Power Management ICs



http://www.fujitsu.com/microelectronics/

North and South America

FUJITSU MICROELECTRONICS AMERICA, INC. 1250 E. Arques Avenue, M/S 333 Sunnyvale, CA 94088-3470, USA Tel:+1-408-737-5600 Fax:+1-408-737-5999 http://www.fma.fujitsu.com/

Asia Pacific

FUJITSU MICROELECTRONICS ASIA PTE LTD. #05-08, 151 Lorong Chuan, New Tech Park, Singapore 556741 Tel:+65-6281-0770 Fax:+65-6281-0220 http://www.fmal.fujitsu.com/

Europe FUJITSU MICROELECTRONICS EUROPE GmbH Am Siebenstein 6-10, D-63303 Dreieich-Buchschlag, Germany Tel:+49-6103-690-0 Fax:+49-6103-690-122 http://emea.fujitsu.com/microelectronics/

Korea

Japan Marketing Div., Electronic Devices Shinjuku Dai-ichi Seimei Bldg.

China FUJITSU MICROELECTRONICS SHANGHAI CO., LTD. Rm.3102, Bund Center, No.222 Yan An Road(E),

FUJITSU MICROELECTRONICS KOREA LTD. 1702 KOSMO TOWER, 1002 Daechi-Dong, Kangnam-Gu, Seoul 135-280, Korea Tel : +02-3484-7100 Fax:+02-3484-7111 http://www.fmk.fujitsu.com/

7-1, Nishishinjuku 2-chome, Shinjuku-ku, Tokyo 163-0721

Tel:+81-3-5322-3353 Fax:+81-3-5322-3386

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Shanghai 200002, China

Tel:+86-21-6335-1560

Fax:+86-21-6335-1605

http://cn.fujitsu.com/fmc/

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Fujitsu's power management ICs-providing refined high reliability and performance. Ready to meet a wide range of needs with our comprehensive lineup.

DSC/Camcorder Color viewfinder portion The requirements for today's electronic devices Backlight **Mobile phone** are ever smaller size, higher capabilities, and lower power consumption. Lens portion Fujitsu offers a wide range of power management ICs Microcomputer A/F monitoring ZOOM that feature low-power consumption, low-voltage operation, high precision, and multiple channels. System A wide range of products is available to meet Camera portion power • CCD your diverse needs, including low-voltage operation, supply multi-channel, high-efficiency, built-in FET regulator ICs, low-power consumption, high-precision voltage VTR portion Drum capstan detection reset ICs, and low-temperature-resistant General-purpose power-switching ICs. DC/DC converter Camcorder Power management **ICs** AC/DC General-purpose DC/DC converter DC/DC converter For rechargeable DC/DC converter with SW FET for DSC/camcorders converter batteries • MB3759 • MB3800 • MB3889 • MB39C014 • MB3785A • MB3769A • MB3789 • MB39A106 • MB39C015 • MB39A102 • MB39A104 • MB39A103 • MB3817 Monitoring of power For charging • MB3885 • MB3782 • MB39A110 supply voltage control • MB3775 • MB39A112 • MB39A108 • MB3832A • MB3761 • MB39C011 • MB3825A • MB3778 • MB3874 • MB3771 • MB3821 • MB39C011A • MB3883 • MB3875 • MB3882 • MB3881 • MB3876 • MB39A115 • MB3877 • MB39A123 • MB3878 • MB3887 • MB3888 • MB3879 • MB39A113 • MB39A114 **RoHS Compliance Information of Lead (Pb) Free version** The LSI products of Fujitsu with "E1" are compliant with RoHS • MB39A119 AC adaptor Directive , and has observed the standard of lead, cadmium, • MB39A125 (line regulator) mercury, Hexavalent chromium, polybrominated biphenyls • MB39A126 (PBB), and polybrominated diphenyl ethers (PBDE). • MB39A129 The product that conforms to this standard is added "E1" at the end of the part numbe Printers Digital TVs Flash memory Recorders IP telephones **Digital TVs/Recorders/Printers/IP telephones** Notebook PC







		Head (motor driver, etc.)
_	5.0V	I/O power supply Core power supply LSI
	3.3V	Core power supply
	3.3V	CPU
		ASIC (CPU IF, DRAMC, BUSC, CPU perimeter, IF)
4		ASIC (image processing, compression, extension)
	1.2V	
	1.8V	DDR
		ROM (Flash)
		LAN1394

Evaluation board

We provide evaluation boards to allow evaluation of devices.

