

Fitipower Power Management Product Introduction



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Company Profile

About Fitipower

- *Founded in 1995*
- *Registered on Taiwan Stock in 2018*
- *Focus on LCD driver ICs and Analog, digital and Mixed-signal Power Management ICs*
- *Revenue over **800M USD** in 2021*
- *Around **900** employees and over **80%** for **R&D & engineering** dept.*
- ***TOP 5** of worldwide Display DIC market*

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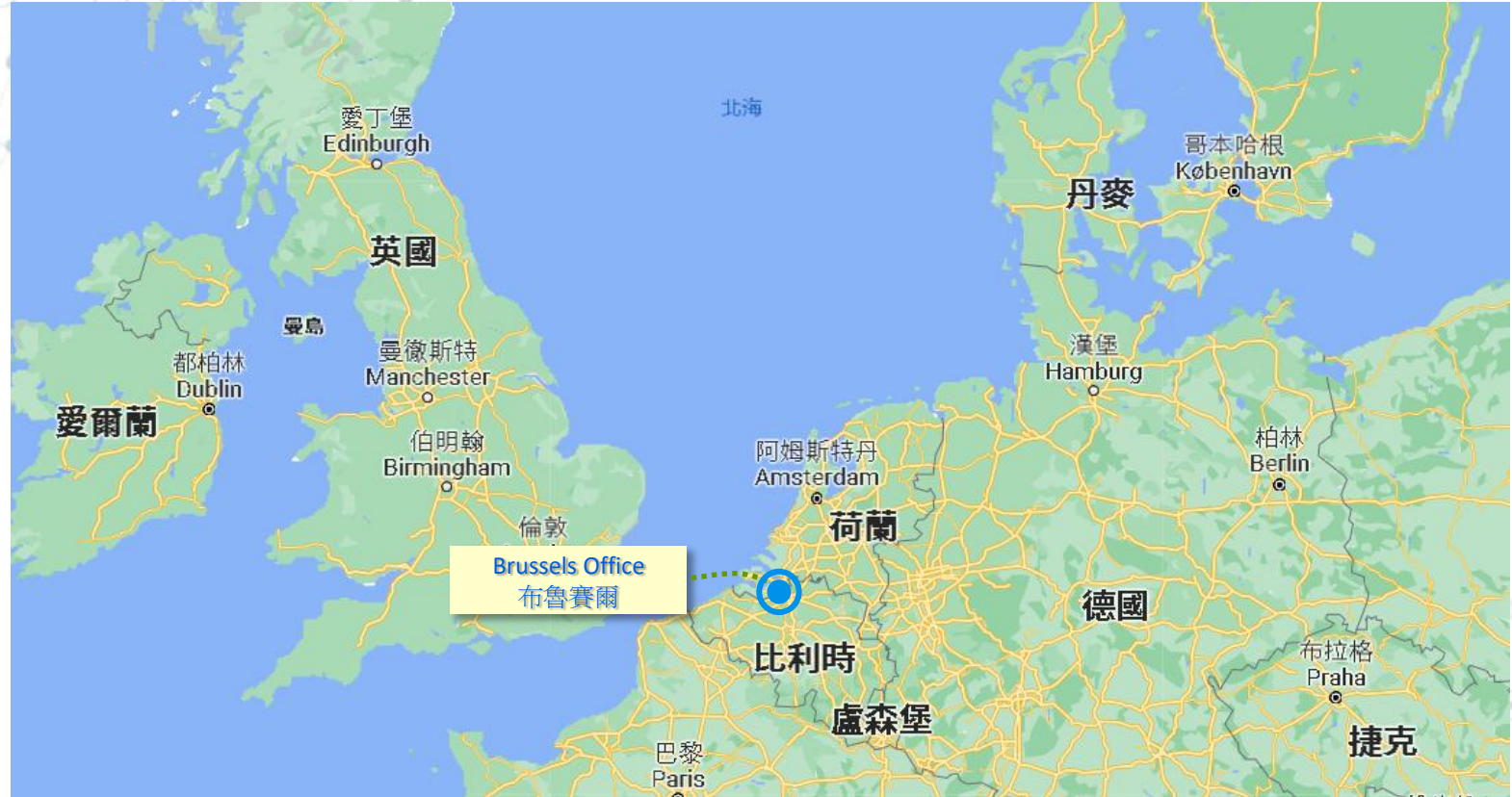


Jan. 2005 – ISO9001 : 2008 Certification

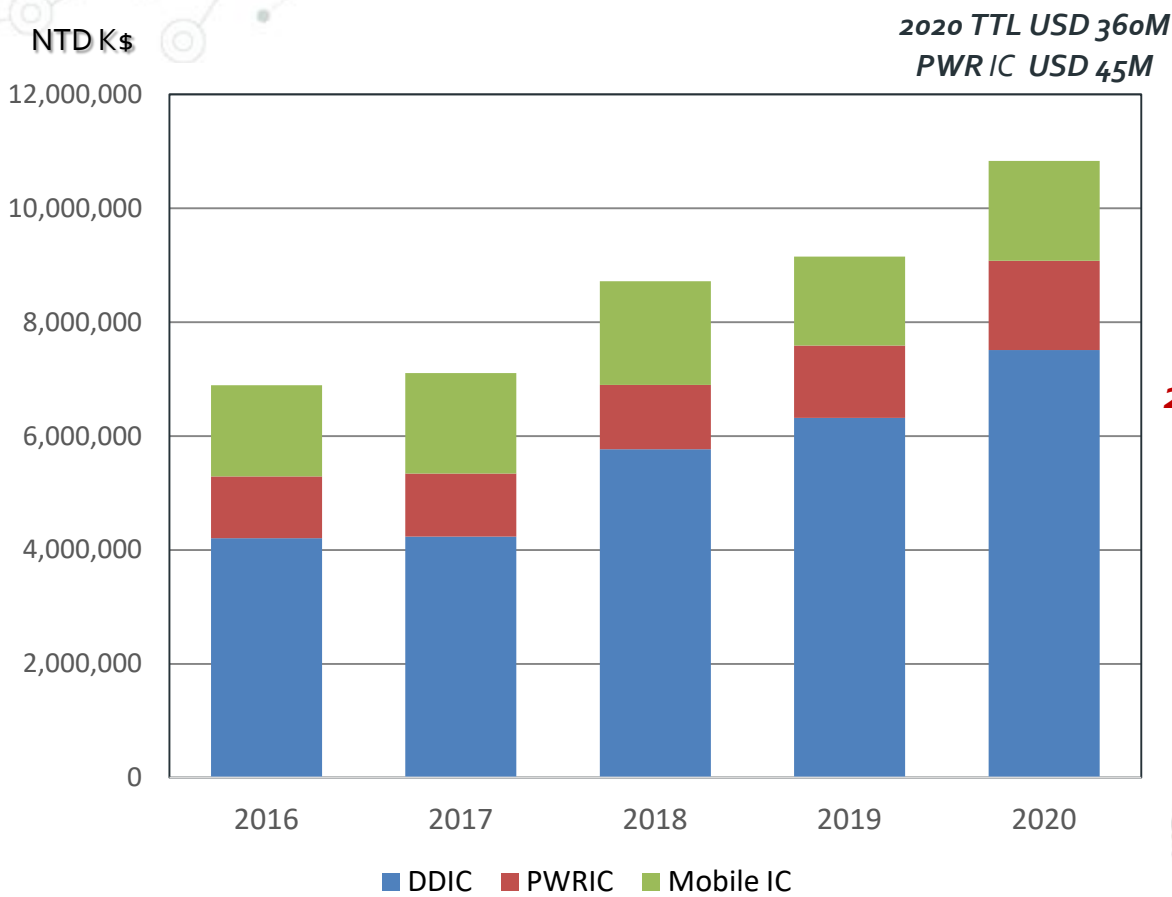
Asia Locations



Europe Locations



Revenue Trend & Outlook



Suppliers & Customers



Suppliers

Foundry

COF

Assembly & Testing

Customers

Display

EPD / ESL

VCM / Battery / Networking / Consumer

Trend of Technology



BLDC for Home Appliances

Variety IC Solution



EINK/ESL
Display IC



Mobile Display IC
Motor Driver



TV/MNT/NB
Display IC



VR/AR/Automotive
Display IC



DC/DC
Power ICs



Quick Charging
ICs

One Stop
Shopping



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General Purpose Product Introduction

General Purpose Power ICs Applications

Computing

- Notebook/Desktop
- Monitor
- Accessory (Mouse)
- VGA Card
- Storage, SSD



Consumer

- TV
- STB
- Tablet
- Gaming
- Charger Adapter



Communication

- Networking
- Telecom
- Femtocell
- IOT device

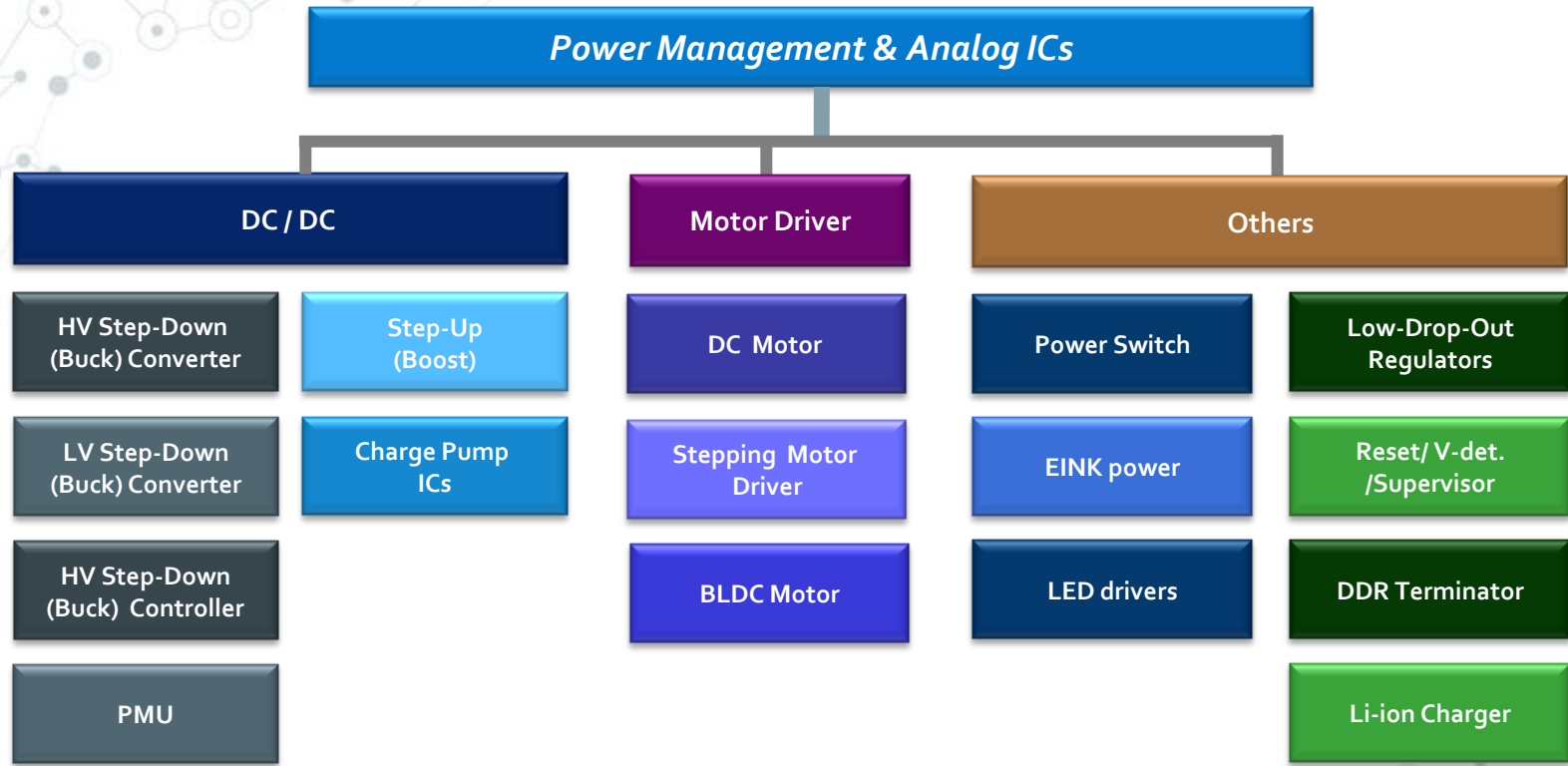


Industrial & Automotive

- Surveillance
- POS
- Server
- Infotainment



General Purpose Power Portfolio



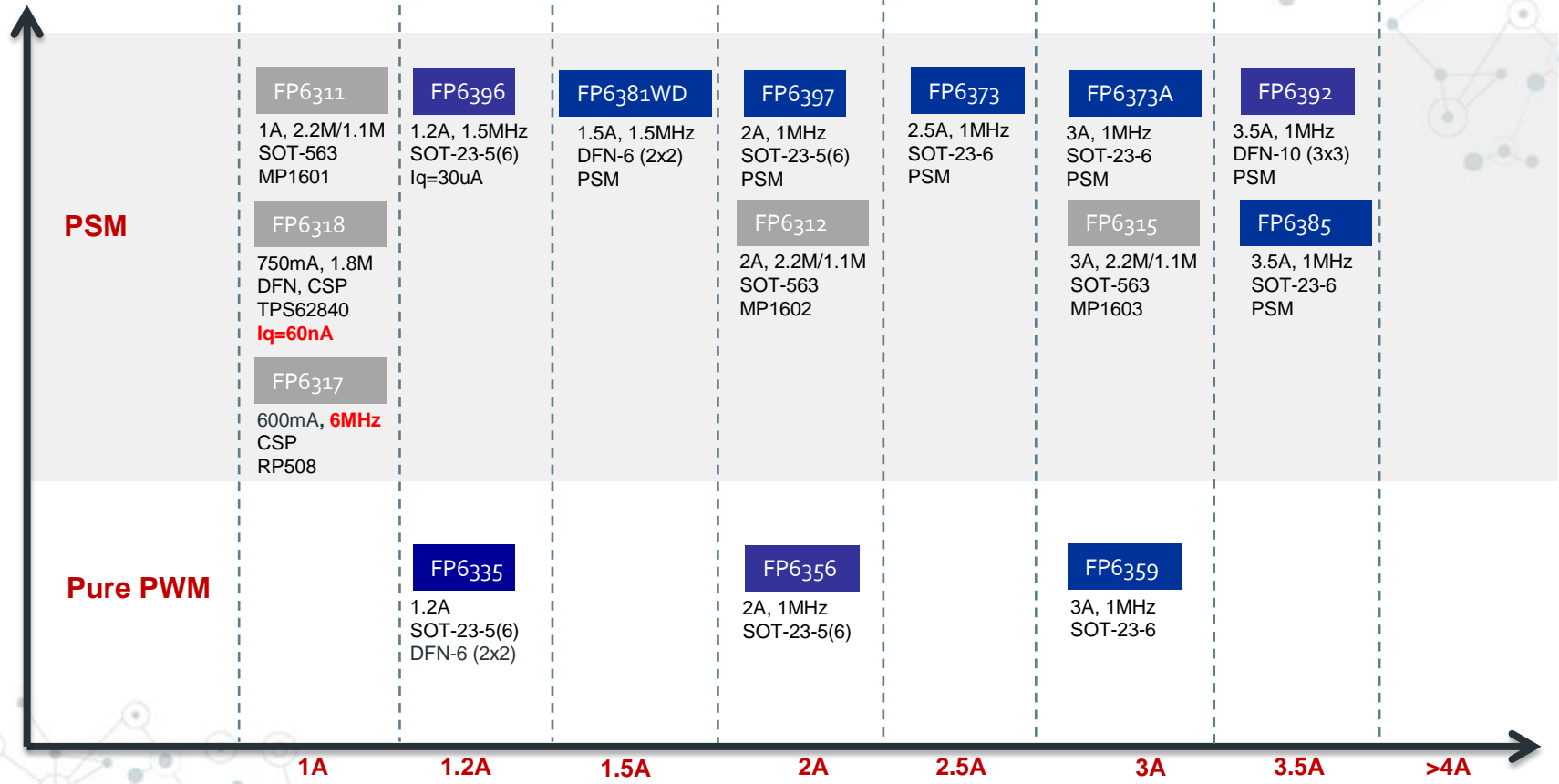


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DC/DC Power Product Introduction

