

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:

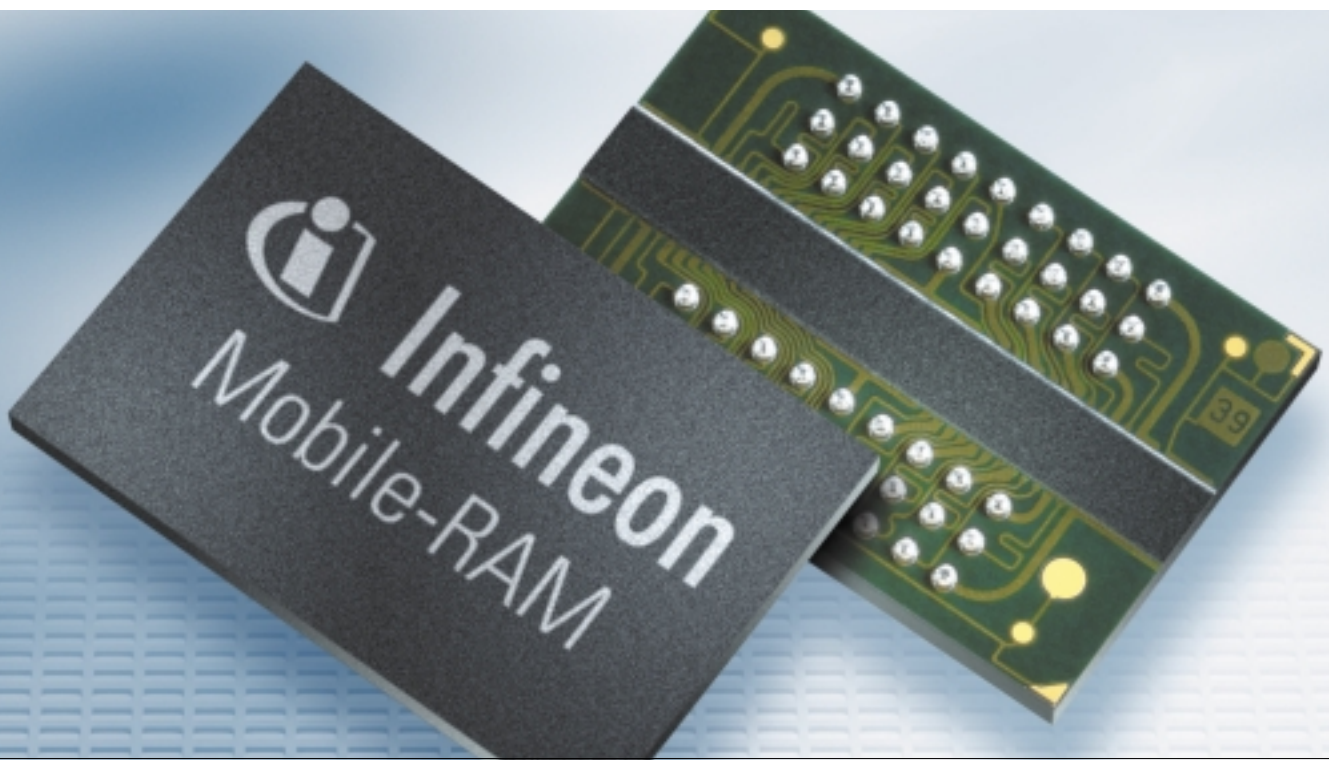
- PDAs
- Cellphones (smart and feature phones)
- Digital cameras
- MP3 players

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.

