

PORTABLE SOLUTIONS



Saving our world, 1mW at a time™

Fairchild Semiconductor provides complete portable design solutions to assist in your design challenges and accelerate time to market in the ever fast moving design cycle. We offer a large portfolio of leading-edge products that incorporates our expertise in power management, signal conditioning and advanced packaging technologies. For example, Fairchild's μ SerDes™, the market leading serializer/deserializer solution, has been proven in millions of small factor platforms. In addition, our IntelliMAX™ family of products simplifies integrated load management switches, reduces design time and cost, while our USB switches offer the best combination of performance and small packaging. In this Design Guide, you will find solutions for solving miniaturization, convergence and power efficiency challenges for portable devices. This guide also includes application diagrams, parametric tables and information on Fairchild's Global Power ResourceSM.

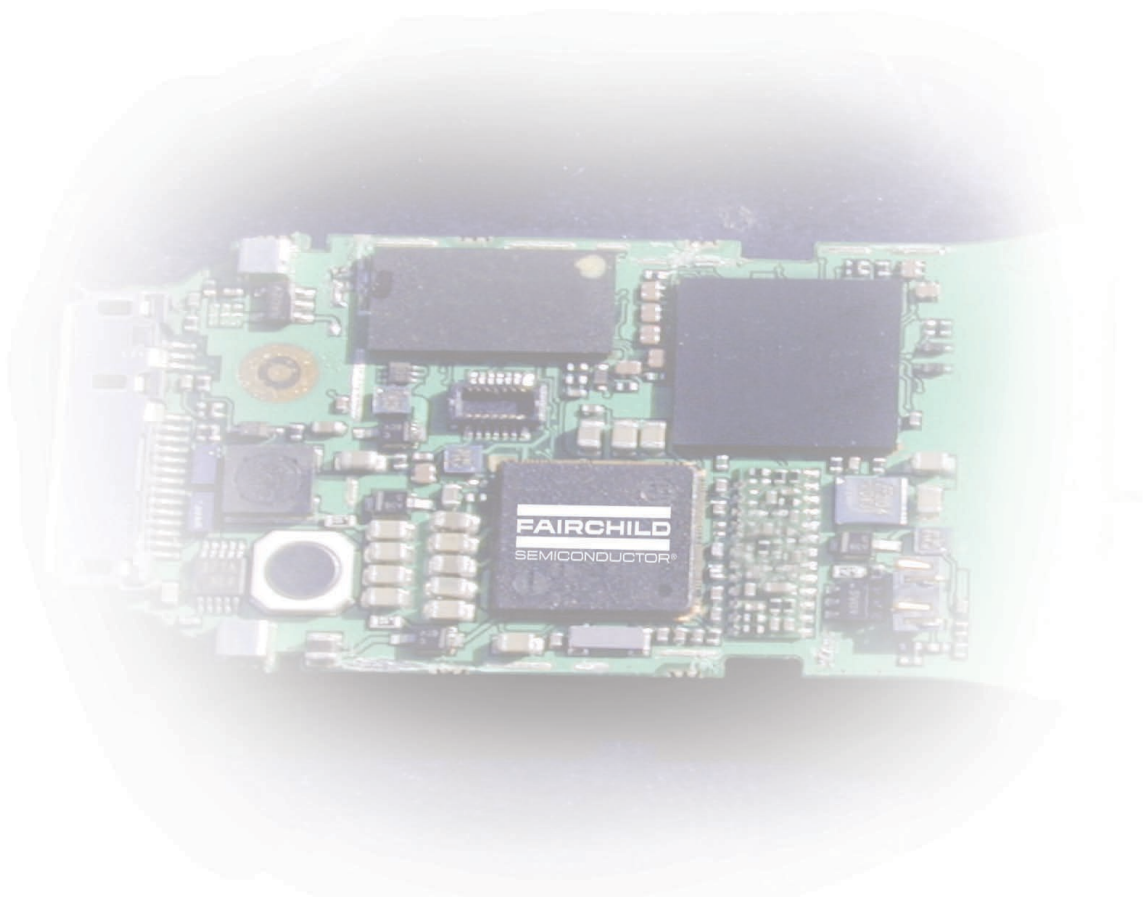


TABLE OF CONTENTS

POWER MANAGEMENT ICs AND SEMICONDUCTORS.....	6
CHARGE SWITCHES.....	6
CHARGE SWITCHES WITH INTEGRATED SCHOTTKY DIODES	6
POWER/LOAD SWITCHES	7-8
LEVEL SHIFTED INTEGRATED LOAD SWITCHES.....	8
DC-DC SWITCHES	9
BOOST SWITCHES.....	10
MISCELLANEOUS SWITCHES	10-11
FULL FUNCTION LOAD SWITCHES, IntelliMAX™	12-14
• Fixed Current Limit	13
• User Adjustable Current Limit.....	14
• Slew Rate	14
INTEGRATED SWITCHING REGULATORS	
• Synchronous and Asynchronous Boost Regulators	15
• Synchronous Buck Regulators	15
• LED Drivers	15
CHARGE PUMP CONVERTERS.....	16
LINEAR REGULATORS (LDOs)	16-17
CURRENT SENSE AMPLIFIERS	17
TEMPERATURE SENSORS.....	17
SIGNAL PATH ICs.....	18
ANALOG SWITCH PRODUCTS	
• Multimedia Switches with Negative Swing Capability	18
• Low R_{ON} Analog/Audio Switches	19
• Negative Swing Audio Switches	20
• USB Switches	21
• Other Analog Switches.....	21
AUDIO AMPLIFIERS.....	22
HIGH PERFORMANCE AMPLIFIERS.....	22
VIDEO FILTER DRIVERS.....	22
USB OVER VOLTAGE PROTECTION (OVP).....	23
USB TRANSCEIVERS	23
μ SerDes™ (SERIALIZER/DESERIALIZER)	24

LOGIC	25
VOLTAGE LEVEL TRANSLATORS	25
TINYLOGIC®	26
APPLICATION BLOCK DIAGRAMS	27
CELL PHONE	27
DIGITAL STILL CAMERA	27
MP3 PLAYER	28
PDA	28
PORTABLE GAMING DEVICE	29
PORTABLE DVD RECORDER/CAMCORDER	29
GPS	30
PACKAGING TECHNOLOGIES	31
GLOBAL POWER RESOURCE SM	32
APPLICATION NOTES	33
EVALUATION BOARDS	34

Please note: all Fairchild products in diagrams are illustrated in red.

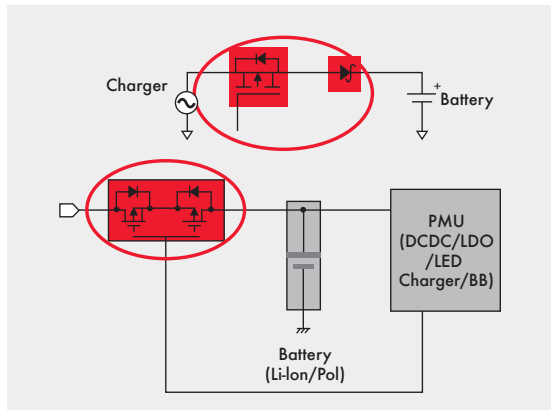
POWER MANAGEMENT ICs AND SEMICONDUCTORS

CHARGE SWITCHES

Charge Switches

Product Number	Polarity	BV _{DSS} Min. (V)	Config.	R _{DS(ON)} Max. (Ω) @ V _{GS} =					Q _{G(TOT)} Typ. (nC) @ V _{GS} = 4.5V	I _D (A)	P _D (W)	Package
				10V	4.5V	2.5V	1.8V	1.5V				
FDZ391P	P	-20	Single	–	0.085	0.123	–	0.2	9	3	1.5	WL-CSP Thin 1.0x1.5
FDZ193P	P	-20	Single	–	0.09	0.13	–	–	7	3	1.5	WL-CSP 1.0x1.5
FDZ191P	P	-20	Single	–	0.085	0.123	–	0.2	9	3	1.5	WL-CSP 1.0x1.5
FDZ1905PZ	P	-20	Dual common drain	–	0.126 R _{SS}	0.141 R _{SS}	0.198 R _{SS}	0.303 R _{SS}	–	3	1.5	WL-CSP 1.0x1.5
FDMJ1023PZ	P	-20	Dual	–	0.112	0.16	0.21	0.3	4.6	2.9	1.4	SC-75 MicroFET
FDMB668P	P	-20	Single	–	0.035	0.05	0.07	–	42	6.1	1.9	MicroFET 3x1.9
FDMB506P	P	-20	Single	–	0.03	0.038	0.07	–	3.5	6.8	1.9	MicroFET 3x1.9
FDMA530PZ	P	-30	Single	0.035	0.065	–	–	–	16	6.8	2.4	MicroFET 2x2
FDMA520PZ	P	-20	Single	–	0.03	0.053	–	–	14	7.3	2.4	MicroFET 2x2
FDMA510PZ	P	-20	Single	–	0.027	0.037	0.053	0.059	21	7.8	2.4	MicroFET 2x2
FDMA291P	P	-20	Single	–	0.042	0.058	0.098	–	10	6.6	2.4	MicroFET 2x2
FDMA1029PZ	P	-20	Dual	–	0.06	0.088	–	–	7	3.1	1.4	MicroFET 2x2
FDMA1027PT	P	-20	Dual	–	0.12	0.16	0.24	–	4	2.2	1.4	MicroFET 2x2 Thin
FDMA1027P	P	-20	Dual	–	0.12	0.16	0.24	–	4	2.2	1.4	MicroFET 2x2
FDMA1025P	P	-20	Dual	–	0.155	0.22	–	–	3.4	3.1	1.4	MicroFET 2x2
FDMA1023PZ	P	-20	Dual	–	0.072	0.095	0.13	0.195	8.6	3.7	1.5	MicroFET 2x2
FDMA3023PZ	P	-30	Dual	–	0.09	0.13	0.17	0.24	7.9	2.9	1.4	MicroFET 2x2
FDJ129P	P	-20	Single	–	0.07	0.12	–	–	4	4.2	1.6	SC75-6 FLMP
FDJ127P	P	-20	Single	–	0.06	0.085	0.133	–	7.2	4.1	1.6	SC75-6 FLMP
FDJ1027P	P	-20	Dual	–	0.16	0.23	0.39	–	3	2.8	1.5	SC75-6 FLMP
FDC699P	P	-20	Single	–	0.022	0.03	–	–	27	7	2	SSOT-6 FLMP
FDC697P	P	-20	Single	–	0.02	0.025	0.035	–	39	8	2	SSOT-6 FLMP
FDC6506P	P	-30	Dual	0.17	0.28	–	–	–	2.3	1.8	0.96	SSOT-6
FDC6036P	P	-20	Dual	–	0.044	0.064	0.095	–	10	5	1.8	SSOT-6 FLMP

Note: See specific device data sheet for full Q_{G(TOT)} test conditions



Charge Application: MOSFET used as a Current Source

Charge Switches with Integrated Schottky Diodes

Product Number	V _{DS} (V)	I _D (A)	R _{DS(ON)} Max. (Ω) @ V _{GS} =					Q _G		Schottky Diode		P _D (W)	Package
			10V	4.5V	2.5V	1.8V	1.5V	(nC)	@ V _{GS} (V)	V _F (V)	@ I _F (A)		
FDFMA2P029Z	-20	3.1	–	0.095	0.141	–	–	7	4.5	0.37	0.5	1.4	MicroFET 2x2
FDFMA2P853	-20	2.2	–	0.12	0.16	0.24	–	4	4.5	0.46	0.5	1.4	MicroFET 2x2
FDFMA2P853T	-20	2.2	–	0.12	0.16	0.24	–	4	4.5	0.46	0.5	1.4	MicroFET 2x2 Thin
FDFMA2P857	-20	2.2	–	0.12	0.16	0.24	–	4	4.5	0.4	0.1	1.4	MicroFET 2x2
FDFMA2P859T	-20	2.2	–	0.12	0.16	0.24	–	4	4.5	0.41	0.1	1.4	MicroFET 2x2 Thin
FDFMJ2P023Z	-20	2.9	–	0.112	0.16	0.21	0.3	4.6	4.5	0.4	0.1	1.4	SC-75 MicroFET

POWER MANAGEMENT ICs AND SEMICONDUCTORS

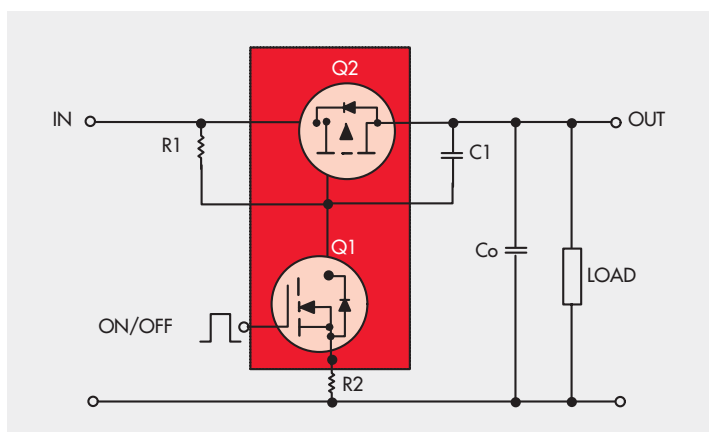
POWER/LOAD SWITCHES

Power/Load Switches												
Product Number	Polarity	BV _{DSS} Min. (V)	Config.	R _{DS(ON)} Max. (Ω) @ V _{GS} =					Q _{G(TOT)} Typ. (nC) @ V _{GS} =4.5V	I _D (A)	P _D (W)	Package
				10V	4.5V	2.5V	1.8V	1.5V				
FDZ391P	P	-20	Single	–	0.085	0.123	–	0.2	9	3	1.5	WL-CSP 1.0x1.5 thin
FDZ193P	P	-20	Single	–	0.09	0.13	–	0.2	7	3	1.5	WL-CSP 1.0x1.5
FDZ191P	P	-20	Single	–	0.085	0.123	–	–	9	3	1.5	WL-CSP 1.0x1.5
FDMJ1023PZ	P	-20	Dual	–	0.112	0.16	0.21	0.3	4.6	2.9	1.4	SC-75 MicroFET
FDMB668P	P	-20	Single	–	0.035	0.05	0.07	–	42	6.1	1.9	MicroFET 3x1.9
FDMB506P	P	-20	Single	–	0.03	0.038	0.07	–	3.5	6.8	1.9	MicroFET 3x1.9
FDMB3800N	N	30	Dual	0.04	0.051	–	–	–	4	4.8	1.6	MicroFET 3x1.9
FDMA530PZ	P	-30	Single	0.035	0.065	–	–	–	16	6.8	2.4	MicroFET 2x2
FDMA520PZ	P	-20	Single	–	0.03	0.053	–	–	14	7.3	2.4	MicroFET 2x2
FDMA510PZ	P	-20	Single	–	0.027	0.037	0.053	0.059	21	7.8	2.4	MicroFET 2x2
FDMA430NZ	N	30	Single	–	0.04	–	–	–	7.3	5	2.4	MicroFET 2x2
FDMA420NZ	N	20	Single	–	0.03	–	–	–	8.8	5.7	2.4	MicroFET 2x2
FDMA410NZ	N	20	Single	–	0.023	0.028	0.036	0.06	10	9.5	2.4	MicroFET 2x2
FDMA291P	P	-20	Single	–	0.042	0.058	0.0968	–	10	6.6	2.4	MicroFET 2x2
FDMA2002NZ	N	30	Dual	–	0.123	0.163	–	–	2.4	2.9	1.5	MicroFET 2x2
FDMA1029PZ	P	-20	Dual	–	0.06	0.088	–	–	7	3.1	1.4	MicroFET 2x2
FDMA1028NZ	N	20	Dual	–	0.037	0.05	–	–	4	3.7	1.4	MicroFET 2x2
FDMA1027P	P	-20	Dual	–	0.12	0.16	0.24	–	4	2.2	1.4	MicroFET 2x2
FDMA1027PT	P	-20	Dual	–	0.12	0.16	0.24	–	4	2.2	1.4	MicroFET 2x2 thin
FDMA1025P	P	-20	Dual	–	0.155	0.22	–	–	3.4	3.1	1.4	MicroFET 2x2
FDMA1024NZ	N	-20	Dual	–	0.039	0.054	0.07	0.093	5.6	5	1.4	MicroFET 2x2
FDMA1023PZ	P	-20	Dual	–	0.072	0.095	0.13	0.195	8.6	3.7	1.5	MicroFET 2x2
FDMA3023PZ	P	-30	Dual	–	0.09	0.13	0.17	0.24	7.9	2.9	1.4	MicroFET 2x2
FDJ129P	P	-20	Single	–	0.07	0.12	–	–	4	4.2	1.6	SC75-6 FLMP
FDJ128N	N	20	Single	–	0.037	0.051	–	–	5	5.5	1.6	SC75-6 FLMP
FDJ127P	P	-20	Single	–	0.06	0.085	0.133	–	7.2	4.1	1.6	SC75-6 FLMP
FDJ1028N	N	20	Dual	–	0.09	0.13	–	–	2	3.2	1.5	SC75-6 FLMP
FDJ1027P	P	-20	Dual	–	0.16	0.23	0.39	–	3	2.8	1.5	SC75-6 FLMP
FDC796N	N	30	Single	0.009	0.012	–	–	–	14	12.5	2	SSOT-6 FLMP
FDC699P	P	-20	Single	–	0.022	0.03	–	–	27	7	2	SSOT-6 FLMP
FDC697P	P	-20	Single	–	0.02	0.025	0.035	–	39	8	2	SSOT-6 FLMP
FDC658AP	P	-30	Single	0.05	0.075	–	–	–	6	4	1.6	SSOT-6
FDC655BN	N	30	Single	0.025	0.033	–	–	–	6	6.3	1.6	SSOT-6
FDC654P	P	-30	Single	0.075	0.125	–	–	–	6.2	3.6	1.6	SSOT-6
FDC653N	N	30	Single	0.035	0.055	–	–	–	12	5	1.6	SSOT-6
FDC642P	P	-20	Single	–	0.065	0.1	–	–	7.2	4	1.6	SSOT-6
FDC640P	P	-20	Single	–	0.053	0.08	–	–	9	4.5	1.6	SSOT-6
FDC638P	P	-20	Single	–	0.048	0.065	–	–	10	4.5	1.6	SSOT-6
FDC638APZ	P	-20	Single	–	0.043	0.068	–	–	8	4.5	1.6	SSOT-6
FDC637AN	N	20	Single	–	0.024	0.032	–	–	10.5	6.2	1.6	SSOT-6
FDC636P	P	-20	Single	–	0.13	0.18	–	–	6	2.8	1.6	SSOT-6
FDC634P	P	-20	Single	–	0.08	0.11	–	–	7.2	3.5	1.6	SSOT-6
FDC633N	N	30	Single	–	0.042	0.054	–	–	11	5.2	1.6	SSOT-6
FDC610PZ	P	-30	Single	0.042	0.075	–	–	–	9	4.9	1.6	SSOT-6
FDC608PZ	P	-20	Single	–	0.03	0.043	–	–	17	5.8	1.6	SSOT-6
FDC606P	P	-12	Single	–	0.026	0.035	0.053	–	18	6	1.6	SSOT-6
FDC604P	P	-20	Single	–	0.033	0.043	0.06	–	19	5.5	1.6	SSOT-6
FDC6036P	P	-20	Dual	–	0.044	0.064	0.095	–	10	5	1.8	SSOT-6 FLMP
FDC602P	P	-20	Single	–	0.035	0.05	–	–	14	5.5	1.6	SSOT-6
FDC6000NZ	N	20	Dual	–	0.02	0.028	–	–	8	7.3	1.6	SSOT-6 FLMP

