I²C Bus compatible serial EEPROM

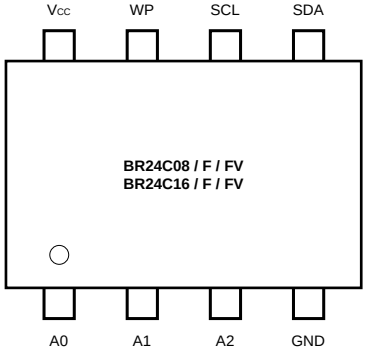
BR24C08 / BR24C08F / BR24C08FV/ BR24C16 / BR24C16F / BR24C16FV

under development

●Features

- Wide range of operating power supply voltages (2.7V to 5.5V).
- 2-wire serial interface.
- Auto erase and auto completion function when writing data.
- Page write mode function:16byte
- Low current consumption.
  - – Operating (at 5V) : 2.0mA (typ.)
  - – Standby (at 5V) : 1.0μA (typ.)
- Write protect function.
  - – Equipped with WP (write protect) function.
  - – Writing disabled when power supply voltage is low.
- Compact DIP8, SOP8, and SSOPB8 packages.
- Highly reliable COMS processing.
- Rewriting possible up to 100,000 times.
- Data can be stored for ten years without corruption.
- Built-in noise filters at SCL and SDA pins.

●Pin assignments



●Overview

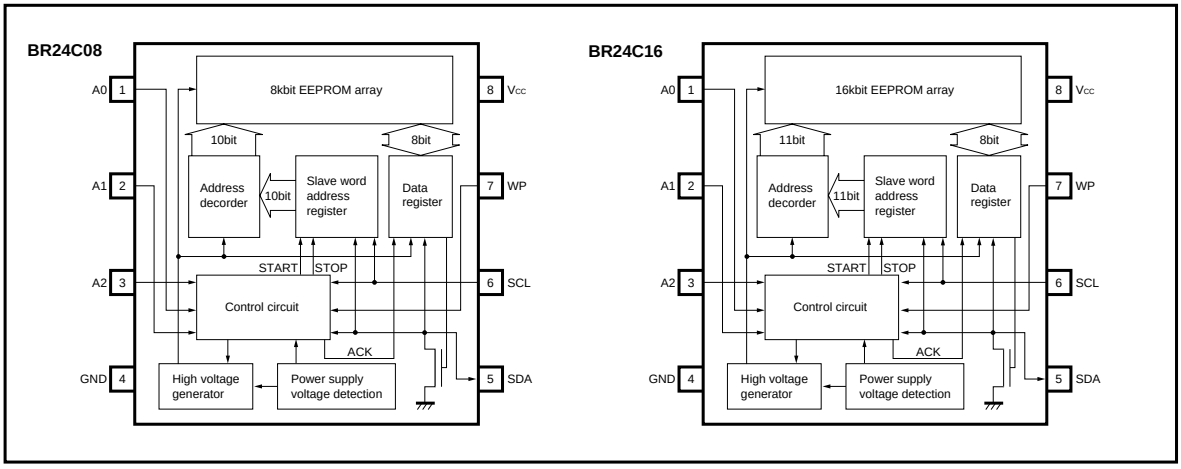
The BR24C08, BR24C08F, BR24C08FV, BR24C16, BR24C16F, and BR24C16FV are 2-wire (I^2C bus type) serial EEPROMs which are electrically programmable.

The configurations are as follows:

BR24C08 / F / FV: 1k × 8 bit 1k serial EEPROM

BR24C16 / F / FV: 2k × 8 bit 2k serial EEPROM

●Block diagram



●Absolute maximum ratings (Ta = 25°C)

Parameter	Symbol	Limits	Unit
Applied voltage	V_{CC}	– 0.3 ~ + 6.5	V
Power dissipation	Pd	300 (SSOPB8)*1 350 (SOP8)*2 500 (DIP8)*3	mW
Storage temperature	Tstg	– 65 ~ + 125	°C
Operating temperature	Topr	– 40 ~ + 85	°C
Pin voltages	—	– 0.3 ~ V_{CC} + 0.3	V

*1 Reduced by 3.0mW for each increase in Ta of 1 °C over 25°C.

*2 Reduced by 3.5mW for each increase in Ta of 1 °C over 25°C.

