

3-CHANNEL PMU WITH BUCK, BOOST AND SC CHARGER - 45V standoff Voltage

DESCRIPTION:



ALPCFP9073 is a three channel PMU that includes a synchronous buck converter, a boost converter, and a supercap charger.

The buck converter withstands input voltage up to 45V and delivers a 3.3/3.0/2.9/2.7V output with up to 500mA current. The boost converter is capable of providing up to 500mA to 12V output from a single cell supercapacitor or a battery at 2.7V. A linear supercapacitor charger is also integrated with a very accuracy CV voltage.

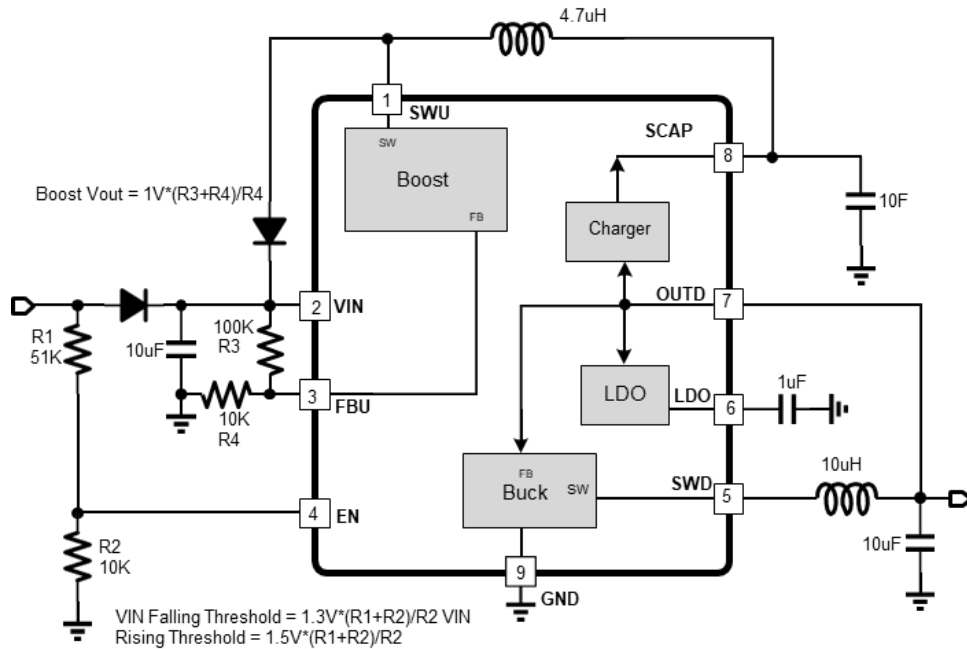
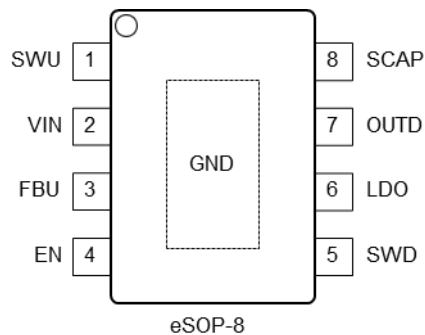
The output voltage of boost can be adjusted by external resistor divider.

FEATURES:

- 3 in 1, Buck, Boost and Super Capacitor Charger
- Buck working range: 6.5~40V, 45V standoff
- 500mA output for buck
- Buck output voltage version: 2.7/2.9/3/3.3V
- 12V/500mA output for Boost at 2.7V input
- Constant charger current 30mA
- Enable pin to auto-switch boost and charger
- Over temperature protection (OTP)
- Available in eSOP8 Package.