Note: See specific device data sheet for full Q_{G(TOT)} test conditions

POWER MANAGEMENT ICs AND SEMICONDUCTORS

LEVEL SHIFTED INTEGRATED LOAD SWITCHES

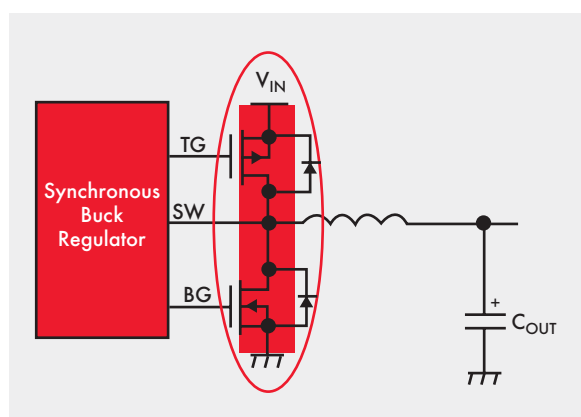


Integrated Load Switch

Level Shifted Integrated Load Switches									
Product Number	V_{IN} Max. (V)	V_{GS} Max. (V)	$R_{DS(ON)}$ Max. (Ω) @ $V_{GS} =$						Package
			12V	4.5V	3.3V	2.5V	1.8V	1.5V	
FDY6342L	8	8	–	0.61	–	0.86	1.64	2.35	SC89
FDG6323L	8	8	–	0.55	–	0.75	–	–	SC-70
FDG6331L	8	8	–	0.26	–	0.33	0.45	–	SC-70
FDG6342L	8	8	–	0.15	–	0.195	0.28	0.48	SC-70
FDG6324L	20	8	0.55	0.75	–	–	–	–	SC-70
FDC6323L	8	8	–	0.2	0.3	–	–	–	SSOT-6
FDC6325L	8	8	–	0.13	–	0.18	–	–	SSOT-6
FDC6329L	8	8	–	0.07	–	0.105	–	–	SSOT-6
FDC6331L	8	8	–	0.055	–	0.07	0.1	–	SSOT-6
FDC6324L	20	20	0.2	0.3	–	–	–	–	SSOT-6
FDC6326L	20	20	0.125	0.2	–	–	–	–	SSOT-6
FDC6330L	20	20	0.08	0.125	–	–	–	–	SSOT-6

POWER MANAGEMENT ICs AND SEMICONDUCTORS

DC-DC SWITCHES



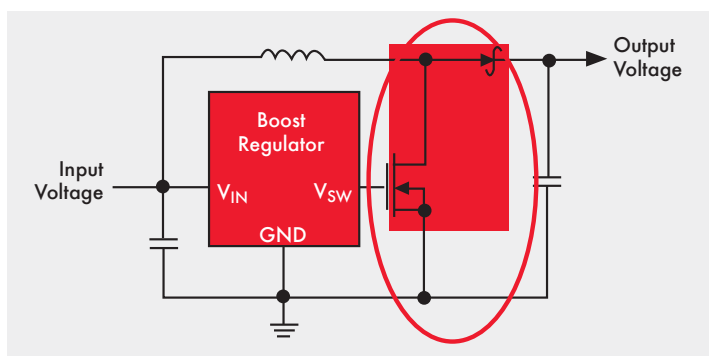
DC-DC Switcher Application

DC-DC Switches										
Product Number	Polarity	BV _{DSS} Min. (V)	Config.	R _{DS(ON)} Max. (Ω) @ V _{GS} =			Q _{G(TOT)} Typ. (nC) @ V _{GS} = 4.5V	I _D (A)	P _D (W)	Package
				4.5V	2.5V	1.8V				
FDMA1032CZ	N/P	20/20	Complementary	.037/.06	.05/.088	–	4/7	3.7	1.4	MicroFET 2x2
FDG6320C	N/P	25/25	Complementary	4/10	5@2.7V/ 13@2.7V	–	.29/.22	.22/.14	0.3	SC-70-6
FDG6321C	N/P	25/25	Complementary	.45/1.1	.6@2.7V/ 1.5@2.7V	–	1.64/1.1	.5/.41	0.3	SC-70-6
FDG6322C	N/P	25/25	Complementary	4/1.1	5@2.7V/ 1.5@2.7V	–	.29/1.1	.22/.41	0.3	SC-70-6
FDG6332C	N/P	20/20	Complementary	.3/.42	.4/.63	–	1.1/1.4	.7/.6	0.3	SC-70-6
FDJ1032C	N/P	20/20	Complementary	.16/.09	.23/.13	0.39 (P)	3/2	2.8/3.2	1.5	SC75-6 FLMP
FDY4000CZ	N/P	20/20	Complementary	.7/1.2	0.85/1.6	1.25/2.7	.8/1	.6/.35	625	SC89
FDY4001CZ	N/P	20/20	Complementary	5/8	7/12	9/15	.8/1	.2/.15	625	SC89
FDC6320C	N/P	25/25	Complementary	4/10	5@2.7V/ 13@2.7V	–	.29/.23	.22/.12	0.9	SSOT-6
FDC6321C	N/P	25/25	Complementary	.45/1.1	–	–	1.64/1.1	.68/.46	0.9	SSOT-6
FDC6322C	N/P	25/25	Complementary	4/1.1	5@2.7V/ 1.5@2.7V	–	.49/1	.22/.46	0.9	SSOT-6
FDC6327C	N/P	20/20	Complementary	.08/.17	.12/.25	–	3.25/2.85	2.7/1.9	0.96	SSOT-6
FDC6420C	N/P	20/20	Complementary	.07/.125	.095/.19	–	3.3/3.7	3/2.2	0.96	SSOT-6
FDC6020C	N/P	20/20	Complementary	.055/.027	.082/.039	–	7/6	4.2/5.9	1.6	SSOT-6 FLMP

Note: See specific device data sheet for full Q_{G(TOT)} test conditions

POWER MANAGEMENT ICs AND SEMICONDUCTORS

BOOST SWITCHES AND MISCELLANEOUS SWITCHES



Typical Boost Application

Boost Switches

Product Number	V_{DS} (V)	I_D (A)	$R_{DS(ON)}$ Max. (Ω) $V_{GS} =$			Q_G		Schottky Diode		P_D (W)	Package
			10V	4.5V	2.5V	(nC)	@ V_{GS} (V)	V_F (V)	@ I_F (A)		
FDFMA2N028Z	20	3.7	–	0.068	0.086	4	4.5	0.37	0.5	1.4	MicroFET 2x2
FDFMA3N109	30	2.9	–	0.123	0.163	2.4	15	0.5	1	1.5	MicroFET 2x2
FDFME3N311ZT	30	1.6	–	0.262	0.379	–	15	0.46	0.5	1.5	MicroFET 1.6x1.6 Thin

Miscellaneous Switches

Product Number	Polarity	BV_{DSS} Min. (V)	Config.	$R_{DS(ON)}$ Max. (Ω) @ $V_{GS} =$					$Q_{G(TOT)}$ Typ. (nC) @ $V_{GS} = 4.5V$	I_D (A)	P_D (W)	Package
				10V	4.5V	2.5V	1.8V	1.5V				
FDC6301N	N	25	Dual	–	4	5 @ 2.7V	–	–	0.49	0.22	0.9	SSOT-6
FDC6302P	P	-25	Dual	–	10	13 @ 2.7V	–	–	0.22	0.12	0.9	SSOT-6
FDC6303N	N	25	Dual	–	0.45	.6 @ 2.7V	–	–	1.64	0.68	0.9	SSOT-6
FDC6304P	P	-25	Dual	–	1.1	1.5 @ 2.7V	–	–	1.1	0.46	0.9	SSOT-6
FDC6305N	N	20	Dual	–	0.08	0.12	–	–	3.5	2.7	0.9	SSOT-6
FDC6306P	P	-20	Dual	–	0.17	0.25	–	–	3	1.9	0.96	SSOT-6
FDC6310P	P	-20	Dual	–	0.125	0.19	–	–	3.7	2.2	0.96	SSOT-6
FDC6312P	P	-20	Dual	–	0.115	0.155	0.225	–	4.4	2.3	0.96	SSOT-6
FDC6318P	P	-12	Dual	–	0.09	0.125	0.2	–	5.4	2.5	0.96	SSOT-6
FDC6401N	N	20	Dual	–	0.07	0.095	–	–	3.3	3	0.96	SSOT-6
FDC6506P	P	-30	Dual	0.17	0.28	–	–	–	2.3	1.8	0.96	SSOT-6
FDC6561AN	N	30	Dual	0.095	0.145	–	–	–	2.1	2.5	0.9	SSOT-6
FDG311N	N	20	Single	–	0.115	0.15	–	–	3	1.9	0.75	SC70-6
FDG312P	P	-20	Single	–	0.18	0.25	–	–	3.3	1.2	0.75	SC70-6
FDG313N	N	25	Single	–	0.45	.6 @ 2.7V	–	–	1.64	0.95	0.75	SC70-6
FDG314P	P	-25	Single	–	1.1	1.5 @ 2.7V	–	–	1.1	0.65	0.75	SC70-6
FDG315N	N	30	Single	0.12	0.16	–	–	–	2.1	2	0.75	SC70-6
FDG316P	P	-30	Single	0.19	0.3	–	–	–	3.5	1.6	0.75	SC70-6
FDG326P	P	-20	Single	–	0.14	0.18	0.25	–	4.4	1.5	0.75	SC70-6
FDG327N	N	20	Single	–	0.09	0.1	0.14	–	4.5	1.5	0.42	SC70-6
FDG327NZ	N	20	Single	–	0.09	0.1	0.14	–	4.2	1.5	0.42	SC70-6
FDG328P	P	-20	Single	–	0.145	0.21	–	–	3.7	1.5	0.75	SC70-6
FDG329N	N	20	Single	–	0.09	0.115	–	–	3.3	1.5	0.42	SC70-6
FDG330P	P	-12	Single	–	0.11	0.15	0.215	–	5	2	0.75	SC70-6
FDG332PZ	P	-20	Single	–	0.095	0.115	0.16	–	7.6	2.6	0.75	SC70-6
FDG6301N	N	25	Dual	–	4	5 @ 2.7V	–	–	0.29	0.22	0.3	SC70-6

Note: See specific device data sheet for full $Q_{G(TOT)}$ test conditions

POWER MANAGEMENT ICs AND SEMICONDUCTORS

MISCELLANEOUS SWITCHES

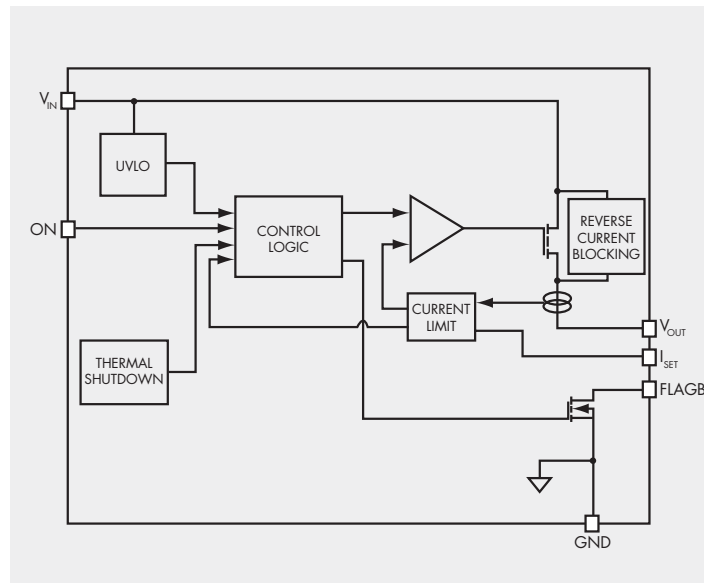
Miscellaneous Switches (Continued)												
Product Number	Polarity	BV _{DSS} Min. (V)	Config.	R _{DS(ON)} Max. (Ω) @ V _{GS} =					Q _{G(TOT)} Typ. (nC) @ V _{GS} =4.5V	I _D (A)	P _D (W)	Package
				10V	4.5V	2.5V	1.8V	1.5V				
FDG6302P	P	-25	Dual	–	10	13 @ 2.7V	–	–	0.22	0.14	0.3	SC70-6
FDG6303N	N	25	Dual	–	0.45	.6 @ 2.7V	–	–	1.64	0.5	0.3	SC70-6
FDG6304P	P	-25	Dual	–	1.1	1.5 @ 2.7V	–	–	1.1	0.41	0.3	SC70-6
FDG6306P	P	-20	Dual	–	0.42	0.63	–	–	1.4	0.6	0.3	SC70-6
FDG6308P	P	-20	Dual	–	0.4	0.55	0.8	–	1.8	0.6	0.3	SC70-6
FDG6313N	N	25	Dual	–	0.45	.6 @ 2.7V	–	–	1.64	0.5	0.3	SC70-6
FDG6316P	P	-12	Dual	–	0.27	0.36	0.65	–	1.7	0.7	0.3	SC70-6
FDG6317NZ	N	20	Dual	–	0.4	0.55	–	–	0.76	0.7	0.3	SC70-6
FDG6318P	P	-20	Dual	–	0.78	1.2	–	–	0.86	0.5	0.3	SC70-6
FDG6318PZ	P	-20	Dual	–	0.78	1.2	–	–	1.08	0.5	0.3	SC70-6
FDG6335N	N	20	Dual	–	0.3	0.4	–	–	1.1	0.7	0.3	SC70-6
FDG8850NZ	N	30	Dual	–	0.4	.5 @ 2.7V	–	–	1.03	0.75	0.36	SC70-6
FDN302P	P	-20	Single	–	0.055	0.08	–	–	9	2.4	0.5	SSOT-3
FDN304P	P	-20	Single	–	0.052	0.07	0.1	–	12	2.4	0.5	SSOT-3
FDN304PZ	P	-20	Single	–	0.052	0.07	0.1	–	12	2.4	0.5	SSOT-3
FDN306P	P	-12	Single	–	0.04	0.05	0.08	–	12	2.6	0.5	SSOT-3
FDN308P	P	-20	Single	–	0.125	0.19	–	–	3.8	1.5	0.5	SSOT-3
FDN327N	N	20	Single	–	0.07	0.08	0.12	–	4.5	2	0.5	SSOT-3
FDN335N	N	20	Single	–	0.07	0.1	–	–	3.5	1.7	0.5	SSOT-3
FDN336P	P	-20	Single	–	0.2	0.27	–	–	3.6	1.2	0.5	SSOT-3
FDN337N	N	30	Single	–	0.065	0.082	–	–	7	2.2	0.5	SSOT-3
FDN338P	P	-20	Single	–	0.115	0.155	–	–	4.4	1.6	0.5	SSOT-3
FDN339AN	N	20	Single	–	0.035	0.05	–	–	7	3	0.5	SSOT-3
FDN340P	P	-20	Single	–	0.07	0.11	–	–	7.2	2	0.5	SSOT-3
FDN342P	P	-20	Single	–	0.08	0.13	–	–	6.3	2	0.5	SSOT-3
FDN352AP	P	-30	Single	0.18	0.3	–	–	–	1.4	1.3	0.5	SSOT-3
FDN357N	N	30	Single	0.06	0.09	–	–	–	4.2	1.9	0.5	SSOT-3
FDN358P	P	-30	Single	0.125	0.2	–	–	–	4	1.5	0.5	SSOT-3
FDN359BN	N	30	Single	0.046	0.06	–	–	–	5	2.7	0.5	SSOT-3
FDN360P	P	-30	Single	0.08	0.125	–	–	–	6.2	2	0.5	SSOT-3
FDN361BN	N	30	Single	0.11	0.16	–	–	–	1.3	1.4	0.5	SSOT-3
FDV301N	N	25	Single	–	4	5 @ 2.7V	–	–	0.49	0.22	0.35	SOT-23
FDV302P	P	-25	Single	–	10	13 @ 2.7V	–	–	0.22	0.12	0.35	SOT-23
FDV303N	N	25	Single	–	0.45	.6 @ 2.7V	–	–	1.64	0.68	0.35	SOT-23
FDV304P	P	-25	Single	–	1.1	1.5 @ 2.7V	–	–	1.1	0.46	0.35	SOT-23
FDV305N	N	20	Single	–	0.22	0.3	–	–	1.1	0.9	0.35	SOT-23
FDY1002PZ	P	-20	Dual	–	0.61	0.86	1.64	2.35	1	0.83	0.63	SC89
FDY100PZ	P	-20	Single	–	1.2	1.6	2.7	–	1	0.35	0.63	SC89
FDY101PZ	P	-20	Single	–	8	12	15	–	1	0.15	0.63	SC89
FDY102PZ	P	-20	Single	–	0.61	0.86	1.64	2.35	1	0.83	0.63	SC89
FDY2000PZ	P	-20	Dual	–	1.2	1.6	2.7	–	1	0.35	0.63	SC89
FDY2001PZ	P	-20	Dual	–	8	12	15	–	1	0.15	0.63	SC89
FDY3000NZ	N	20	Dual	–	0.7	0.85	1.25	–	0.8	0.6	0.63	SC89
FDY3001NZ	N	20	Dual	–	5	7	9	–	0.8	0.2	0.63	SC89
FDY300NZ	N	20	Single	–	0.7	0.85	1.25	–	0.8	0.6	0.63	SC89
FDY301NZ	N	20	Single	–	5	7	9	–	0.8	0.2	0.63	SC89