LV Buck Converter Products

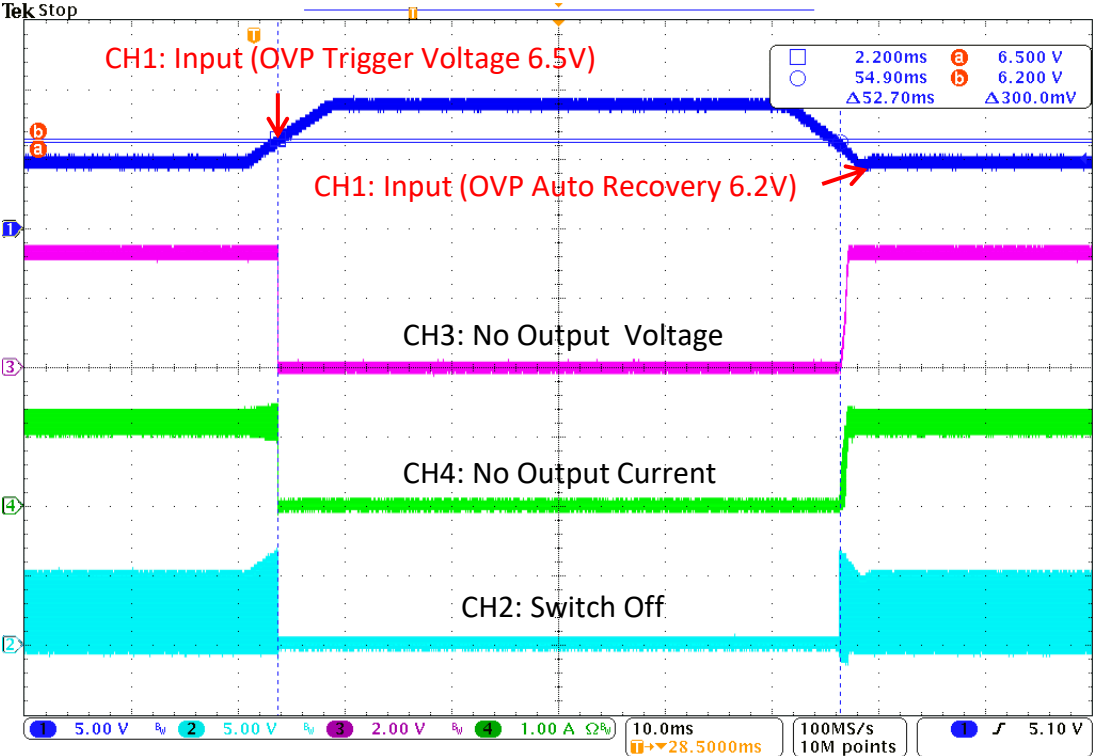
MP
 Sample
 Developing/Plan



New Generation LV Buck FP6396/97/35/56 VIN OVP Function

Vin sweep :5Vin to 9Vin, Vo=3.3V, Io=1.2A(2.75Ω)

OVP On:6.5V, OVP Release:6.2V

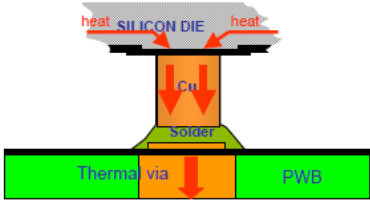
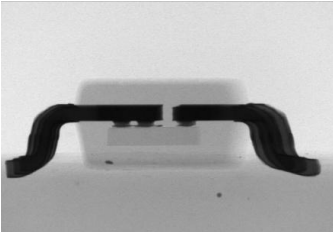


CH1:Vin, CH2:VLx, CH3:Vo, CH4:IL

Cu Pillar Flip Chip Technology

Thermal Resistance:

SOT23-6 with bond wires: 250 ° C/W
 SOT23-6 with Cu-Pillar: 110 ° C/W

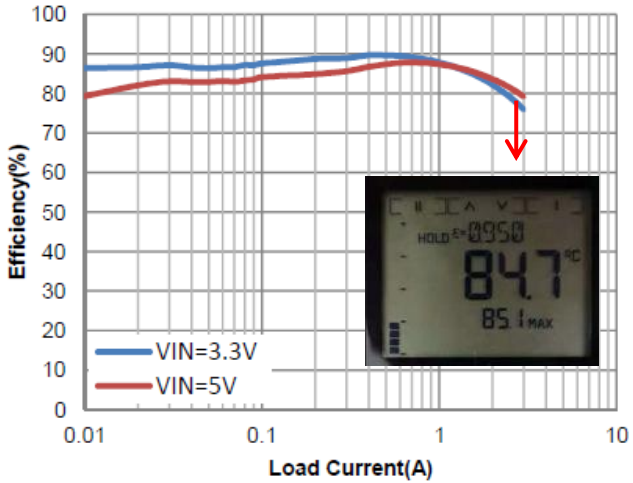


MOSFET On Resistance

FP6373A (Wire) MOS R_{DS} On: 95/75 mohm
 FP6385 (Cu-Pillar) MOS R_{DS} On: 60/50 mohm

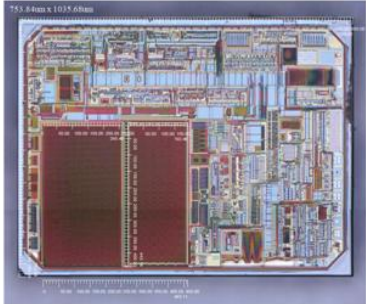
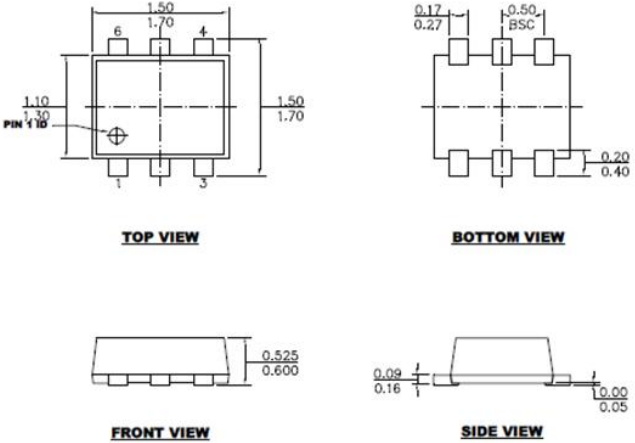
Package	Dimension	Total Resistance(Ω)	Drawing
Wire Bond	Gold wire bonded Length: 2mm, Dameter:25um	0.09	
Pillar Bump	Copper Pillar Bump Cu post 70um, Eutectic Cap: 30um, Diameter: 100um	0.0006	

VOUT=1.2V



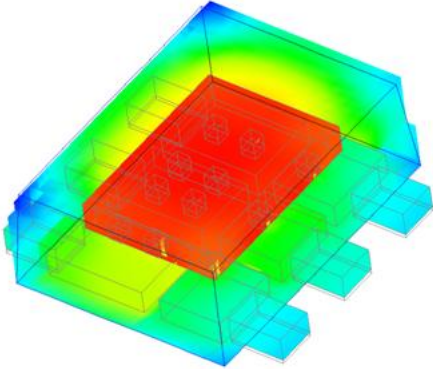
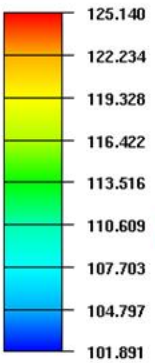
SOT-563 package thermal performance

Package Model

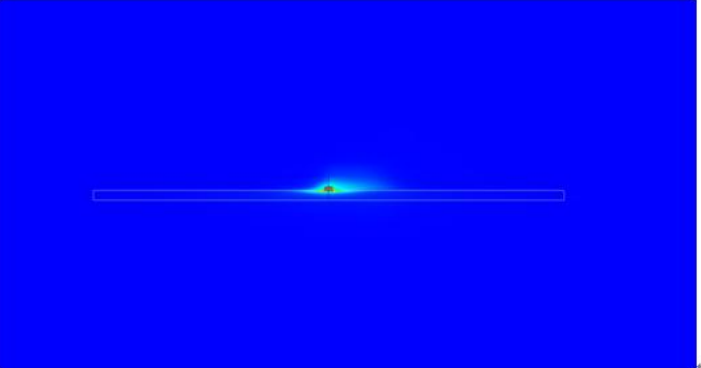
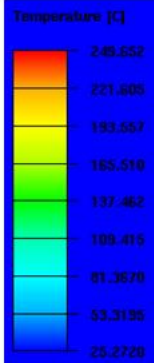


Temperature Contours (Contour Range: 101.9~125.1C)

