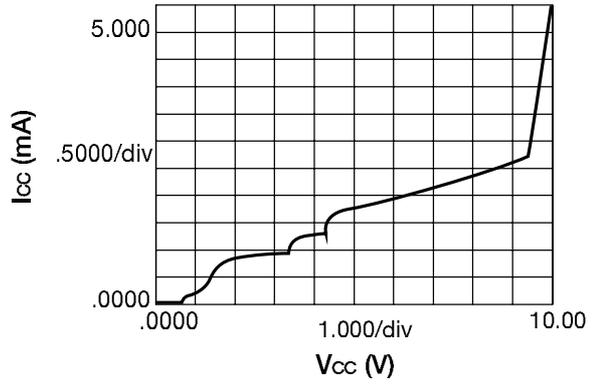
V_{OUT}-I_{OUT} (V_{BAT}=3.0V)



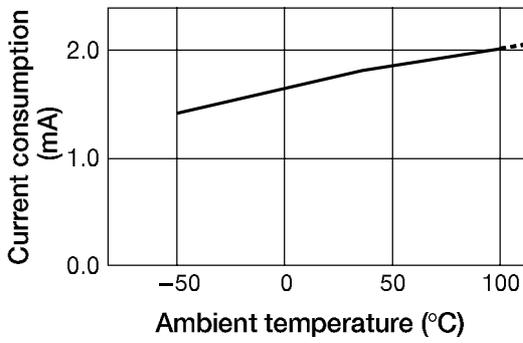
■ V_{CC}-I_{BAT}



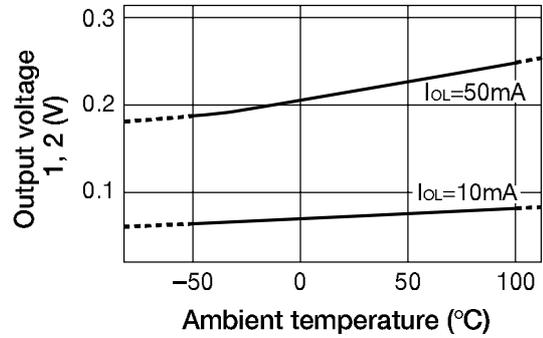
■ V_{CC}-I_{CC}



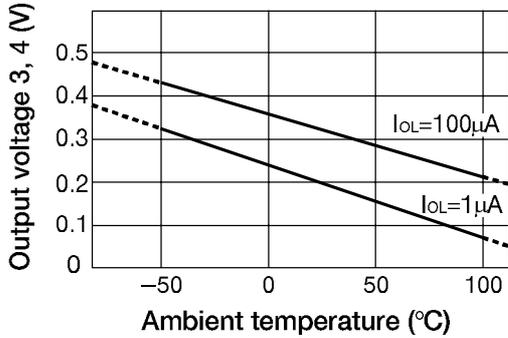
■ Current consumption-Temperature characteristics



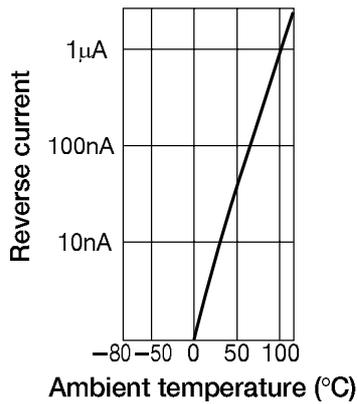
■ Output voltage 1, 2-Temperature characteristics



