Preliminary

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

M6MGD13TW66CWG-P

134,217,728-BIT (8,388,608-WORD BY 16-BIT) CMOS FLASH MEMORY & 67,108,864-BIT (4,194,304-WORD BY 16-BIT) CMOS MOBILE RAM

Stacked-CSP (Chip Scale Package)

Description

The M6MGD13TW66CWG-P is a Stacked Chip Scale Package (S-CSP) that contents 128M-bit Flash memory and 64M-bit Mobile RAM in a 72-pin Stacked CSP with leaded solder ball.

128M-bit Flash memory is a 8,388,608 words, single power supply and high performance non-volatile memory fabricated by CMOS technology for the peripheral circuit and DINOR IV (Divided bit-line NOR IV) architecture for the memory cell. 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.

64M-bit Mobile RAM is a 4,194,304 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 M6MGD13TW66CWG-P 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.

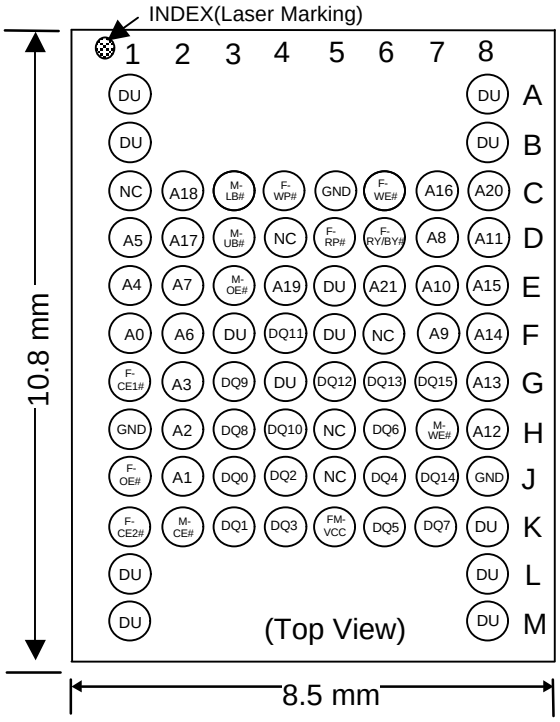
Features

Access Time	Random Access/ Page Access	
	Flash	70ns /25ns (Max.)
	Mobile RAM	85ns /25ns (Max.)
Supply Voltage		FM-VCC=2.7 ~ 3.0V
Ambient Temperature		Ta= -40 ~ 85 degree
Package		72pin S-CSP,
		Ball pitch 0.80mm
		Outer-ball:Sn-Pb

Application

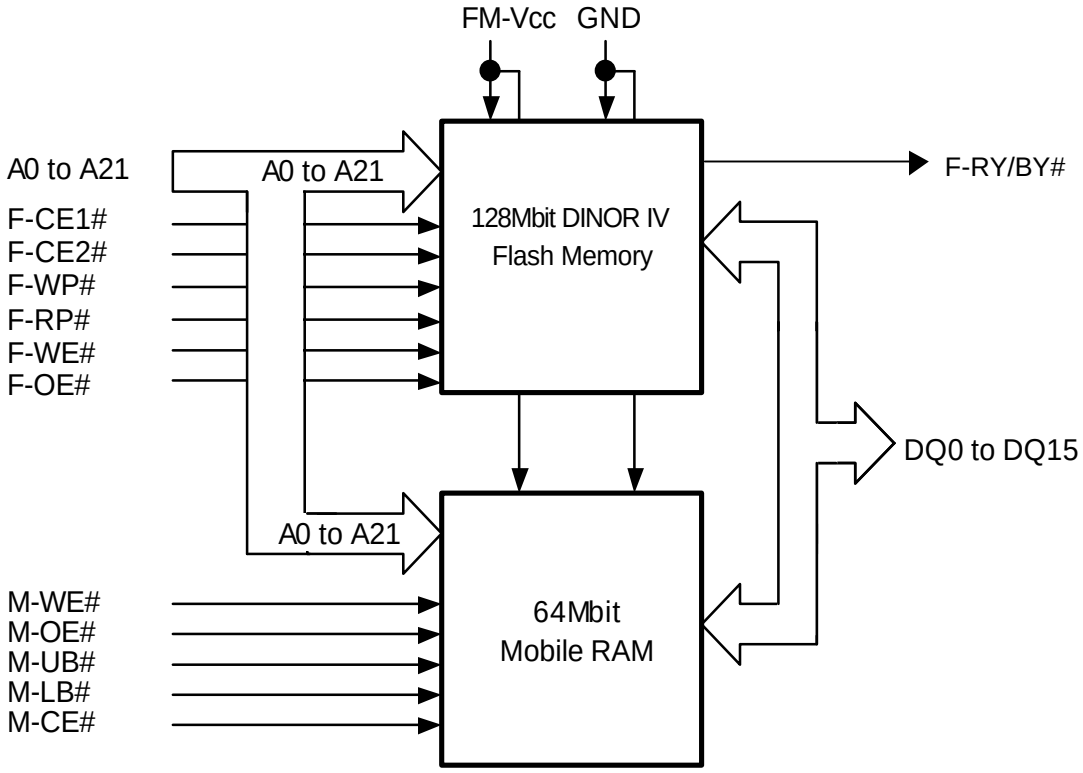
Mobile communication products

PIN CONFIGURATION (TOP VIEW)



FM-VCC	: VCC for Flash / Mobile RAM	F-RP#	: Reset power down for Flash
GND	: GND for Flash / Mobile RAM	F-WP#	: Write protect for Flash
A0-A21	: Common address for Flash/Mobile RAM	F-RY/BY#	: Flash Memory Ready /Busy
DQ0-DQ15	: Data I/O	M-CE#	: Mobile RAM chip enable
F-CE1#	: Flash chip enable 1	M-OE#	: Output enable for Mobile RAM
F-CE2#	: Flash chip enable 2	M-WE#	: Write enable for Mobile RAM
F-OE#	: Output enable for Flash Memory	M-LB#	: Lower byte control for Mobile RAM
F-WE#	: Write enable for Flash Memory	M-UB#	: Upper byte control for Mobile RAM
		NC	: Non Connection
		DU	: Don't Use

MCP Block Diagram



Note: In the 128M-bit DINOR(IV) Flash Memory lower 64Mbit is selected by F-CE1#="L" and upper 64Mbit is done by F-CE2#="L". Never select each chip at the same time.
In the data sheet there are "VCC"s which mean "FM-VCC" (Common Vcc for Flash / Mobile RAM).
In the Flash Memory part they mean OE# and WE# are F-OE# and F-WE#.
In the Mobile RAM part UB# , LB#, OE# and WE# are M-UB# , M-LB#, M-OE# and M-WE#, respectively.

Capacitance

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

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