



DESCRIPTION

The A6528A is designed for portable RF and wireless applications with demanding performance and space requirements. Because of the built-in low on state resistance transistor, the voltage difference is low and the output current is large. External output feedback can easily get the voltage required by customers. In order to make the load current not exceed the current capacity of the output transistor, the functions of over-current protection, over temperature protection and short circuit protection are built in.

A6528A supports high-voltage (20V) power supply and enable input, and adopts low-power design, which is suitable for some low-power applications.

The A6528A is available in SOT-25 and SOT89-5 packages.

ORDERING INFORMATION

Package Type	Part Number	
SOT-25 SPQ: 3,000pcs/Reel	E5	A6528AE5R
		A6528AE5VR
SOT89-5 SPQ: 1,000pcs/Reel	K5	A6528AK5R
		A6528AK5VR
Note	V: Halogen free Package R: Tape & Reel	
AiT provides all RoHS products		

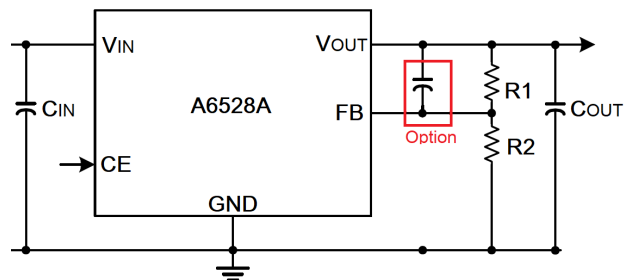
FEATURES

- High feedback accuracy: $\pm 1.5\%$
- Low input / output differential pressure : 300 mV typical value (Products with an output value of 3.0V, When $I_{OUT}=100mA$)
- High ripple rejection ratio : 50dB (1 kHz)
- Low current consumption : 5 μA (Typ.)
- Maximum output current : 500mA ($V_{IN} \geq V_{OUT} + 1V$)
- Standby current : <1 μA
- Built in protection : Built in over current protection, over temperature protection and short circuit protection circuit

APPLICATION

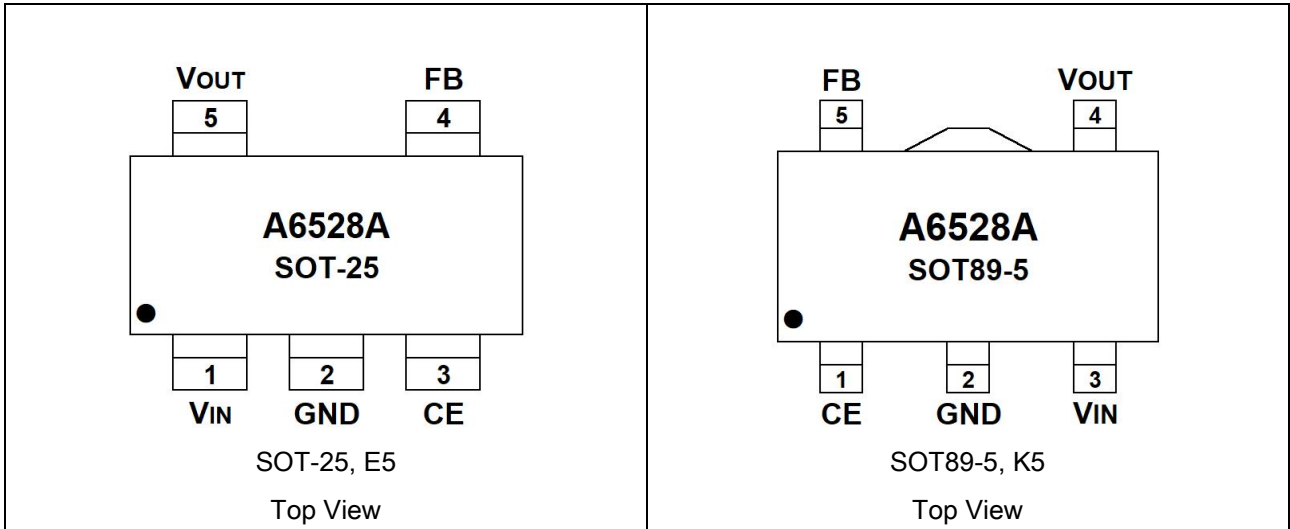
- Mobile phone
- Cordless telephone
- Camera, video recording equipment
- Portable game machine
- Portable AV device
- Voltage reference
- Battery powered system

TYPICAL APPLICATION





PIN DESCRIPTION



SOT-25	SOT89-5	Symbol	Function
1	3	V _{IN}	Supply Power
2	2	GND	Ground
3	1	CE	Enable Pin
4	5	FB	Feedback Pin
5	4	V _{OUT}	Output Voltage



ABSOLUTE MAXIMUM RATINGS

V _{IN} , Input Voltage	GND-0.3V ~ GND+28V	
V _{CE} , Enable Voltage	GND-0.3V ~ V _{IN} +0.3V	
V _{FB} , Feedback Voltage	GND-0.3V ~ +5V	
V _{OUT} , Output Voltage	GND-0.3V ~ +8V	
P _D , Power Dissipation	SOT-25	350mW
	SOT89-5	350mW
T _{OPR} , Operating Ambient Temperature	-40°C ~ +85°C	
T _{STG} , Storage Temperature	-40°C ~ +125°C	

Stresses above may cause permanent damage to the device. These are stress ratings only and functional operation of the device at these or any other conditions beyond those indicated in the Electrical Characteristics are not implied. Exposure to absolute maximum rating conditions for extended periods may affect device reliability.



