



## DESCRIPTION

The A7332 is a synchronous step-down DC/DC converter that provides wide 4.2V to 30V input voltage range and 3A continuous load current capability. At light load condition, the A7332 can operate at power saving mode to support high efficiency and reduce power loss.

The A7332 fault protection includes cycle-by-cycle current limit, UVLO and thermal shutdown. Besides, soft-start function prevents inrush current at turn-on. This device uses current mode control scheme which provides fast transient response. Internal compensation function reduces external compensator components and simplifies the design process. In shutdown mode, the supply current is about 3 $\mu$ A.

The A7332 is available in PSOP8 package.

## ORDERING INFORMATION

Package Type	Part Number	
PSOP8 SPQ: 2,500pcs/Reel	MP8	A7332MP8R
		A7332MP8VR
Note	V: Halogen free Package R: Tape & Reel	
AiT provides all RoHS products		

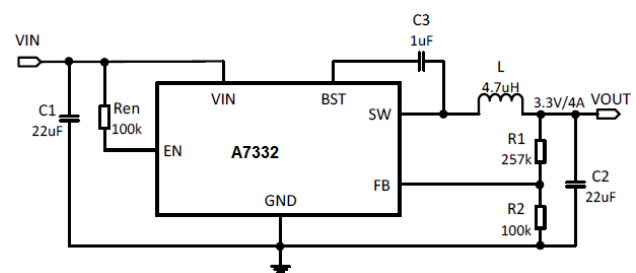
## FEATURES

- Low  $R_{DS(ON)}$  Integrated Power MOSFET (120/60m $\Omega$ )
- Internal Compensation Function
- Wide Input Voltage Range: 4.2V to 30V
- 3A Output Current
- Internal 1ms Soft-Start
- High Efficiency at Light Load
- Cycle-by-Cycle Current Limit
- Over-Temperature Protection with Auto Recovery
- Under Voltage Lockout
- 3 $\mu$ A Shutdown Current
- Hiccup Short Circuit Protection
- Available in PSOP8 Package

## APPLICATION

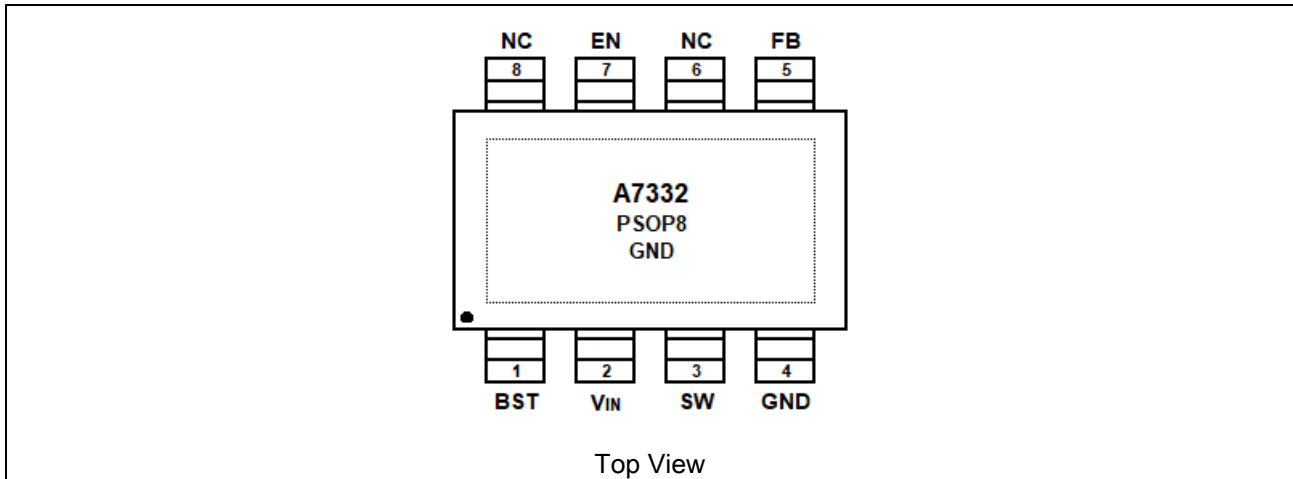
- LCD Display, TV
- STB (Set-Top-Box)
- Distributed Power System
- Networking, XDSL Modem

## TYPICAL APPLICATION





## PIN DESCRIPTION



Top View

Pin #	Symbol	Function
1	BST	High side power transistor gate drive boost input.
2	V <sub>IN</sub>	Power input. Bypass with a 10uF~22uF ceramic capacitor to GND.
3	SW	Power switching node to connect inductor.
4	GND	Ground.
5	FB	Feedback input with reference voltage set to 0.8V.
6	NC	No connection
7	EN	Enable input. Set this pin to high level to enable the part, low level to disable.
8	NC	No connection
9	GND	Ground.