Example: MB39C015 evaluation board (package: BCC-20)



Example: MB39C015 connection diagram



Example: MB39C014 evaluation board (package: BCC-10)



■ Example: MB39C014 connection diagram



Lineup of power management ICs

AC/DC converter

Model	Oscillation frequency (maximum)	Power supply voltage	Maximum output current	Package	Remarks
MB3759	300kHz	7V to 32V	200mA	SOP16	TL494
MB3769A	700kHz	12V to 18V	100mA peak 600mA	SOP16	Power MOS FET

Used in a range of power supplies for products such as computers, printers, VCRs, and circuit boards for upright pinball machines (used in pachinko parlors).

■ General-porpose DC/DC converter

			Reference			Choppe	r method		FET		
Model	channels	frequency (maximum)	supply voltage	voltage accuracy	Package	Step up	Step down	Step up /down	Inverter	compatible	Remarks
MB3800	1ch	1MHz	1.8V to 15V	±4%	SOP8, SSOP8, TSSOP16	Ø	0	-	-	Not available	Soft start function
MB3789 MB3817	1ch 1ch	200kHz 500kHz	3.0V to 18V 2.5V to 18V	±4% ±2%	SSOP16 SSOP16	© 0	0 ©	_ ©	_ ©	Not available Not available	
MB3885	1ch	500kHz	5.5V to 18V	±1%	SSOP20	-	Ø	-	-	Available	Synchronous rectification Overvoltage protection
MB3775	2ch	500kHz	3.6V to 18V	±1.5%	SOP16, SSOP16	0	O	-	O	Not available	Open corrector
MB3778	2ch	500kHz	3.6V to 18V	±2%	SOP16, SSOP16	0	Ø	-	O	Not available	Open corrector
MB3821	2ch	500kHz	4.5V to 30V	±2%	SSOP24	-	O	-	-	Available	Synchronous rectification
MB3882	2ch	500kHz	5.5V to 18V	±1%	SSOP24	-	O	-	-	Available	Synchronous rectification
MB3889	2ch	500kHz	5.5V to 18V	±1%	TSSOP30	-	Ø	-	-	Available	Synchronous rectification. Built-in timer-latch over-voltage protection/ timer-latch over-current protection
MB39A106	2ch	500kHz	6.5V to 18V	±1%	TSSOP30	-	Ø	-	-	Available	Synchronous rectification. Built-in boot-strap diode/ timer-latch over-voltage protection/timer-latch over-current protection
MB39A116	2ch	500kHz	6.5V to 18V	±1%	TSSOP30	-	Ø	-	-	Available	Synchronous rectification. Built-in boot-strap diode/ over-voltage protection/ timer-latch over-current protection
MB39A104	2ch	1.5MHz	7V to 19V	±1%	SSOP24	-	O	-	-	Available	Built-in overcurrent protection
MB39C011/ MB39C011A	2ch	2MHz	4.5V to 17V	±1%	TSSOP16	-	Ø	-	-	Available	Timer latch short-circuit protection, soft start function
MB3782	3ch	500kHz	3.6V to 18V	±2%	SOP20	0	O	-	Ô	Not available	-
MB39A112	3ch	2.6MHz	7V to 25V	±1%	TSSOP20	-	Ø	-	-	Available	Individual channel control, Soft start possible

Used in a wide range of power supplies, such as those for LCD backlights, car navigation systems, games, audio systems, portable devices, etc. O: Possible with the addition of outside parts