APPLICATIONS:

- PLC modules
- Power Meters

TYPICAL APPLICATION AND RECOMMENDED COMPONENTS

PIN DESCRIPTION


PIN	NAME	DESCRIPTION
1	SWU	Switch pin for boost converter.
2	VIN	System power input.
3	FBU	External Feedback pin for boost converter.
4	EN	Enable pin for auto-switching Boost and Charger. EN=0, Boost in ON and Charger is OFF; EN=1, Charger is ON and Boost is OFF.
5	SWD	Switch pin for Buck.
6	LDO	Power for internal logic blocks. Bypass a 1uF capacitor to GND.
7	OUTD	Output voltage pin for BUCK, It is internally set to 2.7/2.9/3.0/3.3V. It is also the input of the Charger.
8	SCAP	Super capacitor charger output. It is internally set to 2.7V.
9	GND	GND, Thermal PAD

ELECTRICAL CHARACTERISTICS

ELECTRICAL CHARACTERISTICS (TA = 25 °C, VIN=12V unless otherwise noted)						
Parameter	Symbol	Min	Typ	Max	Unit	Conditions
BUCK:						
Buck Input Standoff Voltage			45		V	
Buck Input Voltage Range	Vin	6.2		40	V	
Buck Input UVLO Rising	Vuvlor		6.15		V	
Buck Input UVLO Falling	Vuvlof		5.65		V	
Buck Input OVP Rising	Vovpr		44		V	
Buck Input OVP Falling	Vovpf		41		V	
Normalized VOUTD Voltage	Vout	98	100	102	%	Typ. 2.7/2.9/3.0/3.3
Buck Switch Clock	F _{BUCK}	430	460	490	KHz	
Buck Lowside Rdson			480		mΩ	
Buck Highside Rdson			750		mΩ	
BOOST:						
FBU Feedback Voltage		0.98	1	1.02	V	
Boost Switch Clock	F _{BOOST}	1.1	1.2	1.3	MHz	
FBU Input Current				0.2	uA	
Boost Input Range		0.65		5	V	V _{VIN} =12V
Boost Output Voltage Range		5		16	V	V _{SCAP} =2.7V
Boost Lowside Rdson			88		mΩ	
CHARGER:						
CV Voltage	Vcharge	2.64	2.7	2.76	V	
Charge Current	Icharge		30		mA	
LDO:						
Output Voltage	Vldo		1.2		V	Iload=50mA
Max Output Current			100		mA	
SYSTEM:						
Quiescent Current	IQ0		600		uA	VOUTD=3.6V, EN=3V
Quiescent Current	IQ1		680		uA	VOUTD=3.6V, EN=0V
EN input current			100		uA	VEN=12V
EN Threshold Rising			1.5		V	
EN Threshold Falling	V _{TH} EN		1.3		V	
Thermal Shutdown			150		°C	Hysteresis 30°C