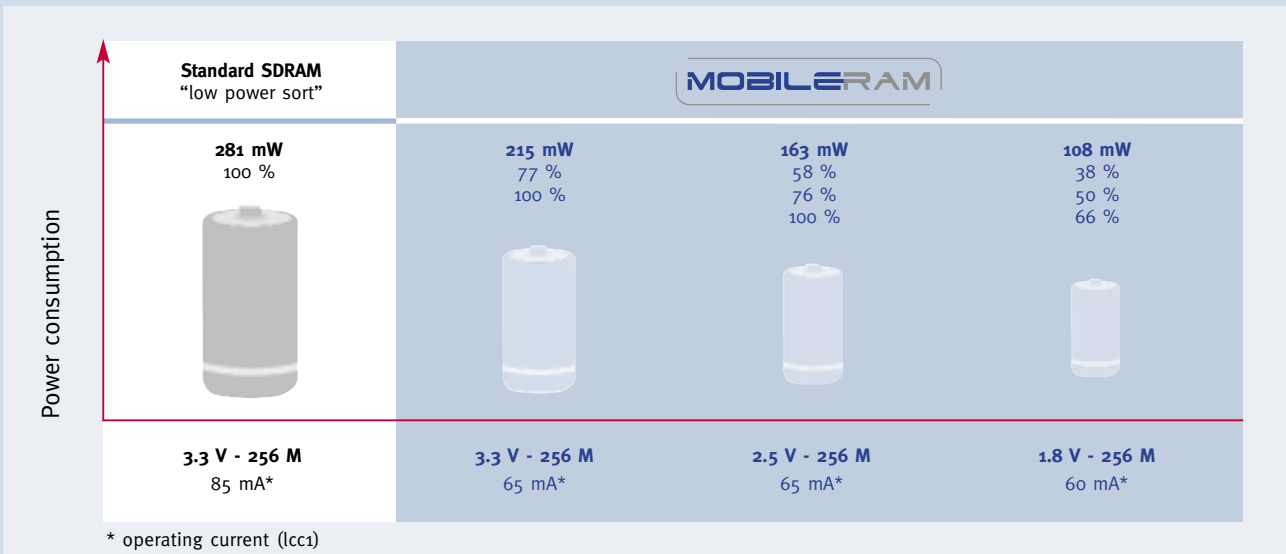


Impressive Power Consumption Savings

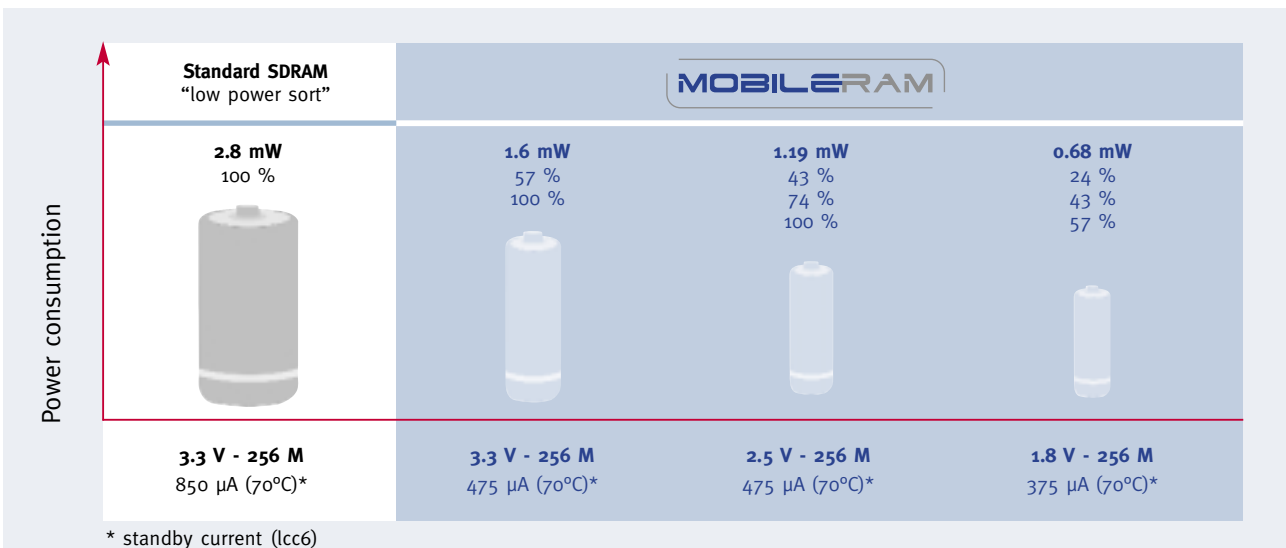
INFINEON'S MOBILE-RAM devices achieve these dramatic power consumption savings by measuring the temperature with an integrated sensor and automatically adjusting the refresh interval accordingly.

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.