- Compound surface temperature

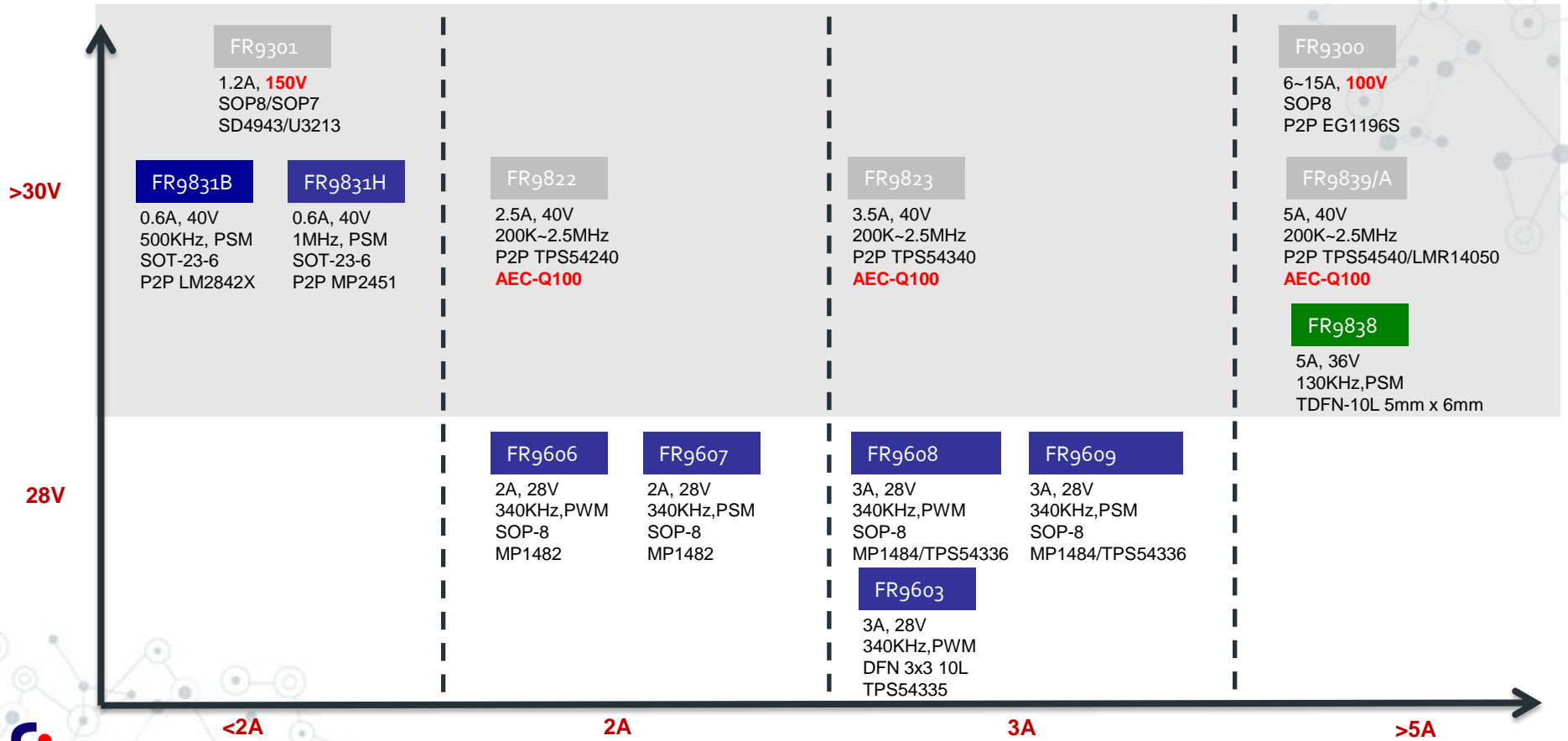


- Cross-section Contour



HV CM Buck Converter Products

■ MP
■ Sample
 Developing/Plan



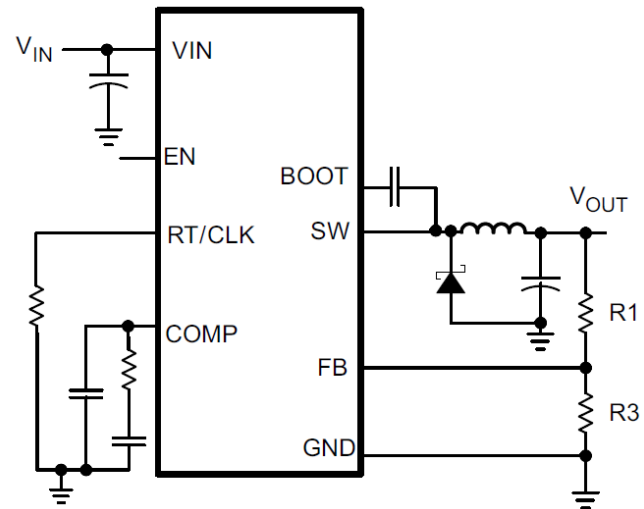
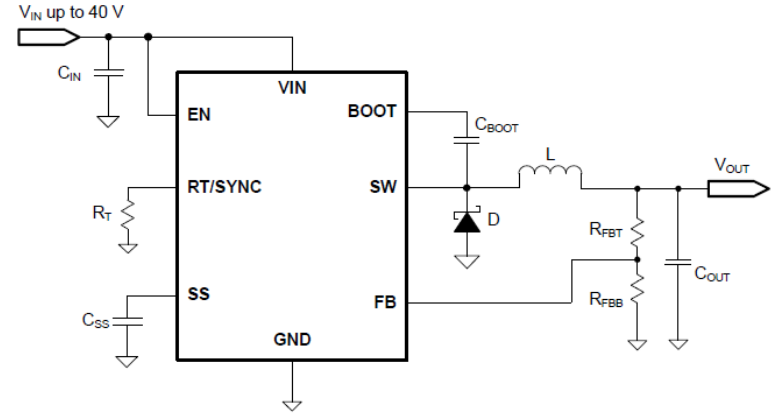
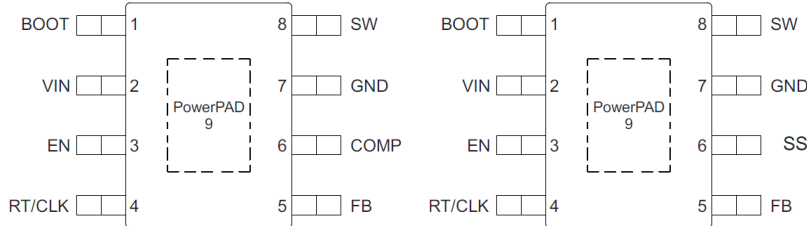
FR9839/A 40V 5A Step-Down DC/DC Converter

Features:

- 3.5V to 40V (45V Abs Max) Input Range
- 5A Continuous Current
- Current Mode Control DC-DC Converter
- 90mΩ High Side MOSFET
- 100 μ A Operating Quiescent Current
- 1.3 μ A Shutdown Current
- 100 kHz to 2.5 MHz Fixed Switching Frequency
- Internal Compensation and external Soft-start
- Accurate Cycle-by-Cycle Current Limit
- 0.75 V 1% Internal Voltage Reference

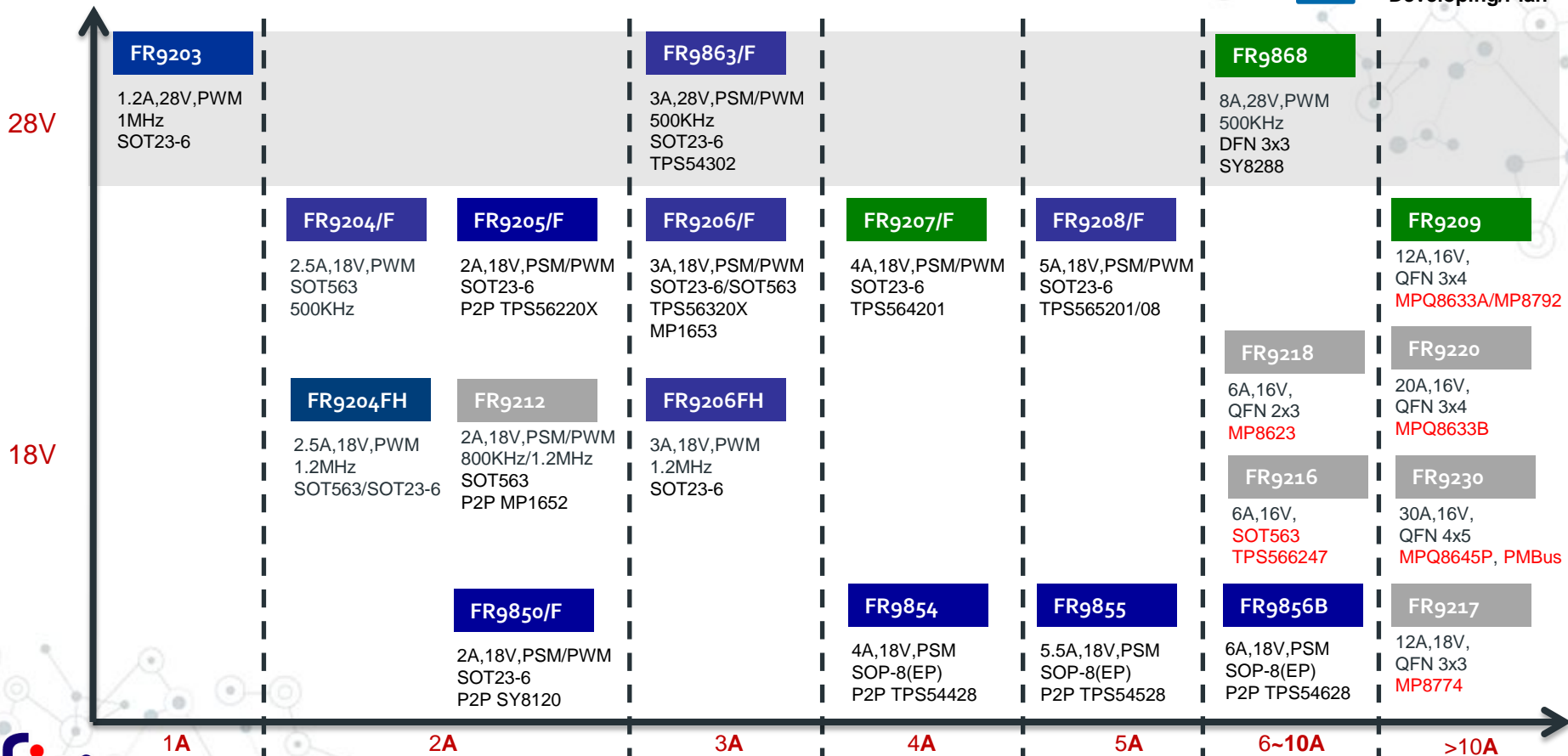
Pin Assignments:

SOP8-EP



HV FCOT Buck Converter Products

MP
 Sample
 Developing/Plan



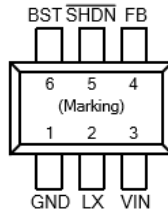
FR9205 18V/2A Synchronous Step-Down DC/DC Converter

Features:

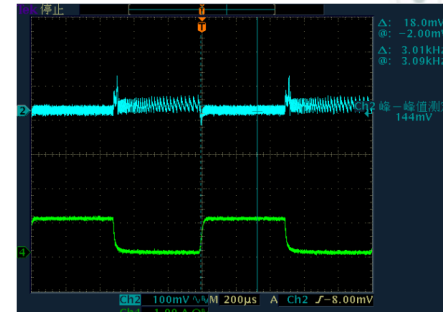
- Low RDS(ON) Integrated Power MOSFET (145mΩ/90mΩ)
- Wide Input Voltage Range: 4.5V to 18V
- Output Voltage Range: 0.765V to 8V
- 2A Output Current
- FCOT Mode Enables Fast Transient Response
- Pseudo 850kHz Frequency
- Input Under Voltage Lockout
- Internal 1.5ms Soft-Start
- Cycle-by-Cycle Current Limit
- Hiccup Short Circuit Protection
- Over Temperature Protection with Auto Recovery

Pin Assignments **MP!**

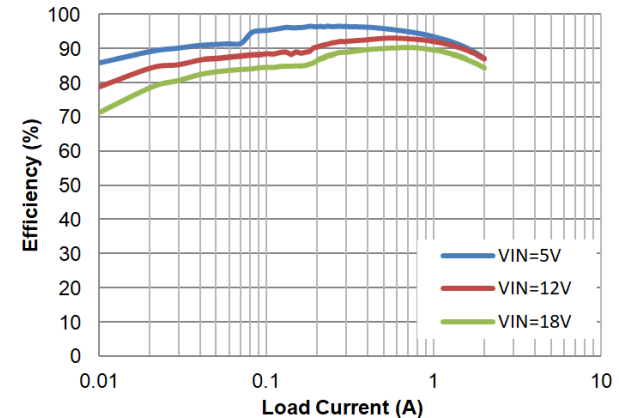
S6 Package (SOT-23-6)



12V to 3.3V, 10mA->1A->10mA
FR9205: Vpp ~144mV



V_{OUT}=3.3V

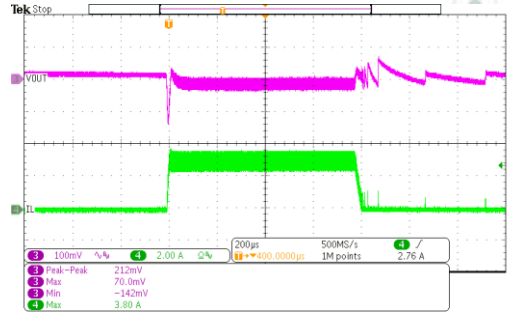


FR9206 18V/3A Synchronous Step-Down DC/DC Converter

Features:

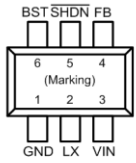
- Low RDS(ON) Integrated Power MOSFET (75mΩ/35mΩ)
- Wide Input Voltage Range: 4.5V to 18V
- Output Voltage Range: 0.765V to 8V
- 3A Output Current
- FCOT Mode Enables Fast Transient Response
- Pseudo 500kHz Frequency
- Input Under Voltage Lockout
- Internal 1.5ms Soft-Start
- Cycle-by-Cycle Current Limit
- Hiccup Short Circuit Protection
- Over Temperature Protection with Auto Recovery

12V to 3.3V, 0A->3A->0A
FR9206 : Vpp ~212mV

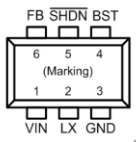


Pin Assignments

S9 Package: TSOT-23-6

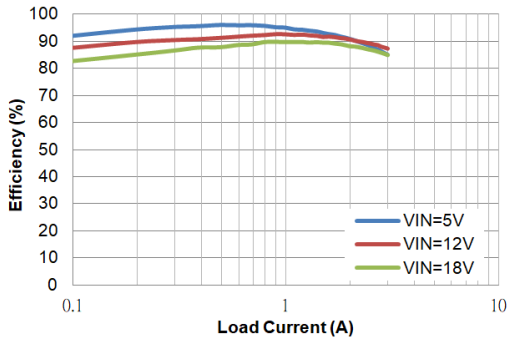


SD Package: SOT-563-6

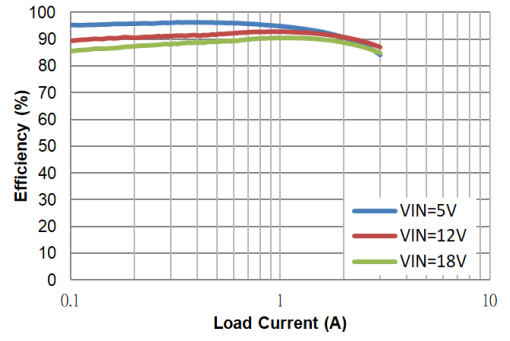


MP!

V_{OUT}=3.3V (FR9206S9)



V_{OUT}=3.3V (FR9206SD)



FR9208F 18V/5A Synchronous Step-Down DC/DC Converter

Features:

- Low RDS(ON) Integrated Power MOSFET (31mΩ/16mΩ)
- Wide Input Voltage Range: 4.3V to 18V
- Output Voltage Range: 0.76V to 8V
- 5A Output Current
- FCOT Mode Enables Fast Transient Response
- Pseudo 500kHz Frequency
- Input Under Voltage Lockout
- Internal 1ms Soft-Start
- Cycle-by-Cycle Current Limit
- Hiccup Short Circuit Protection
- Over Temperature Protection with Auto Recovery

• Load Regulation

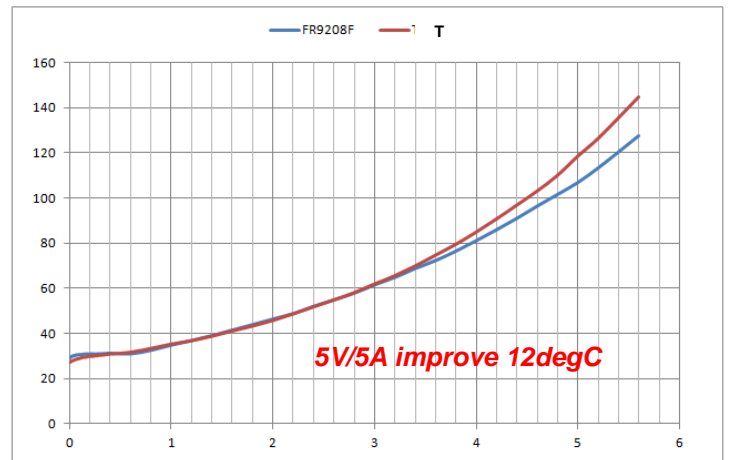
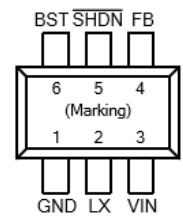
Test Item	V _{IN} (V)	V _{OUT} (V)	FR9208F	T
Load Regulation	12	1.05	0.35%	3.31%
		3.3	0.77%	3.70%
		5	1.29%	3.84%

• Efficiency

Test Item	V _{IN} (V)	V _{OUT} (V)	I _{OUT} (A)	FR9208F	T
Efficiency	12	1.05	5A	75.70%	73.50%
		3.3		89.32%	88.41%
		5		91.29%	90.75%

Pin Assignments **MP!**

S6 Package (SOT-23-6)

