

34pin Battery Replaceable SRAM Card Physical Specification

Model # : BN-032MCE
BN-064MCE
BN-128MCE
BN-256MCE
BN-512MCE
BN-01MMCE

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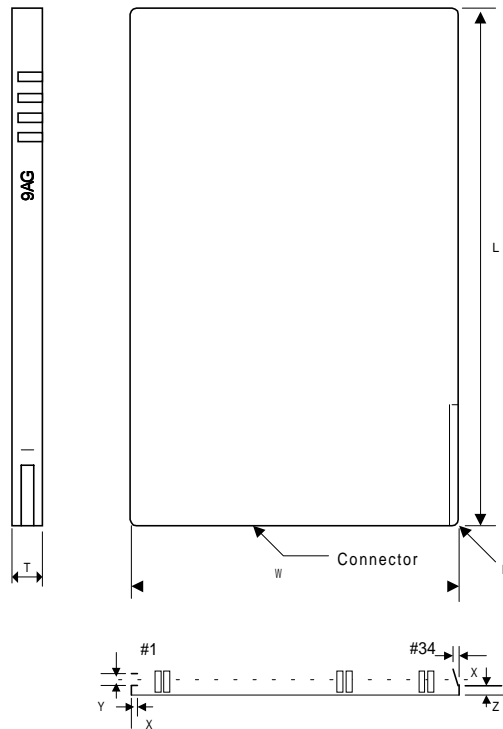
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1. Scope

This specification applies to battery replaceable SRAM card BN-MCE series(memory capacity : 32Kbyte – 1Mbytr).

2. Ratings

2.1. Physical specifications



Card package Dimensions

W ±0.1	L ±0.2	R ±0.1	Z ±0.1	X ±0.1	Y ±0.1	T ±0.1
54.0	85.60	0.5	1.50	1.20	1.80	4.0

2.2. Temperature conditions

Table1 Temperature condition

Item	Symbol	Min.	Max.	Unit
Operating temperature	Topt	0	60	
Storage temperature	Tstg	-20	70	

2.3. Electrical specifications

Table2 Electrical specification

Item	Symbol	Min.	Typ.	Max.	Unit
Power supply voltage	V_{CC}	4.5	5.0	5.5	V
High level input voltage	V_{IH}	$0.7 \times V_{CC}$		V_{CC}	V
Low level input voltage	V_{IL}	-0.3		0.8	V
Access Time	tcR	200			Ns

NOTE: * 1 For further electrical specification, refer to Electrical Specification.

3. Model number

Model#	Memory structure		Battery	Battery life	
	(Word × bit)	Byte		25	40
BN-032MCE	32K × 8	32K	CR2330	5years	5years
BN-064MCE	64K × 8	64K			
BN-128MCE	128K × 8	128K			
BN-256MCE	256K × 8	256K		3years	1years
BN-512MCE	512K × 8	512K			
BN-01MMCE	1M × 8	1M			

4. Appearance

4.1. Surface

The surface of the body shall have no serious defects such as scratches, dirt, and recess.

The treated areas shall be glossy and well-colored, and free from harmful unevenness or swellings, etc.

4.2. Markings

The character markings such as the trade marks, ratings, model numbers shall be clear and without serious defects such as scratches, dirt or detachment.

4.3. Others

- (1) The finishing shall be uniform and free from dangerous edges or projections for safe handling.
- (2) The surface of the storage case shall be free from serious defects such as scratches or dirt.

5. Structure

The structure, shape, and dimensions shall be in accordance with the following items as well as the drawings.

5.1. General structure

- (1) Shall withstand mechanical vibration and impact, and have no abnormalities in performance.
- (2) Shall withstand bending, and have no abnormalities in performance.

5.2. Pins(Terminals)

- (1) The card is the connector type equipped with 34 pins including power pins, address pins, and insertion detector pins.
- (2) The card (female connector) is easily inserted into the insertion/withdrawal connecting portion (male connector) by a force of 0.5 kg min. to 2.5 kg max., and with secure electrical connection. The contact resistor of each pin shall be 30 mΩ max. Using connectors are EZA-543T.
- (3) Contact resistance shall be 50 mΩ after insertion/withdrawal by 5000 times.

