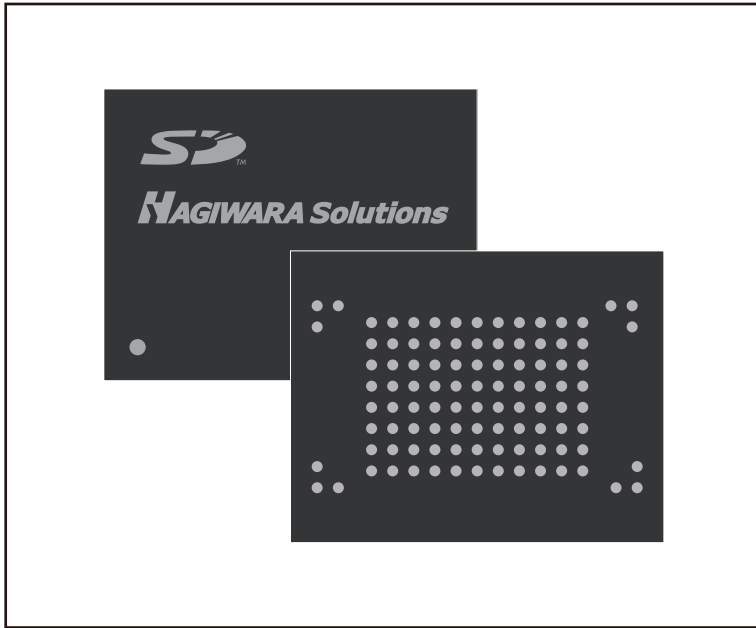




# Industrial grade eSD (Embedded SD)

This product has SD interface with JEDEC 100Ball BGA. eSD has longer life time than eMMC by having a SLC NAND Flash inside the product.



## SD interface

No need to install any special controllers, because most of micro computers have SD interface.

## Longer supplying period than eMMC

Unlike the current eMMC, this product has SLC NAND Flash which allows to have longer life time and longer supplying durations.

## Faster, but lower cost than NOR

Because this products are based on NAND flash memory, it allows to have faster transfer speed than NOR flash memory.

Moreover, the enhanced capacities can be possible due to the lower cost compared by NOR flash.

### Point Original NAND controller equipped

This product allows to have appropriate memory management for industrial devices possible without being aware of host side by our **original NAND controller** that has been used successfully in our industrial grade SDs.

#### Active refresh

This function allows to do a refresh before data error is occurred, because data error (read disturb) becomes a problem when storing the read main data such as boot loader and kernel.

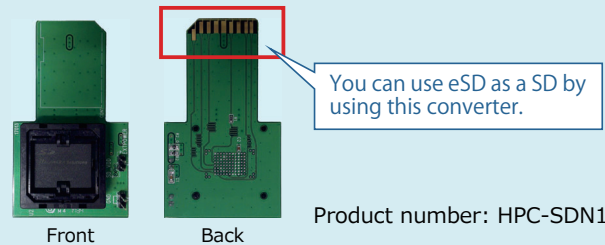
**NEW !**

### Point Life prediction tool is available

Allows to access the information to decide the device' s condition.

### Point SD converter for testing purpose

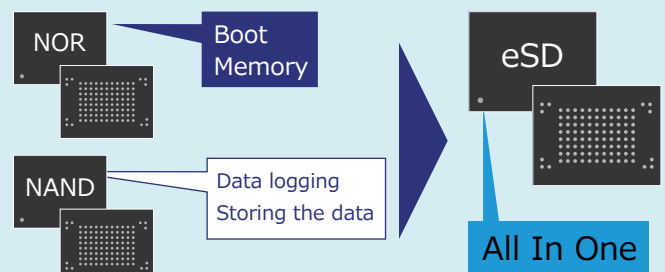
SD converter for eSD is available for your testing purpose upon your request.