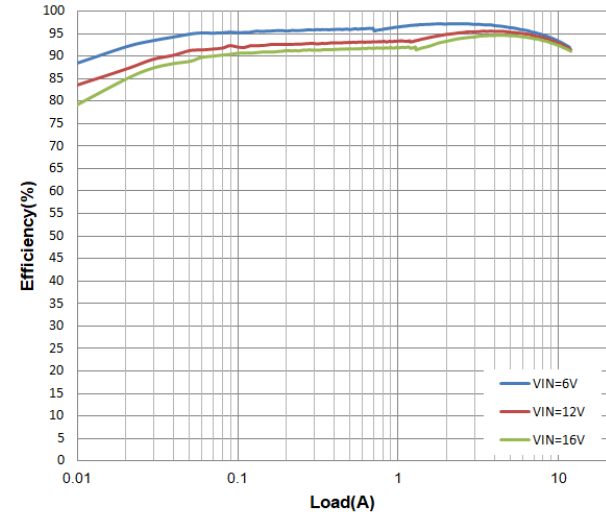


FR9209 16V/12A Synchronous Step-Down DC/DC Converter

Features

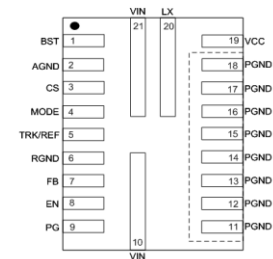
- Low RDS(ON) Integrated Power MOSFET (15mΩ/5.5mΩ)
- Wide Input Voltage Range:
- 2.7V to 16V with External 5V VCC Bias
- 6 V to 16V with Internal Bias or External 5V VCC Bias
- Output Voltage Range: 0.6V to 5.5V
- Differential Output Voltage Remote Sense
- 12A Output Current
- CCS-COT Mode Enables Fast Transient Response
- Selectable Switching Frequency from 600kHz, 800kHz, and 1000kHz
- Input Under Voltage Lockout
- PGOOD Active Clamped Low Level during Power Failure
- Selectable Pulse Skip or Forced PWM Operation
- Programmable Soft-Start Time from 1ms
- Programmable Accurate Current Limit Level
- Hiccup Short Circuit Protection
- Over Temperature Protection with Auto Recovery
- Output Voltage Discharge
- Output Voltage Tracking

$V_{OUT}=3.3$

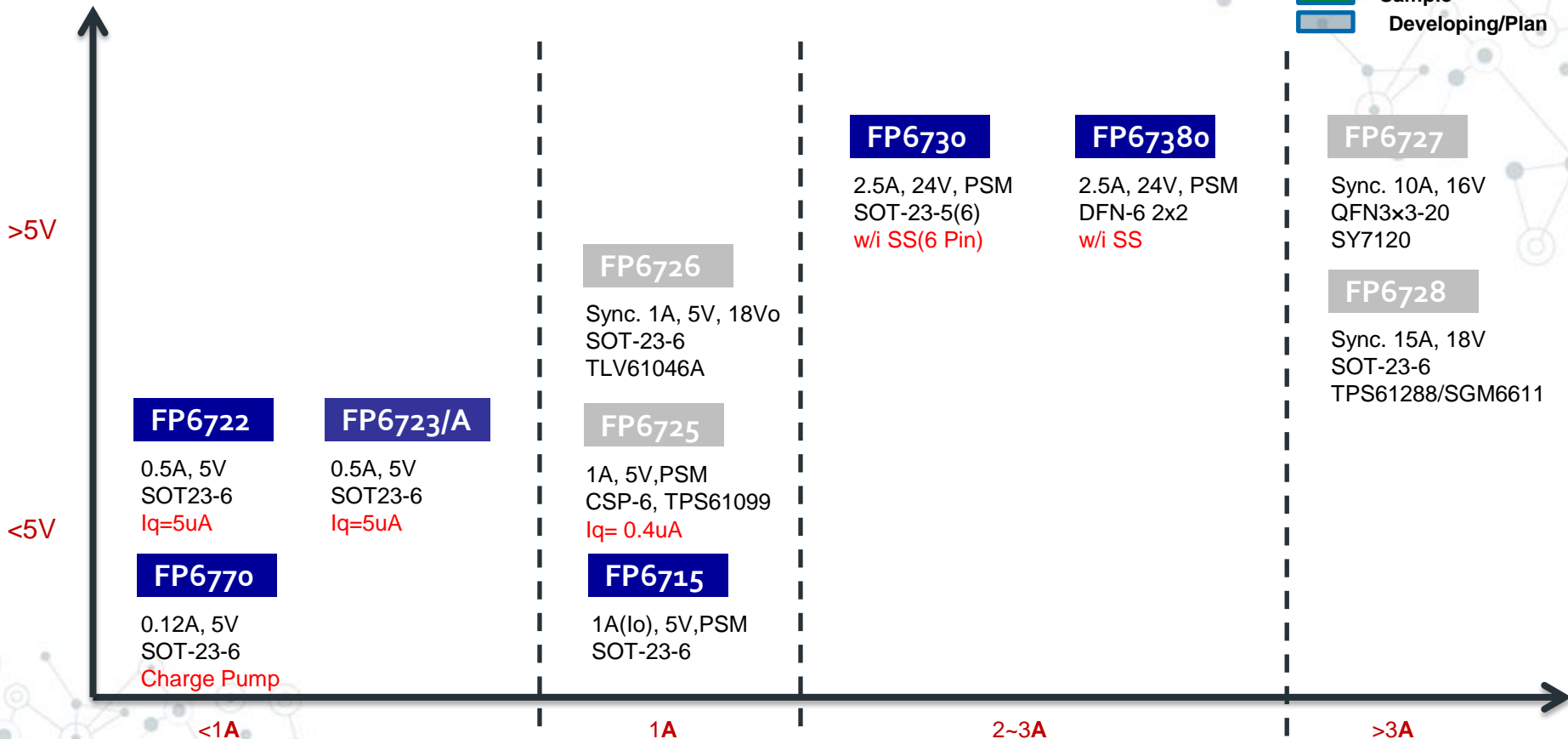


Pin Assignments

J16 Package: TQFN-21 (3mm×4mm).



Boost Converter Products



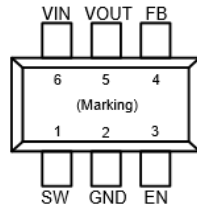
FP6722 Low Quiescent Current Boost Converter

Features:

- Low IQ, 5.5 μ A Max Quiescent Current
- Operating Input Voltage from 0.7V to 5.5V
- Feedback Voltage 500mV
- 500mA Switching Current Limit
- Hysteresis switching frequency
- Adjustable Output Voltage from 1.8V to 5.5V
- Input Under Voltage Lockout
- Very Low Shutdown Current at 0.2 μ A
- $\pm 2.6\%$ Output Voltage Accuracy
- Overvoltage/ Over-Temperature Protection
- Pass-Through Function during Shutdown

Pin Assignments

S6 Package (SOT-23-6)

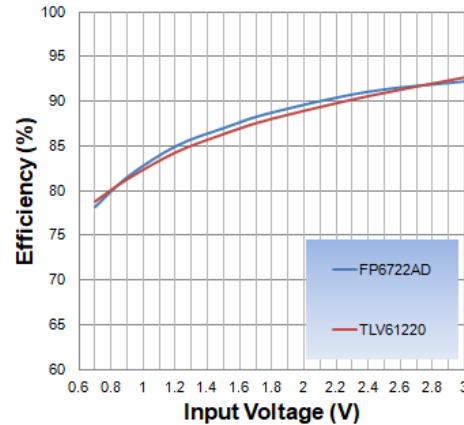


MP!

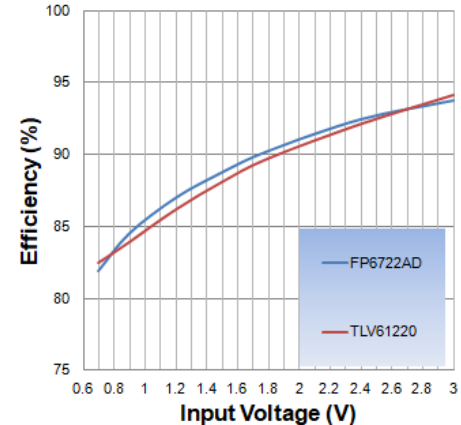
Test Item	V _{OUT} (V)	V _{IN} (V)	I _{OUT} (A)	V _{p-p}		Units
				FP6722AD	T	
Load transient	3.3	1.5	0 ~ 100mA	128	92	mV
		3	0 ~ 160mA	136	104	mV

Test Item	V _{OUT} (V)	V _{IN} (V)	I _{OUT} (A)	V _{p-p}		Units
				FP6722AD	T	
Load transient	5	3.8	0 ~ 220mA	160	144	mV
		4.2	0 ~ 260mA	164	152	mV

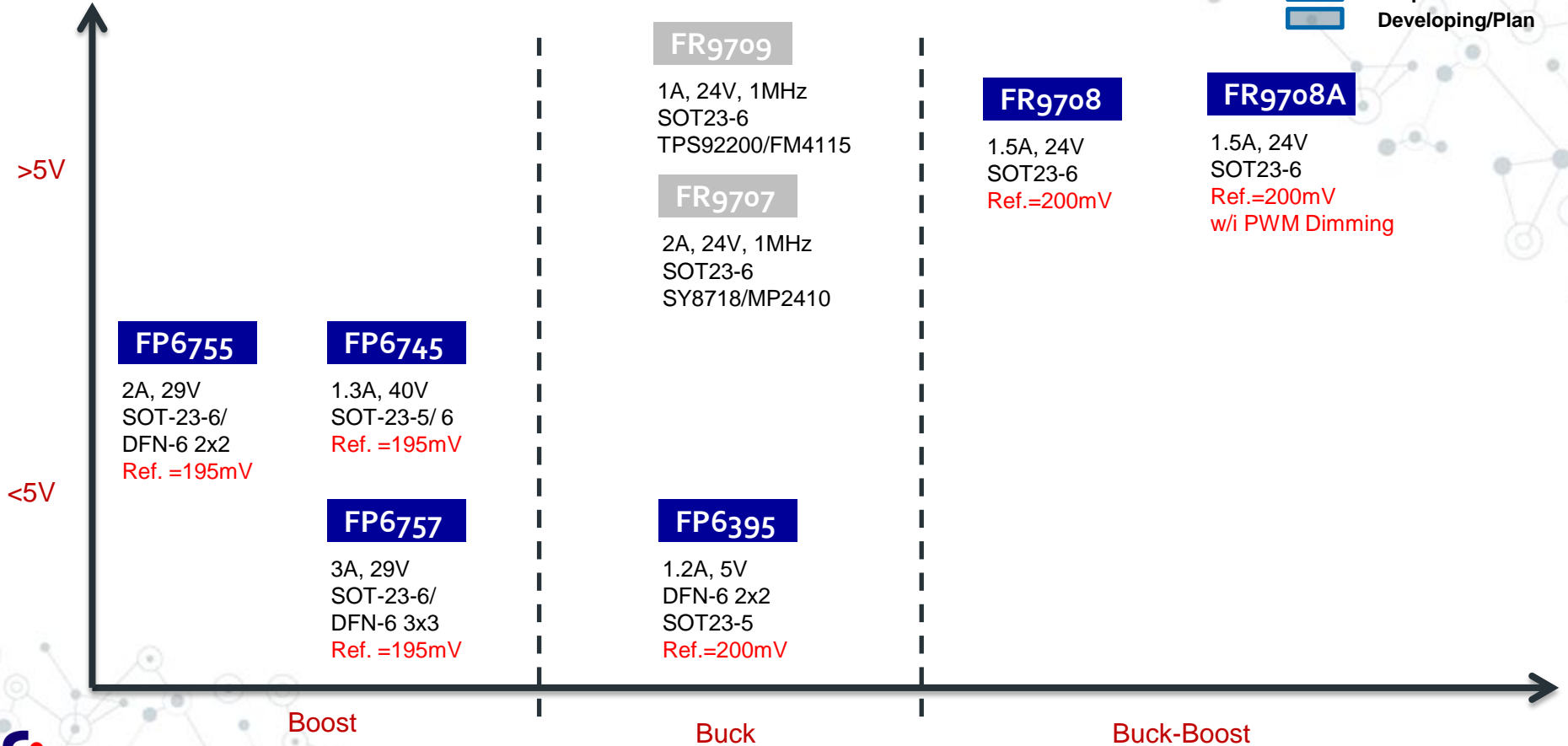
Output 3.3V/1mA



Output 3.3V/10mA



LED Driver Products



■ MP
■ Sample
■ Developing/Plan

FP6395 1.5MHz 1.2A Synchronous Step Down LED Driver

Features:

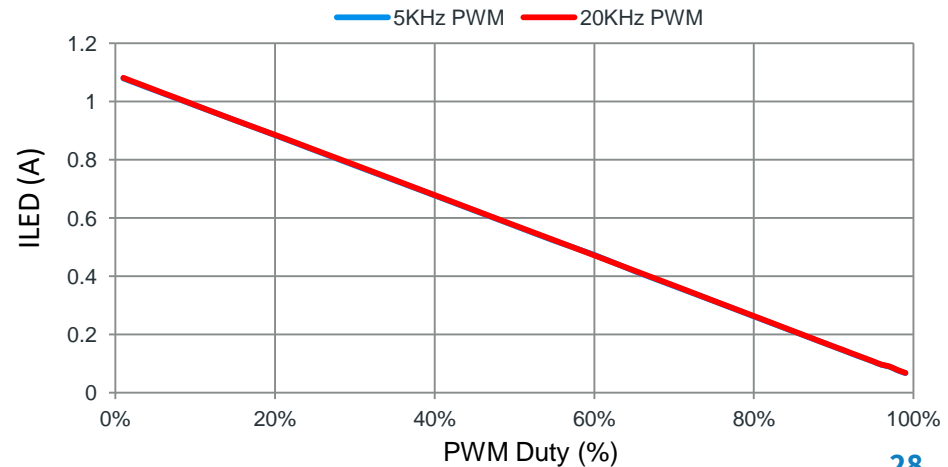
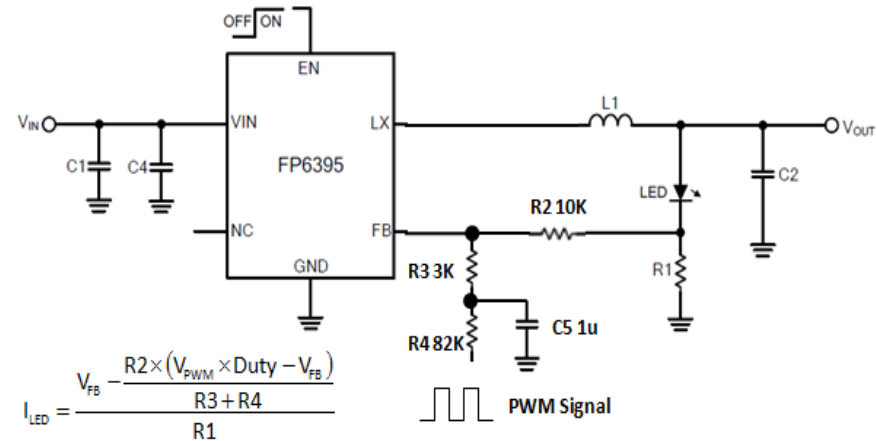
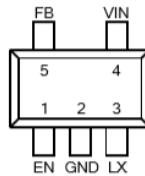
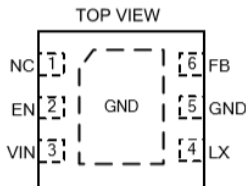
- 2.5V~6V Input Voltage Range
- 0.2V Reference Voltage
- 1.2A Output Current
- Low RDS(ON) for Internal Switch (Top/Bottom):
340mΩ/210mΩ
- 1.5MHz Switching Frequency
- Internal Compensation Function
- 1kHz ±10% PWM Dimming Control
- 100% Dropout Operation
- Input Over Voltage Protection
- Over Current Protection
- Over Temperature Protection with Auto Recovery

Pin Assignments

D7 Package TDFN-6 (2mmx2mm)

S5 Package SOT-23-5

MP!