5.3. Battery replacement portion

- (1) This is a battery replaceable card. The battery replacement slot is on the back side of the card.
- (2) The battery can be replaced by picking up the battery cover. When inserting the battery into this battery slot, confirm the battery polarity.
- (3) Although the battery cover can be removed by a finger tip, it cannot be easily removed by dropping this card.

6. Performance

(standard test condition)

Ambient temperature: 23 ± 3

Relative humidity: 45%R.H. – 85%R.H.

6.1. Electrical characteristics

Shall satisfy each item in the electrical specification; read, write, and back-up memory, when tested under the conditions of 7.2.

6.2. Drop impact resistance

Shall satisfy section 5.2 (2) and 6.1, and free from abnormalities such as mechanical damages when tested under the conditions of 7.3.

6.3. Heat resistance, Cold resistance

Shall satisfy section 5.2 (2) and 6.1, and free from abnormalities such as mechanical damages when tested under the conditions of 7.4.

6.4. High temperature and high humidity resistance

Shall satisfy section 5.2 (2) and 6.1, and free from abnormalities such as mechanical damages when tested under the conditions of 7.5.

6.5. Heat shock resistance

Shall satisfy section 5.2 (2) and 6.1 when tested under the conditions of 7.6.

6.6. Withstand load property

Shall satisfy section 5.2 (2) and 6.1 when tested under the conditions of 7.7.

6.7. Weather resistance

Shall satisfy section 5.2 (2) and 6.1 when tested under the conditions of 7.8.

There shall be no defects in the markings and the structure for all practical use.

6.8. Electrostatic withstand voltage

In accordance with the attached Rule for Static Electricity Test.

6.9. Durability

Shall satisfy section 6.1 when tested under the conditions of 7.9.

7. Test**7.1. Appearance, Structure**

The appearance and structure shall be checked based on the specifications in 4, 5.

7.2. Electrical characteristics

The test of the pin contact, active current, standby current, marching test, and data back-up test, shall be performed using Panasonic's memory card inspection equipment.

7.3. Drop impact resistance

The drop test shall be performed 8 times from 100 cm height onto a 3 cm thick lauan board, placed on a concrete floor: in X,Y,Z directions and on one corner each twice.

7.4. Heat resistance, Cold resistance

- (1) The high temperature duration test shall be at a 70 °C temperature for 168 hours, then at a normal temperature for 2 hours.
- (2) The low temperature duration test shall be at a -20 °C temperature for 168 hours, then at a normal temperature for 2 hours.

7.5. High temperature and high humidity resistance

The high temperature and high humidity duration test shall be in an atmosphere of 40 °C , 95%R.H for 168 hours, then at a normal temperature for 2 hours.

7.6. Heat shock resistance

For the heat shock test, 10 cycles of heat shock shall be applied as shown in Fig.1, and then a 2 hour duration at a normal temperature.

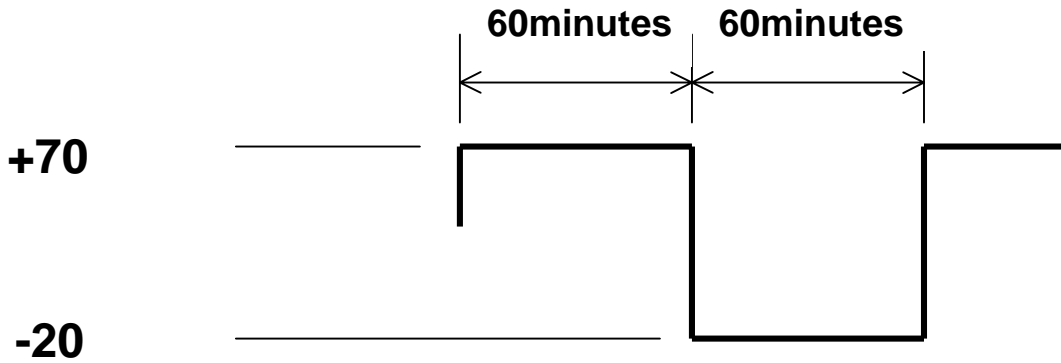


Fig.1

7.7. Load resistance property

A 10kg load shall be applied to the center of the memory card vertically and horizontally as shown in Fig.2.