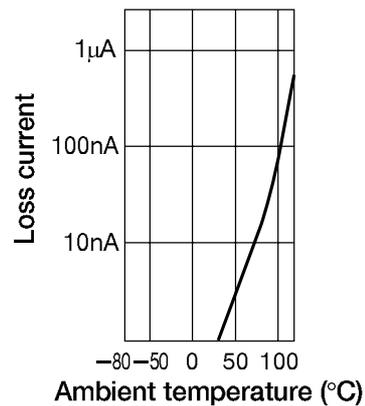
■ Output voltage 3, 4-Temperature



■ Reverse current-Temperature

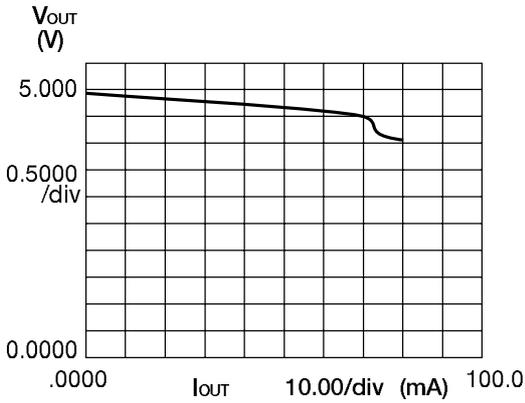


■ Loss current-Temperature

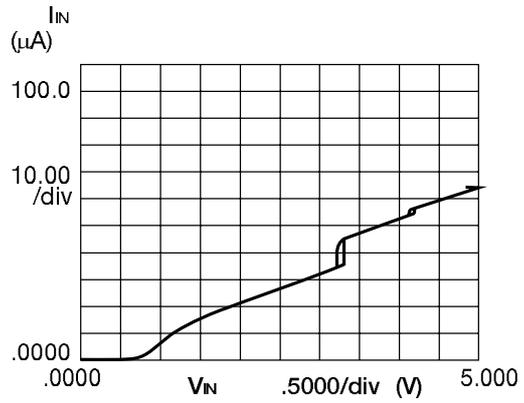


Characteristics (MM1080 series)

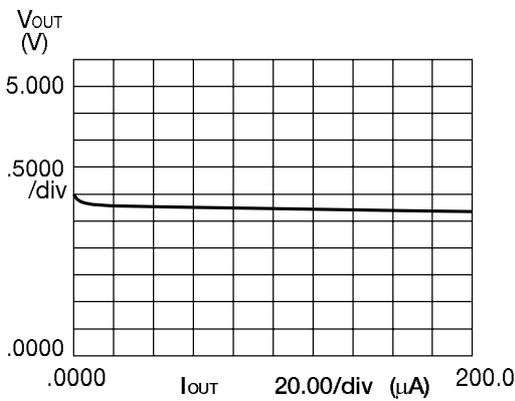
Current consumption-Temperature (Vcc=5V)



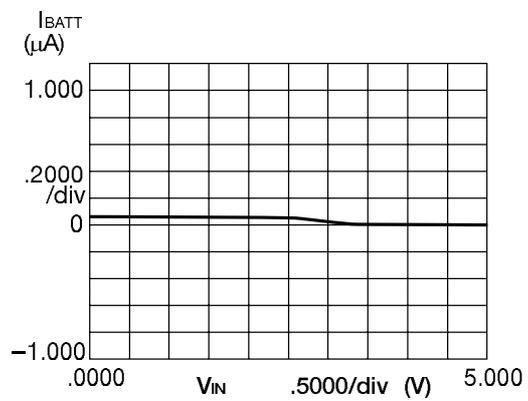
VIN-IIN



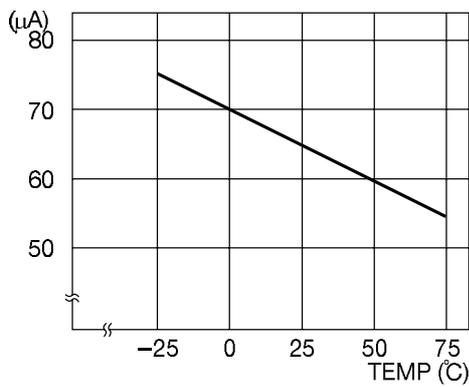
VOUT-IOUT (VBAT=3.0V)