■ DC/DC Converters with Built-in Switching FET

Model	Number of	Operating	Output volt			Output voltage (V)		Output current	Switchir	ng FET	Package	Ch	opper	r meth	od	Remarks
would	channels	oscillation frequency (max)	(standard)	Accuracy	source voltage	(maximum)	Pch MOS (standard)	Nch MOS (standard)	Fackage	Step up	Step down	Step up /down	Inverter	nemarks		
MB39C014	1ch	2MHz/3.2MHz (fixed)	2.5V (output voltage)	±4%	+2.5V to +5.5V	800mA (for SON10) 500mA (for BCC10)	0.3Ω	0.2Ω	SON10 BCC10	-	Ø	-	_	Current mode system, low current, synchronous rectification POWERGOOD function included		
MB39C015	2ch	2MHz (fixed)	2.5V (output voltage)	±4%	+2.5V to +5.5V	800mA (for QFN24) 500mA (for BCC20 and SSOP20)	0.3Ω	0.2Ω	QFN24 BCC20 SSOP20	-	0	-	-	Current mode system, low current, synchronous rectification voltage detection function included		

Internal power supply suited to portable devices such as mobile phones, PDAs and DSCs, DVD players and hard disk drives.

■ DC/DC converter for DSC/camcorders

	Number of	Oscillation	Power	Reference			Chopper	method		FET	
Model	channels	frequency (maximum)	supply voltage	voltage accuracy	Package	Step up	Step down	Step up /down	Inverter	compatible	Remarks
MB3785A	4ch	1MHz	4.5V to 18V	±1%	LQFP48	0	O	O	O	Not available	-
MB39A102	4ch	1.5MHz	2.5V to 11V	±1%	TSSOP30, BCC32	Ø	Ø	Ø	-	Available	Support for control and soft-start of each channel, Support for external input short- circuit detection
MB39A103	4ch	1.5MHz	1.7V to 11V	±1%	TSSOP30, BCC32	Ø	Ø	Ø	-	Available	Low-voltage operatio possible, Support for control and soft-start of each channel, Support for external input short- circuit detection
MB39A110	4ch	2MHz	2.5V to 11V	±1%	TSSOP38	Ø	Ø	Ø	-	Available	Synchronous rectification, Support for control and soft-start of each channel, Support for external input short- circuit detection
MB39A108 MB39A115	5ch	2MHz	1.7V to 11V	±1%	TSSOP38, BCC40	Ø	Ø	Ø	-	Available	Low-voltage operation possible, Synchronous rectificatic Individual channel contr Soft start possible, Short-circuit detection possible with external input
MB3825A	6ch	800kHz	2.5V to 12V	±1%	LQFP64	0	O	0	_	Not available	Synchronous rectification
MB3883	6ch	1MHz	1.7V to 9V	±1%	LQFP48, BCC48	Ø	Ø	0	-	Available	Low-voltage operation possible, Synchronous rectification
MB39A123	6ch	2MHz	1.7V to 11V	±1%	LQFP48, BCC48++	Ø	Ø	Ø	Ø	Available	Synchronous rectificatio control for each channel soft start-enabled, short-circuit detection possible for external input
MB3881	8ch	800kHz	1.8V to 13V	±1%	LQFP64	-	Ø	O	0	Available	Synchronous rectificatio External synchronization support possible

Used in portable products such as digital still cameras and camcorders.

©: Recommended O: Possible with the addition of outside parts

Monitoring of power supply voltage

Model	Function	Detection voltage	Power supply voltage	Package	Remarks	
MB3761	Voltage detector	1.2 V (reference voltage)	2.5V to 40V	SOP8	-	
MB3771	Power supply voltage monitor	Voltages other than 4.2 V	3.5V to 18V	SOP8	-	
MB3773	MB3771 + watchdog timer	optionally available	3.5V to 16V	SOP8	-	
MB3793-XX	Power supply voltage monitor with dual-system watchdog timer	4.5V(-45), 4.2V(-42), 3.4V(-34A), 3.0V(-30A), 3.7V(-37A)	6V(Max)	SOP8, SSOP8	Low-consumption current	
		2.7V(-27A), 2.8V(-28A)	4V(Max)		(Bi-CMOS)	

Used in power supplies for various applications, including automobiles, hot water systems, copiers, VCRs, hard-disk drives, general OA equipment, measuring instruments, and pachinko parlor pinball machines.

