

Infineon Specialty DRAMs

Mobile-RAM



www.infineon.com/memory/Mobile-RAM



Never stop thinking.

Mobile-RAM – Extended Battery Lifetime for Handhelds

AS ONE OF THE WORLD'S TOP THREE memory companies, Infineon offers a wide portfolio of leading-edge Mobile-RAM devices (low-power SDRAMs) targeted specifically at:

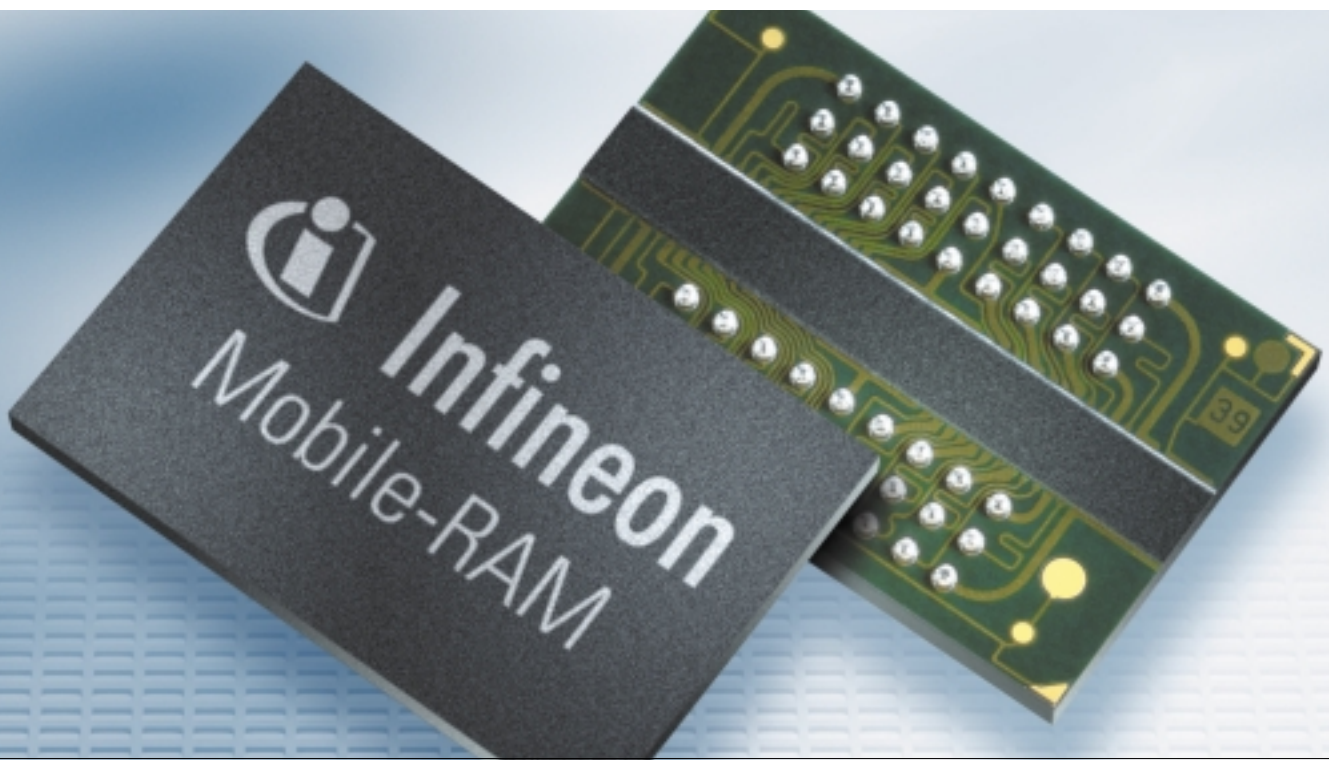
- PDAs
- Cellphones (smart and feature phones)
- Digital cameras
- MP3 players

INFINEON'S MOBILE-RAM product line combines

- Ultra low-power consumption for battery-powered systems with
- Extra compact chip-scale packages for space-constrained applications

INFINEON'S MOBILE-RAM cuts power consumption by up to 80 % (depending on operating conditions and system design) – thanks to its latest memory technology, low operating voltage (1.8 V) and its unique, integrated power management features.

MOBILE-RAM DEVICES come in a Fine-pitch Ball Grid Array (FBGA) package. These packages leverage Infineon's proprietary wire bonding Board-On-Chip (BOC) technology for smallest form factors. The latest product generation further improves form factor by reducing package heights from 1.2 to 1 mm.