## ABSOLUTE MAXIMUM RATINGS

$V_{IN}$ , Supply Voltage	-0.3V ~ 30V
$V_{SW}$ , Switch Node Voltage	-0.3V to ( $V_{IN}+0.5V$ )
$V_{BST}$ , Boost Voltage	$V_{SW}-0.3V$ to $V_{SW}+5V$
$V_{EN}$ , Enable Voltage	-0.3V ~ 12V
All Other Pins	-0.3V ~ 6V
Operating Temperature Range	-40°C ~ +85°C
Storage Temperature Range	-65°C ~ +150°C
Lead Temperature (Soldering, 10s)	300°C

Stress beyond above listed "Absolute Maximum Ratings" may lead 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.

## RECOMMENDED WORK CONDITIONS

Parameter	Conditions	Min	Typ	Max	Unit
Supply Voltage $V_{IN}$		4.2	-	28	V
Ambient Temperature		-40	-	85	°C



## ELECTRICAL CHARACTERISTICS

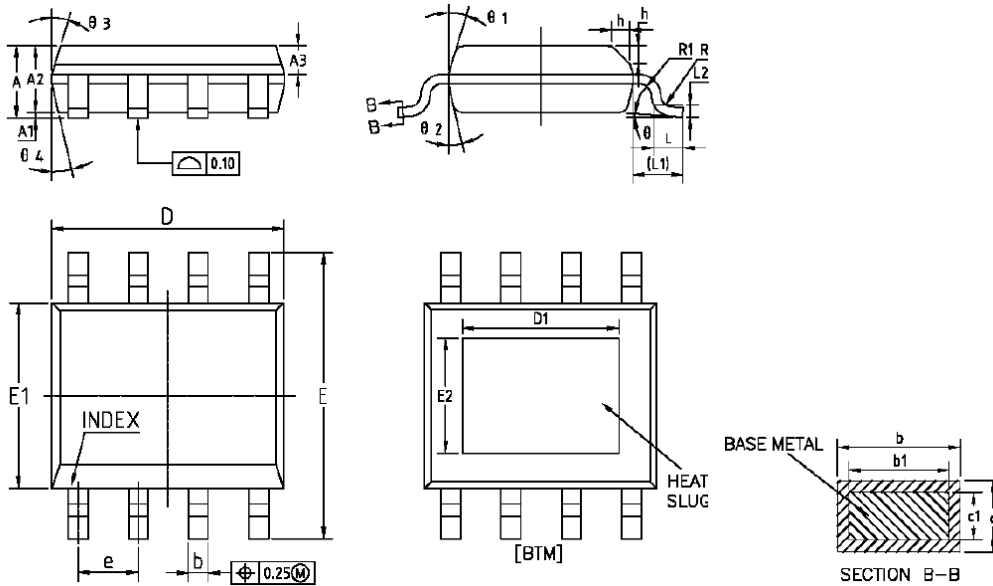
$V_{IN}=12V$ ,  $T_A=25^{\circ}C$ , unless otherwise stated

Parameter	Conditions	Min	Typ	Max	Unit
Input Voltage Range		3.7	-	28	V
UVLO Threshold		-	3.6	-	V
UVLO Hypothesis		-	130	-	mV
Supply Current in Operation	$V_{EN} = 5V$ , $V_{FB} = 1.1V$	-	0.3	-	mA
Supply Current in Shutdown	$V_{EN} = 0V$ or $V_{EN} = GND$	-	3	-	$\mu A$
Regulated Feedback Voltage	$4.2V \leq V_{IN} \leq 30V$	0.784	0.8	0.816	V
High-side Switch On Resistance	$V_{BST-SW} = 5V$	-	120	-	m $\Omega$
Low-side Switch On Resistance	$V_{IN} = 5V$	-	60	-	m $\Omega$
High-side Switch Leakage Current	$V_{EN} = 0V$ , $V_{SW} = 0V$	-	0.1	1	$\mu A$
Upper Switch Current Limit	Minimum Duty Cycle	-	5.5	-	A
Oscillation Frequency		-	500	-	kHz
Maximum Duty Cycle	$V_{FB} = 0.7V$	-	90	-	%
Minimum On Time		-	100	-	ns
EN Input Voltage "H"		1.5	-	-	V
EN Input Voltage "L"		-	-	0.6	V
Thermal Shutdown		-	160	-	$^{\circ}C$



**PACKAGE INFORMATION**

Dimension in PSOP8 (Unit: mm)



Symbol	Min	Max
A	1.35	1.75
A1	0	0.15
A2	1.25	1.65
A3	0.50	0.70
b	0.38	0.51
b1	0.37	0.47
c	0.17	0.25
c1	0.17	0.23
D	4.80	5.00
D1	3.10	3.50
E	5.80	6.20
E1	3.80	4.00
E2	2.20	2.60
e	1.270BSC	
L	0.45	0.80
L1	1.04REF	
L2	0.25BSC	
R	0.07	-
R1	0.07	-
h	0.30	0.50
θ	0°	8°
θ1	15°	19°
θ2	11°	15°
θ3	15°	19°
θ4	11°	15°



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