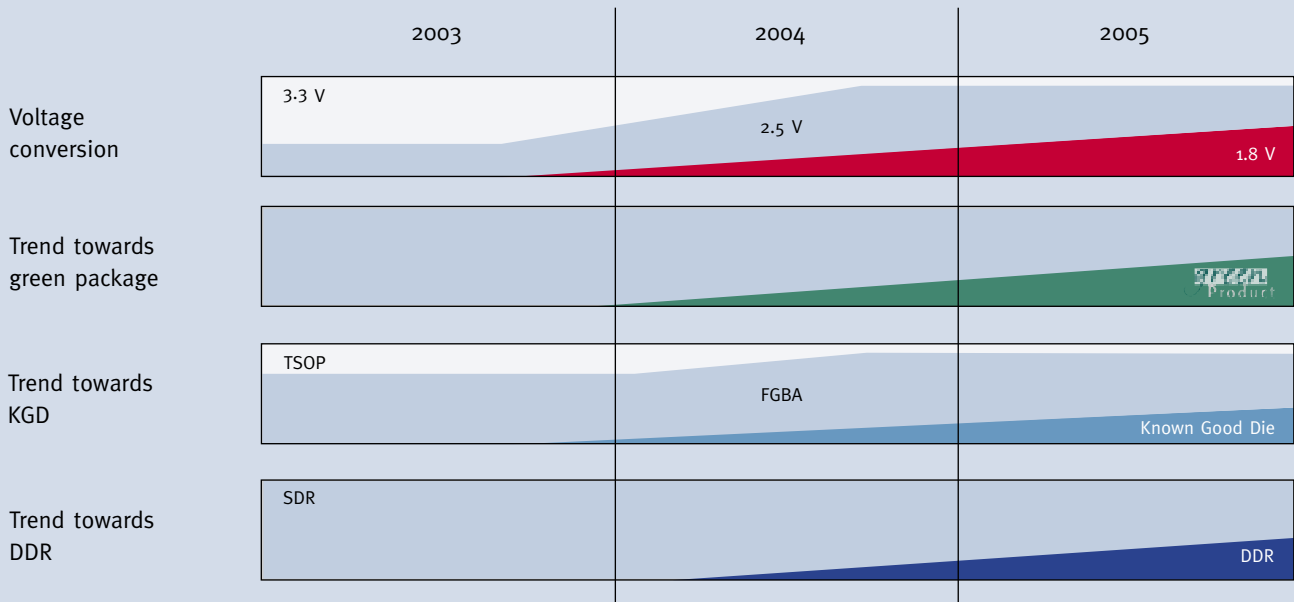
Mobile-RAM for Lowest Power Consumption also in Operating Mode



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

INFINEON TECHNOLOGIES SALES OFFICES WORLDWIDE*

Australia (AUS)

Siemens Ltd.
885 Mountain Highway
Bayswater, Victoria 3153
☎ (+61) 3-97 21 21 11
Fax (+61) 3-97 21 72 75

Austria (A)

Infineon Technologies Villach AG
Sales Office
Austria AG
Operngasse 20b/31
1040 Wien
☎ (+43) 1-5 87-70 70 0
Fax (+43) 1-5 87-70 70 20

Belgium/ Netherlands (B) (NL) (L)

Infineon Technologies Holding B.V.
Sales Division
Westblaak 32
3012 KM Rotterdam
☎ (+31) 10-2 17 68 00
Fax (+31) 10-2 17 68 19

Brazil (BR)

Infineon Technologies
South America Ltda.
Av. Mutinga, 3800 - prédio 3
05110-901 São Paulo-SP
☎ (+55) 11-39 08-25 64
Fax (+55) 11-39 08-27 28

Canada (CDN)

Infineon Technologies Corporation
340 March Road, Suite 301
Kanada, Ontario K2K 2E2
☎ (+1) 613-5 91-38 35
Fax (+1) 613-5 91-89 54

China (CN)

Infineon Technologies
International Trade (Shanghai) Co., Ltd.
Beijing Representative Office
12th Floor, Quantum Plaza
No.27 Zhichun Road
Haidian District,
**Beijing 100083,
People's Republic of China**
☎ (+86) 10-82 35 61 18
Fax (+86) 10-82 35 54 74

