

GENERAL DESCRIPTION

The ACP28262 is a high-efficiency, DC to DC step down switching regulators, capable of delivering up to 2A of output current. The device operates from an input voltage range of 2.6V to 5.5V and provides an output voltage from 0.6V to V_{IN} . Working at a fixed frequency of 2MHz allows the use of small external components, such as ceramic input and output caps, as well as small inductors, while still providing low output ripples. This low noise output along with its excellent efficiency achieved by the internal synchronous rectifier, making ACP28262 an ideal replacement for large power consuming linear regulators. Internal soft-start control circuitry reduces inrush current. Short-circuit and thermal shutdown protection improves design reliability. The device is available in SOT25 package.

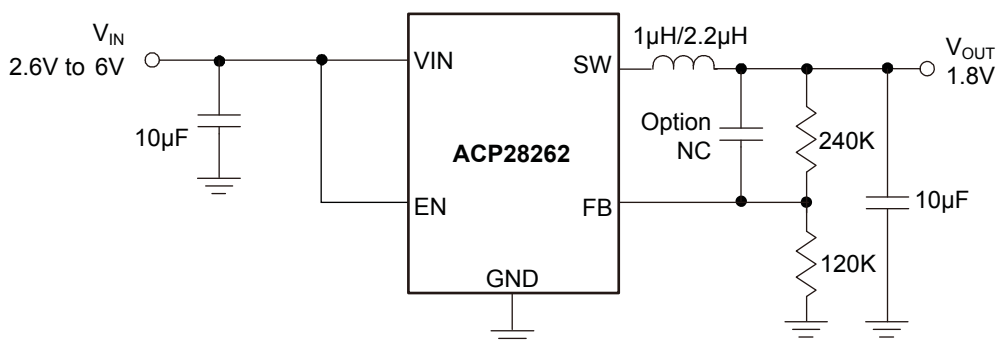
FEATURES

- High Efficiency: Up to 97%
- Up to 2A Max Output Current
- 2MHz Switching Frequency
- Low Dropout 100% Duty Operation
- Internal Compensation and Soft Start
- Current Mode Control
- 0.6V Reference
- Logic Control Shutdown ($I_Q < 1\mu A$)
- Thermal Shutdown, UVLO

APPLICATION

- Digital Cameras
- Set Top Boxes
- MP3 and MP4 Players
- Wireless and DSL Modems

APPLICATION CIRCUIT



Typical ACP28262 Application Circuit

▼ PIN CONFIGURATION

Pin Configuration	Pin Description		
SOT25	Pin#	Symbol	Function
 <p>(Top View)</p>	1	EN	Enable Pin
	2	GND	Ground
	3	SW	Inductor Connection
	4	VIN	Supply Voltage
	5	FB	Feedback Input

▼ ORDERING INFORMATION

Standard Part NO.	Package	Packing	Min. Quantity
ACP28262-BAA	SOT25	Tape & Reel	3000PCS

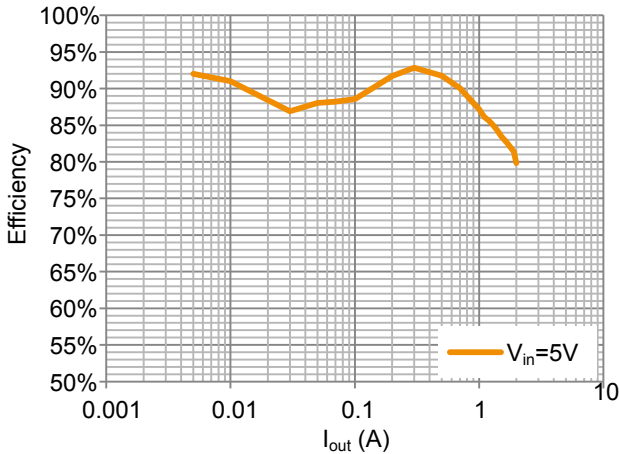
▼ ABSOLUTE MAXIMUM RATINGS(T_A = +25°C)

Parameter	Symbol	Rating	Unit
Max Input Voltage	V _{IN(Max)}	8	V
Maximum Power Dissipation	P _D	400	mW
Max Junction Temperature	T _J	125	°C
Storage Temperature	T _S	-40 to 150	
Ambient Temperature	T _A	-40 to 85	
Lead Temperature	T _L	260	
Junction to Ambient	θ _{JA}	200	
Human Body Model	HBM	>2000	V