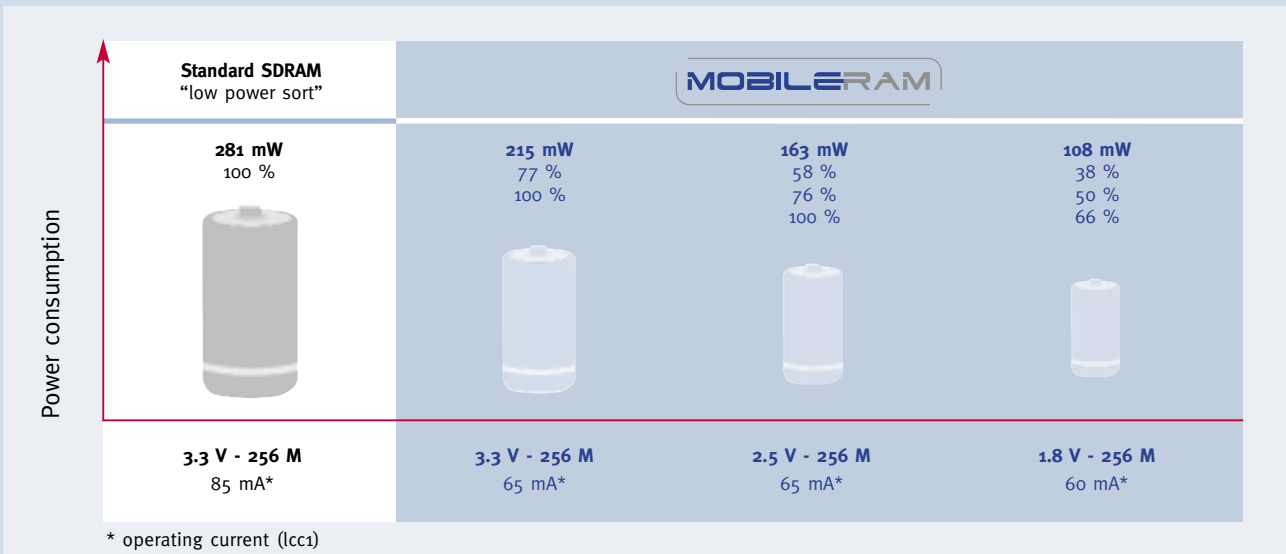


Impressive Power Consumption Savings

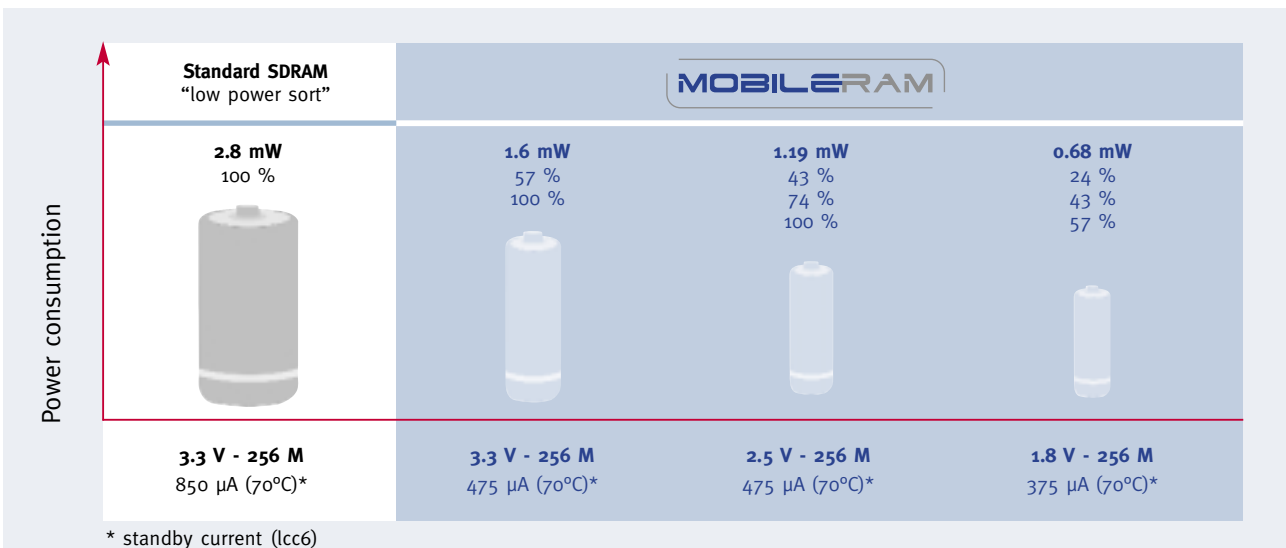
INFINEON'S MOBILE-RAM devices achieve these dramatic power consumption savings by measuring the temperature with an integrated sensor and automatically adjusting the refresh interval accordingly.