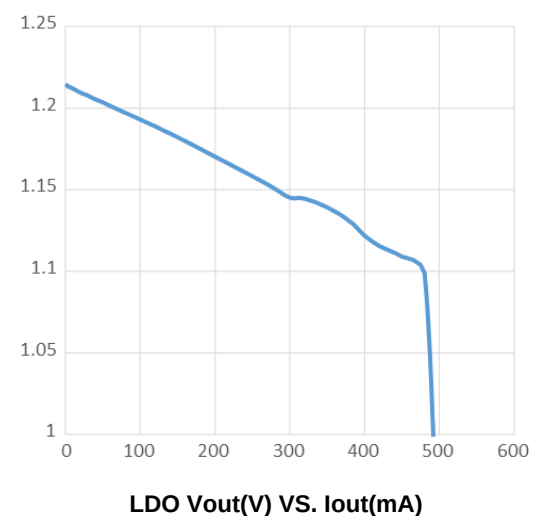
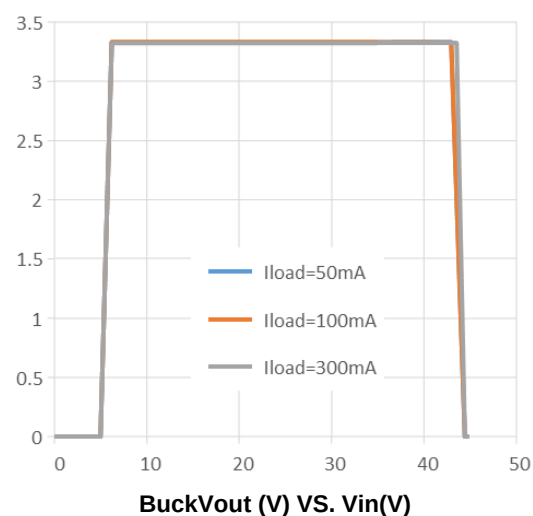
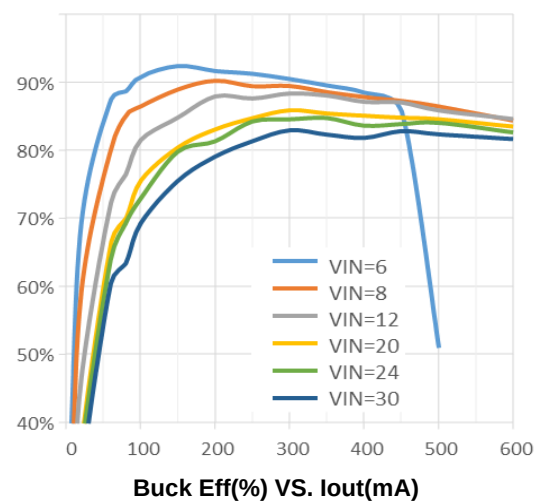
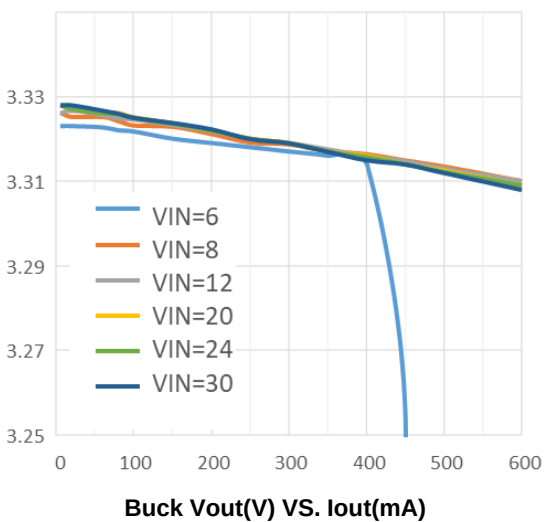
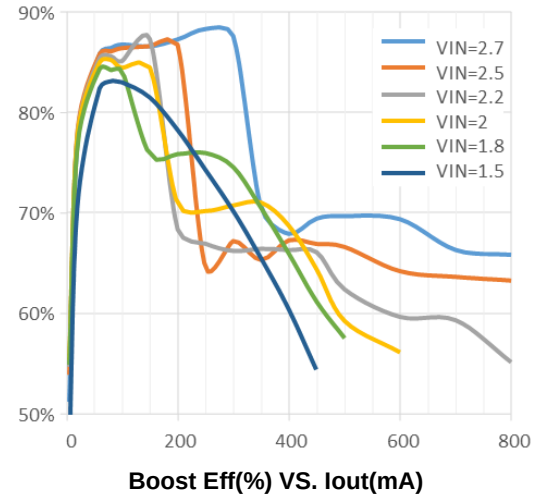
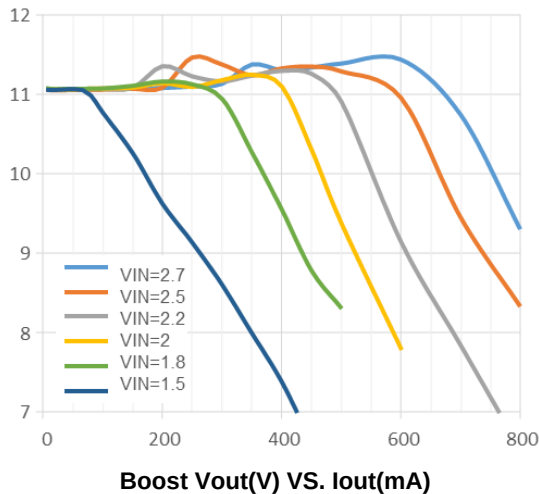
ORDER INFORMATION