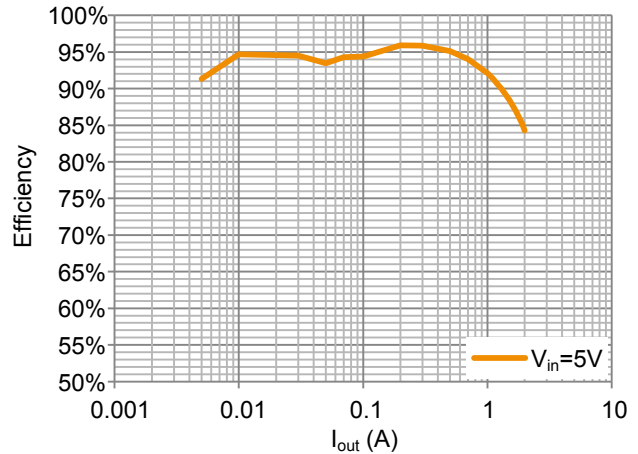
▼ ELECTRICAL CHARACTERISTICS ($T_A = +25^\circ\text{C}$)

Parameter	Symbol	Conditions	Min	Typ	Max	Unit
Input Voltage Range	V_{IN}		2.6		5.5	V
Input Overvoltage Threshold	V_{OVP}			6.1		
Feedback Voltage	V_{FB}	$V_{IN}=5V$	0.588	0.6	0.612	
Feedback Leakage current	I_{FB}			0.1	1	μA
Quiescent Current	I_Q	Active, $V_{FB}=0.65$ No Switching		80		
Shutdown Input Current	I_{SHDN}	$EN=0V$			1	
Line Regulation		$V_{IN}=2.6V$ to $5.5V$		0.1	0.2	%/V
Load Regulation		$I_{OUT}=0.01$ to $1A$		0.1	0.2	%/A
Switching Frequency	F_{SOC}		1.6	2	2.4	MHz
PMOS $R_{DS(on)}$	$R_{DS(on)P}$			180	250	m Ω
NMOS $R_{DS(on)}$	$R_{DS(on)N}$			130	200	
Under Voltage Lockout	V_{UVLO}		1.9	2.1	2.3	V
UVLO Hysteresis	V_{UVLO_Hys}			100		mV
Peak Current Limit	I_{LIMIT}			2.3	3.3	A
No Load Voltage	I_{LOAD}	$V_{IN}=5V, V_{OUT}=3.3V, I_{OUT}=0A$		80		μA
SW Leakage Current	I_{Leak}	$V_{OUT}=6V, V_{SW}=0\sim 6V,$ $EN=0V$			1	
EN Leakage Current	I_{EN}				1	
EN Input High Voltage	V_{ENH}		1.2			V
EN Input Low Voltage	V_{ENL}				0.5	
Thermal Shutdown Temp	T_{SD}			160		$^\circ\text{C}$
Thermal Shutdown Hysteresis	T_{SH}			15		

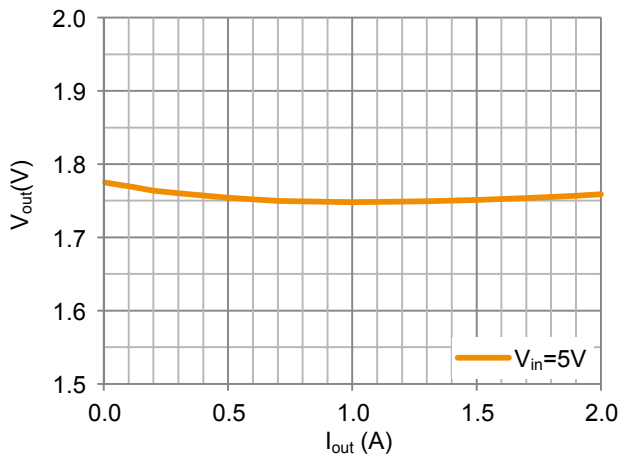
PERFORMANCE CHARACTERISTIC



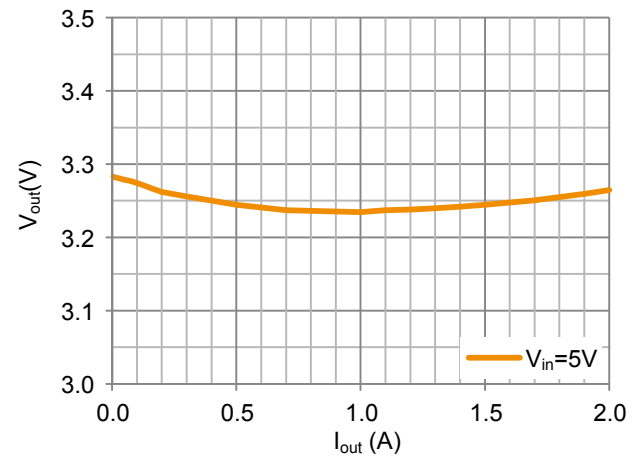
Efficiency vs. Output Current ($V_{out}=1.8V$)