Note: See specific device data sheet for full Q_{G(TOT)} test conditions

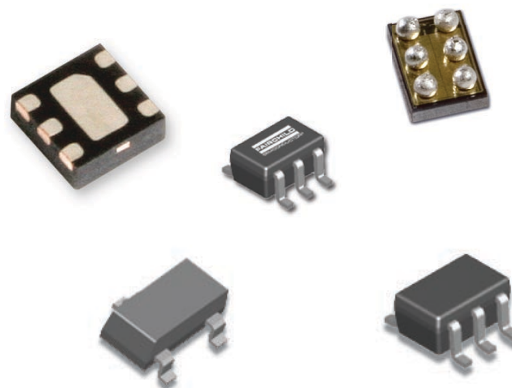
POWER MANAGEMENT ICs AND SEMICONDUCTORS

FULL FUNCTION LOAD SWITCHES, IntelliMAX™

Fairchild's IntelliMAX family of integrated load switches support the latest generations of mobile and consumer electronic devices. The IntelliMAX family combines conventional MOSFET performance with a unique combination of protection, control and fault monitoring features to enhance power management design. This level of integration helps designers achieve efficiency and reliability, while minimizing board space requirements.



*Representative Block Diagram, Please Refer to the Data Sheet
for Specific I/O Information*



POWER MANAGEMENT ICs AND SEMICONDUCTORS

FULL FUNCTION LOAD SWITCHES, IntelliMAX™

Fixed – Current Limit

Product Number	R _{ON} Typ. (mΩ)	Feature Set															Output Discharge	On-Pin Behavior	Package
		V _{MIN}	V _{MAX}	SR	SR Time (μs)	Under Voltage Lockout	Thermal Shutdown	Fault Flag	Over Current Protection	Current Limit	Current Blanking	Fault Behavior			Reverse Current Blocking	P _{GOOD}			
										Min. (mA)		Auto Re-start	Shut-down	Constant Current					
FPF2000	700	1.8	5.5	•	10	•	•	•	•	50	•	•	–	–	–	–	–	Hi	SC-70
FPF2001	700	1.8	5.5	•	10	•	•	•	•	50	•	•	–	–	–	–	–	Lo	SC-70
FPF2004	700	1.8	5.5	•	10	•	•	•	•	100	•	•	–	–	–	–	–	Hi	SC-70
FPF2005	700	1.8	5.5	•	10	•	•	•	•	100	•	•	–	–	–	–	–	Lo	SC-70
FPF2024	210	1.6	5.5	•	30	•	•	•	•	100	•	•	–	–	–	–	–	Hi	WL-CSP 1x1.5
FPF2025	210	1.6	5.5	•	30	•	•	•	•	100	•	•	–	–	–	–	–	Lo	WL-CSP 1x1.5
FPF2100	125	1.8	5.5	•	12	•	•	•	•	200	•	•	–	–	–	–	–	Hi	SOT-23
FPF2101	125	1.8	5.5	•	12	•	•	•	•	200	•	•	–	–	–	–	–	Lo	SOT-23
FPF2104	125	1.8	5.5	•	12	•	•	•	•	400	•	•	–	–	–	–	–	Hi	SOT-23
FPF2105	125	1.8	5.5	•	12	•	•	•	•	400	•	•	–	–	–	–	–	Lo	SOT-23
FPF2116	125	1.8	5.5	•	12	•	•	•	•	200	•	•	–	–	•	–	–	Hi	SOT-23
FPF2140	110	1.8	5.5	•	10	•	•	•	•	200	•	•	–	–	•	•	–	Hi	MLP 2x2
FPF2144	110	1.8	5.5	•	10	•	•	•	•	400	•	•	–	–	•	•	–	Hi	MLP 2x2
FPF2200	140	1.8	5.5	•	40	•	•	•	•	500	•	•	–	–	–	–	•	Hi	MLP 2x2
FPF2002	700	1.8	5.5	•	10	•	•	•	•	50	•	–	–	–	–	–	–	Hi	SC-70
FPF2006	700	1.8	5.5	•	10	•	•	•	•	100	•	–	•	–	–	–	–	Hi	SC-70
FPF2026	210	1.6	5.5	•	30	•	•	•	•	100	•	–	•	–	–	–	–	Hi	WL-CSP 1x1.5
FPF2102	125	1.8	5.5	•	12	•	•	•	•	200	•	–	•	–	–	–	–	Hi	SOT-23
FPF2106	125	1.8	5.5	•	12	•	•	•	•	400	•	–	•	–	–	–	–	Hi	SOT-23
FPF2108	125	1.8	5.5	•	12	•	•	•	•	400	•	–	•	–	•	–	–	Lo	SOT-23
FPF2172	125	1.8	5.5	•	13	•	•	•	•	200	•	–	•	–	•	–	–	Hi	MLP 3x3
FPF2174	125	1.8	5.5	•	14	•	•	•	•	200	•	–	•	–	•	–	–	Hi	MLP 3x3
FPF2142	110	1.8	5.5	•	–	•	•	•	•	200	•	–	•	–	•	•	–	Hi	MLP 2x2
FPF2146	110	1.8	5.5	•	–	•	•	•	•	400	•	–	•	–	•	•	–	Hi	MLP 2x2
FPF2201	140	1.8	5.5	•	40	•	•	•	•	500	•	–	•	–	–	–	•	Hi	MLP 2x2
FPF2003	700	1.8	5.5	•	–	•	•	•	•	50	–	–	–	•	–	–	–	Hi	SC-70
FPF2007	700	1.8	5.5	•	–	•	•	•	•	100	–	–	–	•	–	–	–	Hi	SC-70
FPF2027	210	1.6	5.5	•	30	•	•	•	•	100	–	–	–	•	–	–	–	Hi	WL-CSP 1x1.5
FPF2103	125	1.8	5.5	•	–	•	•	•	•	200	–	–	–	•	–	–	–	Hi	SOT-23
FPF2107	125	1.8	5.5	•	–	•	•	•	•	400	–	–	–	•	–	–	–	Hi	SOT-23
FPF2109	125	1.8	5.5	•	–	•	•	•	•	200	–	–	–	•	•	–	–	Hi	SOT-23
FPF2110	125	1.8	5.5	•	–	•	•	•	•	400	–	–	–	•	•	–	–	Hi	SOT-23
FPF2143	110	1.8	5.5	•	–	•	•	•	•	200	–	–	–	•	•	•	–	Hi	MLP 2x2
FPF2148	110	1.8	5.5	•	–	•	•	•	•	200	–	–	–	•	•	•	–	Lo	MLP 2x2
FPF2147	110	1.8	5.5	•	–	•	•	•	•	400	–	–	–	•	•	•	–	Hi	MLP 2x2
FPF2202	140	1.8	5.5	•	40	•	•	•	•	500	–	–	–	•	–	–	•	Hi	MLP 2x2

POWER MANAGEMENT ICs AND SEMICONDUCTORS

FULL FUNCTION LOAD SWITCHES, IntelliMAX™

User Adjustable Current Limit

Product Number	R _{ON} Typ. (mΩ)	Feature Set															Output Discharge	On-Pin Behavior	Package
		V _{MIN}	V _{MAX}	SR	SR Time (μS)	Under Voltage Lockout	Thermal Shutdown	Fault Flag	Over Current Protection	Current Limit		Current Blanking	Fault Behavior			Reverse Current Blocking			
										Min. (mA)	Max. (mA)		Auto Restart	Shutdown	Constant Current				
FPF2213	250	1.8	5.5	•	40	•	•	•	•	100	250	•	•	–	–	–	•	HI	MLP 2x2
FPF2214	250	1.8	5.5	•	40	•	•	•	•	100	250	•	–	•	–	–	•	HI	MLP 2x2
FPF2215	250	1.8	5.5	•	40	•	•	•	•	100	250	–	–	–	•	–	•	HI	MLP 2x2
FPF2223	140	1.8	5.5	•	40	•	•	•	•	250	650	•	•	–	–	–	•	HI	MLP 2x2
FPF2224	140	1.8	5.5	•	40	•	•	•	•	250	650	•	–	•	–	–	•	HI	MLP 2x2
FPF2225	140	1.8	5.5	•	40	•	•	•	•	250	650	–	–	–	•	–	•	HI	MLP 2x2
FPF2123	125	1.8	5.5	•	10	•	•	•	•	150	1500	•	•	–	–	•	–	HI	SOT-23
FPF2124	125	1.8	5.5	•	10	•	•	•	•	150	1500	•	–	•	–	•	–	HI	SOT-23
FPF2125	125	1.8	5.5	•	10	•	•	•	•	150	1500	•	–	–	–	•	–	HI	SOT-23
FPF2163	120	1.8	5.5	•	10	•	•	•	•	150	1500	•	•	–	–	•	–	HI	MLP 2x2
FPF2193	75	1.8	5.5	•	20	•	•	•	•	150	1500	•	•	–	–	•	–	HI	WL-CSP 1x1.5
FPF2164	120	1.8	5.5	•	10	•	•	•	•	150	1500	•	–	•	–	•	–	HI	MLP 2x2
FPF2194	75	1.8	5.5	•	20	•	•	•	•	150	1500	•	–	•	–	•	–	HI	WL-CSP 1x1.5
FPF2165	120	1.8	5.5	•	10	•	•	•	•	150	1500	–	–	–	•	•	–	HI	MLP 2x2
FPF2195	75	1.8	5.5	•	20	•	•	•	•	150	1500	–	–	–	•	•	–	HI	WL-CSP 1x1.5

Slew Rate

Product Number	SR	SR Time (μs)	R _{ON} Typ. (mΩ)	V _{MIN}	V _{MAX}	Output Discharge	On-Pin Behavior	Package
FPF1013	•	30	17	0.8	2.5	–	HI	WLCSP 1x1.5
FPF1014	•	30	17	0.8	2.5	•	HI	WLCSP 1x1.5
FPF1015	•	30	35	0.8	2.5	–	HI	MLP 2x2
FPF1016	•	30	35	0.8	2.5	•	Hi	MLP 2x2
FPF1017	•	150	35	0.8	2.5	–	HI	MLP 2x2
FPF1018	•	150	35	0.8	2.5	•	HI	MLP 2x2
FPF1003A	•	10	20	1.2	5.5	–	HI	WLCSP 1x1.5
FPF1004	•	10	20	1.2	5.5	•	HI	WLCSP 1x1.5
FPF1005	•	10	50	1.2	5.5	–	HI	MLP 2x2
FPF1006	•	10	50	1.2	5.5	•	HI	MLP 2x2
FPF1007	•	10	30	1.2	5.5	•	HI	MLP 2x2
FPF1008	•	80	30	1.2	5.5	•	HI	MLP 2x2
FPF1009	•	1000	30	1.2	5.5	•	HI	MLP 2x2

POWER MANAGEMENT ICs AND SEMICONDUCTORS

INTEGRATED SWITCHING REGULATORS

Synchronous and Asynchronous Boost Regulators

Product Number	Type	V _{IN} (V)	V _{OUT} (V)	Load (mA)	Operating Frequency (MHz)	Max. Efficiency (%)	Shutdown Current (μA)	Package
FAN5330	Async	1.8 - 5.5	<30, Adj.	32	1.6	80	3	SOT-23
FAN5331	Async	2.7 - 5.5	<20, Adj.	50	1.6	88	2	SOT-23
FAN5332A	Async	2.7 - 5.5	<30, Adj.	75	1.6	88	3	SOT-23
FAN5333B	Async	1.8 - 5.5	<30, Adj.	75	1.6	80	3	SOT-23
FAN5336	Async	2.7 - 5.5	<33, Adj.	125	1.5	80	3	MLP 3x3 6L
FAN4855	Sync	1.6 - 4.5	3-5, Adj.	500	PFM	95	1	MSOP-8
FAN4840*	Sync	2.3 - 4.5	5	200	3	90	2	WL-CSP, 0.91 x 2.6 6 Bump, 2x2 μMLP

* In Development

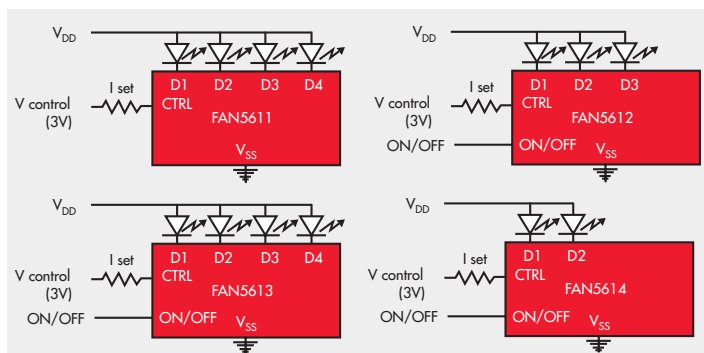
Synchronous Buck Regulators

Product Number	V _{IN} (V)	V _{OUT} (V)	Load (mA)	Operating Frequency (MHz)	Max. Efficiency (%)	Quiescent Current (μA)	Package
FAN5307	2.5 - 6	0.87V _{IN}	300	1	95	15	SOT-23
FAN5308	2.5 - 5.5	0.8 - V _{IN}	800	1.3	95	25	MLP 3x3
FAN5350	2.7 - 5.5	1.82	600	3	94	16	WL-CSP, 1x1.37, 5 Bump, 3x3 MLP
FAN5355	2.7 - 5.5	0.75 - 1.975	800/1000	3	94	37	WL-CSP, 1.46 x 2.23, 12 Bump, 3x3 MLP
FAN2001/2002	2.5 - 5.5	0.8 - V _{IN}	1000	1.3	95	25	MLP 3x3
FAN2011/2012	4.5 - 5.5	0.8 - V _{IN}	1500	1.3	95	7mA	MLP 3x3
FAN2013	4.5 - 5.5	0.8 - V _{IN}	2000	1.3	95	5mA	MLP 3x3
FAN5361	2.3 - 5.5	1.0 - 1.82	600	6	92	35	WL-CSP, 0.99 x 1.39, 6 Bump