FR9708A 24V/1.5A, 1.2MHz LED Driver with Dimming Control

Features:

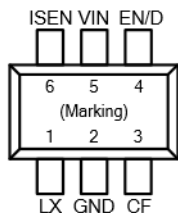
- Input Voltage Range: 2.8V to 24V
- 1.5A Output Current
- 1.2MHz Switching Frequency
- 200mΩ Integrated Power MOSFET
- 100mV Reference Voltage
- Analog, PWM Dimming or PWM Converting to Analog Dimming with a External Capacitor
- Cycle-by-Cycle Current Limit
- Over-Temperature Protection with Auto

Recovery

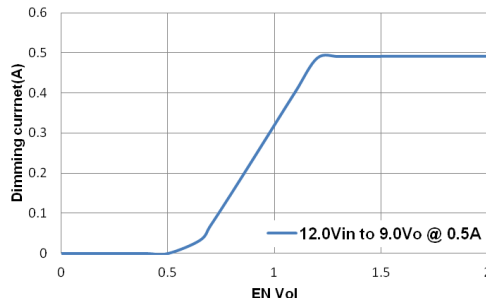
- Input Under Voltage Lockout
- Input Over Voltage Protection
- **Buck, Boost and Buck-Boost Mode Operation**

Pin Assignments

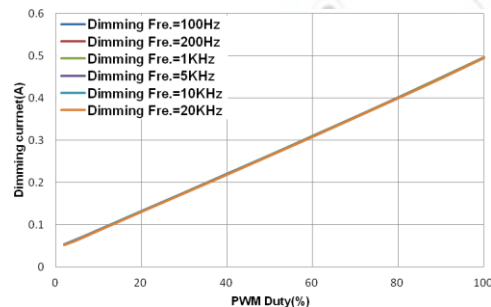
S6 Package (SOT-23-6)



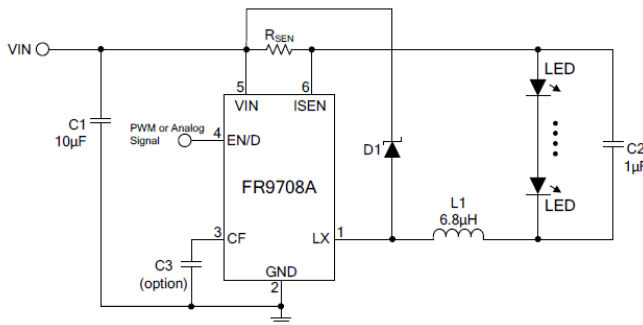
$V_{IN}=12V$, 3S2P LED, $I_{OUT}=0.5A$



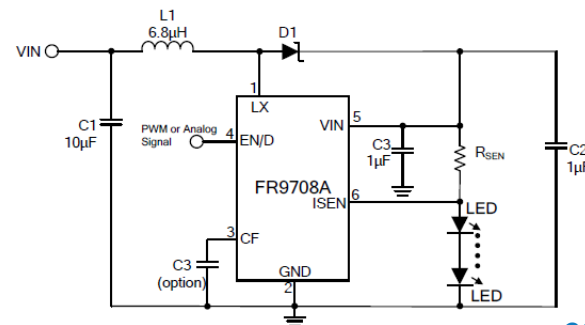
$V_{IN}=12V$, 3S2P LED, $I_{OUT}=0.5A$
Fre.=100Hz~20kHz



Buck Mode



Boost Mode



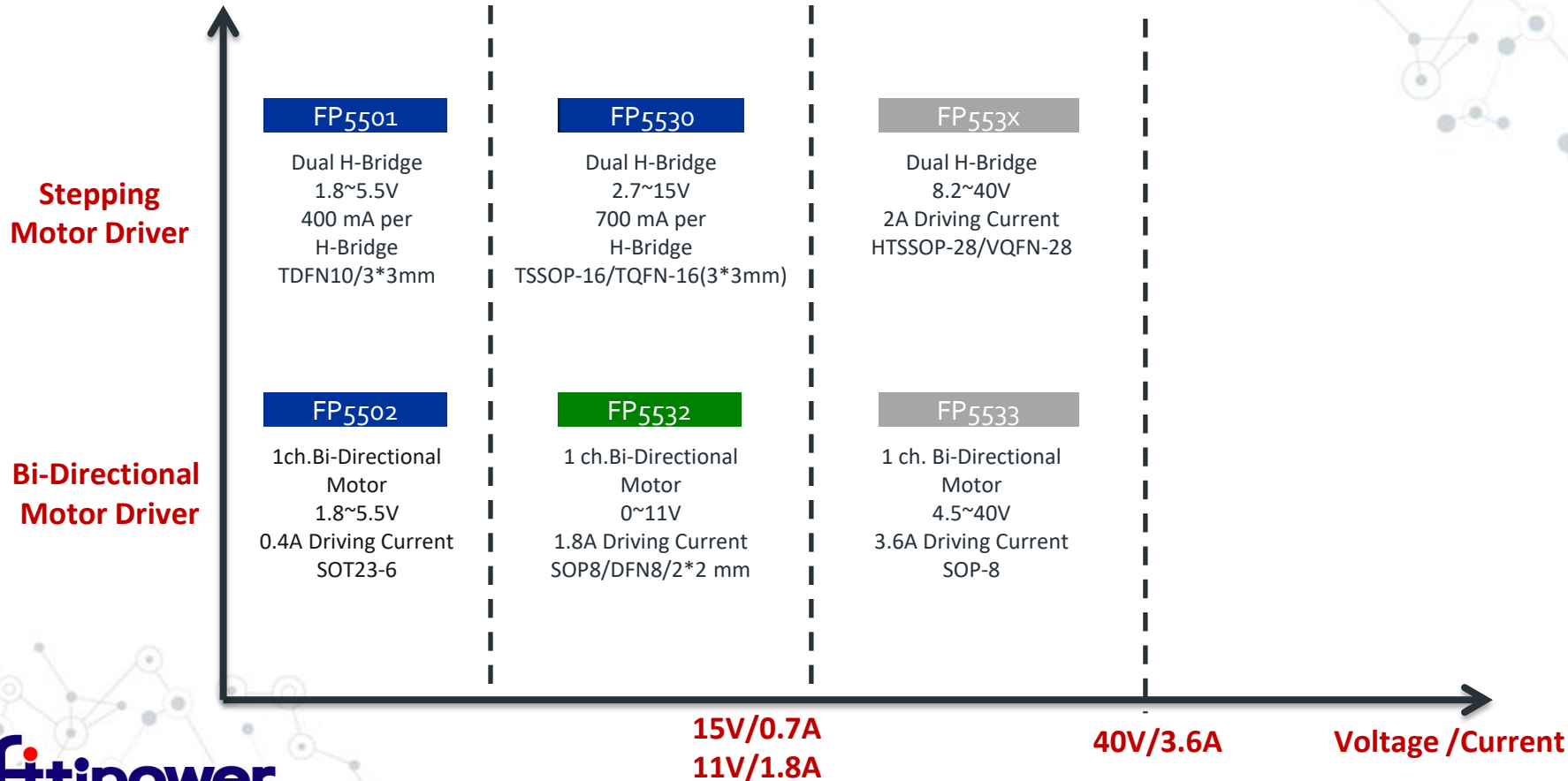


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BLDC & Motor Driver Product Introduction

DC Motor Driver Product Roadmap

MP
Sample
Developing/Plan



FP5530 15V 1.4A Dual H-Bridge Motor Driver

Features:

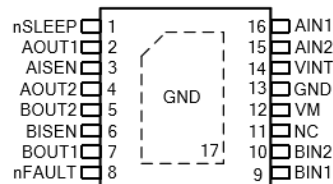
- Wide Input Voltage Range: 2.7V to 15V
- Low R_{DS(ON)} Integrated Power MOSFET(HS+LS:1735mΩ)
- Output Current Capability
- TSSOP Package
 - 0.7A RMS, 1A Peak per H-bridge
 - 1.4A RMS in Parallel Mode
- TQFN Package
 - 0.6A RMS, 1A Peak per H-bridge
 - 1.2A RMS in Parallel Mode
- Low current in sleep mode: 1.6uA
- Integrated Protection: UVLO/OCP/OTP
- Pin To Pin Compatible with DRV8833C, PT5139

Applications

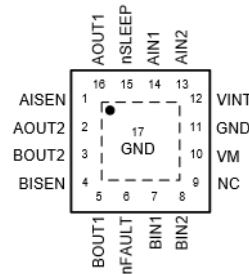
- POS Printers/Office Automation Machines
- Video Security Cameras/Gaming Machines
- Robotics/Battery-Powered Toys

Pin Assignments:

A3 Package(TSSOP-16) (5.1mm x 6.6mm)



W3 Package (TQFN-16)(3mm x 3mm)



MP!

FP5532 11V 1.8A Low-Voltage H-Bridge Motor Driver

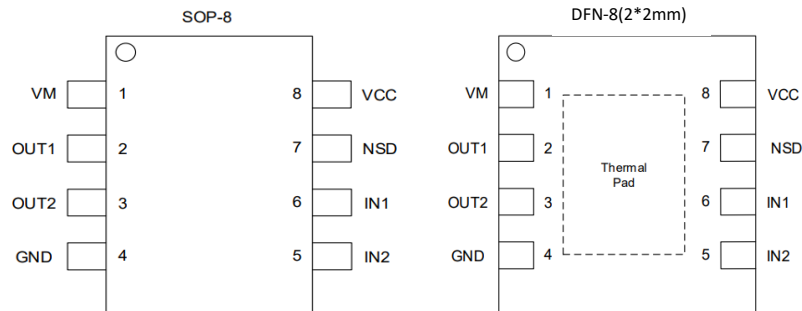
Features:

- Wide Input Voltage Range: 0V to 11V
- Low RDS(ON) Integrated Power MOSFET(HS+LS:280mΩ)
- 1.8A Output Current Capability(VM = 5V, 25°C)
- Low current in sleep mode: 120nA
- PWM interface(IN1-IN2)
- Integrated Protection: UVLO/OCP/OTP
- Over-Temperature Protection with Auto Recovery
- Pin To Pin Compatible with DRV8837,SY6702,PT2466

Applications

- Electrical Toothbrush/Smart Lock
- Gaming Machines/Robotics/Battery-Powered Toys

Pin Assignments:



xIN1	xIN2	xOUT1	xOUT2	FUNCTION
0	0	Z	Z	Coast/Fast decay
0	1	L	H	Reverse
1	0	H	L	Forward
1	1	L	L	Brake/Slow decay

Table 1. H-Bridge Logic

Sample Ready!

FP5533 4.5~40V 3.6A High-Voltage H-Bridge Motor Driver

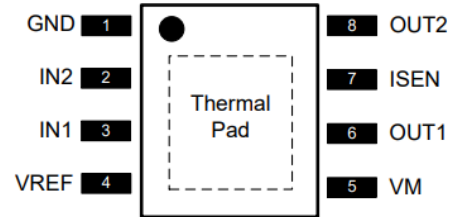
Features:

- Wide Input Voltage Range: 4.5V to 40V
- Low $R_{DS(ON)}$ Integrated Power MOSFET (HS+LS): 565m Ω
- Output Current Capability :3.6 A Peak Current
- Low current in sleep mode: 10uA
- Integrated Current Regulation
- Integrated Protection: UVLO/OCP/TSD
- Pin To Pin Compatible with DRV8870, A4950, TB67H450

Applications

- Printers
- Appliances
- Industrial Equipment

Pin Assignments:



SOP-8(3.1*2.4mm)

2023/Q3 ENG Sample!

BLDC Controller Product Roadmap

**BLDC
Controller**

**System
On Chip**

FP5600
32bit M0+ 96MHz
64KB ROM
16KB SRAM
16ch/12bit ADC/2 S&H circuits
12ch/16bit PWM
OP/PGA*4, CMP*4
Math accelerator(32bit)
UART*3/SPI*1/I2C*1
LQFP-32/LFQFP-48

FP58xx
Input voltage: 5~20V
Integrated Gate Driver
and 5V LDO
32bit M0+ 48MHz
16KB ROM
2KB SRAM
10ch/12bit ADC/1MSPS
LQFP-32/QFN-24/QFN-26

FP5660
32bit M0+ 48MHz
16KB ROM
2KB SRAM
10ch/12bit ADC/1MSPS
OP/PGA*2, CMP*2
UART*2/SPI*1/I2C*1
TSSOP-16/QFN-20

FP58xx
Input voltage: 12~120V
Integrated HV Buck + Gate Driver
and 5V LDO
32bit M0+ 48MHz
16KB ROM
2KB SRAM
10ch/12bit ADC/1MSPS
LQFP-32/QFN-24/QFN-26

FP56xx
32bit M4F 200MHz
256/128KB ROM
64/32KB SRAM
2unit/16ch/12bit
ADC/2MSPS
OP/PGA*4, CMP*4
UART/SPI/I2C/CAN I2S
LQFP-100/LQFP-64

 **MP**
Sample
Developing/Plan

20V

120V

Hi-Performance/Integrated

FP5600 BLDC ASSP Cortex-M0+ MCU

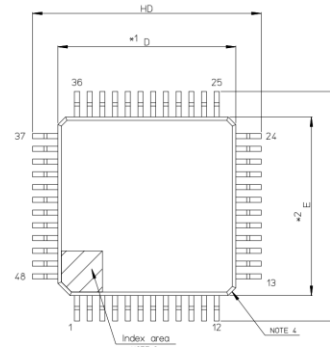
Features:

- Wide Operating Voltage: 2.7~5.5V
- Cortex M0+ 96 MHz
- 64KB Flash ROM
- 16KB SRAM
- 16ch/12 bit ADC/1MSPS/2 S&H circuits
- 12ch/16bit PWM
- OPA/PGA*4 (Gain Adjustable: 32/16/8/4/2)
- Comparator*4 (build in DAC 6bit)
- Math Accelerator (CORDIC)
- Communication Interface: UART*3/SPI*1/I2C*1
- Industrial Grade Operating Temperature :-40~105°C

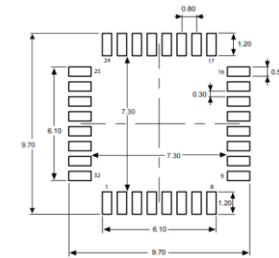
Applications

- BLDC/PMSM Motor
- Refrigerator/Air-conditioning Compressor
- Air purifier/dehumidifier

Pin Assignments:



LFQFP-48



LQFP-32

2023/Q3 ENG Sample!