Infineon Technologies
Hong Kong Ltd.
Hong Kong Office
302 Level 3 Festival Walk
80 Tat Chee Avenue
Kowloon Tong
Hong Kong
☎ (+852) 28-32 05 00
Fax (+852) 28-27 97 62

Infineon Technologies
International Trade (Shanghai) Co., Ltd.
No. 8, Lane 647, Songtao Road
Zhangjiang Hi-Tech Park
Pudong, Shanghai, China
☎ (+86) 21-38 95 37 08
Fax (+86) 21-50 80 62 04

Germany (D)

Infineon Technologies AG
Siemensstraße 31-33
71254 Ditzingen/Stuttgart
☎ (+49) 71 56-1 79 19-10
Fax (+49) 71 56-1 79 19-90

Germany (D)

Infineon Technologies AG
Völklinger Straße 4
40219 Düsseldorf
☎ (+49) 2 11-20 95 49 0
Fax (+49) 2 11-20 95 49 60

Infineon Technologies AG
Naegelsbachstraße 26
91052 Erlangen
☎ (+49) 91 31-97 00 1-0
Fax (+49) 91 31-97 00-99

Infineon Technologies AG
Paderborner Straße 1
30539 Hannover
☎ (+49) 5 11-87 65 62 0
Fax (+49) 5 11-87 65 62 90

Infineon Technologies AG
Rosenheimer Straße 116
81669 München
☎ (+49) 89-23 40
Fax (+49) 89-23 42 46 94

Infineon Technologies AG
Memory Products Sales
Gustav-Heinemann-Ring 212
81739 München
☎ (+49) 89-23 42 38 01
Fax (+49) 89-23 42 04 90

Infineon Technologies AG
Südwestpark 65
90449 Nürnberg
☎ (+49) 9 11-2 52 93 0
Fax (+49) 9 11-2 52 93 93

Denmark (DK)

Infineon Technologies Nordic A/S
Herlev Hovedgade 201A
DK 2730 Herlev
☎ (+45) 44-50 77 00
Fax (+45) 44-50 77 01

Finland (FIN)

Infineon Technologies Nordic OY
Visitor's Address Linnoutustie 4A
P.O. Box 276
FIN-02601 Espoo
☎ (+3 58) 10-680 84 00
Fax (+3 58) 10-680 84 01

France (F)

Infineon Technologies France SAS
39 - 47, Bd. Ornano
93527 Saint-Denis CEDEX 2
☎ (+33) 1-48 09 72 00
Fax (+33) 1-48 09 72 90

India (IND)

Infineon Technologies
India Pvt. Ltd.
10th Floor, Discoverer Building
International Technology Park
Whitefield Road
Bangalore 560 066, India
☎ (+91) 80-841 00-17/18
Fax (+91) 80-841 00 12

Ireland (IRL)

Infineon Technologies Ireland Ltd.
69 Fitzwilliam Lane
Dublin 2
☎ (+353) 1-79 99 500
Fax (+353) 1-79 99 501

Israel (IL)

Nisko Ltd.
2A, Habarzel Street
Tel Aviv 69710
☎ (+972) 3-7 65 73 00
Fax (+972) 3-7 65 73 33

Italy (I)

Infineon Technologies Italia S.r.l.
Via Vipiteno, 4
20128 Milano
☎ (+39) 02-252 04-1
Fax (+39) 02-252 04-93 95

Japan (J)

Infineon Technologies Japan K.K.
Takanawa Park Tower 8F/9F/12F/17F
3-20-14, Higashi-Gotanda,
Shinagawa-ku,
Tokyo 141-0022
☎ (+81) 3-54 49 64 11
Fax (+81) 3-54 49 64 01

Korea (ROK)

Infineon Technologies Korea Co., Ltd.
Room No. 2 & 3, 9th floor
Daelim Acrotel Building
467-6 Dokock-Dong, Kangnam-Gu
Seoul, Korea 135-971
☎ (+82) 2-346 00-900
Fax (+82) 2-346 00-901/902

Malaysia (MAL)

Infineon Technologies (M) SDN BHD
Krystal Point II
1-4-11/12, Lebuuh Bukit Kecil 6
11900 Bayan Lepas
Penang, Malaysia
☎ (+60) 4-644 77 66
Fax (+60) 4-641 48 72