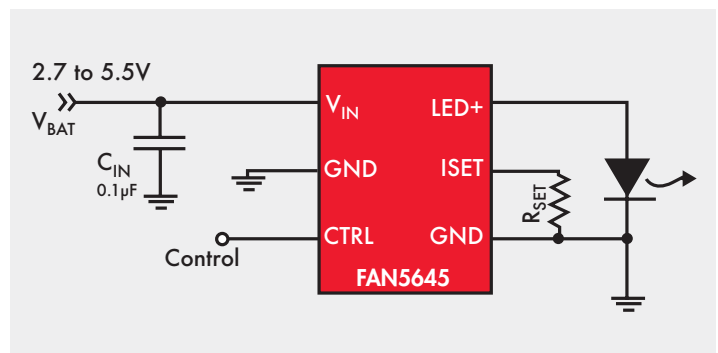
LED Drivers

Part Number	Configuration	Number of LEDs	Input Voltage (V)	LED Current (mA)	Boost	Brightness Control	Max. Efficiency (%)	Package
FAN5607	Parallel	4	2.7 - 5.5	30	Adaptive charge pump	Analog, PWM	92	MLP 4x4
FAN5608	Serial	2*6	2.7 - 5	20	Inductor, built-in Schottky	Analog, PWM, digital	85	MLP 3x3, 4x4
FAN5609	Parallel	1	2.7 - 5.5	20	Adaptive charge pump	PWM, digital	86	MLP 4x4
FAN5610	Parallel	1	2.7 - 5.5	21	No boost	PWM, digital	91	MLP 3x3
FAN5611	Parallel	1	3.3 - 5.5	40	No boost	Analog, PWM	90	SC-70
FAN5612	Parallel	1	3.3 - 5.5	40	No boost	Analog, PWM	90	SC-70
FAN5613	Parallel	1	3.3 - 5.5	40	No boost	Analog, PWM	90	MLP
FAN5614	Parallel	1	3.3 - 5.5	80	No boost	Analog, PWM	90	SC-70
FAN5616	Parallel	3	2.5 - 5.5	40	Adaptive charge pump	Analog, PWM, digital	90	MLP 3x3
FAN5617	Parallel	4	2.7 - 5.5	30	Adaptive charge pump	Analog, PWM, digital	90	MLP 3x3
FAN5645	NA	1	2.7 - 5.5	20	High-side CC driver	Analog	—	MLP 3x3
FAN5646*	NA	1	2.7 - 5.5	3 - 20	High-side CC fader driver	Analog	—	WL-CSP 0.85x0.85 4 Bump, 5 lead SC-70-5

* In Development



LED Drivers



Indicator LED Blinker with Single-Wire Interface

POWER MANAGEMENT ICs AND SEMICONDUCTORS

CHARGE PUMP CONVERTERS

Charge Pump DC-DC Converters

Product Number	V _{IN} (V)	V _{OUT} (V)	Load (mA)	Operating Frequency (MHz)	Max. Efficiency (%)	Ground Current (μA)	Package
FAN5601	2.2 - 5.5	1 - 1.8	250	2	>85	30	MLP 3x3
FAN5602	2.7 - 5.5	3.3, 4.5, 5.0	200	1	90	100	MLP 3x3
FAN5631	2.2 - 5.5	1.2, 1.5	250	1.5	90	60	MLP 3x3 10L
FAN5632	2.2 - 5.5	1.2, 1.5	250	1.5	90	60	MLP 3x3 10L
FAN5665	2.9 - 5.5	5	30	1.2	92	190	WLCSP, 1.21 x 1.21, 8 Bump
FAN5701 ⁽¹⁾	2.7 - 5.5	2.7 - 5.5, Adj.	180 total	1.2	92	–	WLCSP, 1.61 x 1.61, 8 Bump, Thin MLP 3x3x0.55
FAN5702 ⁽²⁾	2.7 - 5.5	2.7 - 5.5, Adj.	180 total	1.2	92	–	WLCSP, 1.61 x 1.61, 16 Bump, Thin MLP 3x3x0.55

Note⁽¹⁾ PWM Control (In Development)

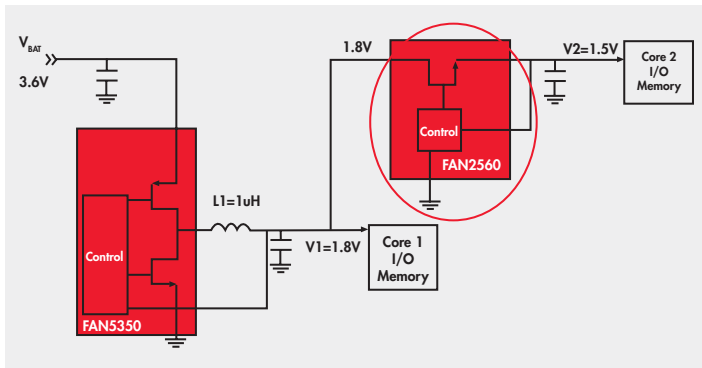
Note⁽²⁾ PC & PWM Control (In Development)

Linear Regulators (LDOs)

Product Number	Output Type	Preset Output Voltage Typ. (V)	Adj. Output Voltage		Output Current (A)	Dropout Voltage (V)	Input Voltage Max. (V)	Package
			Min. (V)	Max. (V)				
FAN1084	Single	Adj./1.5/3.3	1.25	5.7	4.5	1.5	7	TO-220AB/TO-252(DPAK)/TO-263(D2PAK)
FAN1086	Single	Adj./2.5/2.85/3.3/5.0	1.25	5.5	1.5	1.5	7.5	SOT-223/TO-252(DPAK)/TO-263(D2PAK)/TO-252(DPAK)/TO-263(D2PAK)
FAN1112	Single	1.2	–	–	1	1.2	18	SOT-223/TO-252(DPAK)
FAN1117A	Single	Adj./1.8/2.5/2.85/3.3/5.0	1.25	18	1	1.1	17	SOT-223/TO-220AB/TO-252(DPAK)
FAN1539B	Single	3.3	–	–	1	1.2	7	MLP
FAN1540B	Single	3.3	–	–	1	1.2	7	MLP
FAN1581	Single	Adj./1.5/2.5	1.25	5.7	5	0.6	7	TO-263(D2PAK)
FAN1582	Single	Adj./1.5/2.5	1.25	5.7	3	0.6	7	TO-263(D2PAK)
FAN1585A	Single	Adj./1.5	1.25	7	5.4	1.3	7	TO-220AB/TO-263(D2PAK)
FAN1587A	Single	Adj./1.5/3.3	1.5	3.6	3	1.3	12	TO-220AB/TO-252(DPAK)/TO-263(D2PAK)
FAN1589	Single	1.2	–	–	2.7	1.3	7	TO-252(DPAK)/TO-263(D2PAK)
FAN1616A	Single	Adj./1.8/2.5/3.3/5.0	1.25	18	0.5	1.1	18	SOT-223/TO-252(DPAK)
FAN1655	Single	DDR V _{TT}	1.1	1.8	3	1.1	3.6	MLP/SOIC/eTSSOP
FAN1950	Single	1.8/2.5	–	–	1.5	0.5	14	TO-252(DPAK)
FAN2500	Single	Adj./2.5/2.6/2.7/2.8/2.85/3.0/3.3	1.32	7	0.1	0.1	7	SOT-23
FAN2501	Single	2.5/2.6/2.7/2.8/2.85/3.0/3.3	–	–	0.1	0.1	7	SOT-23
FAN2502	Single	Adj./2.5/2.6/2.7/2.8/2.85/3.0/3.3	1.32	7	0.15	0.15	7	SOT-23
FAN2503	Single	2.5/2.6/2.7/2.8/2.85/3.0/3.3	–	–	0.15	0.15	7	SOT-23
FAN2504	Single	Adj./2.5/2.6/2.7/2.8/2.85/3.0/3.3	1.32	7	0.2	0.2	7	SOT-23
FAN2505	Single	2.5/2.6/2.7/2.8/2.85/3.0/3.3	–	–	0.2	0.2	7	SOT-23
FAN2508	Single	Adj./2.5/2.6/2.7/2.8/2.85/3.0/3.3	1.8	7	0.05	0.05	7	SOT-23
FAN2509	Single	2.5/2.6/2.7/2.8/2.85/3.0/3.3	–	–	0.05	0.05	7	SOT-23
FAN2510	Single	Adj./2.5/2.6/2.7/2.8/2.85/3.0/3.3	1.32	7	0.1	0.1	7	SOT-23

POWER MANAGEMENT ICs AND SEMICONDUCTORS

LDOs



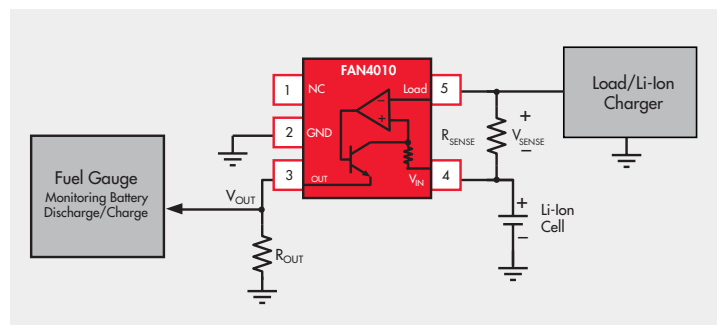
High Efficiency Low V_{IN} LDO Application

Linear Regulators (LDOs) Continued

Product Number	Output Type	Preset Output Voltage Typ. (V)	Adj. Output Voltage		Output Current (A)	Dropout Voltage (V)	Input Voltage Max. (V)	Package
			Min. (V)	Max. (V)				
FAN2511	Single	2.5/3.3/2.6/2.7/2.8/2.85/3.0	–	–	0.1	0.1	7	SOT-23
FAN2512	Single	Adj./2.5/2.6/2.7/2.8/2.85/3.0/3.3	1.32	7	0.15	0.15	6.5	SOT-23
FAN2513	Single	2.5/2.6/2.7/2.8/2.85/3.0/3.3	–	–	0.15	0.15	6.5	SOT-23
FAN2514	Single	Adj./2.5/2.6/2.7/2.8/2.85/3.0/3.3	1.32	7	0.2	0.2	7	SOT-23
FAN2515	Single	2.5/2.6/2.7/2.8/2.85/3.0/3.3	–	–	0.2	0.2	7	SOT-23
FAN2518	Single	Adj./2.5/2.6/2.7/2.8/2.85/3.0/3.3	1.32	7	0.05	0.05	7	SOT-23
FAN2519	Single	2.5/2.6/2.7/2.8/2.85/3.0/3.3	–	–	0.05	0.05	7	SOT-23
FAN2558	Single	Adj./1.0/1.2/1.3/1.5/1.8/2.5/3.3/3.5/3.6/3.8	1	3.3	0.18	0.25	5.5	MLP/SOT-23
FAN2559	Single	Adj./1.0/1.2/1.3/1.5/1.8	1	3.3	0.18	0.25	5.5	MLP/SOT-23
FAN2560	Single	1.3/1.5	–	–	0.35	0.07	5.5	WL-CSP
FAN2564	Single	1.2/1.3/1.5/1.8/2.0/2.5/2.8	–	–	0.3	0.1	4.5	WL-CSP, 0.98x1.41. 4 Bump, µMLP

Current Sense Amplifiers

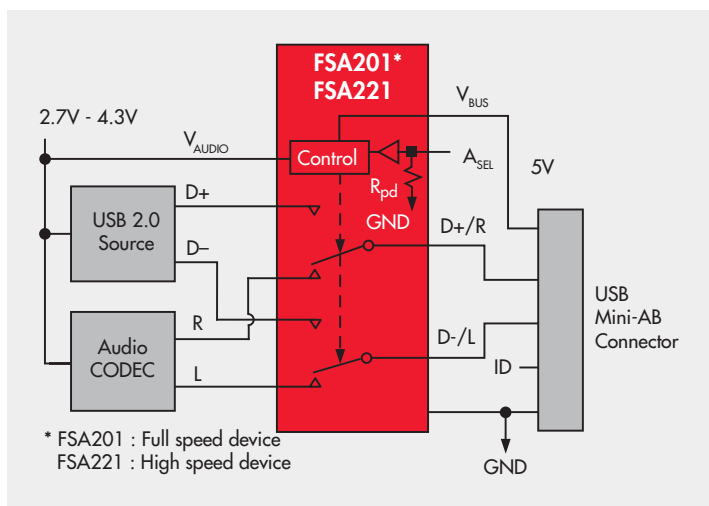
Product Number	Input Voltage (V)	Accuracy @ V_{SENSE}	Supply Current I_s (µA)	Gain I_{OUT} V_{SENSE}	Bandwidth	Package
FAN4010	2 - 6	0.2% @ 100mV	3.5	10mA/V	2.0	SOT-23



Current Sense Amplifier Application

Temperature Sensors

Product Number	Output Slope (Sensor Gain) (mV/°C)	Supply Voltage Min. (V)	Supply Voltage Max. (V)	Supply Current Max. (µA)	Accuracy (±°C)	Package
FM20	-12	2.4	6	12	3	SC-70, SOT-23
FM50	10	2.4	6	130	3	SOT-23
FM75	–	2.7	5.5	150	3	SOIC



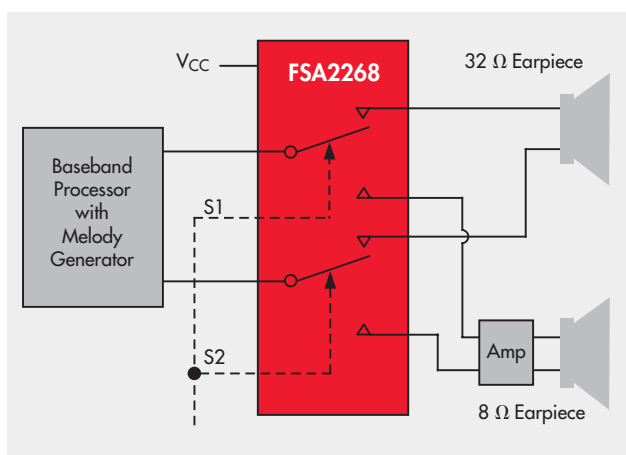
Multimedia Switches with Negative Swing Capability

Multimedia Switches with Negative Swing Capability								
Product Number	Configuration ⁽¹⁾		Low I _{CC} Device	On Resistance R _{ON} (Ω)	V _{CC} Supply Voltage Range (V)	Bandwidth (MHz)	C _{ON} (pF)	Package
FSA201	1x DPDT	USB path	•	3.0	4.25 - 5.5	400	25	MicroPak™ 10, UMLP-10 and MSOP-10
		Audio path	•	0.5	3.0 - 3.6	NA	29	
FSA203 ⁽²⁾	1x DPDT	USB path	•	4.0	4.25 - 5.5	780	7.6	DQFN20, TSSOP-20
		Audio path	•	3.5	3.0 - 3.6	NA	9.7	
		Video (mic)	•	3.0	3.0 - 3.6	400	10	
		Video (filter)	•	3.0	3.0 - 3.6	9.0	n/a	
FSA221 ⁽²⁾	1x DPDT	USB path	•	4.0	4.25 - 5.5	720	9.0	MicroPak 10, MSOP-10 and UMLP-10
		Audio path	•	3.0	3.0 - 3.6	NA	10	
FSA223 ⁽²⁾	1x DPDT	USB path	•	4.0	2.7 - 5.5	720	4.5	MicroPak 10, UMLP-10 and MSOP-10
		Audio path	•	3.0	2.7 - 5.5	NA	4.5	
FSA1208	8xSPST	—	•	15	2.3 - 4.3	500	6.0	MLP 2.5x4.5
FSA642	TPDT	MIPI path	•	10	2.65 - 4.3	720	7.0	UMLP 2.5x3.4
Application Specific								
FSSD06	6PDT	Host side	N/A	3.0	1.65 - 3.6	N/A	9.5	MLP-24
		SDIO card	N/A	3.0	V _{DDH} - 3.6	N/A	9.5	

Note⁽¹⁾ Configuration definition: Switch configurations are defined by the number of poles/select pin(s) which, in turn, specify the number of channels per select pin(s)
For example, a "DPDT" is a 2-channel/double throw switch with a single select pin; "Dual SPDT" is a 2-channel/double throw switch with two independent select pins