FP566o BLDC ASSP Cortex-Mo+ MCU

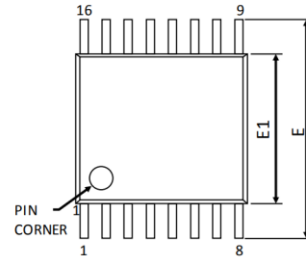
Features:

- Wide Operating Voltage:2.1~5.5V
- Cortex M0+ 48 MHz
- 16KB Flash ROM
- 2KB SRAM
- 10ch/12 bit ADC/1MSPS
- 6ch/16bit Enhance PWM
- OPA/PGA*2(Gain Adjustable:32/16/8/4/2)
- Comparator*2
- Communication Interface: UART*2/SPI*1/I2C*1
- Industrial Grade Operating Temperature :-40~105°C

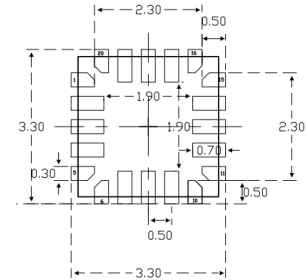
Applications

- Fan/Blower/Pump
- Home appliances

Pin Assignments:



TSSOP-16



QFN-20

FP58xx BLDC ASSP Cortex-M0+ SoC

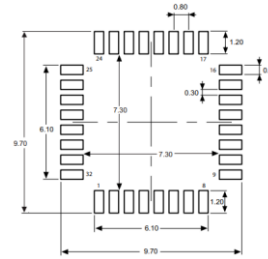
Features:

- Operating Voltage input: 12~100V
- Integrated Buck Converter(120V/1A)
- Gate Driver(120V,N-N driving type),5V LDO
- Gate driver output voltage: 12~15V
- Gate driver Sink current:0.8A, source current:0.8A
- Cortex-M0+ 48 MHz
- 16KB Flash ROM
- 2KB SRAM
- 10ch/12 bit ADC
- 6ch Motor PWM
- OPA*2
- Comparator*2
- Communication Interface: UART*2/SPI*1/I2C*1
- Industrial Grade Operating Temperature :-40~125°C

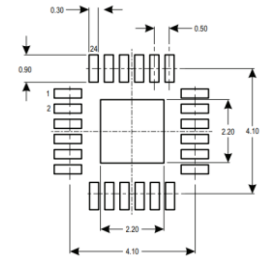
Applications

- Industrial & consumer blowers and fans
- Server Cooling Fan(48V system)

Pin Assignments:



LQFP-32



QFN-32 (5x5)

FP58xx BLDC ASSP Cortex-M0+ SoC

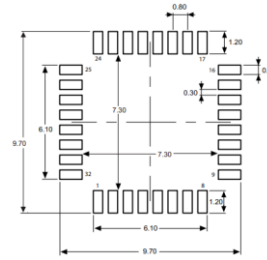
Features:

- Operating Voltage input: 5~20V
- Integrated Gate Driver (N-N type)and 5V LDO
- Gate driver output voltage: 12V
- Gate driver Sink current:0.8A, source current:0.8A
- Cortex-M0+ 48 MHz
- 16KB Flash ROM
- 2KB SRAM
- 6ch Motor PWM
- OPA*2
- Comparator*2
- Communication Interface: UART*2/SPI*1/I2C*1
- Industrial Grade Operating Temperature :-40~125°C

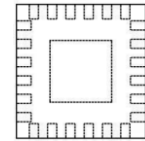
Applications

- Power tool
- Industrial & consumer blowers and fans
- Server Cooling Fan(12V system)

Pin Assignments:



LQFP-32



QFN-24(4x4mm)



“

Li-ion Linear Battery Charger Product Introduction

FP6908 30V 1A Li-ion/Li-Polymer Linear Battery Charger

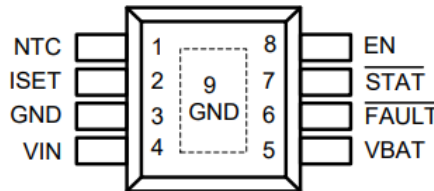
Features:

- Input Surge Up to 30V
- No External Blocking Diode Required
- Support 4.2V/4.35V Charger Voltage
- Charge Voltage Accuracy: 1%
- Input Over-Voltage Protection
- Programmable Current Limit
 - 1A for SOP-8/DFN-8 Package
 - 500mA for SOT-23-5 Package
- Charge Current Thermal Fold-back
- Accepts Multiple Types of Adapters
- Can Operate at 3.9V After Start Up
- NTC interface
- Less than 1uA Leakage Current off the Battery

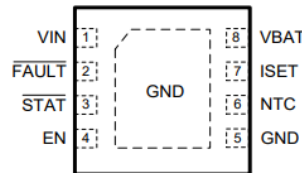
Applications

- Handheld Devices including Medical Handhelds
- PDAs, Cell Phones and Smart Phones
- Portable Instruments, MP3 Players
- Self-Charging Battery Packs/Stand-Alone Chargers

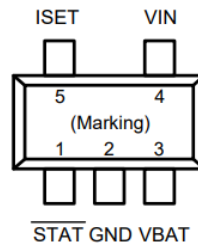
Pin Assignments:



SOP-8



DFN-8(2x2)



SOT-23-5

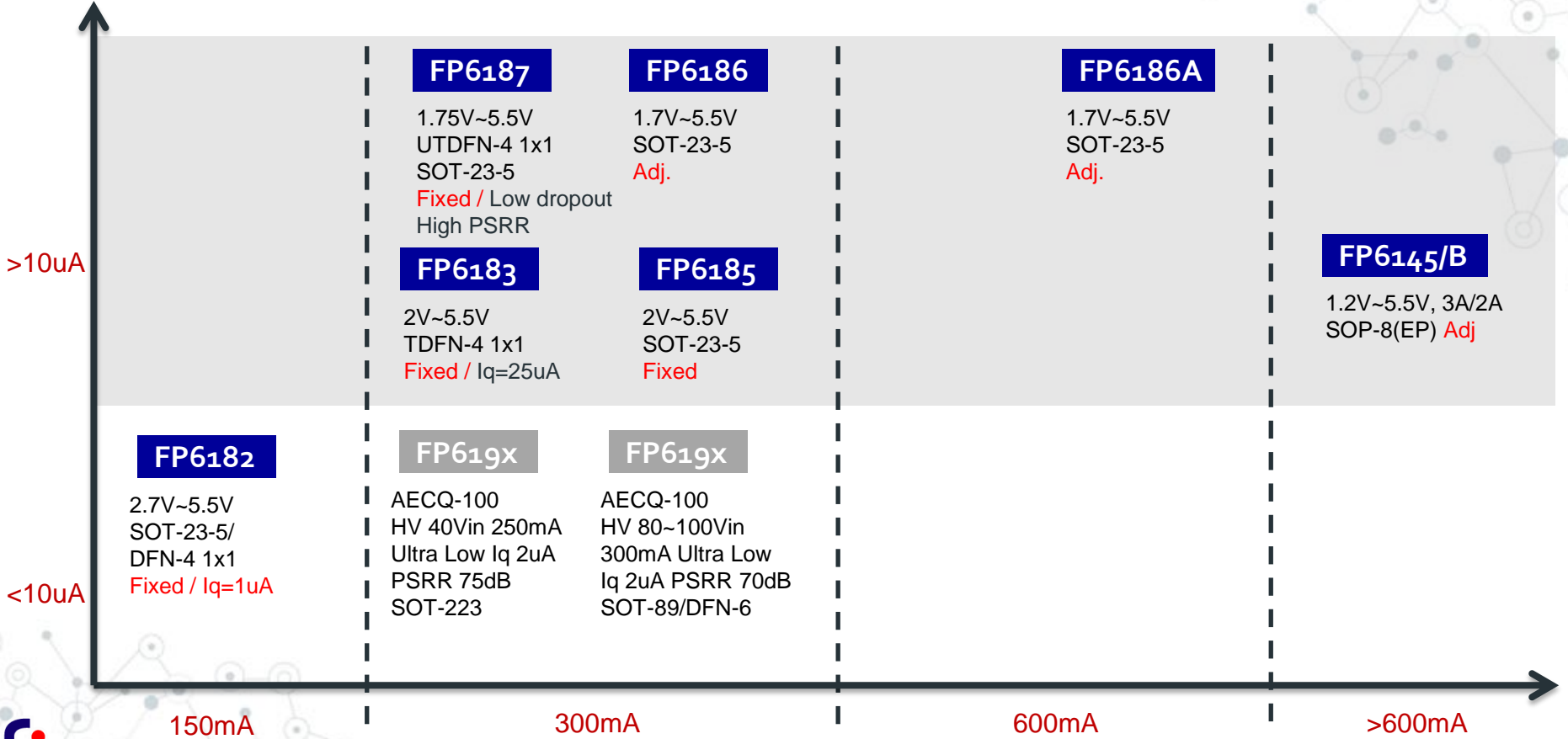


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Low Drop Out Regulator & Power Switch

Low Drop Out Regulator Products

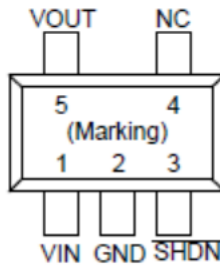
MP
Sample
Developing/Plan



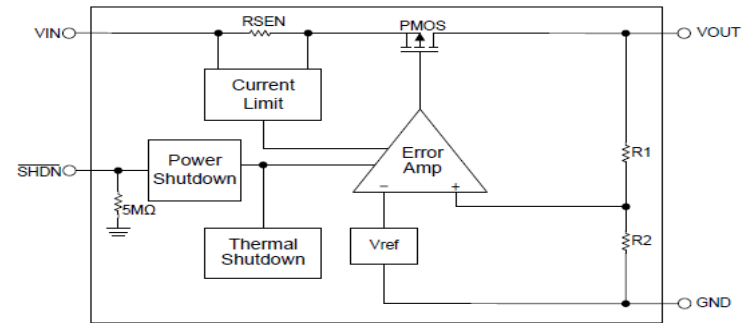
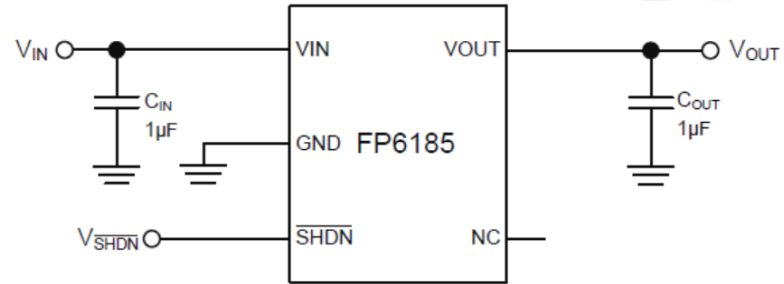
FP6185 300mA High PSRR Low Dropout LDO

Feature:

- Low VIN and Wide VIN Range: 2V to 5.5V
- Guarantee Output Current 300mA
- 1% Output Voltage Accuracy
- Output Noise 65 μ Vrms from 10Hz to 100kHz
- VOUT Fixed 1.1V to 3.3V
- Low Dropout Voltage of 400mV at 300mA
- Ripple Rejection 70dB at 10kHz
- Very Low Quiescent Current at 35 μ A
- Needs Only 1 μ F Capacitor for Stability
- Thermal Shutdown Protection
- Current Limit Protection
- Miniature Packages: SOT-23-5



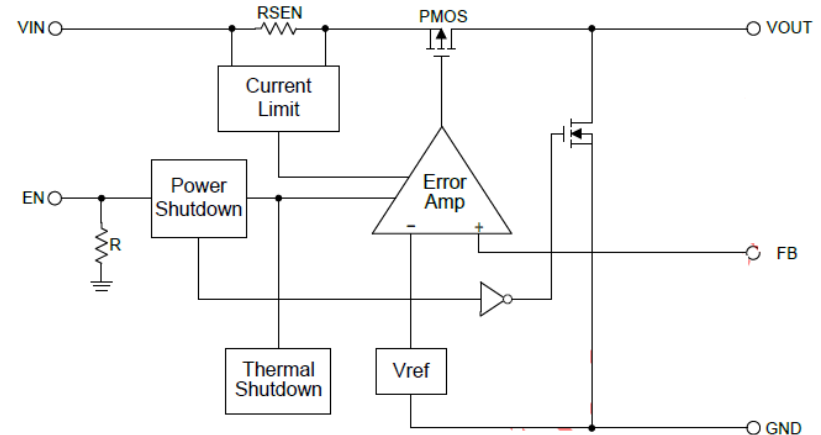
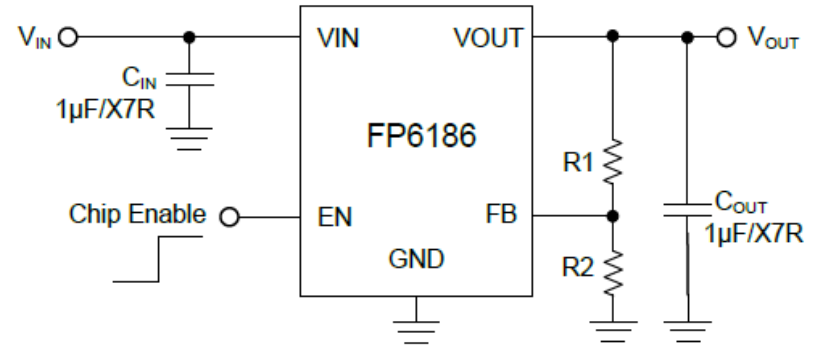
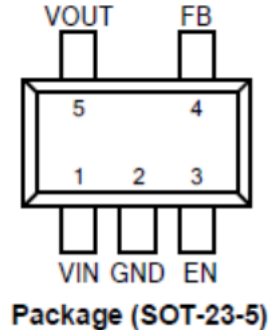
Package (SOT-23-5)