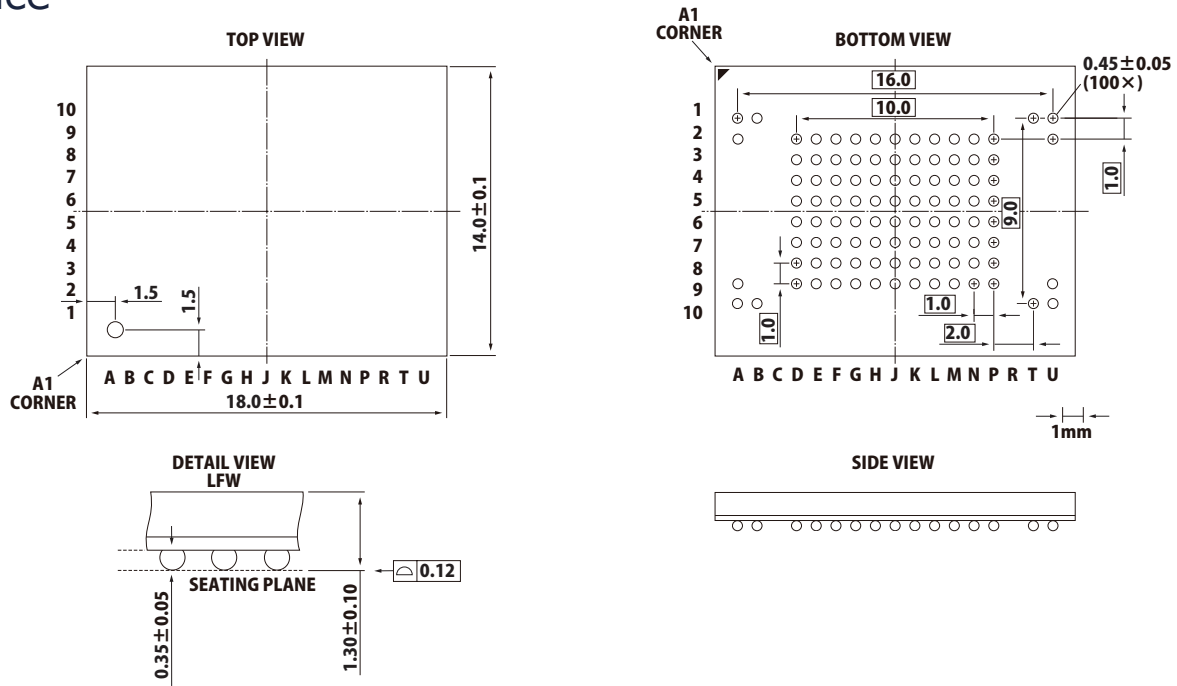
Product number: HPC-SDN1AE

## Ideal for replacement of NOR as a boot memory.

Replacing from NOR reduces mounting area and cost since this product can be used as a memory for storing data as well. Also, this product has the bigger advantage in terms of the reliability such as data retention capacity when compared to eMMC which mainly equips with MLC/TLC NAND flash memory.



## Interface



Packaging	Industrial 100Ball BGA (JEDEC standard) ※Ball pitch 1mm	
Interface	SDA ( PHYSICAL LAYER SPECIFICATION Ver3.01 )	
NAND Technology/Capacities	SLC ( 1GB / 2GB / 4GB / 8GB / 16GB )	
P/E cycles	1GB,2GB: 50,000 per Block / 4GB,8GB,16GB: 100,000 per Block	
BUS speed mode	1GB ~ 16GB	
	Default Speed mode (DS)	3.3V signaling, Max frequency 25MHz, Max 12.5MB/s
	High Speed mode (HS)	3.3V signaling, Max frequency 50MHz, Max 25MB/s
	4GB ~ 16GB	
	SDR12	1.8V signaling, Max frequency 25MHz, Max 12.5MB/s
	SDR25	1.8V signaling, Max frequency 50MHz, Max 25MB/s
Supported Voltage	2.7V ~ 3.6V	
	Supported Temp.	-40°C ~ 85°C
	Additional Function	Life prediction tool
		Read disturb Management
Wear leveling function		
Robustness for force shut down.		
Socket board is available for your testing.		

※ Specification might be subject to change.

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