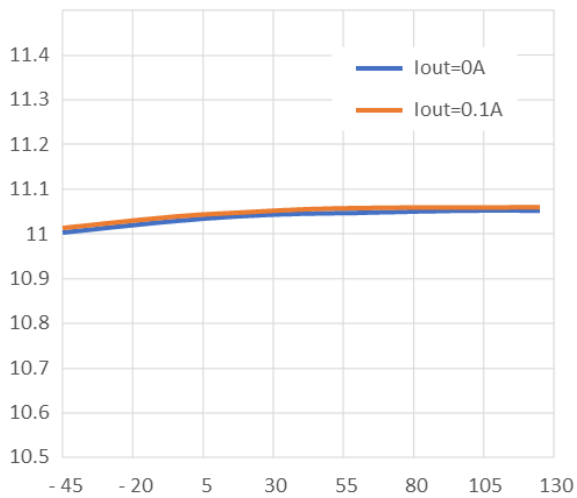
ORDER INFORMATION				
Part Number	Package Type	Top Marks	Pcs/Reel	Buck Output
ALPCFP907327	eSOP-8	ALPCFP907327/YWWL	3000	2.7V
ALPCFP907329	eSOP-8	ALPCFP907329/YWWL	3000	2.9V
ALPCFP907330	eSOP-8	ALPCFP907330/YWWL	3000	3.0V
ALPCFP907333	eSOP-8	ALPCFP907333/YWWL	3000	3.3V

ABSOLUTE MAXIMUM RATINGS

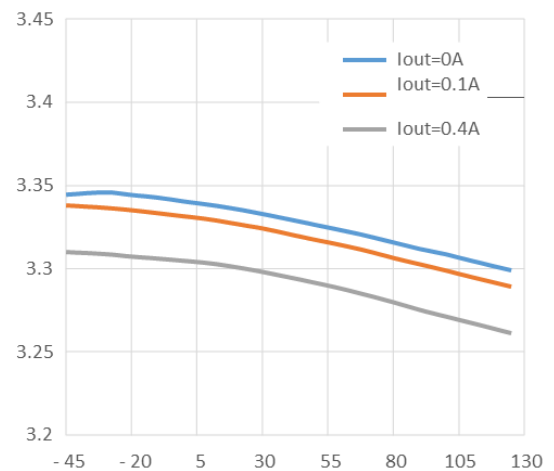
ABSOLUTE MAXIMUM RATINGS			
Parameter	Rating	Unit	Remarks
VIN Voltage	-0.3 ~ 46	V	
EN, SWD Voltage	-0.3 ~ VIN+0.3	V	
SWU Voltage	-0.3 ~ 18	V	
All Other Pins Voltage	-0.3 ~ 6	V	
Operational temperature range	-40 ~ 85	°C	
Storage temperature range	-55 ~ 150	°C	
Thermal Resistance (θ_{JA})	50	°C/W	Junction to Ambient
ESD HBM	2.0	KV	
ESD CDM	0.2	KV	

TYPICAL DEVICE CHARACTERISTICS CURVES

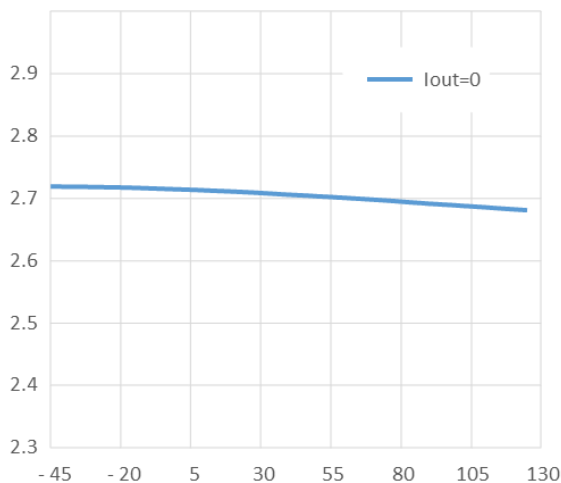




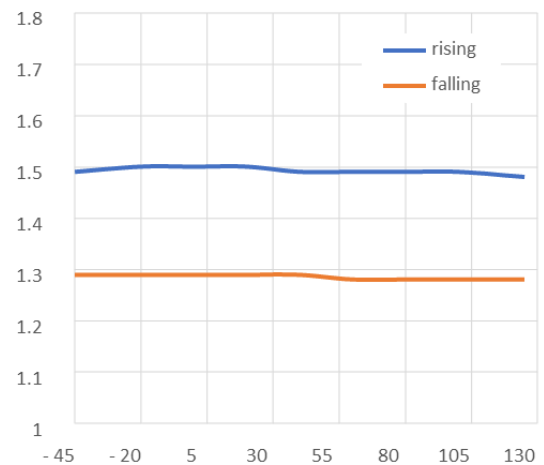
Boost Vout(V) VS. Temp(°C)