FP6186 300mA/600mA Adjustable Low Dropout LDO

Features

- Low VIN and Wide VIN Range: 2.2V to 5.5V
- Guarantee Output Current 300mA /600mA
- VOUT Accuracy $\pm 1\%$
- Ripple Rejection 65dB at 10kHz
- Low Output Noise, $50\mu\text{Vrms}$ from 10Hz to 100kHz
- Quiescent Current as Low as $35\mu\text{A}$
- Current Limit Protection
- Thermal Shutdown Protection
- 1 μF Output Capacitor Required for Stability
- RoHS Compliant



FP6187 300mA High Bandwidth PSRR Low Dropout LDO

Features

- Low VIN and Wide VIN Range: 1.5V to 5.5V
- Output Current 300mA*1
- 1% Output Voltage Accuracy
- Output Noise 65 μ Vrms from 10Hz to 100kHz
- VOUT Fixed 1V to 3.3V
- Low Dropout Voltage of 250mV at 300mA
- Ripple Rejection 75dB at 1kHz
- Low Quiescent Current at 45 μ A
- Needs Only 1 μ F Capacitor for Stability
- Current Limit Protection
- Current Foldback Protection
- UTDFN-4L (1mm \times 1mm)

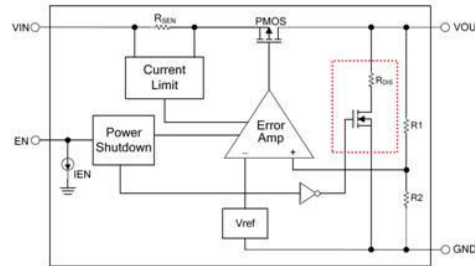
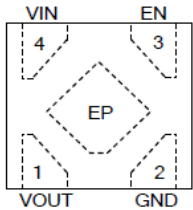
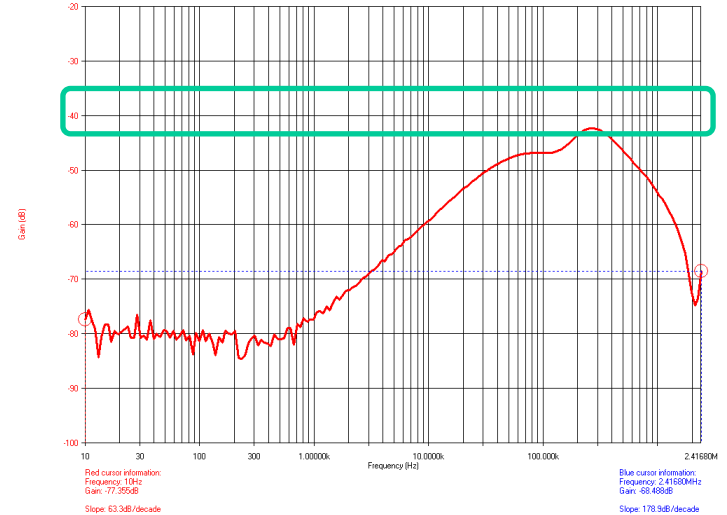
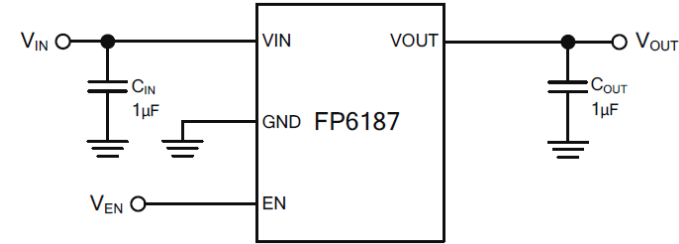
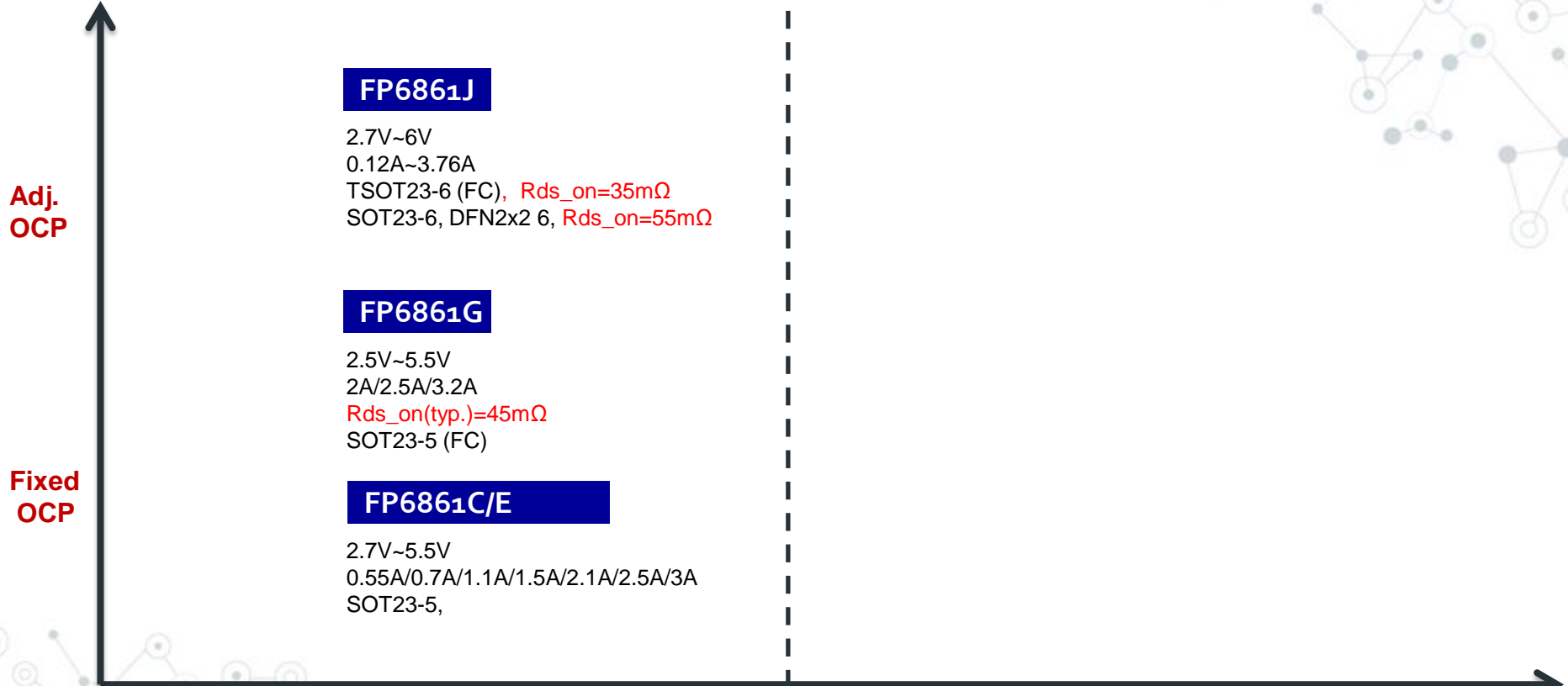


Figure 3. Block Diagram of FP6187



Power Switch Products

MP
Sample
Developing/Plan



FP6861J

2.7V~6V
0.12A~3.76A
TSOT23-6 (FC), $R_{ds(on)}=35m\Omega$
SOT23-6, DFN2x2 6, $R_{ds(on)}=55m\Omega$

FP6861G

2.5V~5.5V
2A/2.5A/3.2A
 $R_{ds(on)(typ.)}=45m\Omega$
SOT23-5 (FC)

FP6861C/E

2.7V~5.5V
0.55A/0.7A/1.1A/1.5A/2.1A/2.5A/3A
SOT23-5,

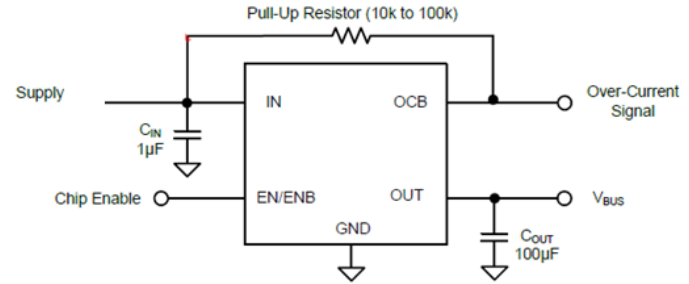
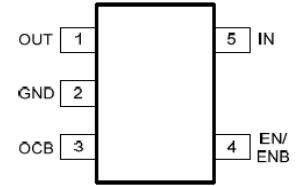
<6V

FP6861G

Single-Channel Power Distribution Switch (fixed current limit version)

Features

- Input voltage: 2.5V to 5.5V
- **Extremely Low Power Path Resistance: 45mΩ (typ.)**
- 3A load current capability
- Two Enable polarities: Active High / Active Low
- Over temperature shutdown and automatic retry
- Reverse blocking (no body diode)
- Fault flag (OCB) output for over current and fault conditions
- At shutdown, OUT can be forced higher than IN
- Built-in soft-start
- Compact package minimizes the board space: SOT23-5



Package Thermal Resistance, (θ_{JA}) (Note 2)

SOT-23-5 ----- 85°C/W

Package Thermal Resistance, (θ_{JC})

SOT-23-5 ----- 20°C/W

FP6861J

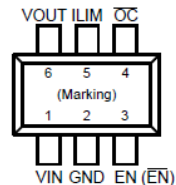
Single-Channel Power Distribution Switch(Adjustable current limit)

Features

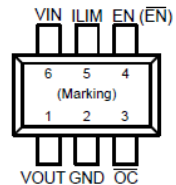
- Input voltage: 2.7V to 6V
- Adjustable Current Limit: 0.12~3.76A
- Extremely Low Power Path Resistance:
 - **35mΩ (typ.) (TSOT-23-6),**
 - **55mΩ (SOT-23-6/TDFN-6)**
- 80μA Typical at Switch On State (RILIM=20kΩ)
- 0.1μA Typical at Switch Off State
- Open-Drain Fault Flag Output
- Hot Plug-In Application (Soft-Start)
- 2.2V Typical Under-Voltage Lockout (UVLO)
- Thermal Shutdown Protection
- Reverse Current Flow Blocking (No Body Diode)
- Reverse Voltage Protection
- Logic Level Enable Pin
- SOT-23-6, TSOT-23-6, and TDFN-6 (2mm×2mm) Packages

Pin Assignments

S6 Package (SOT-23-6)



S9 Package (TSOT-23-6)



D7 Package (TDFN-6) (2mm×2mm)

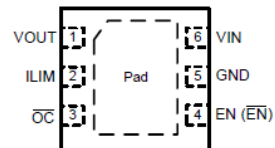


Figure1. Pin Assignment of FP6861J

Reset Products

Microprocessor Reset Circuits With Adjustable Delay Time

MP
Sample
Developing/Plan

Open -Drain

FP68o5

1.5V~6V
1.5uA
TSOT23-3/23-5
TSOT23-6, TDFN-6

Push -Pull

FP68o6

1.5V~6V
1.5uA
TSOT23-3/23-5
TSOT23-6, TDFN-6

<6V

FP6805

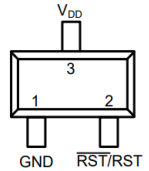
Microprocessor Reset Circuits With Adjustable Delay Time

Features

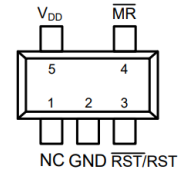
- Input voltage: 1.5 to 6V
- Power-On Reset Generator with Adjustable Delay Time: 2ms to 10s
- -Cd Pin Open: (RST) Delay 240ms Typical
- -Cd Pin Connected to VDD through a Resistor between 100k Ω : (RST) Delay 0ms Typical
- Capacitor Adjustable Delay Time
- Very Low Quiescent Current:
 - 1.5 μ A Typical (FP6805S9, FP6805D7) / 2.5 μ A Typical (FP6805S7, FP6805S8)
- High Threshold Accuracy: $\pm 1\%$ Typical Fixed Threshold Voltages for Standard Voltage Rails from 0.8V to 5V (FP6805S9, FP6805D7), 1.5V to 5V (FP6805S7, FP6805S8) and Adjustable Voltage Down to 0.4V are Available (FP6805S9, FP6805D7)
- Manual Reset Input/Open-Drain (RST) Output
- Immune to Short Negative SENSE Voltage
- Guarantee Reset Valid to VDD=0.8V

- TSOT-23-3/23-5/23-6, and TDFN-6 (2mm \times 2mm) Packages

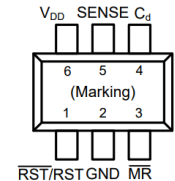
S7 Package (TSOT-23-3)



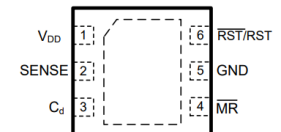
S8 Package (TSOT-23-5)



S9 Package (TSOT-23-6)



D7 Package (TDFN-6)(2mm \times 2mm)



Comparison Table For FP6805/06

Company	Fitipower-FP6805/06	Onsemi-NCP308	TI-TPS3899	RT9818/19
Reset Pin Type	Oepn-Drain/Push-Pull	Oepn-Drain	Oepn-Drain/Push-Pull	Oepn-Drain/Push-Pull
Reset pin	Active low/high	Active low	Active low/high	Active low/high
VDD	1.5~6V	1.6~5.5V	0.8/1~6V	0.9~6V
Supply Current	1.5uA	1.6uA	0.125uA	3uA
Reset Threshold	Adj(0.4)	Adj(0.405)	Adj(0.505)	Fixed 1.5 to 5
Threshold Voltage Accuracy	±1%	±2.06%	±2.5%	±1.5%
Threshold Voltage Hysteresis	1.5%	1.75%	5%	1~1.6%
VDD Drop to Reset Delay	20	20	-	20
Reset Active Timeout Period	Adj 2ms~10s	Adj 1.25ms~10s	Adj 40us~619ms	0/55/220/450ms
PKG	TSOT23-3/23-5/ 23-6/TDFN-6	TSOP-6/WDFN-6		SOT23-3/23-5/89

Motor Driver Applications

FP5530/Stepping Motor Driver

- Dual H-Bridge Current Control Driver
- Two DC Motors or One Motor
- 700 mA per H-Bridge