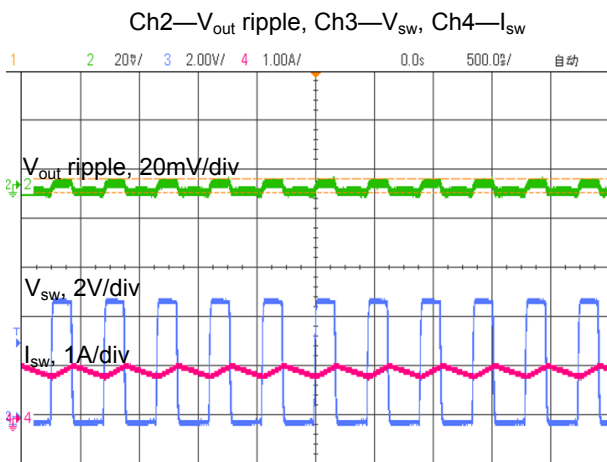
Efficiency vs. Output Current ($V_{out}=3.3V$)



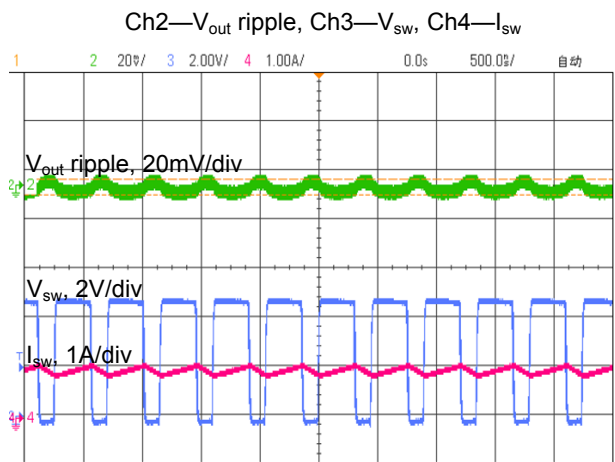
Load Regulation ($V_{out}=1.8V$)



Load Regulation ($V_{out}=3.3V$)

