



DESCRIPTION

The A7501A series is a high-efficiency, low-ripple, high-frequency PFM-controlled DC-DC boost converter. When the CE pin is connected to GND, the device is disabled and V_{OUT} is rapidly discharged to 0 V. The A7501A series requires only three external components and is capable of stepping up a low battery input voltage to a higher output voltage suitable for powering electronic devices.

A7501A is available in SOT-25 packages

FEATURES

- Maximum efficiency: up to 94%.
- Maximum operating frequency: 300 kHz.
- Low quiescent current: 7 μ A.
- Output voltage: 1.8 V to 5.0 V (0.1 V step).
- Output voltage accuracy: $\pm 2.0\%$.
- Input voltage range: 0.9 V to 6.5 V.
- Low ripples and low noise
- Available in SOT-25 package.

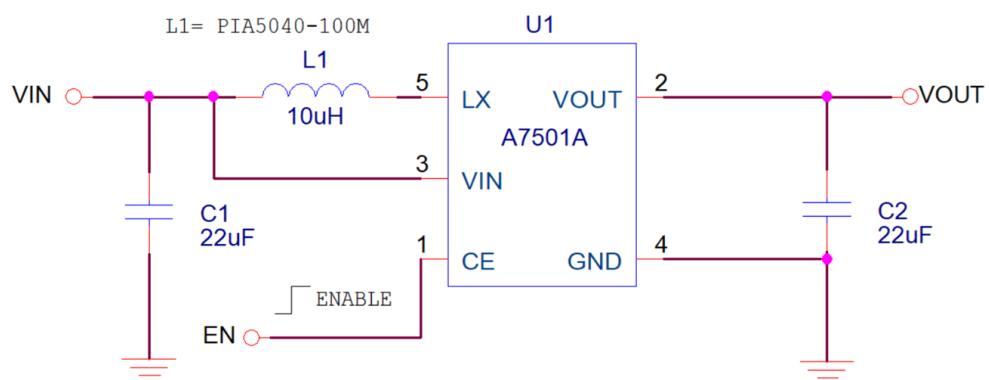
ORDER INFORMATION

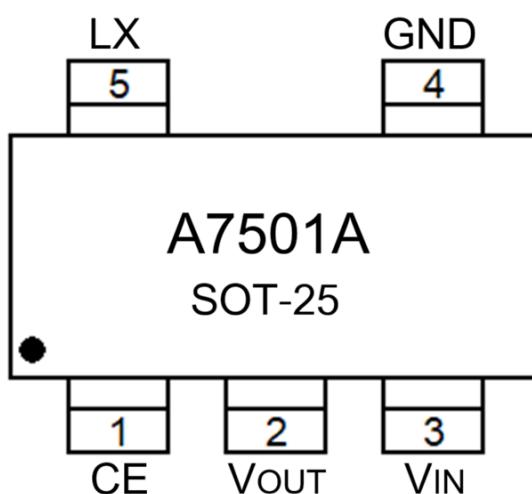
Package Type	Part Number		
SOT-25 SPQ: 3,000pcs/Reel	E5	A7501AE5R-XX	
		A7501AE5VR-XX	
Note		XX: Output Voltage, 25=2.5V 28=2.8V, 30=3.0V 33=3.3V R: Tape & Reel V: Halogen free Package	
AiT provides all RoHS products			

APPLICATION

- Wireless headsets, wireless mice, and keyboards
- Medical devices and anti-lost alarms
- Car alarms, chargers, VCRs, PDAs, and other handheld electronic devices
- Electronic equipment powered by 1 to 3 batteries
- Electronic dictionaries and digital cameras
- LED flashlights and LED lighting products
- Blood pressure monitors, MP3 players, and remote-control toys

TYPICAL APPLICATION



**PIN DESCRIPTION**

SOT-25, E5

Top View

Pin #	Symbol	Function
1	CE	Chip Enable
2	VOUT	Output Pin
3	VIN	Power Input Pin
4	GND	Ground
5	LX	Switch Pin

**ABSOLUTE MAXIMUM RATINGS**

V_{IN} , Input Voltage (MAX)	+6.5V				
I_{LX} , Output Current (MAX)	1000mA				
P_D , Power Dissipation	SOT-25	350mW			
T_{OPR} , Operating Ambient Temperature	-40°C ~ + 85°C				
T_{STG} , Storage Ambient Temperature	-40°C ~ + 165°C				
V_{ESD} , ESD Body Static pressure Value	4000V				