*3 Reduced by 5.0mW for each increase in Ta of 1 °C over 25°C.

●Recommended operating conditions (Ta = 25°C)

Parameter	Symbol	Limits	Unit
Power supply voltage	V_{CC}	2.7 ~ 5.5	V
Input voltage	V_{IN}	0 ~ V_{CC}	V

●Electrical characteristics (unless otherwise noted, Ta = – 40 to + 85°C, V_{CC} = 2.7V to 5.5V)

Parameter	Symbol	Min.	Typ.	Max.	Unit	Conditions
Input high level voltage	V_{IH}	0.7V_{CC}	—	—	V	—
Input low level voltage	V_{IL}	—	—	0.3V_{CC}	V	—
Output low level voltage	V_{OL}	—	—	0.4	V	I_{OL} = 3.0mA (SDA)
Input leakage current	I_{LI}	– 1	—	1	µA	V_{IN} = 0V ~ V_{CC}
Output leakage current	I_{LO}	– 1	—	1	µA	V_{OUT} = 0V ~ V_{CC}
Operating current consumption	I_{CC}	—	—	3.0	mA	V_{CC} = 5.5V, f_{SCL} = 400kHz
Standby current	I_{SB}	—	—	3.0	µA	V_{CC} = 5.5V, SDA • SCL = V_{CC} A0, A1 , A2 = GND WP = GND

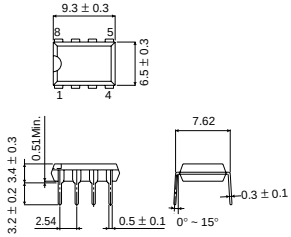
○ Not designed for radiation resistance.

●Operating timing characteristics (unless otherwise noted, Ta = – 40 to + 85°C, V_{CC} = 2.7V to 5.5V)

Parameter	Symbol	V_{CC} = 5V ± 10 %			V_{CC} = 3V ± 10 %			Unit
		Min.	Typ.	Max.	Min.	Typ.	Max.	
SCL frequency	f_{SCL}	—	—	400	—	—	100	kHz
Data clock high time	t_{HIGH}	0.6	—	—	4.0	—	—	µs
Data clock low time	t_{LOW}	1.2	—	—	4.7	—	—	µs
SDA / SCL rise time	t_R	—	—	0.3	—	—	1.0	µs
SDA / SCL fall time	t_F	—	—	0.3	—	—	0.3	µs
Start condition hold time	t_{HD}: STA	0.6	—	—	4.0	—	—	µs
Start condition setup time	t_{SU}: STA	0.6	—	—	4.7	—	—	µs
Input data hold time	t_{HD}: DAT	0	—	—	0	—	—	ns
Input data setup time	t_{SU}: DAT	100	—	—	250	—	—	ns
Output data delay time	t_{PD}	0.1	—	0.9	0.2	—	3.5	µs
Output data hold time	t_{DH}	0.1	—	—	0.2	—	—	µs
Stop condition setup time	t_{SU}: STO	0.6	—	—	4.7	—	—	µs
Bus open time before start of transfer	t_{BUF}	1.2	—	—	4.7	—	—	µs
Internal write cycle time	t_{WR}	—	—	10	—	—	10	ms
Noise erase valid time (SDA / SCL pins)	t_I	—	—	0.05	—	—	0.1	µs

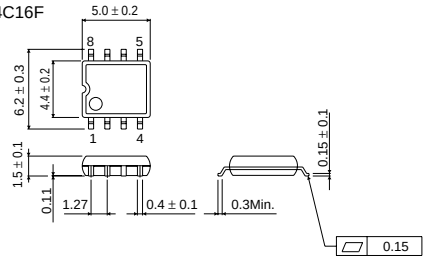
●External dimensions (Units: mm)

BR24C08
BR24C16



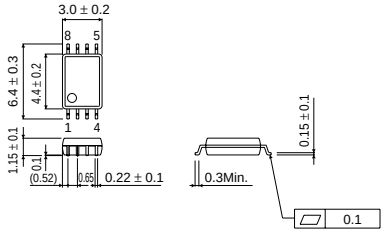
DIP8

BR24C08F
BR24C16F



SOP8

BR24C08FV
BR24C16FV



SSOPB8