

# Preliminary

Notice: This is not a final specification.  
Some parametric limits are subject to change.

Renesa LSIs

# M6MGD967W33ATP

100,663,296-BIT (6,291,456-WORD BY 16-BIT) CMOS FLASH MEMORY &  
33,554,432-BIT (2,097,152-WORD BY 16-BIT) CMOS Mobile RAM  
Stacked- mMCP (micro Multi Chip Package)

## DESCRIPTION

The M6MGD967W33ATP is a Stacked micro Multi Chip Package (S- μMCP) that contents 96M-bit Flash memory and 32M-bit Mobile RAM in a 52-pin TSOP.

96M-bit Flash memory is constructed by 64M-bit Flash Memory and 32M-bit Flash Memory. They are single power supply and high performance non-volatile memory. All memory blocks are locked and can not be programmed or erased, when F-WP# is Low. Using Software Lock Release function, program or erase operation can be executed.

32M-bit Mobile RAM is a 2,097,152 words high density RAM fabricated by CMOS technology for the peripheral circuit and DRAM cell for the memory array. The interface is compatible to an asynchronous SRAM.

The cells are automatically refreshed and the refresh control is not required for system. The device also has the partial block refresh scheme and the power down mode by writing the command.

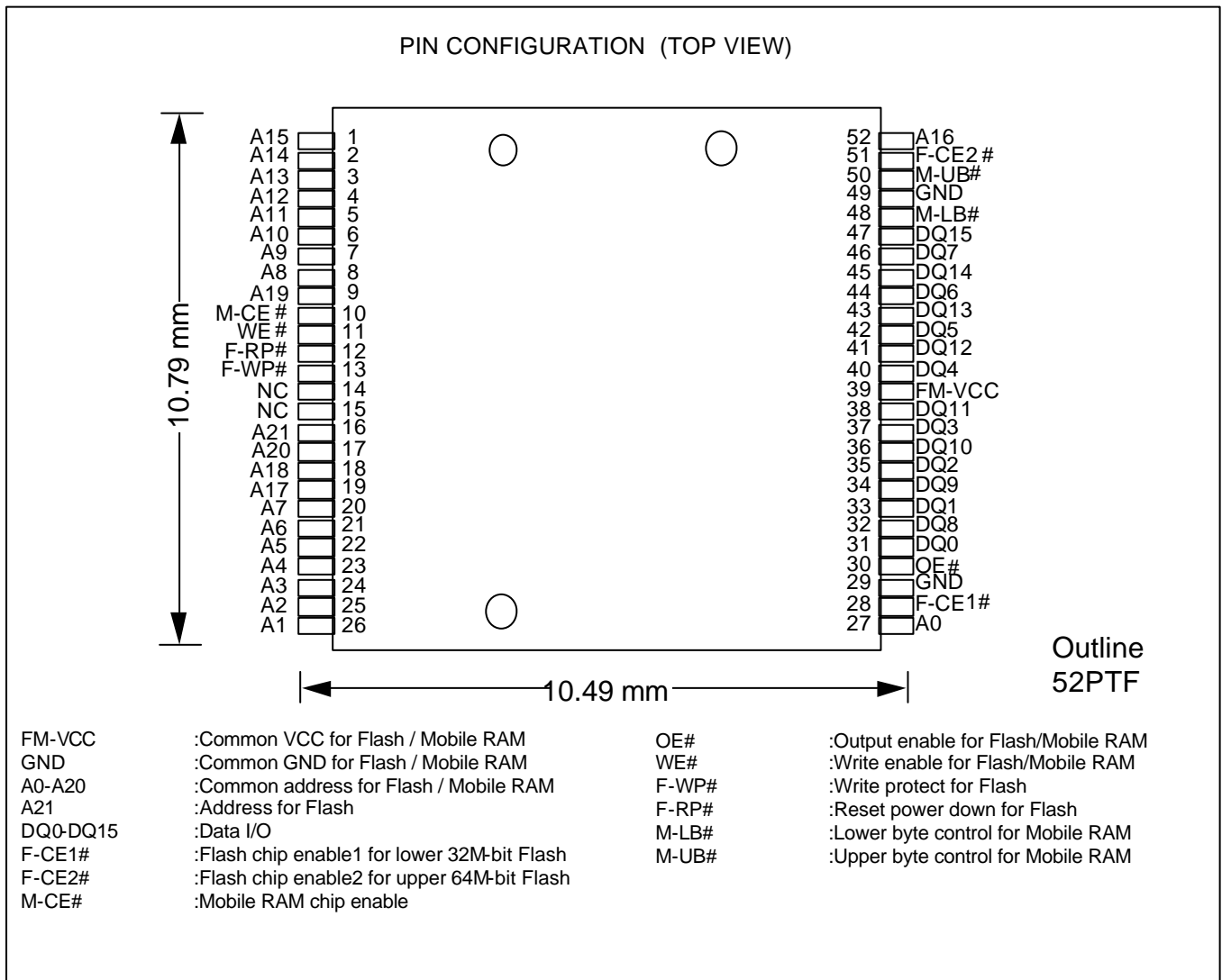
The M6MGD967W33ATP is suitable for a high performance cellular phone and a mobile PC that are required to be small mounting area, weight and small power dissipation.