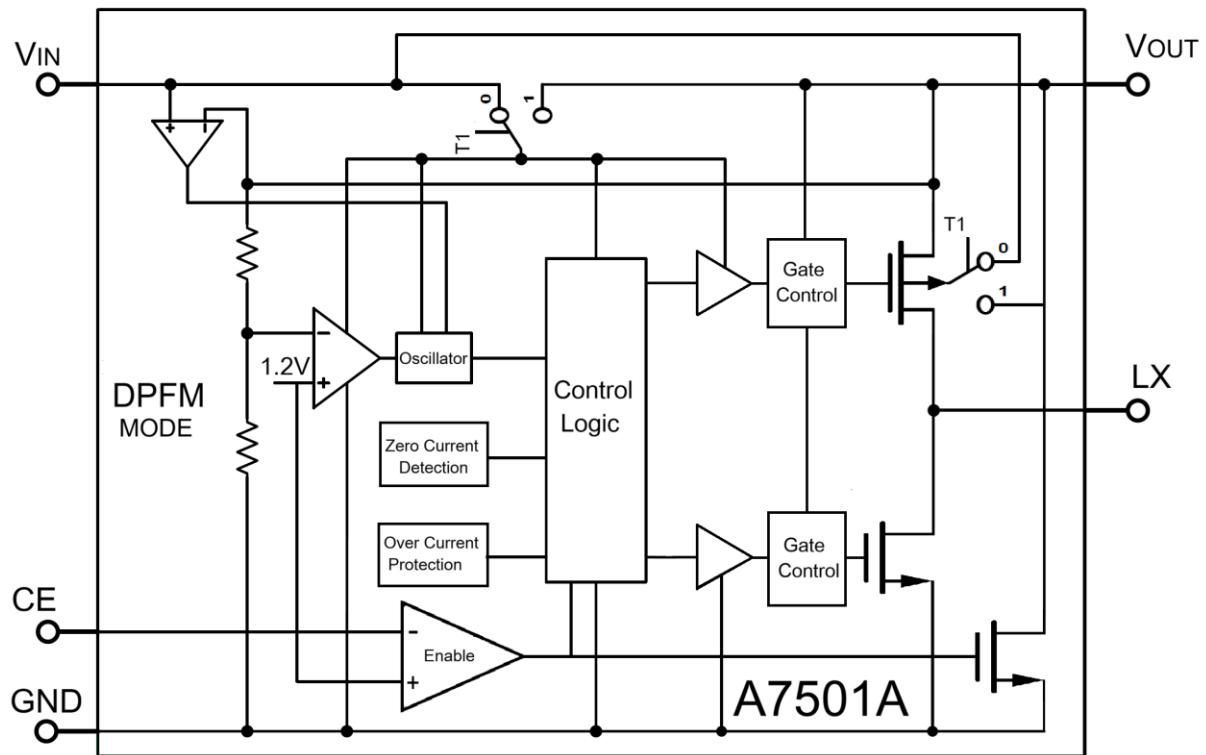
Stress beyond above listed "Absolute Maximum Ratings" may lead to permanent damage to the device. These are stress ratings only and operations of the device at these or any other conditions beyond those indicated in the operational sections of the specifications are not implied. Exposure to absolute maximum rating conditions for extended periods may affect device reliability.

ELECTRICAL CHARACTERISTICS $T_A=25^\circ\text{C}$, unless otherwise noted

Parameter	Symbol	Conditions	Min.	Typ.	Max.	Unit
Output Voltage Accuracy	ΔV_{OUT}	-	-2.0	$V_{OUT(S)}$	2.0	%
Maximum Input Voltage	V_{IN}	-	0.9	-	6.5	V
Operation Start Voltage	V_{START}	$I_{OUT}=1\text{mA}$, $V_{IN}=0\text{V}$ to 2V	-	-	0.8	V
Hold Voltage	V_{HOLD}	$I_{OUT}=1\text{mA}$, $V_{IN}=2\text{V}$ to 0V	0.6	-	-	V
Oscillation Signal Duty Cycle	DC_{osc}		-		78	%
Efficiency	η		-	90	94	%
Limit Current	I_{LIMIT}		600	800	1000	mA
Input Current (No Load)	I_{OUT}		-	7	-	μA
Maximum Oscillation Frequency	f_{osc}		-	-	300	kHz



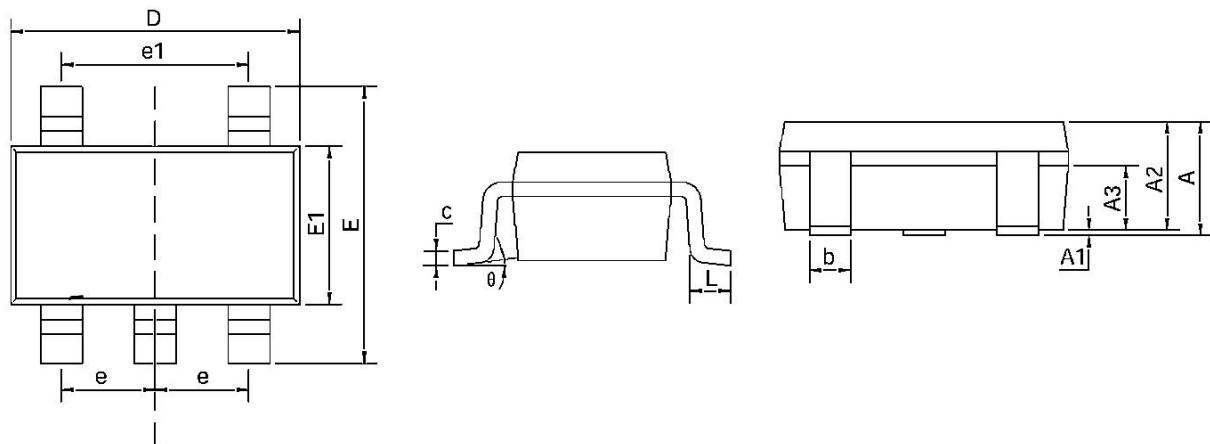
BLOCK DIAGRAM





PACKAGE INFORMATION

Dimension in SOT-25 Package (Unit: mm/ inch)



Symbol	Millimeters	
	Min	Max
A	1.050	1.350
A1	0.040	0.150
A2	1.000	1.200
A3	0.550	0.750
b	0.380	0.480
c	0.100	0.250
D	2.720	3.120
E	2.600	3.000
E1	1.400	1.800
e	0.950 BSC	
e1	1.900 BSC.	
L	0.300	0.600
θ	0°	8°



AiT Semiconductor Inc.

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A7501A

DC-DC CONVERTER / BOOST (STEP-UP)

PFM SYNCHRONOUS DC/DC BOOST WITH TRULY SHUTOFF

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