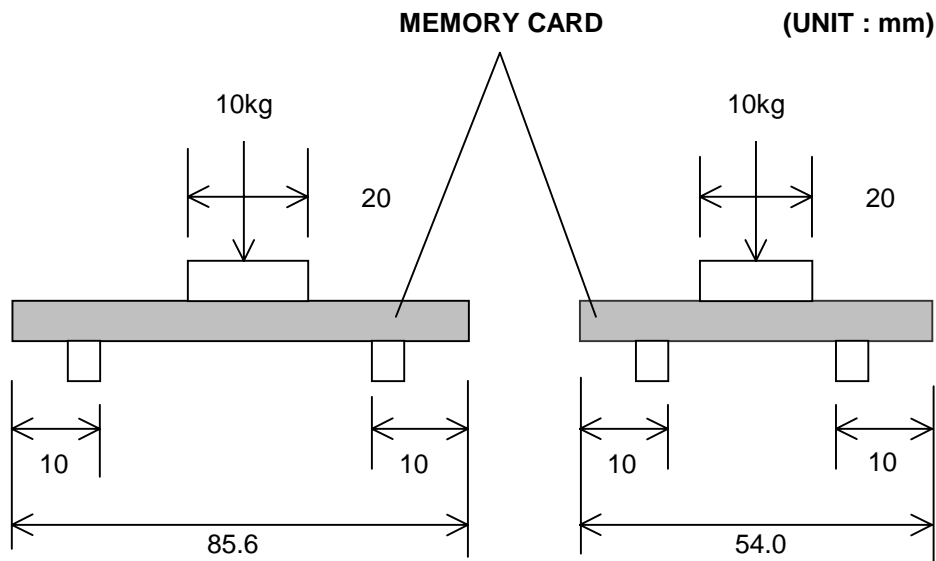


Fig.2

7.8. Weather resistance

A 200-hour duration test using a weather meter shall be performed.

7.9. Durability

The memory card and card inserting portion (male connector) is inserted/withdrawn 10,000 times (Speed: 10 times or less/min.)

8. Designation of product

In accordance with the model names and types.

9. Packaging

Packaging style shall be in accordance with the packaging style figure. There shall be no abnormalities such as mechanical damages, and the packaging condition shall satisfy section 6.1. when the following tests are performed.

(1) Drop impact test (In accordance with MIS-A-5010)

The drop test shall be performed 7 times: on 1 corner, on 2 edges, width, top, length, and bottom area. The height of the dropping shall be 65 cm for the bottom. All other drops shall be 50 cm.

(Dropping surface shall be steel plate.)

(2) Vibration test(In accordance with MIS-A-5012)

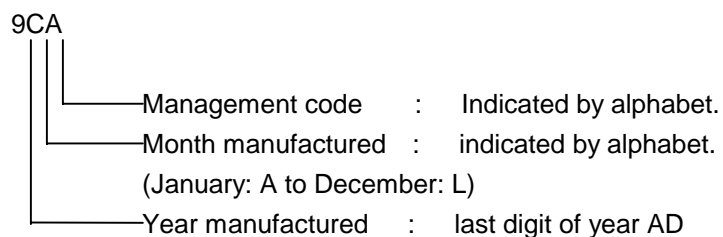
The test conditions are defined in the table.

Direction of vibration	Horizontal (X)	Horizontal (Y)	Vertical (Z)
Acceleration	5m/s ²		10m/s ²
Frequency	5 ~ 50Hz		
Sweep method	Logarithmic frequency sweep		
Repeat cycle	810seconds		
Time	13.5minutes	27 minutes	

10. Markings

Markings shall be legible and the following items shall be marked and unremovable method.