Note⁽²⁾ High speed device

ANALOG SWITCH PRODUCTS



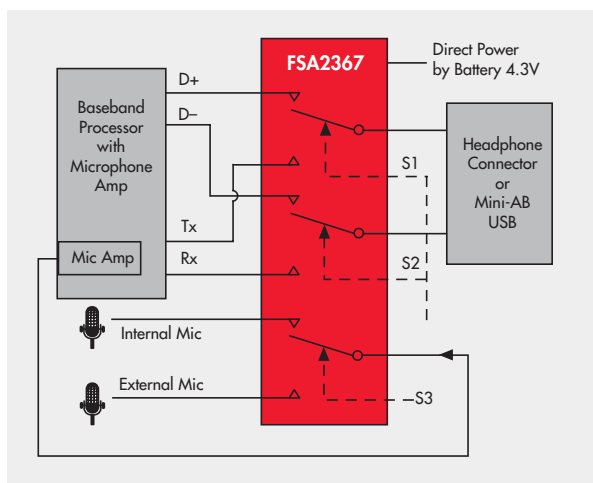
Low R_{ON} Switches

Low R_{ON} Analog/Audio Switches

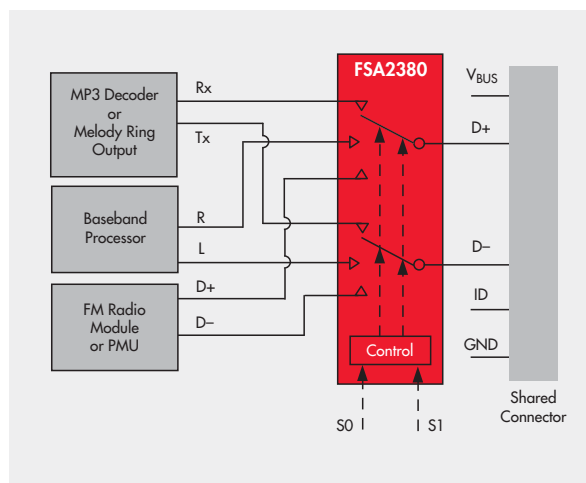
Product Number	Configuration ⁽¹⁾	Low I_{CCT} Device	On Resistance R_{ON} (Ω)	V_{CC} Supply Voltage Range (V)	Bandwidth (MHz)	C_{ON} (pF)	Package
FSA1156	1x SPST (NO)	–	0.75	1.65 - 5.5	300	65	SC-70, MicroPak™ 6
FSA1157	1x SPST (NC)	–	0.75	1.65 - 5.5	300	65	SC-70, MicroPak 6
FSA1256	2x SPST (NO)	–	0.95	1.65 - 5.5	300	27	MicroPak 8
FSA1256A	2x SPST (NO)	•	0.95	2.7 - 5.5	300	27	MicroPak 8
FSA1257	2x SPST (NC)	•	0.95	2.7 - 5.5	300	27	MicroPak 8
FSA1257A	2x SPST (NO)	•	0.95	2.7 - 5.5	300	27	MicroPak 8
FSA1258	2x SPST (NO/NC)	–	0.95	1.65 - 5.5	300	27	MicroPak 8
FSA1258A	2x SPST (NO/NC)	•	0.95	2.7 - 5.5	300	27	MicroPak 8
FSA2156	1x SPST	•	0.70	1.65 - 4.3	80	115	MicroPak 6, SC-70
FSA2257	2x SPDT	–	0.95	1.65 - 5.5	350	40	MicroPak 10, TSSOP 14
FSA2267	2x SPDT	–	0.35	1.65 - 3.6	45	126	MicroPak 10
FSA2267A	2x SPDT	•	0.35	2.3 - 4.3	45	126	MicroPak 10
FSA2268 (T)	2x SPDT	•	0.40	1.65 - 4.3	50	120	UMLP-10, MicroPak 10
FSA2357	1x DP3T	•	0.55	2.7 - 4.5	120	70	DQFN 14, TSSOP 14
FSA2467	2x DPDT	•	0.40	1.65 - 4.3	85	118	MLP 16, TSSOP 16
FSA2859	1x DPDT	–	0.8	1.65 - 5.5	55	150	WL-CSP 12 bump
FSA3259	2x SP3T	–	9.00	1.65 - 3.6	250	15	DQFN 16
FSA4157	1x SPDT	–	0.95	1.65 - 5.5	300	40	MicroPak 6, 6-Lead SC-70-6
FSA4157A	1x SPDT	•	0.95	1.65 - 5.5	350	40	MicroPak 6, 6-Lead SC-70-6
FSA4159	1x SPDT	–	1.0	1.65 - 5.5	180	41	6-Lead SC-70-6
FSA5157	1x SPDT	•	0.40	2.3 - 4.3	50	90	MicroPak 6, SC-70-6

Note⁽¹⁾ Configuration definition: Switch configurations are defined by the number of poles/select pin(s) which, in turn, specify the number of channels per select pin(s)
For example, a "DPDT" is a 2-channel/double throw switch with a single select pin; "Dual SPDT" is a 2-channel/double throw switch with two independent select pins

Note⁽²⁾ High speed device



Negative Swing Audio Switch



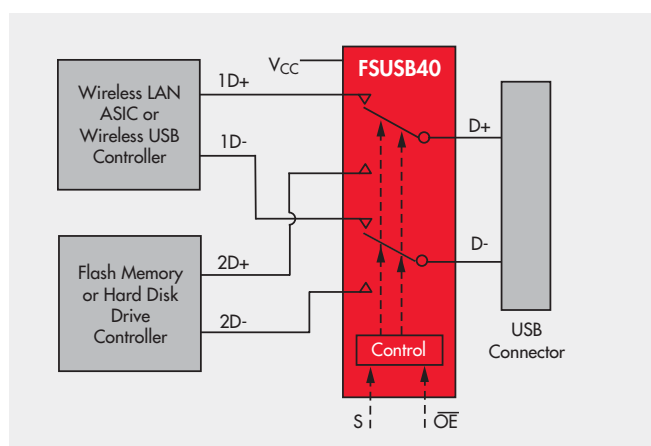
Negative Swing Audio Switch

Negative Swing Audio Switches							
Product Number	Configuration ⁽¹⁾	Low I_{CCT} Device	On Resistance R_{ON} (Ω)	V_{CC} Supply Voltage Range (V)	Bandwidth (MHz)	C_{ON} (pF)	Package
FSA2147	1xDPST	—	1.5	2.7 - 4.3	N/A	120	US8
FSA2269 (TS)	2xSPDT	•	0.40	1.65 - 4.3	50	120	UMLP-10, MicroPak™ 10
FSA2270 (T)	2xSPDT	•	0.40	1.65 - 4.3	50	120	UMLP-10, MicroPak 10
FSA2271 (T)	2xSPDT	•	0.40	1.65 - 4.3	50	120	UMLP-10, MicroPak 10
FSA2367	3xSPDT	•	0.75	2.7 - 4.3	50	55	DQFN 14, TSSOP 14L
FSA2380	1xDP3T	•	0.75	2.7 - 4.3	120	70	DQFN 14, TSSOP 14L
FSA6157	1xSPDT	•	0.80	1.65 - 4.3	50	150	MicroPak 6L

Note⁽¹⁾ Configuration definition: Switch configurations are defined by the number of poles/select pin(s) which, in turn, specify the number of channels per select pin(s)
For example, a "DPDT" is a 2-channel/double throw switch with a single select pin; "Dual SPDT" is a 2-channel/double throw switch with two independent select pins

Note⁽²⁾ High speed device

ANALOG SWITCH PRODUCTS



USB Switch Application

USB Switches							
Product Number	Configuration ⁽¹⁾	Low I _{CCT} Device	On Resistance R _{ON} (Ω)	V _{CC} Supply Voltage Range (V)	Bandwidth (MHz)	C _{ON} (pF)	Package
FSUSB11	1 Port (SPDT) USB, FS	–	1.5	1.65 - 5.5	350	40	MicroPak™ 10, TSSOP 14
FSUSB22 ⁽²⁾	2 Port (4PDT) USB, HS	–	5.0	3.0 - 3.6	750	12	DQFN 16, TSSOP 16
FSUSB30 ⁽²⁾	1 Port (DPDT) USB, HS	•	6.5	3.0 - 4.3	720	3.7	MicroPak 10, DQFN14
FSUSB31 ⁽²⁾	1 Port (DPST) USB, HS	•	6.5	3.0 - 4.3	720	3.7	MicroPak 8, US8
FSUSB40 ⁽²⁾	1 Port (DPDT) USB, HS	•	3.9	3.0 - 4.3	720	6.5	MicroPak 10, UMLP-10
FSUSB42 ⁽²⁾	1 Port (DPDT) USB, HS	•	3.9	3.0 - 4.3	720	3.7	UMLP-10
FSUSB43 ⁽²⁾	1 Port (DPDT) USB, HS	•	3.9	3.0 - 4.3	720	3.9	MicroPak 10
FSUSB45 ⁽²⁾	1 Port (DPDT) USB, HS	•	3.9	3.0 - 4.3	720	7.0	MicroPak 10, UMLP-10
FSUSB46 ⁽²⁾	1 Port (DPST) USB, HS	•	3.9	3.0 - 4.3	720	7.0	MicroPak 8, UMLP-8, USB

Other Analog Switches							
Product Number	Configuration ⁽¹⁾	Low I _{CCT} Device	On Resistance R _{ON} (Ω)	V _{CC} Supply Voltage Range (V)	Bandwidth (MHz)	C _{ON} (pF)	Package
FSA66	1xSPST (NO)	–	7.0	1.65 - 5.5	300	18	SC-70, MicroPak 6
FSA266	2xSPST	–	7.0	1.65 - 5.5	300	10	US8, MicroPak 8
FSA3157B	1xSPDT	–	5.0	1.65 - 5.5	250	19	SC-70, MicroPak 6
FSAU3157	1xSPDT	–	5.0	1.65 - 5.5	250	19	SC-70, MicroPak 6
FSA3357	1x SP3T	–	6.0	1.65 - 5.5	250	14	US8-8

Note⁽¹⁾ Configuration definition: Switch configurations are defined by the number of poles/select pin(s) which, in turn, specify the number of channels per select pin(s). For example, a "DPDT" is a 2-channel/double throw switch with a single select pin; "Dual SPDT" is a 2-channel/double throw switch with two independent select pins.

Note⁽²⁾ High speed device

Audio Amplifiers

Product Number	Description	V _{CC} Min. (V)	V _{CC} Max. (V)	Output Power (Watts)	Number of Channels	Auxiliary Headphone Drive	Mute	Thermal Shutdown	Load Mode	Shutdown	Package
FAN3800	Mono & stereo amplifier with microphone	2.7	4.5	0.02	2	Yes	Yes	Yes	–	No	MLP-L24
FPA6101	2.4W stereo audio power amplifier & headphone driver	4.5	5.5	–	2	–	–	–	–	–	TSSOP-28

High Performance Amplifiers

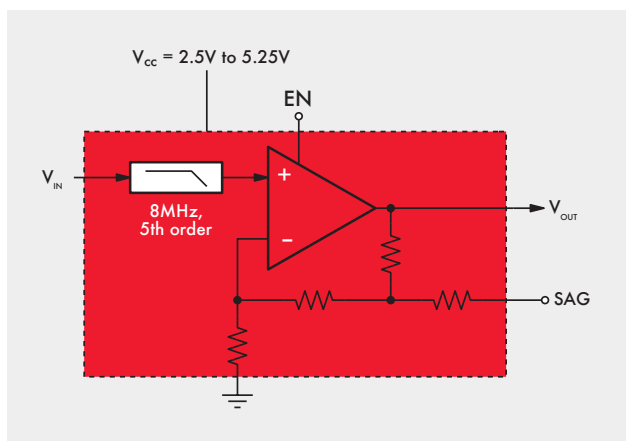
Product Number	Number of Amps	Power down	RRIO	BW ⁽²⁾ (MHz)	SR (V/μs)	I _S ⁽⁴⁾ (mA)	I _{OUT} (mA)	V _{IO} (mV)	I _b (μA)	A _{OL} (dB)	Min. V _S (V)	Max. V _S (V)	Package
FAN4174	1	No	Both	3.7 ⁽¹⁾	3	0.2	+34, -12	0	5pA	102	2.5	5.5	SOT23-5, SC-70-5
FAN4274	2	No	Both	3.7 ⁽¹⁾	3	0.2	+34, -12	0	5pA	102	2.5	5.5	MSOP-8
FHP3130	1	No	Output	50 ⁽²⁾	110	2.5	±100	1	-1.8	100	2.7	12	SOT23-5, SOIC-8
FHP3230	2	No	Output	50 ⁽²⁾	110	2.5	±100	1	-1.8	100	2.7	12	MSOP-8, SOIC-8
FHP3132	1	No	Output	85 ⁽³⁾	400	2.5	±100	1	-1.8	100	2.7	12	SOT23-5
FHP3232	2	No	Output	85 ⁽³⁾	400	2.5	±100	1	-1.8	100	2.7	12	SOIC-8
FHP3131	1	Yes	Output	28 ⁽²⁾	45	0.4	+35, -25	1	1.4	100	2.5	12	SOT23, μPAK-6

Note⁽¹⁾ Gain bandwidth product

Note⁽²⁾ Small signal bandwidth, G=2

Note⁽³⁾ Small signal bandwidth, G=5

Note⁽⁴⁾ Supply current per channel

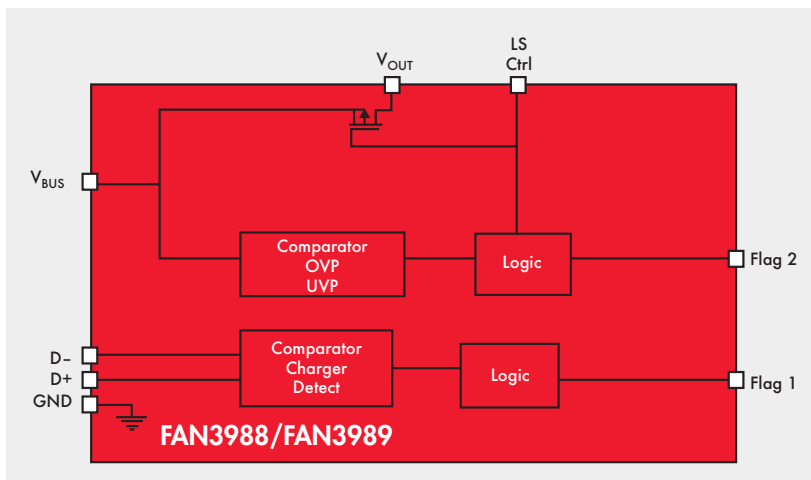


Video Filter Driver

Video Filter Drivers

Product Number	Input Format	Output Format	Channels	Cutoff Frequency	Package
FMS6141	Composite	Composite	1	7.1	SOIC-8 & SC-70-5
FMS6151	Composite	Composite	1	8	MicroPak™
FMS6152	YC	YC/CV	2	8	MLP-10

USB OVER VOLTAGE PROTECTION (OVP)



USB Over Voltage Protection (OVP)

The USB Over Voltage Protection (OVP) family provides a new function for cell phone USB charging over voltage protection.

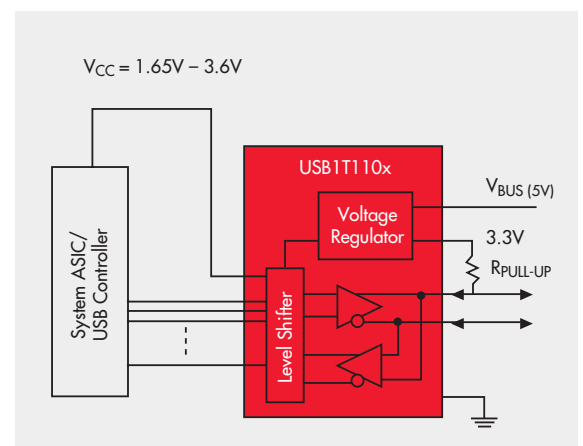
USB Over Voltage Protection (OVP)								
Product Number	OVP ^[2]	UVP ^[3]	Charger Detect	Std USB Detect	OV Flag Output	UV Flag Output	Input Detect Flag Output	Load Switch
FAN3900 ^[1]	Yes	No	No	No	Yes	No	No	Yes
FAN3989 ^[1]	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes

Note^[1] In development

Note^[2] OVP = Over voltage protection

Note^[3] UVP = Under voltage protection

Fairchild's USB transceivers provide a USB 2.0 interface for low (1.5Mbps) and full (12Mbps) speed applications. Ideal for portable and consumer applications, these transceivers provide designers "off the shelf" USB 2.0 electrical compliance with features such as onboard voltage regulation, voltage level translation and 15 kV ESD protection. Fairchild's USB transceivers are offered in TSSOP and ultra-small MLP packages with common industry footprints. These features and package options offer designers flexibility while minimizing time to market, board space and total implementation cost.