FOR USERS, this means that their devices can either run twice as long on a single battery charge or can offer completely new features that would have been previously unthinkable. The fact that nearly half of all PDAs produced today contain Mobile-RAMs from Infineon confirms the company's pioneering role in this segment.

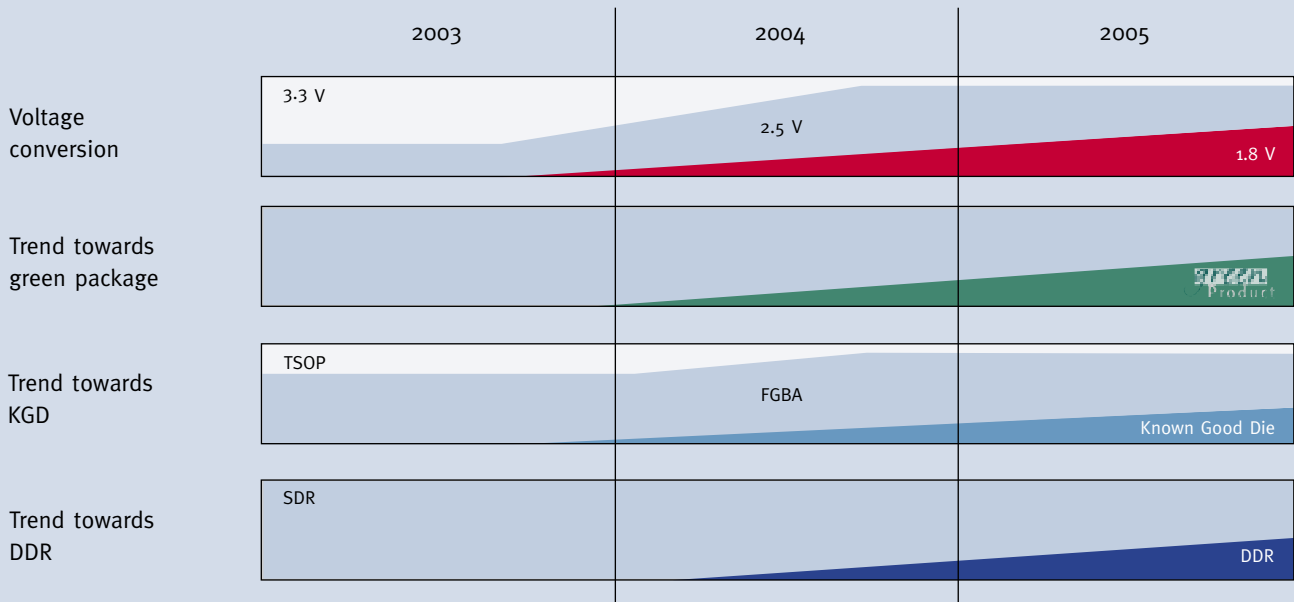
Mobile-RAM for Lowest Power Consumption also in Operating Mode



Mobile-RAM for Unlimited Memory Supply in Standby Mode



Ahead of the Trend



Source: IFX

MANUFACTURERS ARE CHALLENGED to lower core and I/O voltage in order to further reduce power consumption. Compared with the 2.5 V technology previously in use, Infineon's next-generation 1.8 V technology meets these demands by cutting power consumption by approximately 40 %.

THE MARKET IS ALSO CALLING for a reduction in harmful substances, the elimination of lead in chips and easier recycling. Infineon is one of the first manufacturers to offer Mobile-RAM chips in green packages.

IN ANTICIPATION OF RISING demand for cost-optimized multi-chip solutions, (combining flash and Mobile-RAM) Infineon will also soon be introducing a pre-tested Known Good Die (KGD) / wafer solution.

AND TO REDUCE POWER consumption even further, Infineon plans to switch its Mobile-RAM devices from SDR to DDR speeds. Due to be launched in the near future. For more details, please contact your local sales representative.