FP5532/ DC Motor Driver

- One Ch. Bi-Directional Motor Driver
- One DC Motor
- 1.8 A Peak Current



FP5533/ DC Motor Driver

- Wide Input Voltage Range: 4.5V to 40V
- Low $R_{DS(ON)}$ Integrated Power MOSFET (H+L): 565m Ω
- 3.6A Output Current Capability
- Low current in sleep mode: 10uA
- Integrated Current Regulation
- Integrated Protection: UVLO/OCP/TSD
- ESOP-8



BLDC Controller Applications

FP5600/ Mo+ BLDC Controller

- Cortex M0+ 96 MHz
- 64KB Flash ROM
- 16KB SRAM
- 16ch/12 bit ADC/1MSPS
- 12ch/16bit PWM
- OPA/PGA*4(Adjustable Gain)
- Comparator*4(build in DAC 6bit)
- Math Accelerator(32bit)
- Communication: UART/SPI/I2C(Slave+Master)
- LQFP-32/LFQFP-48



FP5660/ Mo+ BLDC Controller

- Cortex M0+ 48 MHz
- 16KB Flash ROM
- 2KB SRAM
- 10ch/12 bit ADC/1MSPS
- 6ch/16bit Enhance PWM
- OPA/PGA*2
- Comparator*2
- UART*2/SPI*1/I2C*1
- TSSOP-16/QFN-20



BLDC SoC Applications

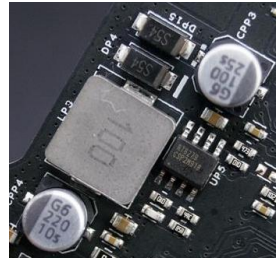
FP5800/ BLDC SoC

- Input Voltage Range :8-40V
- Integrated Gate Driver and 5V LDO
- M0+ 48 MHz
- 16KB ROM/2KB RAM
- 10ch/12 bit ADC/1MSPS
- 6ch/16bit Enhance PWM
- OPA/PGA*2(Gain Adjustable:32/16/8/4/2)
- Comparator*2
- Communication Interface: UART*2/SPI*1/I2C*1
- QFN-26/LQFP-32



Handheld POS Power Tree

**9V
System**



**Motor Driver
15V/0.7A**
FP5530 (DRV8833)



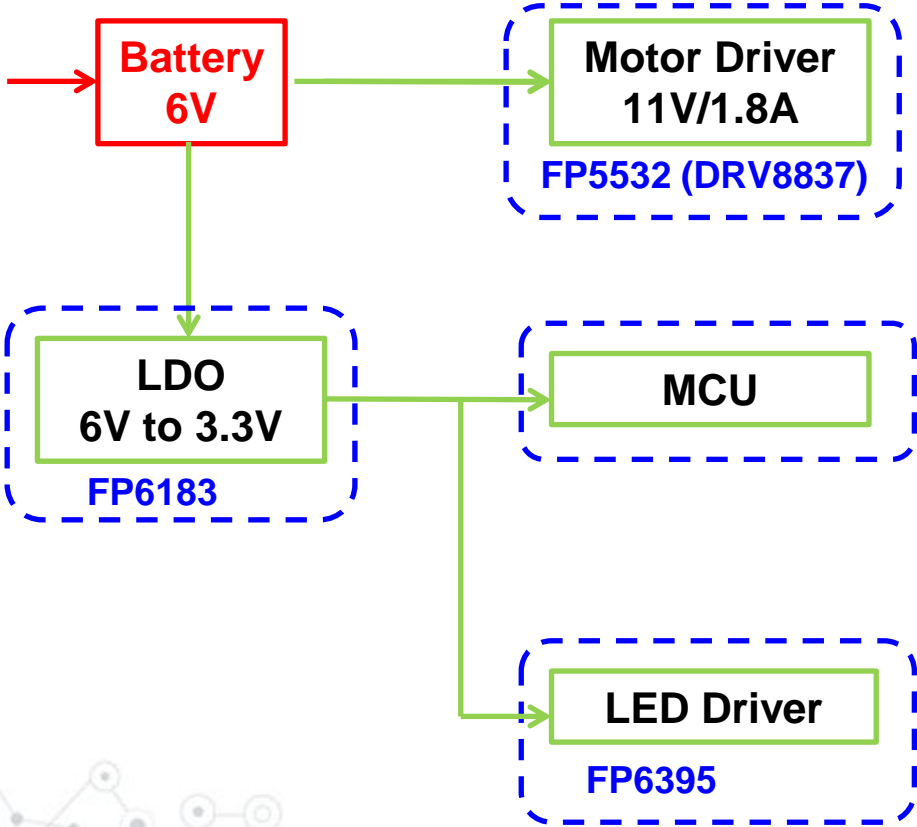
**DC/DC
9V to 3.6V**
Buck
FP6396/FP6397
FP9205/9206



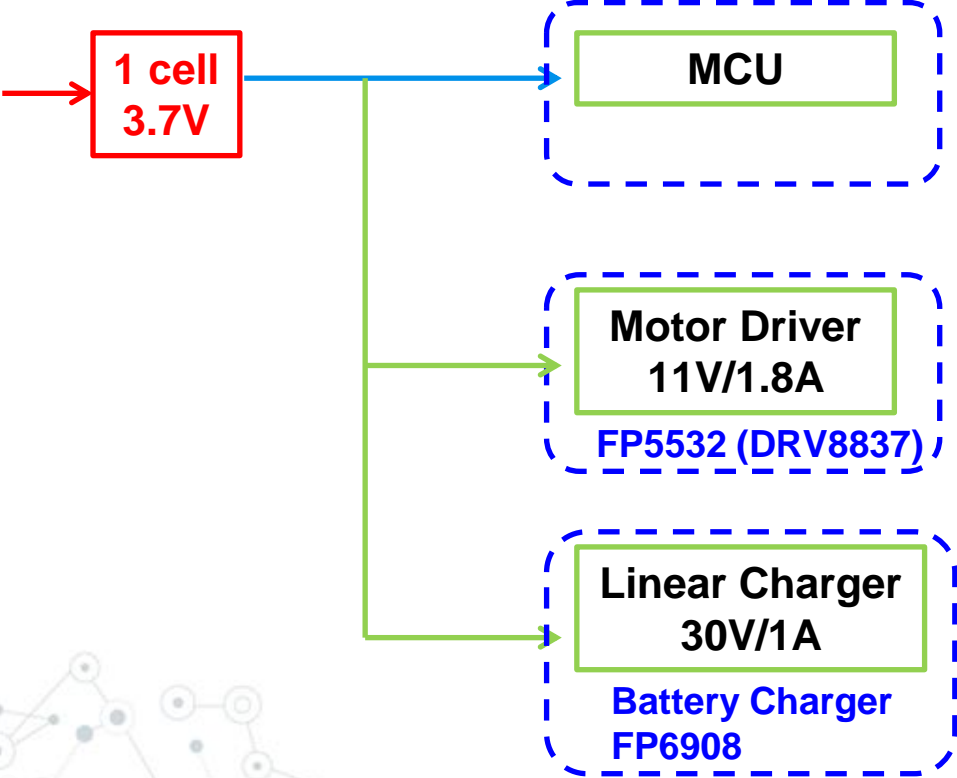
**LDO
3.6V to**
FP6183



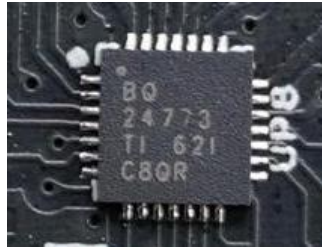
Smart Lock Power Tree



Electrical Toothbrush Power Tree



Robot Vacuum Power Tree



Adapter
19V

Multi Cell Charger
19V to 14.4V

Motor Driver
40V/3.6A
FP5533 (DRV8870)

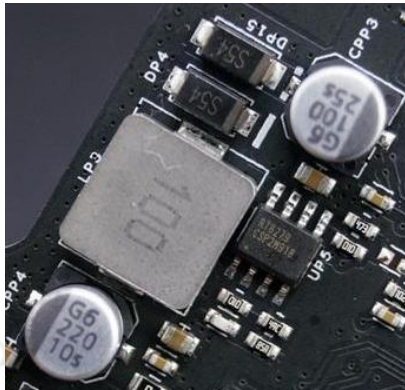
BLDC ASSP MCU
Cortex-M0+
FP5600(FU68xx)

DC/DC
19V/14.4V to 3.6V

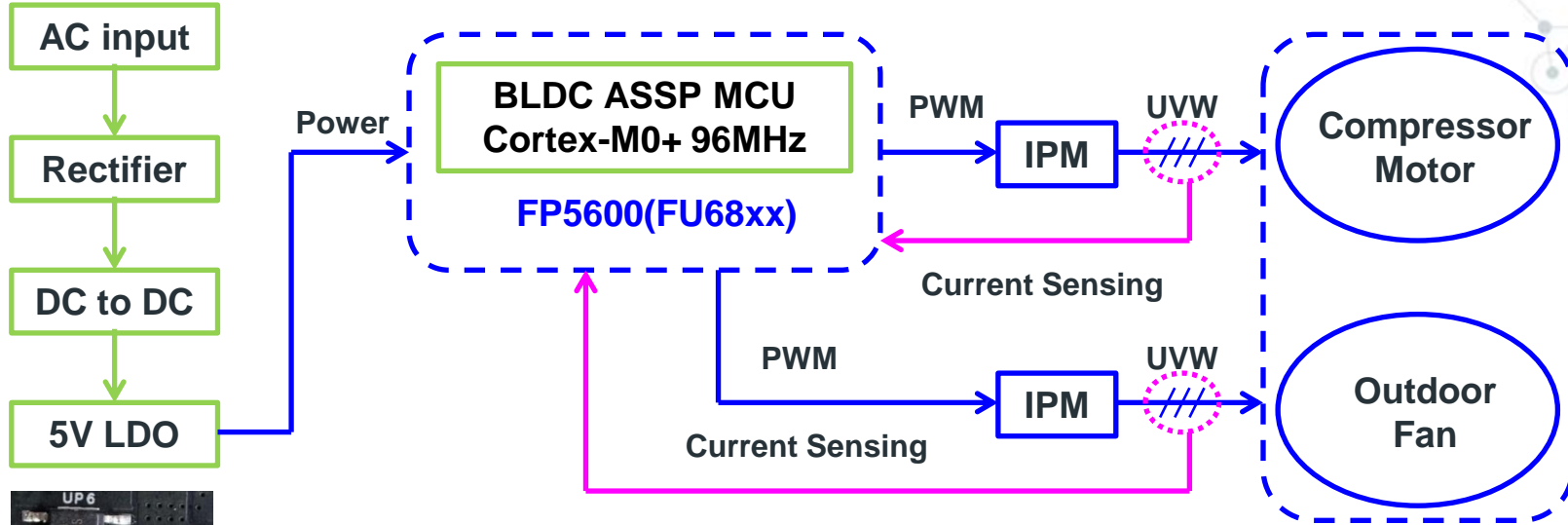
PMIC

HV Buck
FR9863 (TPS54302)
FR9608/09 (TPS54335/6)
FR9838

LDO
3.6V to



Air-Conditioning Compressor Application



FP5600 Feature:

1. Dual FOC Control(2 S&H circuit)
2. Math Accelerator($\sin\theta$ 、 $\cos\theta$ 、Divider、Square)



Comparison Table For FP5530

Company	Fitipower 5530	TI DRV8833C
Motor Type	DC/Stepper Motor	DC/Stepper Motor
Driver Type	Dual H-Bridge	Dual H-Bridge
Wide Voltage range	2.7~15V	2.7~10.8V
Output Current(TSSOP)	0.7A(RMS)/1A(Peak)	0.7A(RMS)/1A(Peak)
Output Current(TQFN)	0.6A(RMS)/1A(Peak)	0.6A(RMS)/1A(Peak)
MOSFET Rdson(H+L)	1735mΩ	1735mΩ
Integrated Protection	UVLO/OCP/OTP/Fault	UVLO/OCP/OTP/Fault
Sleep Mode Current	1.6uA	1.6uA
Package Type	TSSOP-16/TQFN-16	HTSSOP-16/QFN-16
Compatible	Pin To Pin 8833C	

Comparison Table For FP5532

Company	Fitipower-5532	TI-DRV8837	TMI-8837	SY6702
Motor Type	DC Motor	DC Motor	DC Motor	DC Motor
Motor Voltage range(VM)	0~11V	0~11V	1.8~11V	2.5~12V
Logic Power range(VCC)	1.8~6V	1.8~7V	1.8~7V	
Output Current	1.8A	1.8A	1.5A	1.8A
MOSFET Rdson(H+L)	280mΩ	280mΩ	650mΩ	450mΩ
PWM interface	IN1/IN2	IN1/IN2	IN1/IN2	IN1/IN2
Protection	UVLO/OCP/OTP/Fault	UVLO/OCP/OTP/Fault	UVLO/OCP/OTP/Fault	UVLO/OCP/OTP/Fault
Package Type	SOP-8/DFN-8	WSON-8	SOP-8/DFN-8	DFN-8
Compatible	Pin To Pin TI-8837			

Motor Driver Selection Guide

Part No.	Key Features	Family	VCC (V)	VM (V)	CH	Peak Output Current(A)	Integrated Protection	Package
FP5501	400mA, 2 CH. Bi-Directional Motor Driver	Stepper Motor Driver	1.8~5.5		2	0.4	UVLO,TSP	TDFN - 10(3x3)
FP5530	1.4 A, 2 CH. Bi-Directional Motor Driver	Stepper Motor Driver	2.7~15		2	1.4	UVLO,OCP,OTP	TSSOP-16 TQFN-16
FP5502	400mA, 1 CH. Bi-Directional Motor Driver	DC Motor Driver	1.8~5.5		1	0.4	UVLO,CCP,TSP	SOT-23-6
FP5532	1.8 A, 1 CH. Bi-Directional Motor Driver	DC Motor Driver	1.8~6	0~11	1	1.8	UVLO,OCP,OTP	SOP8 /DFN8 (2*2 mm)
FP5533	3.6 A Peak, 1 CH. Bi-Directional Motor Driver	DC Motor Driver		4.5~40	1	3.6	UVLO,OCP,OTP	ESOP8

BLDC Controller Selection Guide

Part No.	Max. Frequency	VDD (V)	FLASH (KB)	SRAM (KB)	ADC	Timer	PWM	Interface	Other	I/O	Package	Operating Temp.
FP5600	96 MHZ	2.7~5.5	64	16	12Bit*16ch /1MSPS	QEI*2 Timer*2 Etimer*3 RTC*1 WDT*1	2*6ch (Motor)	UART*3 SPI*1 I ² C*1	OP/ PGA*4, CMP*4	25 42	LQFP-32/ LFQFP-48	-40~105 °C



Thanks!

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