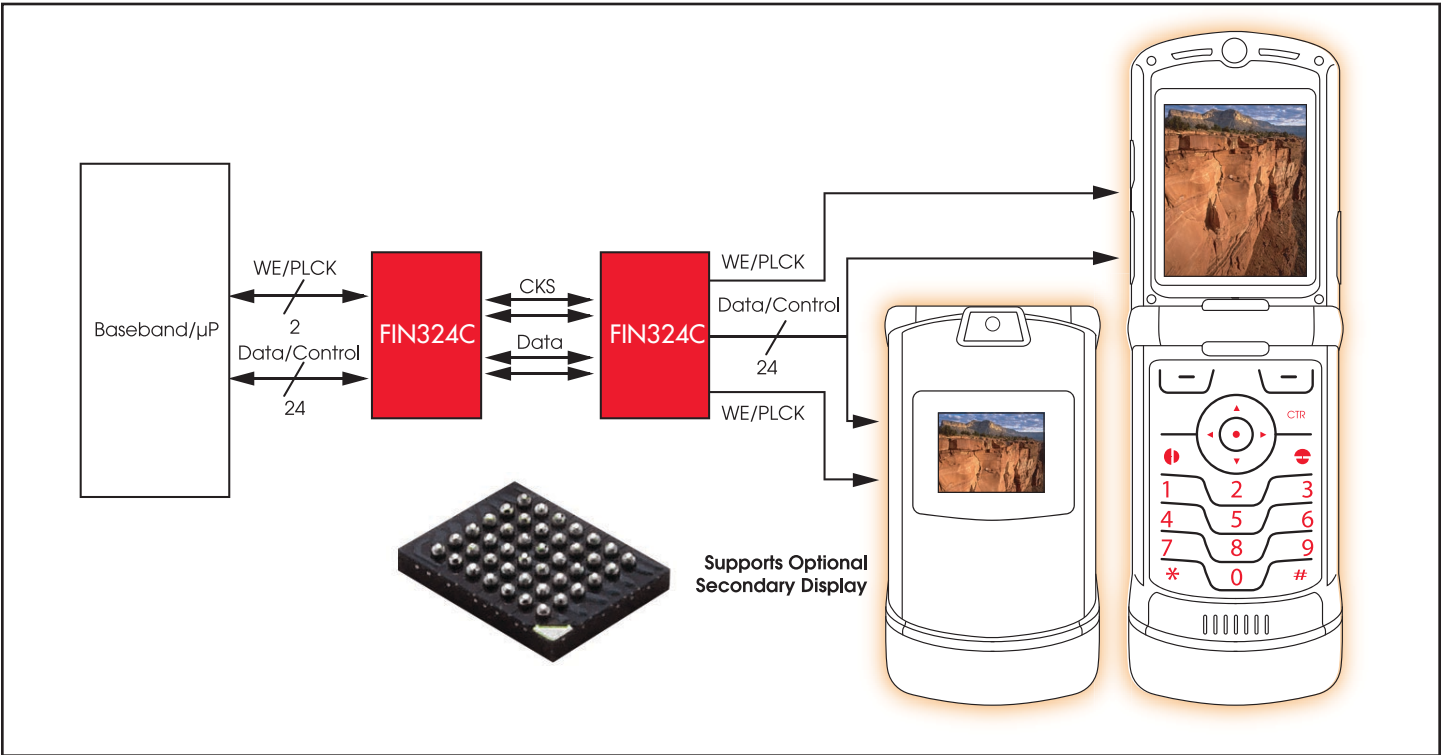


USB Transceivers

USB Transceivers					
Product Number	Compliance	Speed (Mbps)	Supply Voltage (V)	ESD (kV)	Package
USB1T11A	1.1	12	3.3	9.5	MLP, SOIC, TSSOP
USB1T20	2	12	3.3	9.5	MLP, TSSOP
USB1T1102	2	12	3.3	15	MLP, MHBCC
USB1T1103	2	12	3.3	15	MLP, MHBCC
USB1T1105A	2	12	3.3	15	MHBCC

For more information about USB Transceivers, please visit www.fairchildsemi.com/products/interface/usb.html

Fairchild’s µSerDes is a family of ultra-compact serializers/deserializers designed for parallel interconnects in cellular phones and small form factor display applications. µSerDes offers ideal solutions for reducing flexible cable size, power consumption, and electromagnetic interference (EMI). Moreover, µSerDes is available in BGA and MLP packages to help minimize board space and component count in size-limited portable devices.



µSerDes Application

µSerDes Serializers/Deserializers										
Product Number	Number of Bits	Max. Frequency (MHz)	V _{DDA} /S Core Voltage (V)	V _{DDP} Parallel Voltage (V)	Read/Write	ESD (kV)	Recommended Interface	Ideal Application	External Timing Required	Package
FIN212AC	12	40	2.5 - 3.6	1.65 - 3.6	Write	14	µController/RGB	Camera, small LCD	Yes	BGA, MLP
FIN224AC	22	26	2.5 - 3.3	1.65 - 3.6	Write	15	µController/RGB	Small LCD	Yes	BGA, MLP
FIN324C	24	15	2.5 - 3.0	1.6 - V _{DDA} /S	Read/write	15	µController/RGB/SPI	Small LCD	No	BGA, MLP

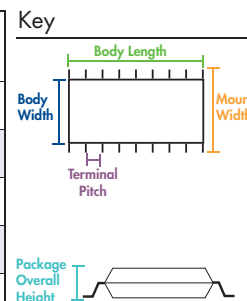
For more information about µSerDes, please visit www.fairchildsemi.com/userdes

VOLTAGE LEVEL TRANSLATORS

High Performance Low Voltage Translators										
Product Number	Pins	Uni-Directional	Bi-Directional	Configurable Bi-Directional	Automatic Direction Control	Voltage Range A Side	Voltage Range B Side (V)	Voltage Range C Side (V)	Comments	Package
FXLP34	1	5,6	•	—	—	—	1.0 - 3.6	1.0 - 3.6	Lowest input voltage range	6 Pin MicroPak™
FXLH1T45	1	6	—	•	—	—	1.1 - 3.6	1.1 - 3.6		6 Pin MicroPak
FXM2IC102	2	8	—	•	—	•	1.65 - 3.6	1.65 - 5.5	I ² C Translator, open drain	8 Pin MicroPak
FXLA102	2	8	—	•	—	•	1.1 - 3.6	1.1 - 3.6		8 Pin MicroPak
FXL2T245	2	10	—	•	—	—	1.1 - 3.6	1.1 - 3.6		10 Pin MicroPak
FXL2TD245	2	10	—	—	•	—	1.1 - 3.6	1.1 - 3.6	Individual bit control	10 Pin MicroPak
FXL2SD106	4	16	—	•	—	•	1.1 - 3.6	1.1 - 3.6	SD card and SDIO translator	16 Pin DQFN
FXL3SD206	4	24	—	•	—	•	1.1 - 3.6	1.1 - 3.6	SD card multiplexer/translator	24 Pin UMLP
FXLA104	4	16	—	•	—	•	1.1 - 3.6	1.1 - 3.6		16 pin UMLP
FXL4TD245	4	16	—	—	•	—	1.1 - 3.6	1.1 - 3.6	Individual bit control	16 Pin DQFN
FXL4T245	4	14	—	•	—	—	1.1 - 3.6	1.1 - 3.6		14 Pin DQFN
FXL5T244	5	14	•	—	—	—	1.1 - 3.6	1.1 - 3.6		14 Pin DQFN
FXLA108	8	20	—	•	—	•	1.1 - 3.6	1.1 - 3.6		20 pin DQFN
FXLH42245	8	24	—	•	—	—	1.1 - 3.6	1.1 - 3.6		24 Pin MLP
FXL4245	8	24	—	•	—	—	1.1 - 3.6	1.1 - 3.6		24 Pin MLP
74LVX3245	8	24	—	•	—	—	2.7 - 3.6	4.5 - 5.5		24 Pin TSSOP
74LVXC3245	8	24	—	•	—	—	2.7 - 3.6	3.0 - 5.5		24 Pin TSSOP
74LVX4245	8	24	—	•	—	—	4.5 - 5.5	2.7 - 3.6		24 Pin TSSOP
74LVXC4245	8	24	—	•	—	—	4.5V - 5.5	2.7 - 5.5		24 Pin TSSOP
74VCX163245	16	54,48	—	•	—	—	2.3 - 3.6	1.65 - 2.7		48 Pin TSSOP
74VCX164245	16	54,48	—	•	—	—	1.65 - 2.7	2.3V - 3.6V	48 Pin TSSOP	48 Pin TSSOP

Bi-directional, Dual Supply, Translating, Mixed Supply Voltage and Current						
Product Number	V _{CCA} Supply Range (V)	V _{CCB} Supply Range(V)	Bit Widths	Max I/O Drive (mA)	Key Features	Package
74LVX4245	4.5 - 5.5	2.7 - 3.6	8	24	Bi-directional, dual supply, translating, mixed supply voltage and current	QSOP, SOIC-Wide, TSSOP
74LVXC4245	4.5 - 5.5	2.7 - 5.5	8	24	Bi-directional, dual supply, configurable, mixed supply voltage and current	QSOP, SOIC-Wide, TSSOP
74LVX3245	2.7 - 3.6	4.5 - 5.5	8	24	Bi-directional, dual supply, translating, mixed supply voltage and current	QSOP, SOIC-Wide, TSSOP
74LVXC3245	2.7 - 3.6	4.5 - 5.5	8	24	Bi-directional, dual supply, configurable, mixed supply voltage and current	QSOP, SOIC-Wide, TSSOP
74VCX163245	2.3 - 3.6	1.65 - 2.7	16	24	Low voltage, bi-directional, dual supply, translating, asynchronous, high speed, live insertion, mixed supply voltage and current	BGA, TSSOP
74VCX164245	1.65 - 2.7	2.3 - 3.6	16	24	Low voltage, bi-directional, dual supply, translating, asynchronous, high speed, live insertion, mixed supply voltage and current	BGA, TSSOP

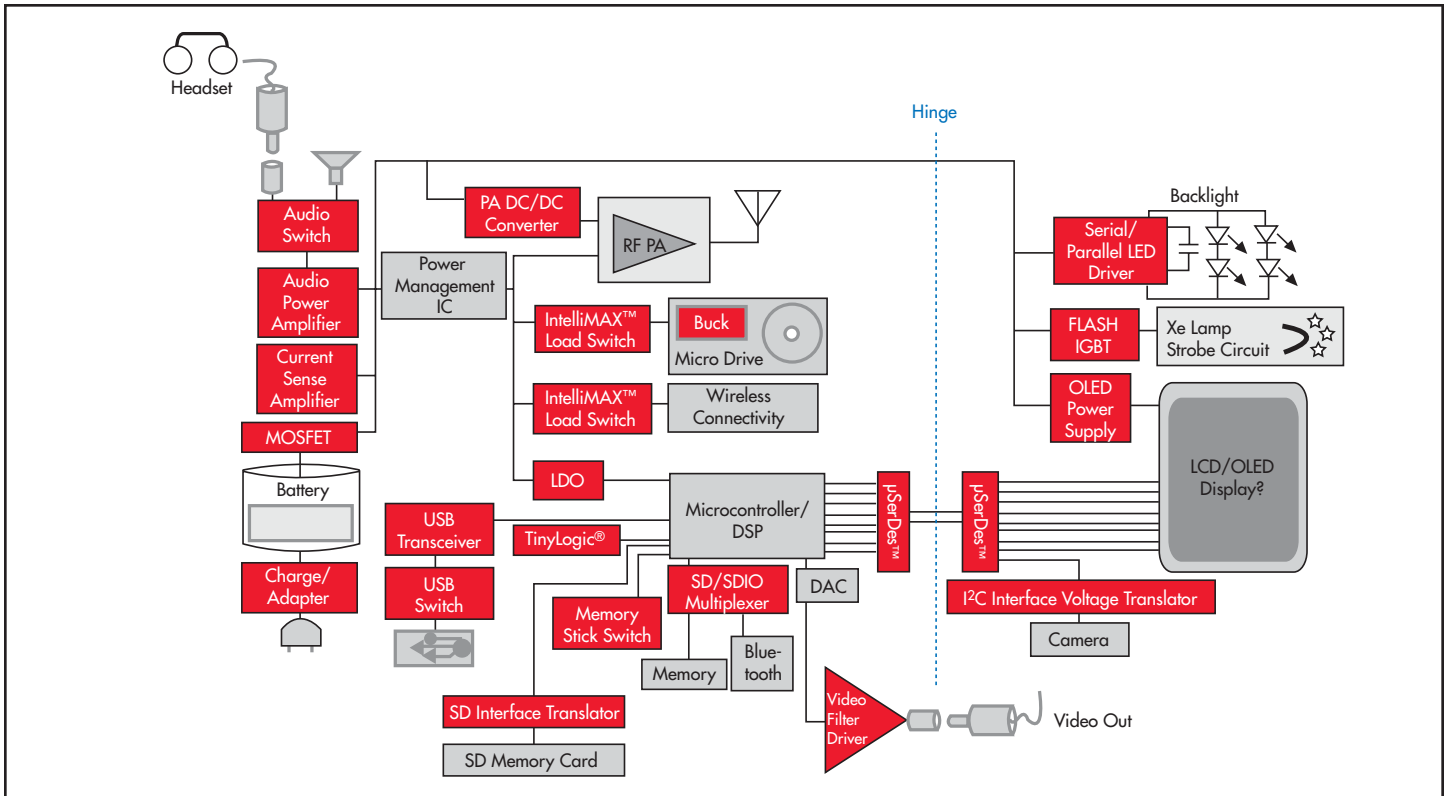
	Terminal Count	Package (Code)	Mounted Width (mm/in)	Body Width (mm/in)	Body Length (mm/in)	Overall Height (mm/in)	Terminal Pitch (mm/in)	Mounted Area (mm ² /in ²)
	6	MicroPak2 (GF)	1mm	1mm	1.45mm	0.55mm	0.35mm	1 mm ²
	5/6	SC-70 (P5) (P6)	2.10/0.083	1.25/0.049	2.0/0.079	0.90/0.03	0.65/0.026	4.20/0.007
	6	MicroPak (L6)	1.0/0.039	1.0/0.039	1.45/0.057	0.55/0.021	0.50/0.020	1.45/0.002
	8	MicroPak (L8)	1.60/0.062	1.6/0.062	1.6/0.062	0.55/0.021	0.50/0.020	2.56/0.003
	10	MicroPak (L10)	1.60/0.062	1.6/0.062	2.10/0.083	0.55/0.021	0.50/0.020	3.36/0.005
	14	DQFN (BQ)	2.5/0.098	2.5/0.098	3.0/0.118	0.80/0.031	0.50/0.020	7.50/0.011
	16	DQFN (BQ)	2.5/0.098	2.5/0.098	3.0/0.118	0.80/0.031	0.50/0.020	8.75/0.013
	24	TSSOP (MTC)	6.40/0.252	4.40/0.173	7.8/0.307	1.10/0.043	0.65/0.026	49.92/0.077
	24	MLP (MP)	3.50/0.138	3.50/0.138	4.50/0.177	0.80/0.063	0.50/0.020	15.75/0.621
	48	TSSOP (MTD)	8.10/0.319	6.10/0.240	12.50/0.492	1.10/0.043	0.50/0.020	101.25/0.157



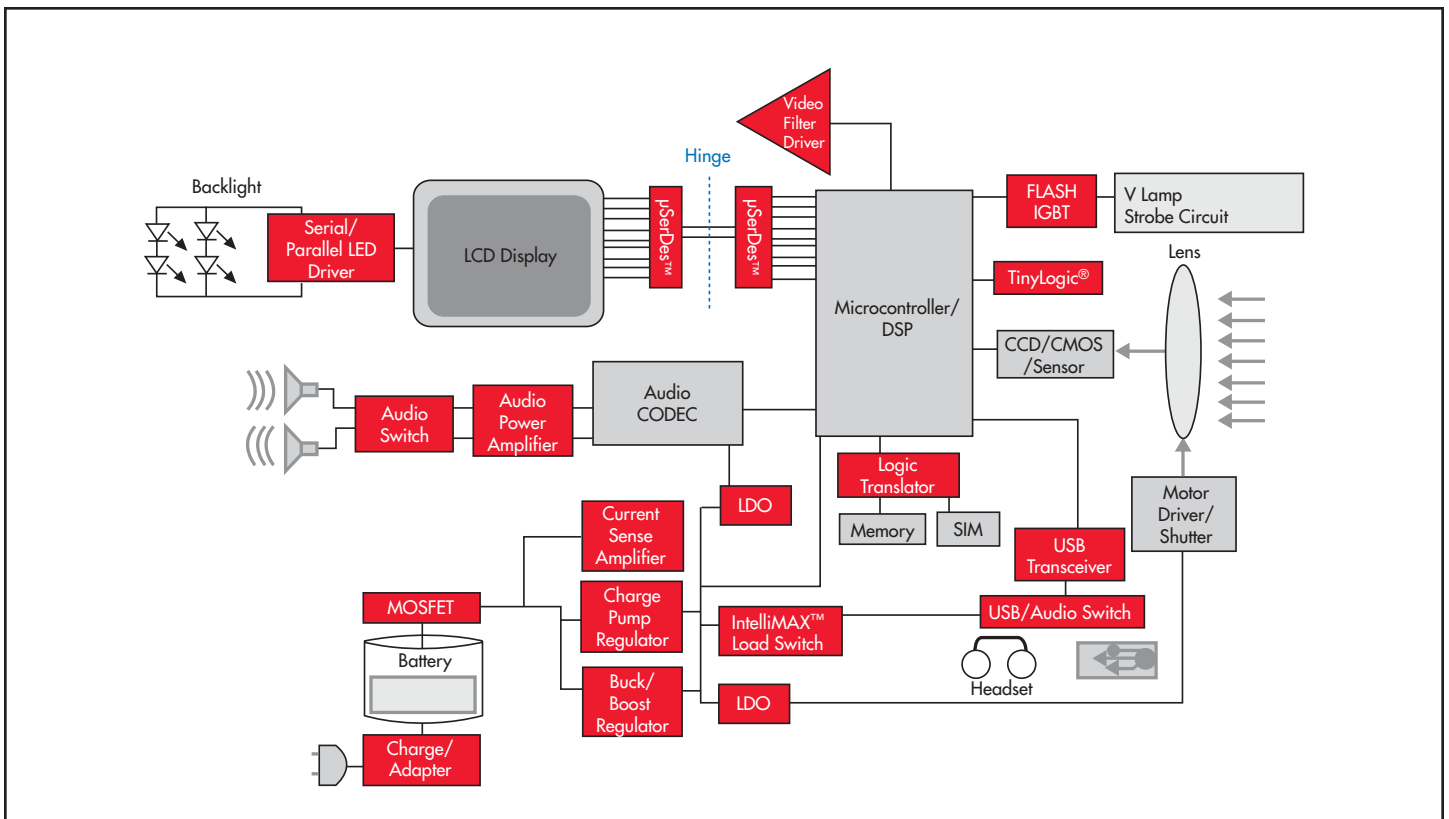
Family Comparison												
Family	Standard Logic Family Equivalent	I _{CC} (μA)	V _{CC} (V)	Drive (mA @ V)		Speed (ns @ V)						
HS	HC	10	2 - 6	±1.1 @ 3.0; ±2.0 @ 4.5		25 @ 4.5						
HST	HCT	10	4.5 - 5.5	±2.0 @ 4.5		20 @ 2.0						
UHS	LCX/LVC	20	1.8 - 5.5	±4.0 @ 1.65; ±24.0 @ 3.3		4.7 @ 3.3						
ULP	–	0.9	0.9 - 3.6	±1.0 @ 1.5; ±2.6 @ 3.0		16 @ 1.5; 7.0 @ 3.3						
ULP-A	VCX	0.9	0.9 - 3.6	±4.0 @ 1.5; 24.0 @ 3.3		7.2 @ 1.5						