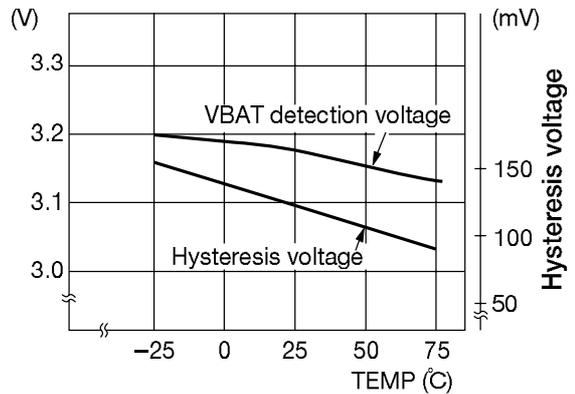
VIN-IBATT



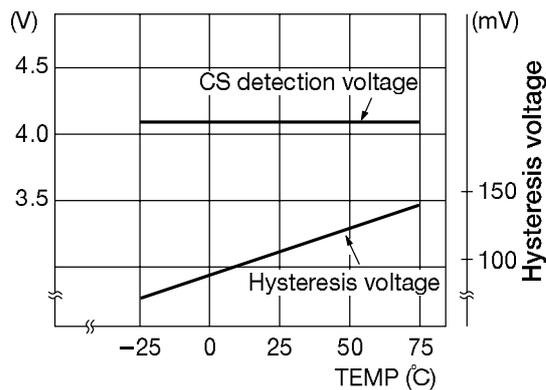
Current consumption-Temperature (Vcc=5V)



VBAT detection voltage-Temperature

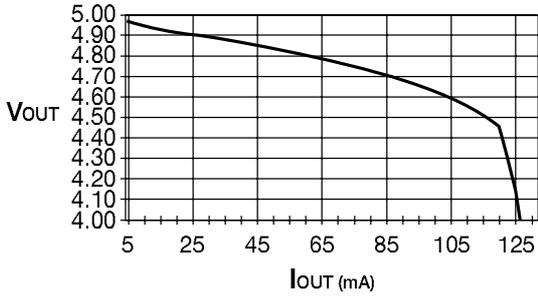


CS detection voltage-Temperature

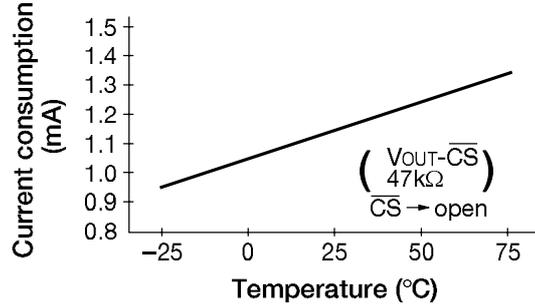


Characteristics (MM1245 series)

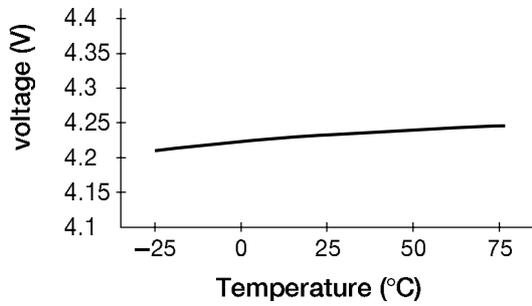
I_{OUT}-V_{OUT}



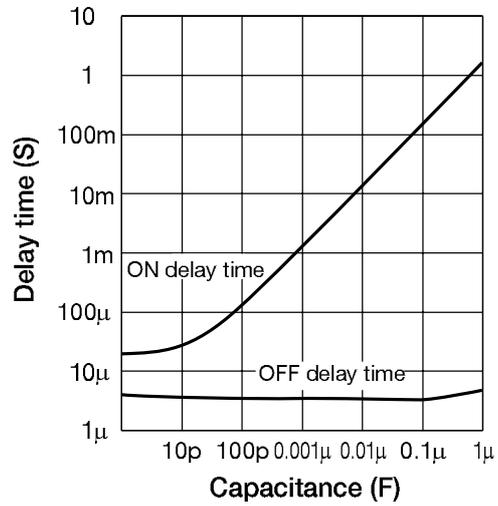
Current consumption-Temperature



CS detection voltage-Temperature



CS-CS pin ON/OFF delay time vs. capacitance TC



Use 1S max. for CS- \overline{CS} pin ON delay time.

V_{BAT} detection voltage-Temperature