Buck Vout(V) VS. Temp(°C)



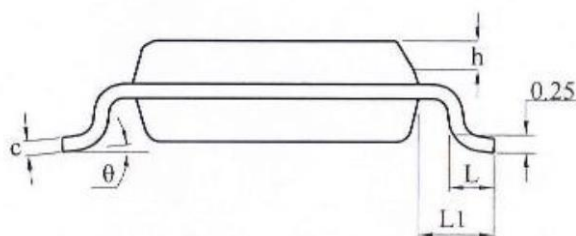
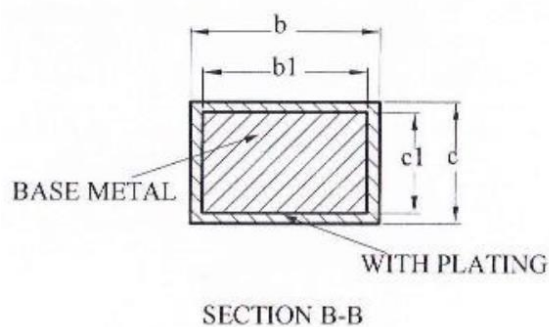
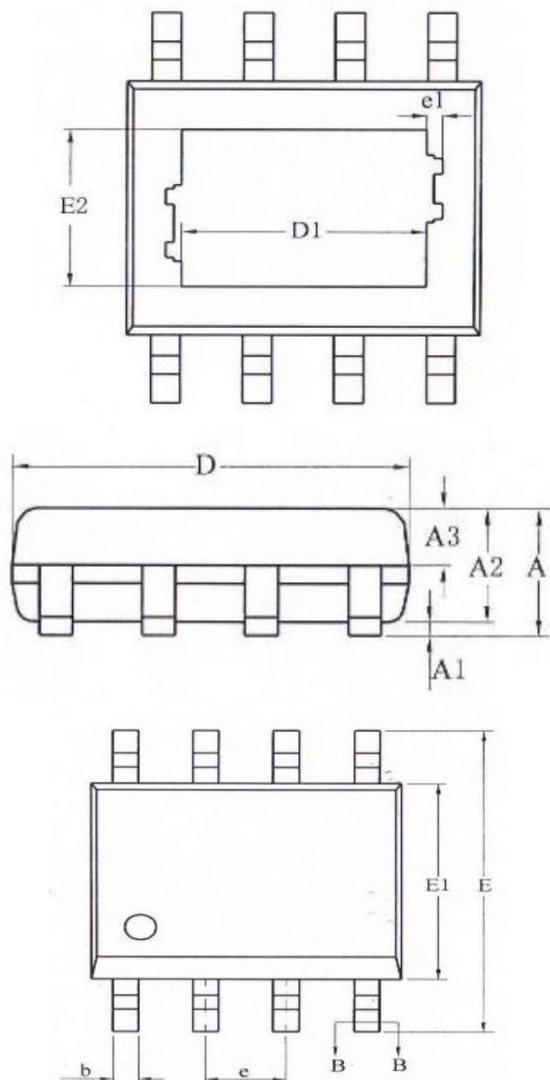
Charger Vcv(V) VS. Temp(°C)



EN Threshold(V) VS. Temp(°C)

PACKAGE INFORMATION

eSOP-8



OUTLINE DIMENSIONS			
SYMBOL	MILLIMETERS		
	MIN	NOM	MAX
A			1.65
A1	0.05		0.15
A2	1.30	1.40	1.50
A3	0.60	0.65	0.70
b	0.39		0.47
b1	0.38	0.41	0.44
c	0.20		0.24
c1	0.19	0.20	0.21
D	4.80	4.90	5.00
E	5.80	6.00	6.20
E1	3.80	3.90	4.00
e	1.27BSC		
h	0.25		0.50
L	0.50	0.60	0.80
L1	1.05REF		
θ	0		8°

L/F SIZE (mil)	D1	E2	e1
90*90	2.09REF	2.09REF	0.16REF
95*130	3.10REF	2.21REF	0.10REF



beyond boundaries...

ALPCFP9073XX Series
eSOP-8

CUSTOMER NOTE:

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2. In Europe, please dispose as per EU Directive 2002/96/EC on Waste Electrical and Electronic Equipment (WEEE).



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