New Zealand (NZ)

Siemens Components
300 Great South Road
Greenland, Auckland
☎ (+64) 9-520 30 33
Fax (+64) 9-520 15 56

Poland (PL)

Siemens SP. z o.o.
ul. Zupnicza 11
03-821 Warszawa
☎ (+48) 22-8 70 91 50
Fax (+48) 22-8 70 91 59

Portugal (P)

Siemens S.A.
OG Componentes Electronicos
Rua Irmaos Siemens, 1
Alfragide
2720-093 Amadora
☎ (+3 51) 21-4 17 85 90
Fax (+3 51) 21-4 17 80 83

Russia (RUS)

INTECH electronics
ul. Smolnaja 24a/1203
125 445 Moscow
☎ (+70) 95-4 51 97 37
Fax (+70) 95-4 51 86 08

Singapore (SGP)

Infineon Technologies Asia
Pacific Pte. Ltd.
25 New Industrial Road
KHL Building
Singapore 536 211
☎ (+65) 68 40 07 32
Fax (+65) 68 40 00 77

South Africa (ZA)

Siemens Components
P.O. Box 3438
Halfway House 1685
Gauteng
☎ (+27) 11-6 52-20 00
Fax (+27) 11-6 52-25 73

Spain (E)

Siemens S.A.
División Componentes
Ronda de Europa, 5
28760 Tres Cantos-Madrid
☎ (+34) 91-5 14 71 54
Fax (+34) 91-5 14 70 13

Sweden (S)

Infineon Technologies Nordic AB
P.O. Box 46
164 93 Kista
☎ (+46) 8-7 03 59 00
Fax (+46) 8-7 03 59 01

Switzerland (CH)

Infineon Technologies
Switzerland AG
Badenerstraße 623
P.O. Box 1570
8048 Zürich
☎ (+41) 1-4 97 80 40
Fax (+41) 1-4 97 80 50

Taiwan (RC)

Infineon Technologies
Taiwan Ltd.
12F-1, No. 3-2 Yuan Qu Street
Nan Kang Software Park
Twain 115, R.O.C.
☎ (+8 86) 2-26 55 75 00
Fax (+8 86) 2-26 55 75 01-8

Turkey (TR)

Siemens Sanayi ve Ticaret A.S.
Yakacak Yolu No: 111
34861 Kartal, Istanbul
☎ (+90) 216-459 28 51
Fax (+90) 216-419 31 90

United Kingdom (GB)

Infineon Technologies UK Ltd.
Infineon House
Fleet Mill
Minley Road
Fleet, Hampshire GU51 2RD
☎ (+44) 12-52-77 22 00
Fax (+44) 12-52-77 22 01

U.S.A. (USA)

Infineon Technologies
North America Corp.
3700 West Parmer Lane, Suite 102
Austin, TX 78727
☎ (+1) 512-341 71 27
Fax (+1) 512-341 99 26

U.S.A. (USA)

Infineon Technologies
North America Corp.
8203 Willow Place South, Suite 660
Houston, TX 77070
☎ (+1) 281-774 05 55
Fax (+1) 281-774 05 61

Infineon Technologies
North America Corp.
2529 Commerce Drive
Kokomo, IN 46902
☎ (+1) 765-456 19 28
Fax (+1) 765-456 38 36

Infineon Technologies
North America Corp.
21800 Haggerty Road, Suite 112
Northville, MI 48167
☎ (+1) 248-374 08 90
Fax (+1) 248-374 25 01

Infineon Technologies
North America Corp.
3000 CentreGreen Way
Raleigh, NC 27513
☎ (+1) 919-677 27 00
Fax (+1) 919-678 19 34

Infineon Technologies
North America Corp.
6170 Cornerstone Ct East, Suite 240
San Diego, CA 92121
☎ (+1) 858-526 22 01
Fax (+1) 858-526 22 02

Infineon Technologies Corporation
1730 North First Street
San José, CA 95112
☎ (+1) 408-501 60 00
Fax (+1) 408-501 24 24

Infineon Technologies
North America Corp.
1901 N. Roselle Rd., Suite 1020
Schaumburg, IL 60195
☎ (+1) 847-884 70 09
Fax (+1) 847-884 75 99

* and representative offices