Functional Description	S Single-Bit Logic W Dual-Bit Logic N Triple-Bit Logic	Device Type	Family				Packages					
			HS (NC7)	HST (NC7xT)	UHS (NC7xZ)	ULP/ULP-A (NC7xP/NC7xV)	SOT-23 5-lead	SC-70 5-lead	SC-70 6-lead	USB 8-lead	MicroPak 6-lead	MicroPak 8-lead
NAND gate		00	S	S	S W	S W	S	S	–	W	S	W
NOR gate		02	S	S	S W	S W	S	S	–	W	S	W
Inverter		04	S	S	S W N	S W N	S	S	W	N	S W	N
Unbuffered inverter		U04	S	–	S W N	S	S	S	W	N	S W	N
Inverter w/open drain output		05	–	–	S	S	S	S	–	–	S	–
Buffer w/open drain output		07	–	–	W	W	–	–	W	–	W	–
AND gate		08	S	S	S W	S W	S	S	–	W	S	W
3-Input NAND gate		10	–	–	S	–	–	–	S	–	S	–
3-Input AND gate		11	–	–	S	S	–	–	S	–	S	–
Inverter w/Schmitt trigger input		14	S	–	S W N	S W N	S	S	W	N	S W	N
Dual buffer		16	–	–	W	–	–	–	W	–	W	–
Buffer w/Schmitt trigger input		17	–	–	W N	S W	–	S	W	N	S W	N
1 of 2 Demux w/3-state output		18	–	–	S	–	–	–	S	–	S	–
1 of 2 decoder/demultiplexer		19	–	–	–	S	–	–	S	–	S	–
3-Input NOR gate		27	–	–	S	–	–	–	S	–	S	–
OR gate		32	S	S	S W	S W	–	S	–	W	S	W
Buffer		34	–	–	N	S N	–	S	–	N	S	N
NAND gate w/open drain output		38	–	–	S W	S W	–	S	S	W	S	W
Universal configurable 2-Input gate		57	–	–	S	S	–	–	S	–	S	–
Universal configurable 2-Input gate		58	–	–	S	S	–	–	–	–	S	–
D Flip-Flop w/pre-set and clear		74	–	–	S	S	–	–	–	S	–	S
XOR gate		86	S	S	S W	S W	S	S	–	W	S	W
Buffer w/low enabled 3-state output		125	–	–	S W	S W	S	S	–	W	S	W
Buffer w/high enabled 3-state output		126	–	–	S W	S W	S	S	–	W	S	W
NAND Gate w/Schmitt trigger input		132	–	–	W	W	–	–	–	W	–	W
2-Input non-inverting multiplexer		157	–	–	S	S	–	–	S	–	S	–
2-Input inverting multiplexer		158	–	–	–	S	–	–	S	–	S	–
D Flip-Flop w/asynchronous clear		175	–	–	S	–	–	–	S	–	S	–
Inverting buffer w/3-state output		240	–	–	W	W	–	–	–	W	–	W
Inverting buffer w/ high-/low-enabled 3-state output		241	–	–	W	W	–	–	–	W	–	W
3-Input OR gate		332	–	–	S	–	–	–	S	–	S	–
D Latch w/3-state output		373	–	–	S	–	–	–	S	–	S	–
D Flip-flop w/3-state output		374	–	–	S	–	–	–	S	–	S	–
3-Input XOR gate		386	–	–	S	–	–	–	S	–	S	–