Industry-wide Standard



INFINEON WORKED CLOSELY with its industry partners to standardize the low-power features and 54-ball FBGA package for Mobile-RAM through JEDEC (Joint Electron Device Engineering Council), the semiconductor engineering standardization body of EIA (Electronic Industry Alliance). Information on controller and ASIC vendors that support the new Mobile-RAM feature set standard is available on request.

FOR THE LATEST INFORMATION and datasheet updates on Mobile-RAM, visit our website at www.infineon.com/memory/Mobile-RAM

Product Portfolio

Density	Part number	Temp. range	Power supply core	Power supply I/O	# of banks	OCTS	TCSR	PASR	DPD	DS	GREEN product	Package
128 Mb 8 M x 16	HYB39L128160AT-7.5	0 - 70°C	3.3 V	3.3 V	4	-	-	-	-	-	-	TSOP-54
	HYB39L128160AC-7.5	0 - 70°C	3.3 V	3.3 V	4	-	-	-	-	-	-	FBGA-54
	HYB25L128160AC-7.5	0 - 70°C	2.5 V	2.5 V / 1.8 V	4	-	X	X	X	-	-	FBGA-54
	HYE25L128160AC-7.5	-25 - 85°C	2.5 V	2.5 V / 1.8 V	4	-	X	X	X	-	-	FBGA-54
	NEW! HYB18L128160BF-7.5	0 - 70°C	1.8 V	1.8 V	4	X	-	X	X	X	X	FBGA-54
	NEW! HYE18L128160BF-7.5	-25 - 85°C	1.8 V	1.8 V	4	X	-	X	X	X	X	FBGA-54
	NEW! HYB18L128160BC-7.5	0 - 70°C	1.8 V	1.8 V	4	X	-	X	X	X	-	FBGA-54
	NEW! HYE18L128160BC-7.5	-25 - 85°C	1.8 V	1.8 V	4	X	-	X	X	X	-	FBGA-54
256 Mb 16 M x 16	HYB39L256160AT-7.5	0 - 70°C	3.3 V	3.3 V	4	-	-	-	-	-	-	TSOP-54
	HYB39L256160AC-7.5	0 - 70°C	3.3 V	3.3 V	4	-	-	-	-	-	-	FBGA-54
	HYB25L256160AC-7.5	0 - 70°C	2.5 V	2.5 V / 1.8 V	4	X	X	X	X	-	-	FBGA-54
	HYE25L256160AC-7.5	-25 - 85°C	2.5 V	2.5 V / 1.8 V	4	X	X	X	X	-	-	FBGA-54
	HYB25L256160AF-7.5	0 - 70°C	3.3 V or 2.5 V	3.3 V or 2.5 V / 1.8 V	4	X	X	X	X	-	X	FBGA-54
	HYE25L256160AF-7.5	-25 - 85°C	3.3 V or 2.5 V	3.3 V or 2.5 V / 1.8 V	4	X	X	X	X	-	X	FBGA-54
	NEW! HYB18L256160BF-7.5	0 - 70°C	1.8 V	1.8 V	4	X	-	X	X	X	X	FBGA-54
	NEW! HYE18L256160BF-7.5	-25 - 85°C	1.8 V	1.8 V	4	X	-	X	X	X	X	FBGA-54
	NEW! HYB18L256160BC-7.5	0 - 70°C	1.8 V	1.8 V	4	X	-	X	X	X	-	FBGA-54
NEW! HYE18L256160BC-7.5	-25 - 85°C	1.8 V	1.8 V	4	X	-	X	X	X	-	FBGA-54	
512 Mb, Dual 16 M x 16	HYB25L512160AC-7.5	0 - 70°C	3.3 V or 2.5 V	3.3 V or 2.5 V / 1.8 V	4	X	-	X	X	-	-	FBGA-54

Speed: 133 MHz **CAS Latency:** 3-3-3

OCTS (On-Chip Temperature Sensor):

- The built-in temperature sensor adapts the refresh rate to the actual junction temperature of the chip without draining any CPU power. (Note: with standard DRAMs, the refresh rate is set to work at the max. temperature.)

TCSR (Temperature-Compensated Self-Refresh):

- Same as OCTS but externally triggered
- CPU power required

PASR (Partial Array Self-Refresh):

- Allows user to select volume of memory needed to further reduce power consumption
- Adjustable from all 4 banks to 1/16 array

DPD (Deep Power-Down):

- Maximum power consumption reduction by cutting off power supply to Mobile-RAM
- Data is not retained

DS (Selectable Drive Strength):

- Can be adjusted to reflect bus load, e.g. half strength for point-to-point and full strength for module applications

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