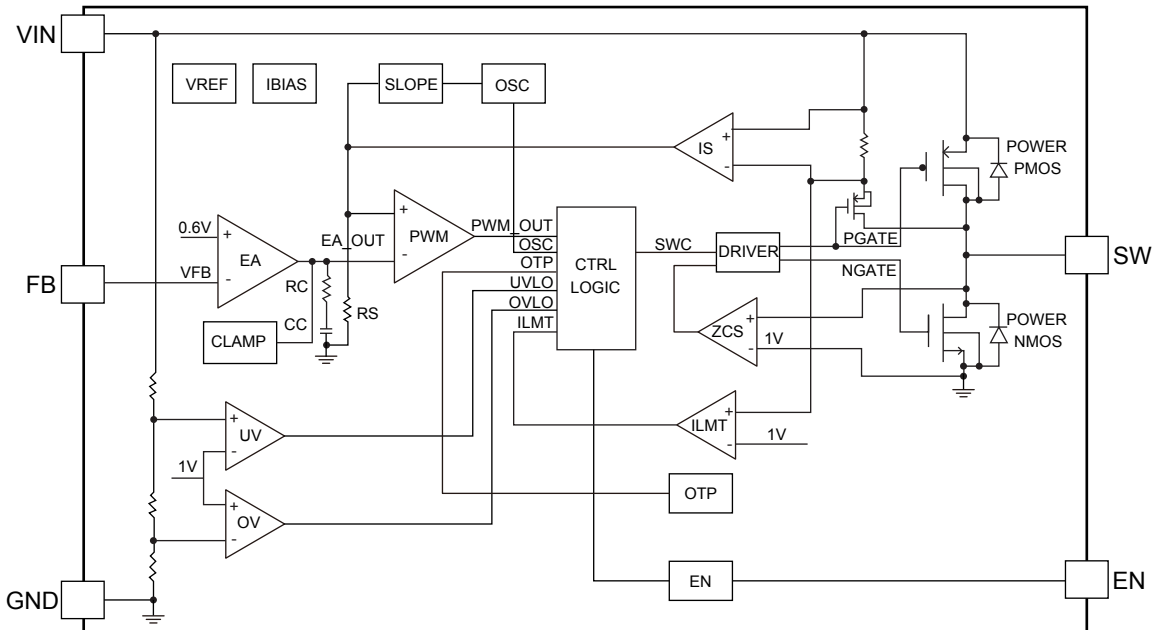


Output Ripple and SW at 1A load
 $V_{in}=5V / V_{out}=1.8V$

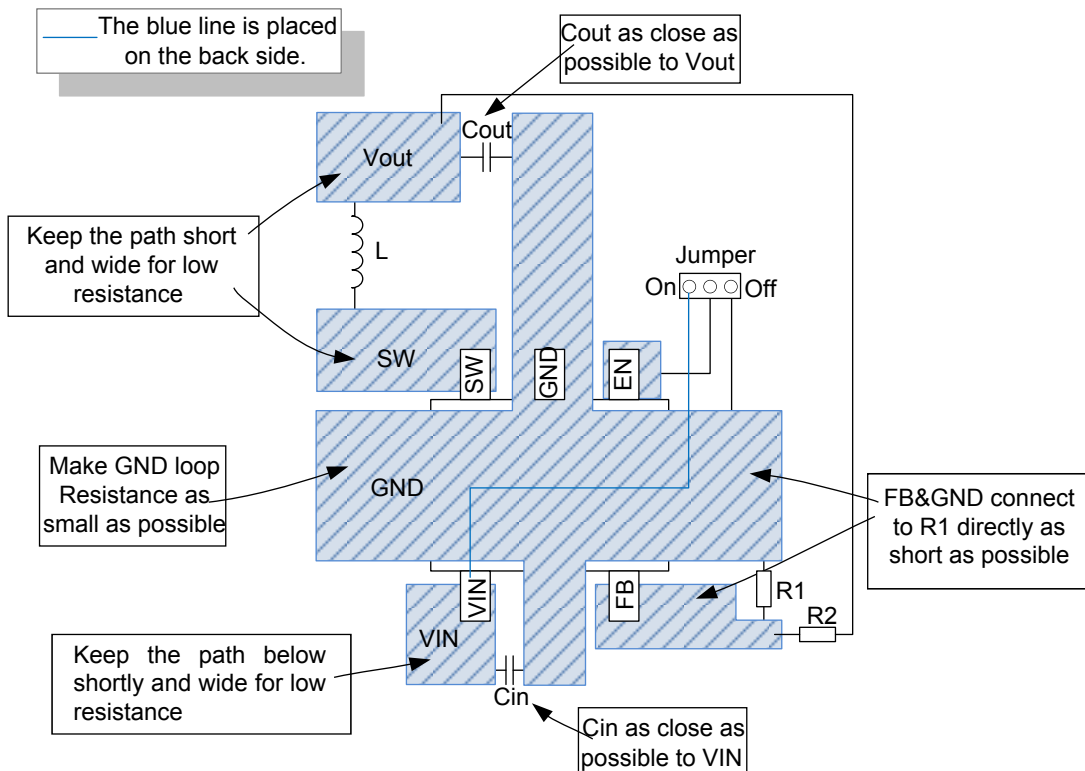


Output Ripple and SW at 1A load
 $V_{in}=5V / V_{out}=3.3V$

FUNCTION BLOCK

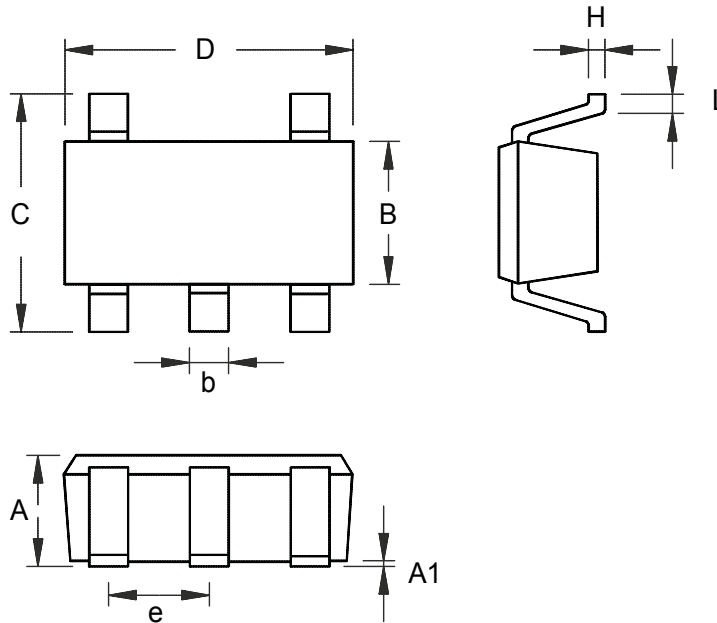


LAYOUT CONSIDERATION



PACKAGE INFORMATION

- SOT25



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min	Max	Min	Max
A	0.889	1.295	0.035	0.051
A1		0.152		0.006
B	1.397	1.803	0.055	0.071
b	0.356	0.559	0.014	0.022
C	2.591	2.997	0.102	0.118
D	2.692	3.099	0.106	0.122
e	0.838	1.041	0.033	0.041
H	0.080	0.254	0.003	0.010
L	0.300	0.610	0.012	0.024