APPLICATION BLOCK DIAGRAMS

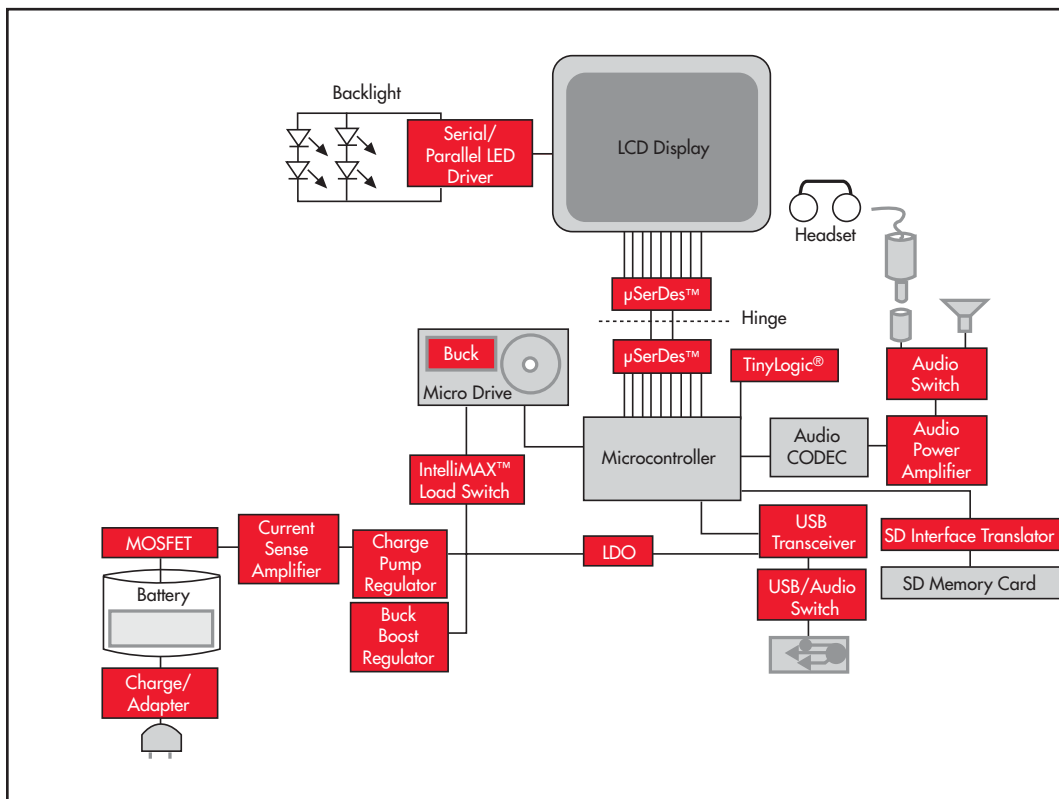


Cell Phone

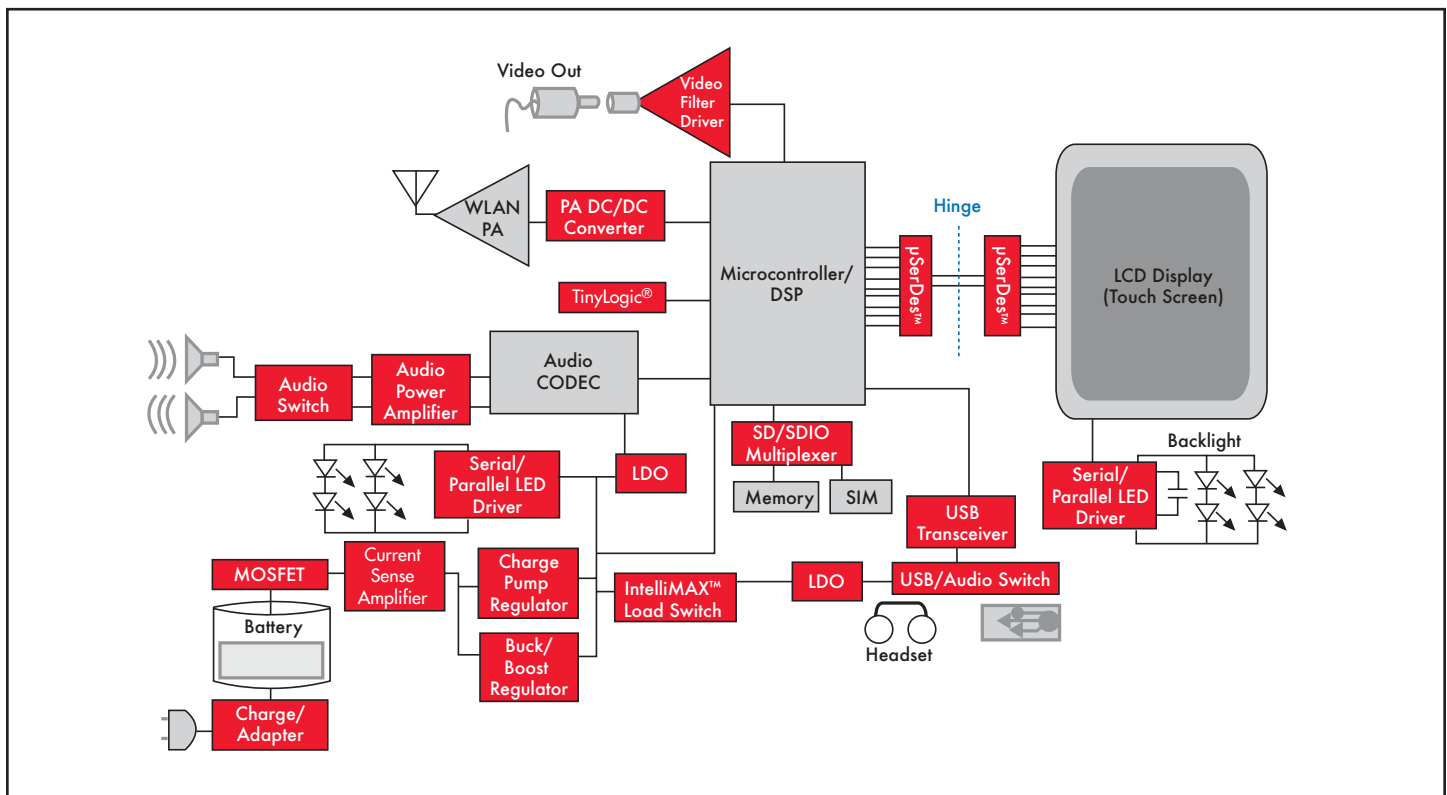


Digital Still Camera

APPLICATION BLOCK DIAGRAMS

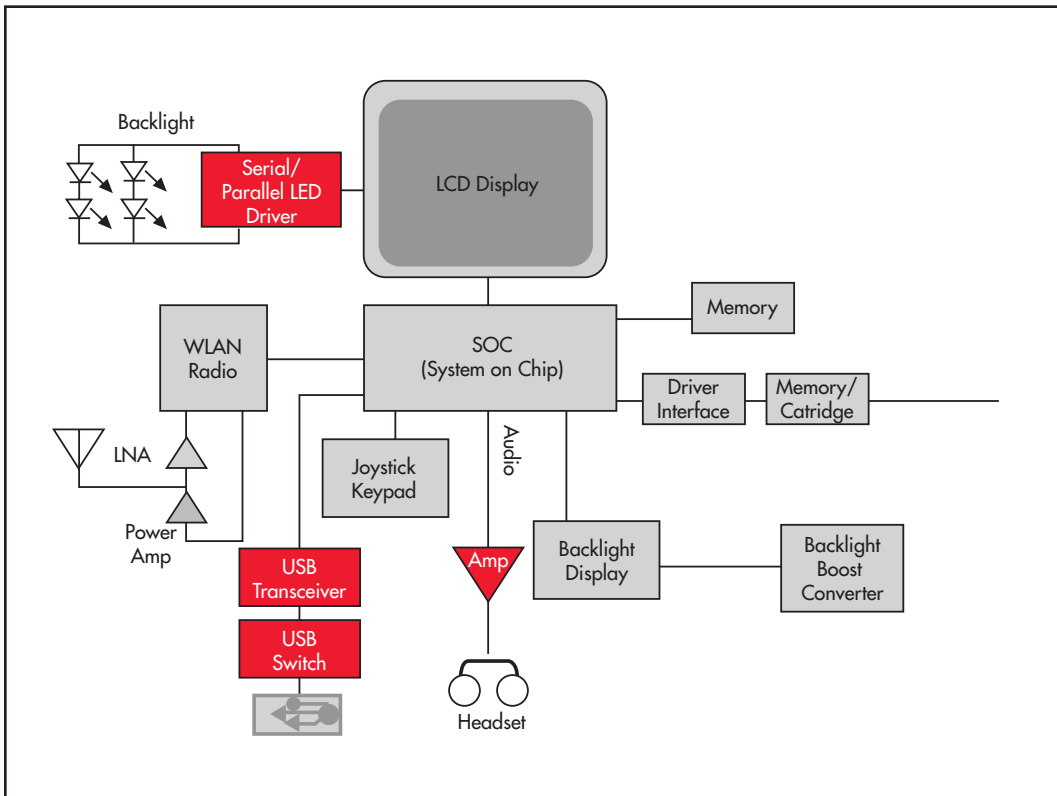


MP3 Player

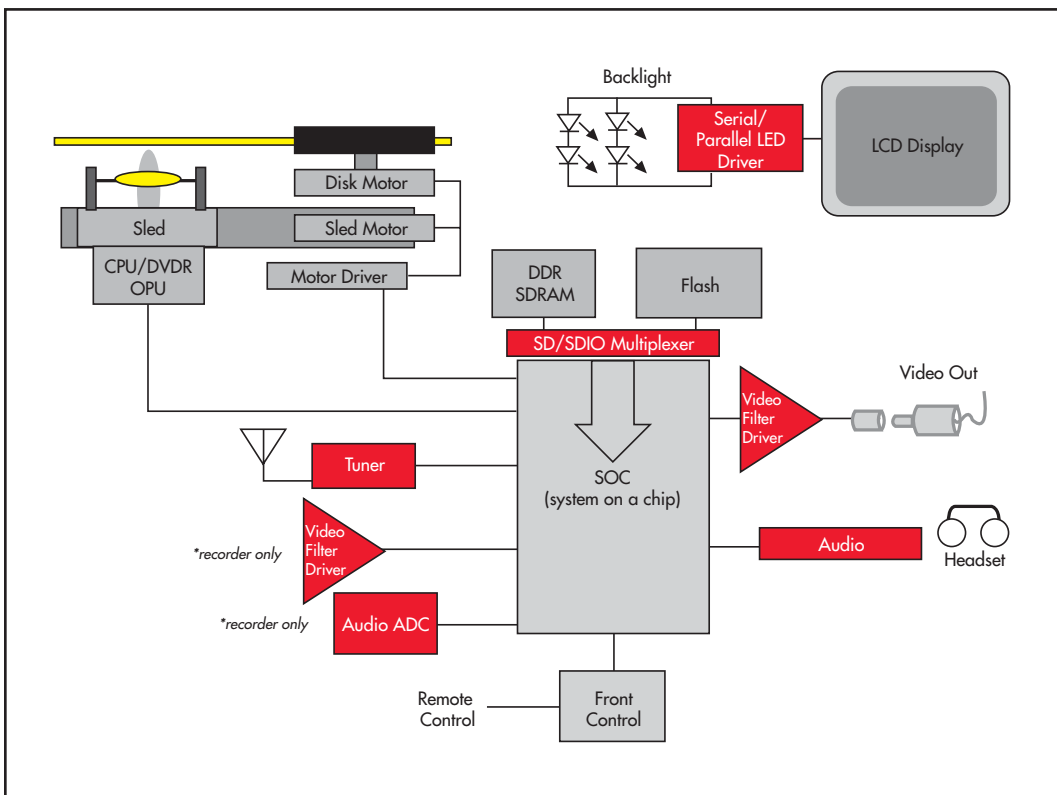


PDA

APPLICATION BLOCK DIAGRAMS

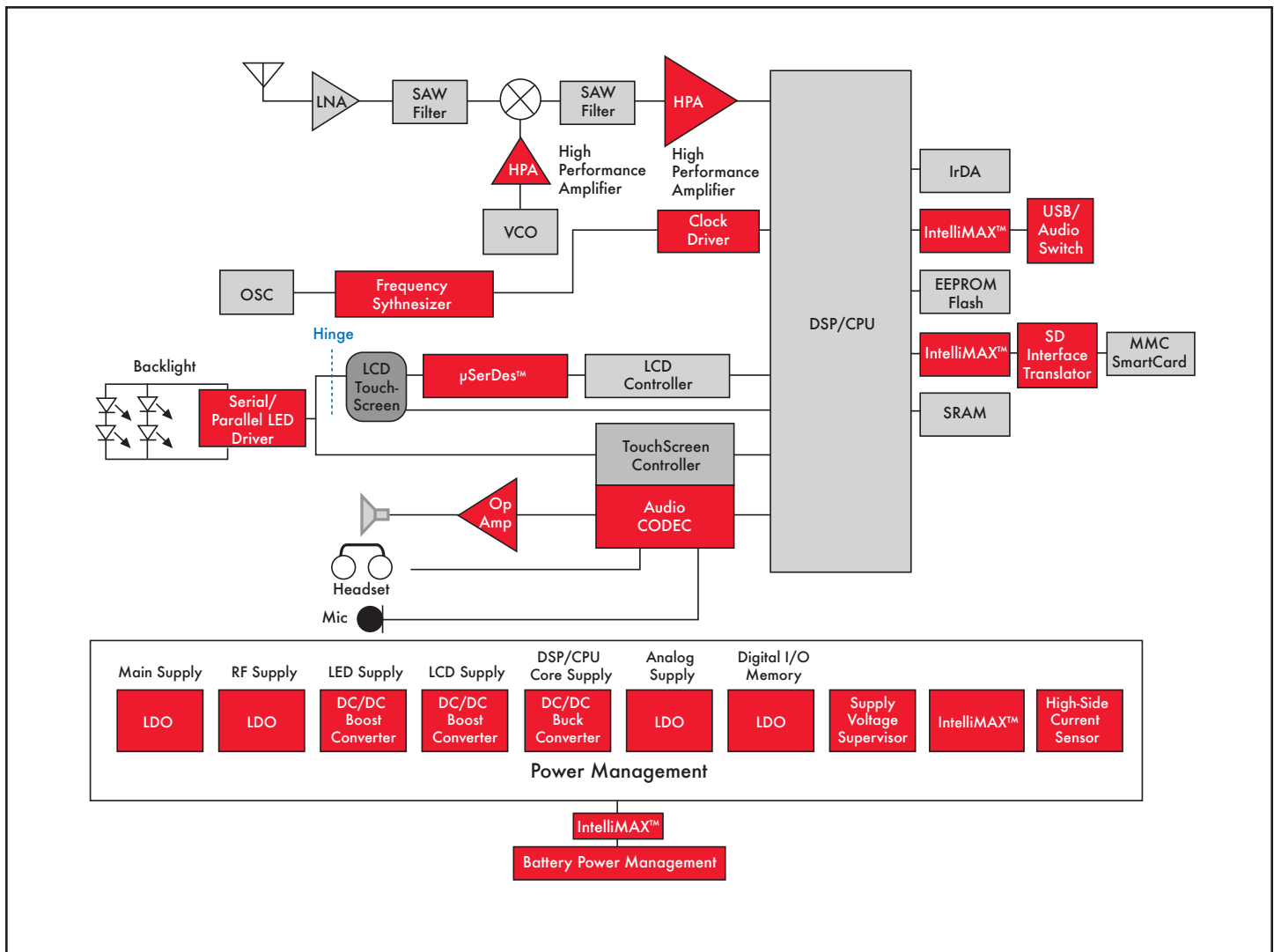


Portable Gaming Device



Portable DVD Recorder/Camcorder Player

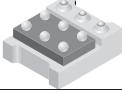
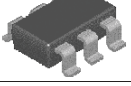
APPLICATION BLOCK DIAGRAMS



GPS

As a world leader in high performance semiconductors specializing in products for the optimization of system power, Fairchild Semiconductor offers you the most advanced packages designed for minimal size, highest reliability and maximum thermal performances. One hundred percent of Fairchild's products are RoHS (Restriction of Hazardous Substances in Electrical and Electronic Equipment) compliant and are qualified with lead-free alternative plating materials.

Overview of Fairchild Packaging Technology

Package Type	Package Image	Dimension (mm)	Package Type	Package Image	Dimension (mm)
BGA 1.5x1.5		1.5x1.5	SOIC 14		14 Leads
MLP 8 Lead Dual		3x1.9	SOIC 16		16 Leads
MLP 8 Lead Single		3x1.9	SO-8		5x6
MicroPak™		6, 8 & 10 Leads	SO-8 FMLP		5x6
MLP 2x5		2x5	SSOT6		3x3
MLP 3x3		3x3	SSOT6 FMLP		3x3
MLP (MicroFET™)		2x2	TSSOP8		3.1x6.6
DQFN		14, 16, 20, 24 Leads	WL-CSP 5 lead		1x1.37
SC-70-6		2x2.1	WL-CSP 6 lead		1x1.5
SC75 FMLP		1.7x2.15	WL-CSP 8 lead		1.21x1.21

For more information, please visit www.fairchildsemi.com/packaging/

GLOBAL POWER RESOURCESM

Engineers need a comprehensive portfolio of components and design support services to solve today's power and energy problems. It is this foundation of practical solutions that has allowed us to deploy the industry standard for customer support. We call it our Global Power Resource (GPR)—and here are some of the ways you can leverage it for your designs.

Online Support—Our power and application engineers in the labs, and in the field, have combined their skills to offer a comprehensive suite of design and knowledge tools. These are available 24/7 in the Design Center on our website. The Design Center includes application notes, eval boards, on-line design tools, etc.

GPR Centers—Each is a fully-equipped applications laboratory, staffed by a PhD-level team of power engineers. These regional centers can take a design from concept, to full schematics, to a completed board with fully characterized engineering and manufacturing files, or to any stage in between.

Field Application Engineers—

Our FAEs are power engineers, with years of design experience. They bring the full range of Fairchild's power expertise to your facility, to be an extension of your design team.



A screenshot of the FETBench website. The header features the Fairchild Semiconductor logo and navigation links: PRODUCTS, DESIGN CENTER, SUPPORT, COMPANY, INVESTORS, and MY FAIRCHILD. The main content area is titled "Power and Performance for Multiple Markets" and includes a sub-header "About FETBench | Questions? Comments? - Contact us". Below this, there are three columns: "Device Analysis", "Application Analysis", and "Thermal Analysis". Each column contains a brief description of the tool's capabilities and a "START" button. The "Device Analysis" section mentions selecting a MOSFET based on requirements and analyzing it with a Curve Tracer. The "Application Analysis" section mentions optimizing MOSFET selection based on application requirements. The "Thermal Analysis" section mentions defining PCB geometry and using WebSIMThermal simulation. At the bottom, there are two images: "Customizable Application Circuits" and "Thermal Simulation".



Application Notes	
Application Number	Description
AN-1030	Design with MOSFET load switches
AN-5015	USB1111A transceiver and specification compliance
AN-5052	Implementing the physical layer in a USB 2.0 compliant system
AN-5053	Using the FIN24A/FIN12A with a synchronous pixel interface
AN-5054	Low noise leadless packages advance portable designs
AN-5055	Portability and ultra Low power TinyLogic
AN-5058	SerDes family frequently asked questions (FAQ)
AN-5059	LVDS technology solves typical EMI problems associated with cell phone cameras and displays
AN-5061	SerDes layout guidelines
AN-5064	Low ICCT analog switches for ultra portable designs
AN-5066	Improve your design with adoption of high speed USB switches
AN-6011	FAN2011 family component calculation and simulation tools
AN-6019	Fairchild analog switch products ESD test methodology overview
AN-6022	Using the FSUB30 to comply with USB 2.0 fault condition requirements
AN-6031	Using SPI read and write with the μ SerDes FIN324C
AN-7007	Simplifying portable power management and protection circuit using the FPF200X Integrated Switch Product Family (IntelliMAX™)
AN-7525	PCB land pattern design and surface mount guidelines for MicroFET™ packages
AN-7526	Single channel MicroFET™ 3x2 power MOSFET recommended land pattern and thermal performance
AN-7527	Dual Channel MicroFET™ 3x2 power MOSFET recommended land pattern and thermal performance
AN-8005	FMS6151 NoSAG/SAG applications
AN-8017	FMS6151 NoSAG/SAG applications
AN-9006	IGBT application note for camera strobe
MS-502	TinyLogic introduction
MS-503	Family characteristics TinyLogic HS/HST and UHS series
MS-545	TinyLogic ordering information, packaging and physical dimensions

For more application note information, please visit www.fairchildsemi.com/apnotes/

Evaluation Boards		
Board #/User Guide	Description	Featured Products
730021-001	IntelliMAX PPF2172 demo board	PPF2172
730028-001	IntelliMAX PPF2144 demo board	PPF2144
PPF2163-001	IntelliMAX PPF2163 demo board	PPF2163
730012-001	IntelliMAX PPF210X & PPF2110 demo board	PPF210X & PPF2110
730014-001	PPF2123,4,5 demo board	PPF2123/PPF2124/PPF2125
730016-001	IntelliMAX PPF200X demo board	PPF200X family
730017-001	IntelliMAX PPF1002 demo board	PPF1003
730018-001	IntelliMAX PPF1005 demo board	PPF1005
730019-001	IntelliMAX PPF1004 demo board	PPF1004
730021-001	IntelliMAX PPF2172 demo board	PPF2172
730022-001	IntelliMAX PPF2174 demo board	PPF2174
730025-001	IntelliMAX PPF1006 evaluationboard	PPF1006
730028-001	IntelliMAX PPF2144 demo board	PPF2144
730029-001	IntelliMAX PPF2163 evaluation board	PPF2163
730031-001	IntelliMAX PPF219X demo board	PPF2193
730032-001	IntelliMAX PPF1007 demo board	PPF1007
730033-001	IntelliMAX PPF1008 demo board	PPF1008
730034-001	IntelliMAX PPF1009 demo board	PPF1009
730035-001	IntelliMAX PPF2223 demo board	PPF2223
730036-001	IntelliMAX PPF202X demo board	PPF2025
730040-001	IntelliMAX PPF2215 demo board	PPF2215
730041-001	IntelliMAX PPF2202 demo board	PPF2202
FEB126-001	µSerDes evaluation board	FIN24
FEB127-001	USB1T1102/USB1T1103 evaluation board	USB1T1102/1103
FEB131-001	FAN5607HMPX- LED driver with adaptive charge pump DC/DC converter	FAN5607
FEB132-001	High efficiency step down DC/DC converter	FAN5307MPX
FEB135-001	FAN5608DHMPX-serial/parallel LED driver with current-regulated, step-up DC/DC converter	FAN5608
FEB137-001	FAN2001MPX (6-Lead 3x3 MLP) - 1A high efficiency step-down DC/DC	FAN2001
FEB138-001	FAN2002MPX (6-Lead 3x3 MLP) - 1A high efficiency step-down DC/DC converter	FAN2002
FEB140-001	FAN5308MPX (6-Lead 3x3 MLP) - 800mA high efficiency step-down DC/DC converter	FAN5308
FEB141-001	FAN5330SX (5-Lead SOT23) - high efficiency serial LED driver with 30V integrated wswitch	FAN5330
FEB142-001	FAN5331XS (5-Lead SOT23) - high efficiency serial LED driver and OLED supply with 20V integrated switch	FAN5331
FEB143-001	FAN5332ASX (5-Lead SOT23) - high efficiency, high current serial LED driver and OLED supply with 30V integrated switch	FAN5332
FEB144-001	FAN5333ASX (110mV feedback voltage in a 5 lead SOT23) - high efficiency, high current serial LED driver with 30V integrated switch	FAN5333
FEB169-001	1.5A low voltage current mode synchronous PWM buck regulator	FAN2012MPX
FEB170-001	2A low voltage current mode synchronous PWM buck regulator	FAN2013MPX
FEB171-001	500mA high efficiency boost regulator with adjustable output, shutdown and low battery detect	FAN4855MTCS
FEB172-001	High efficiency, high current serial LED driver with 30V integrated switch	FAN5333BSX
FEB173-001	1.5MHz boost regulator with 33V integrated FET switch	FAN5336MPX
FEB175-001	High efficiency, constant-current LED driver with TinyWire™ brightness control	FAN5617MPX
FEB176-001	Regulated step-down charge pump DC/DC converter	FAN5631MPX
FEB178-001	3MHz, 600mA step-down, DC-DC converter in chip-scale packaging	FAN5350MPX
FEB179-001	3MHz, 600mA step-down, DC-DC converter in chip-scale packaging	FAN5350UCX
FEB206-001	Indicator LED blinker with single-wire interface	FAN5646
FEB214-001	20W (32V) peak (70W) printer power evaluation board	Two level OCP with 96ms delay time: SG6846CLSZ
FEB223-001	90W (19V) NB with CRM PFC + QF PWM evaluation board	Critical Mode PFC controller: FAN6961 quasi resonant
FEB235	2 bit low voltage bi-directional translator	FXL2T245
FEB236	1 bit low voltage bi-directional translator	FXLH1T45
FEB237	2 bit low voltage bi-directional translator with individual bit control	FXL2TD245
FEB238	4 bit low voltage bi-directional translator	FXL4T245
FEB239	5 bit low voltage uni-directional translator	FXL5T244
FEB240	4 bit low voltage bi-directional translator with individual bit control	FXL4TD245
FEB241	8 bit low voltage bi-directional translator	FXL4245
FEB242	8 bit low voltage bi-directional translator with bushold and series resistors	FXL42245
FEB243	2 bit low voltage bi-directional translator with audio direction detection	FXLA102
FEB244	SD interface voltage translator	FXL2SD106
FEB245	I²C voltage translator	FXM2IC102

Please contact your local sales office to order evaluation and/or demo boards
For more information, please visit www.fairchildsemi.com/evalboard/

For data sheets, application notes, samples and more, please visit: www.fairchildsemi.com

**PRODUCTS &
SAMPLES**

APPLICATIONS

DESIGN SUPPORT

COMPANY

POWER MANAGEMENT ICs

AC-DC: Power Factor Correction

- Continuous Conduction Mode (CCM) PFC Controllers
- Critical (CrCM) / Boundary Conduction Mode (BCM) PFC Controllers
- PFC + PWM Combination (Combo) Controllers

Isolated DC-DC

- Green-Mode PWM Controllers
- Integrated Green-Mode PWM Regulators (Green FPS™)
- Integrated PWM Regulators (FPS™)
- Primary-side only CV/CC Controllers
- Standard SMPS PWM Controllers
- Synchronous Rectifier Controller

Non-Isolated DC-DC

- Charge-Pump Converters
- Multi-phase Controllers
- Step-down Controllers (External Switch)
- Step-down Regulators (Integrated Switch)
- Step-up Regulators (Integrated Switch)

Power Drivers

- High Voltage Gate Drivers (HVIC)
- Low-Side Gate Drivers
- Synchronous Rectifier Controllers/Drivers
- Synchronous-Buck/Multi-phase Drivers

Supervisory/Monitor ICs

- Ground Fault Interrupt (GFI) Controllers
- Supervisors + PWM
- Temperature Sensors
- Voltage Supervisors/Detectors/Stabilizers

Voltage Regulators

- LDOs
- Positive Voltage Linear Regulators
- Negative Voltage Linear Regulators
- Shunt Regulators

POWER SEMICONDUCTORS

Diodes & Rectifiers

- Bridge Rectifiers
- Rectifiers
- Schottky Diodes and Rectifiers
- Small Signal Diodes
- Transient Voltage Suppressors
- Zener Diodes

IGBTs

- Discrete IGBTs
- Ignition IGBTs
- IGBT Modules

Integrated Power Solutions

- DrMOS FET Plus Driver Multi-Chip Modules
- IGBT Modules
- Full Function Load Switches (IntelliMAX™)
- MOSFET/Schottky Combos
- Smart Power Modules (SPM®)
- Smart Switches

MOSFETs

- Discrete MOSFETs
- Full Function Load Switches (IntelliMAX™)
- MOSFET/Schottky Combos

Transistors

- BJTs
- Discrete IGBTs
- JFETs
- Load Switches
- MOSFETs
- Small Signal Transistors

TRIACs

- TRIACs

LIGHTING AND DISPLAY

- CCFL Ballast IC
- CFL/Lighting Ballast Control IC
- Critical (CrCM)/Boundary Conduction Mode (BCM) PFC Controllers for Lighting
- High Voltage Gate Drivers (HVIC)
- LED Drivers
- PDP Smart Power Module (PDP-SPM™)

SIGNAL PATH ICs

Amplifiers & Comparators

- Comparators
- Current Sense Amplifier
- High Performance Amplifiers (>15MHz)
- Operational Amplifiers

Battery Protection IC

- Battery Protection IC

Interface

- LVDS
- Serializer/Deserializer (µSerDes™)
- USB Transceiver

Signal Conditioning

- Triple Video DACs
- Video Filter Drivers
- Video Switch Matrix/Multiplexers

Switches

- Analog/Audio Switches
- Bus Switches
- USB Switches
- Video Switches

AUTOMOTIVE PRODUCTS

- Discrete Power
- Intelligent Power

LOGIC | TINYLOGIC®

- Buffers, Drivers, Transceivers
- Flip flops, Latches, Registers
- Gates
- MSI Functions
- Multiplexer/Demultiplexer
- Encoders/Decoders
- Specialty Logic
- TinyLogic
- Voltage Level Translators

OPTOELECTRONICS

- Infrared Products
- High Performance Optocoupler
- TRIAC Driver Optocoupler
- Photo Transistor
- Solid State Relay