- | | |
|--------------------------|--|
| (1) Model number | As shown in Table 4. |
| (2) Company name | Matsushita Electric Industrial Co., Ltd. |
| (3) Trade mark | Panasonic |
| (4) Country manufactured | Made in Japan |
| (5) Handling precaution | Refer to the name plate in the bottom. |
| (6) Manufacturing code | The date manufactured and management code, such as modification, shall be indicated by a 3 digit code. |



Rule for Static Electricity Test

1. Scope

This rule applies to the memory cards.

2. Measuring apparatus

Capacitor-charging-type static electricity allowance tester (Noise Research Laboratory)

3. Test conditions

Ambient temperature: 23 ± 3

Relative humidity : 45 ~ 85%R.H.

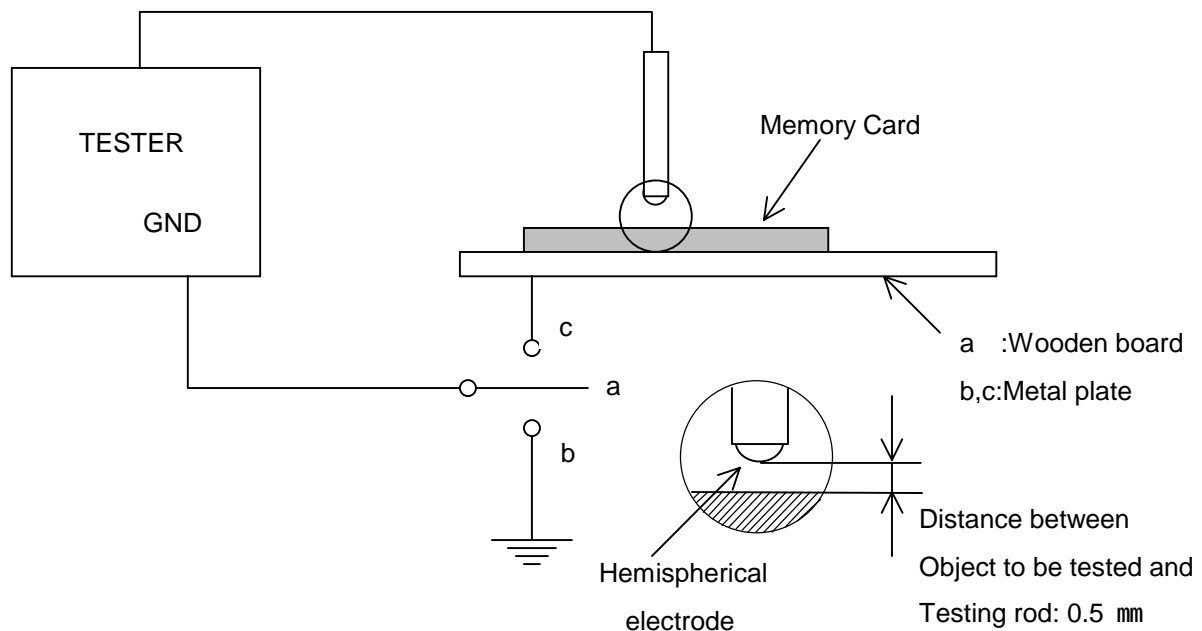
4. Test

4.1 Memory card

Applied voltage	Charging capacitance	Discharge resistance	Number of discharge	Judgment criteria
$\pm 10\text{kV}$	200pF	500	3 times each	Stored data shall not be disturbed
$\pm 15\text{kV}$	200pF	500	3 times each	Shall not be broken

4.2 Test method (Shall be performed by setting the static electricity tester as shown in Fig 1).

- a: Connect the GND of the tester to the ground on the wooden board. (Class 3 grounding)
- b: Connect the GND of the tester to the ground on the metal plate. (Class 3 grounding)
- c: Connect the GND of the tester to the metal-plate ground on the metal plate.



5. Precautions

- a: For the static electricity tester, use the specified shape of the probe tip.
- b: Perform 0 discharging with every shot.