For rechargeable batteries (for charging control)

Model	Oscillation frequency	Power supply	Output	Acc	uracy	Package	Method	FET	Remarks
Model	(maximum)	voltage	voltage	Ta=25°C	Ta=-30°C to 85°C	T ackage		compatible	Hemarks
MB3832A	500kHz	3.6V to 18V	Optional	±0.5%	±1.0%*	SSOP20	Step down	Available	1 to 3 cells, Output voltage can be set externally.
MB3874	500kHz	7V to 25V	12.6V	±0.8%	±1.0%	SSOP24	Step down	Available	3-cell, Parallel charging dynamically controlled charging
MB3875	500kHz	7V to 25V	12.6V	±0.8%	±1.0%	SSOP24	Step down	Available	3-cell, Dynamically controlled charging post
MB3876	500kHz	7V to 25V	16.8V	±0.8%	±1.0%	SSOP24	Step down	Available	4-cell, Parallel charging dynamically controlled charging
MB3877	500kHz	7V to 25V	16.8V	±0.8%	±1.0%	SSOP24	Step down	Available	4-cell, Dynamically controlled charging pos
MB3878	500kHz	7V to 25V	4.2V/cell	±0.8%	±1.0%	SSOP24	Step down	Available	1 to 4 cells, Dynamicall controlled charging pos
MB3887	500kHz	8V to 25V	4.2V/cell	±0.5%	±0.74%*	SSOP24	Step down	Available	1 to 4 cells, Dynamicall controlled charging possible, High-charging current accuracy
MB3888	500kHz	8V to 25V	Optional	±0.5%	±0.74%*	SSOP20	Step down	Available	1 to 4 cells, High-charg current accuracy
MD0070	500HJ	0)/ 45 05)/	12.6V/16.8V	±0.8%	±1.0%		Oton down	Ausilahla	Supports 3/4 cells, 2-mode charging
MB3879	500kHz	8V to 25V	12.3V/16.4V	±0.9%	±1.1%	LQFP48	Step down	Available	possible (dynamicall controlled charging, differential charging)
MB39A113	500kHz	8V to 25V	4.2V/cell	±0.5%	±0.74%*	SSOP24	Step down	Available	1 to 4 cells Built-in 2-mode const current control circuit Buit-in low voltage protection function Constant voltage con function enables dete of false full charge Built-in function to del overvoltage in chargir voltage
MB39A114	500kHz	8V to 25V	12.6V/16.8V	±0.5%	±0.74%*	SSOP24	Step down	Available	3/4 cells Built-in 2-mode const current control circuit Built-in low voltage proter function Constant voltage conf function enables detec of false full charge Built-in function to det overvoltage in charge Built-in output setting resistor Built-in function to sw output setting voltage
MB39A119	1MHz	8V to 25V	4.2V/cell	±0.5%	±0.74%*	QFN28	Step down	Available	1 to 4 cells, Built-in 2 mode constant cr control circuit Built-in AC adaptor dete function Built-in of time control fur Constant voltage contr function enables detec of false full charge Synchronous rectificat for Nch MOS FET
MB39A125	500kHz	8V to 25V	4.2V/cell	±1%	±0.74%*	SSOP24,	Step down	Available	1 to 4 cells, Dynamically controller charging possible ACOK function includ
MB39A126	500kHz	8V to 25V	12.6V/16.8V	±1%	±0.8%*	SSOP24,	Step down	Available	3/4 cells, Dynamically controlle charging possible ACOK function includ
MB39A129	2MHz	8V to 25V	4.1V/4.2V/cell	±0.3%	±0.5%*	TSSOP-24, SSOP-24	Step down	Available	2, 3, 4 cells, Charging voltage can set without externally attached resistor Charging current can set without externally attached resistor Dynamically controlle charging possible ACOK function includ

Used in portable products that use Li-ion batteries, such as notebook computers. *: Ta = -10 °C to 85 °C

Power management switches

Model	Consumption current	On resistance	Drive current	Switch voltage	Package	Remarks
MB3841	0A(Sw OFF)	0.045Ω	2A(Max)	5.5V(Max)	SOP8	1 channel USB
MB3842		0.10	0.64/Max	E EV/(Mov)	CCOD20	2 channel USB
MB3845	0A(Sw OFF)	0.1Ω	0.6A(Max)	5.5V(Max)	SSOP20	Switching changeover logic differs for the MB3842 and MB3845.

Used in notebook computers with power management functions.

For detailed electric properties and operating conditions, refer to the data sheet of each product. URL : http://edevice.fujitsu.com/system/mbynavi/assppwr/en/search/