## FEATURES

Access time	Flash	85ns (Max.)
	Mobile RAM	85ns (Max.)
Supply voltage		FM-VCC = 2.7 ~ 3.0V
Ambient temperature		Ta=-40 ~ 85 °C
Package		52pin TSOP(Type-II), Lead pitch 0.4mm

## APPLICATION

Mobile communication products



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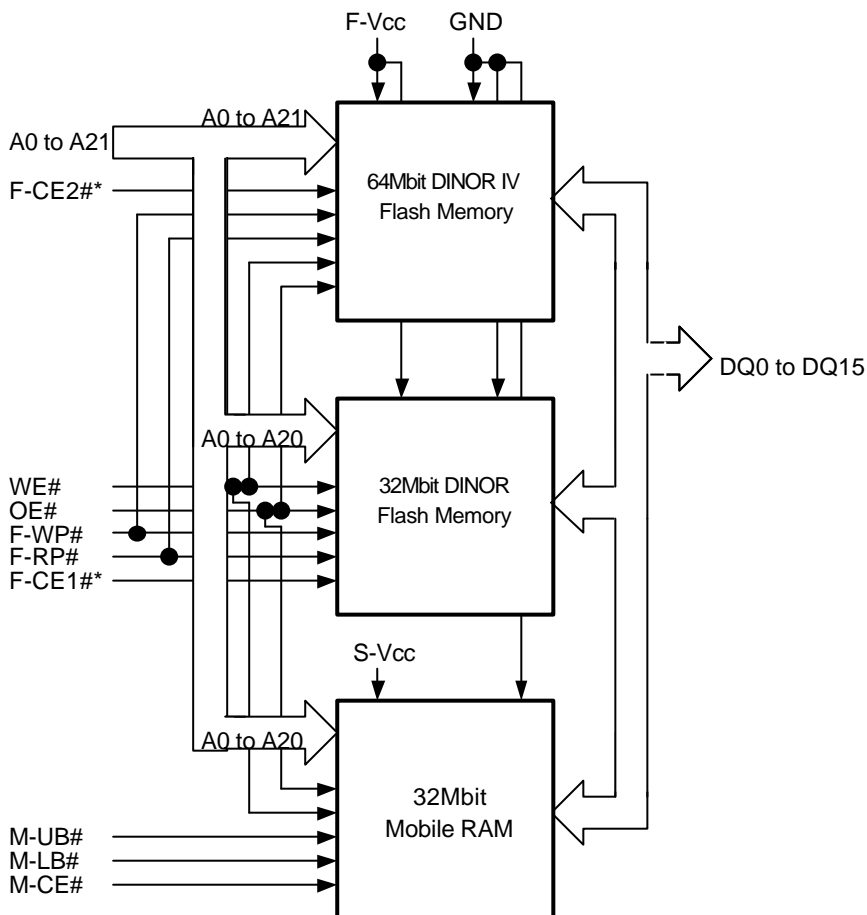
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### MCP Block Diagram



\* ... F-CE1#="L" is valid for lower 32M-bit,  
F-CE2#="L" is valid for upper 64M-bit, respectively.  
It is noted that F-CE1#=F-CE2#="L" is forbidden mode.

Note: In this datasheet there are the expressions of "VCC" which means "FM-VCC".  
In Mobile RAM part there are the expressions of "UB#" and "LB#" which mean "M-UB#" and "M-LB#", respectively.  
In 32Mb Flash Memory part there are the expressions of "F-CE#" which means "F-CE1#".  
In 64Mb Flash Memory part there are the expressions of "F-CE#" which means "F-CE2#".

### Capacitance

Symbol	Parameter		Test Condition	Limits			Unit
				Min.	Typ.	Max.	
CIN	Input Capacitance	A21-A0, OE#, WE#, S-UB#, S-LB#, S-CE1#, S-CE2, F-CE1#, F-CE2#, F-WP#, F-RP#	Ta=25°C, f=1MHz, Vin=Vout=0V			26	pF
COUT	Output Capacitance	DQ15-DQ0				34	pF

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