ELECTRICAL CHARACTERISTICS

T_A = 25°C unless otherwise noted

Parameter	Symbol	Conditions	Min.	Typ.	Max.	Units
Feedback Voltage	V _{FB}	V _{IN} =5V, V _{OUT} = 3.3V I _{OUT} = 30mA	1.182	1.200	1.218	V
Output Current	I _{OUT}	V _{IN} ≥ V _{OUT(S)} + 1.0V	-	500	-	mA
Dropout Voltage	V _{Drop}	I _{OUT} = 50mA	-	0.12	0.20	V
		I _{OUT} = 100mA	-	0.30	0.45	
Line Regulations	$\frac{\Delta V_{OUT1}}{\Delta V_{IN} \times V_{OUT}}$	V _{OUT(S)} + 0.5V ≤ V _{IN} ≤ 6V, I _{OUT} = 30mA	-	0.10	0.20	%/V
Load Regulation	ΔV _{OUT2}	V _{IN} = V _{OUT(S)} + 1.0V, 1.0mA ≤ I _{OUT} ≤ 100mA	-	50	100	mV
Output Voltage Temperature Characteristics	$\frac{\Delta V_{OUT}}{\Delta T_A \times V_{OUT}}$	V _{IN} = V _{OUT(S)} + 1.0V, I _{OUT} = 10mA, -40°C ≤ T _A ≤ 85°C	-	±100	-	ppm/°C
Supply Current	I _{ss1}	V _{IN} = V _{OUT(S)} + 1.0V	-	5	8	μA
Turn Off Current	I _{shut}	V _{IN} =5V, V _{CE} =0	-	-	1	μA
Input Voltage	V _{IN}	-	2.0	-	20	V
Ripple-Rejection	PSRR	V _{IN} = V _{OUT(S)} + 1.0V, f=1kHz, V _{rip} =0.5V _{rms} , I _{OUT} = 50mA	-	50	-	dB
Short-Circuit Current	I _{short}	V _{IN} = V _{OUT(S)} + 1.0V, ON/OFF Terminal is ON, V _{OUT} =0V	-	35	-	mA
CE "High" Voltage	V _{CEH}	-	1.2	-	-	V
CE "Low" Voltage	V _{CEL}	-	-	-	1.0	V
Current Limit	I _{LIM}	V _{IN} = V _{OUT(T)} + 1.0V	-	700	-	mA



TYPICAL PERFORMANCE CHARACTERISTICS

Fig1. PSRR

$V_{OUT}=3.3V, V_{IN}=CE=V_{OUT}+1V, I_{OUT}=50mA, V_{PP}=1V, F=1kHz, C_{IN}=C_{OUT}=4.7\mu F, P_{SRR}=43.22db$

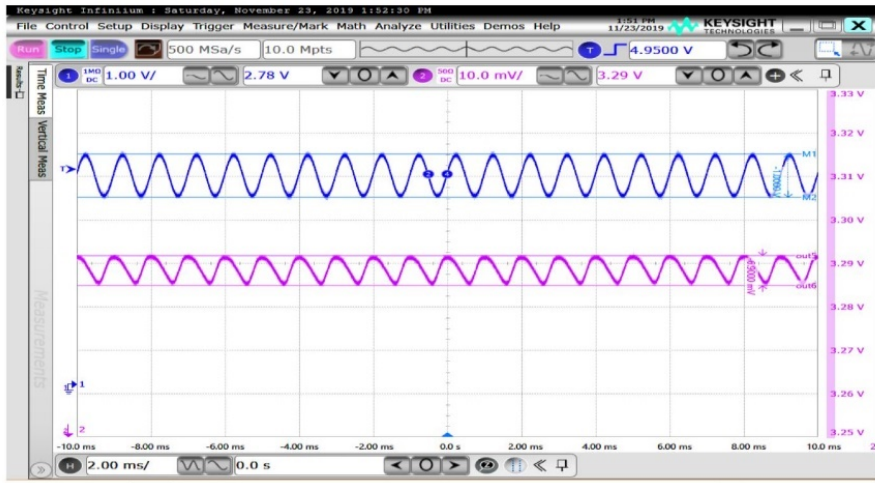
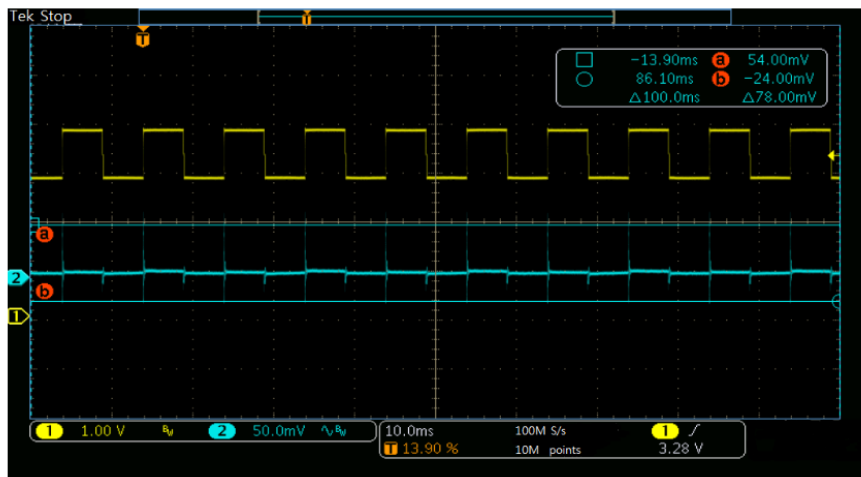


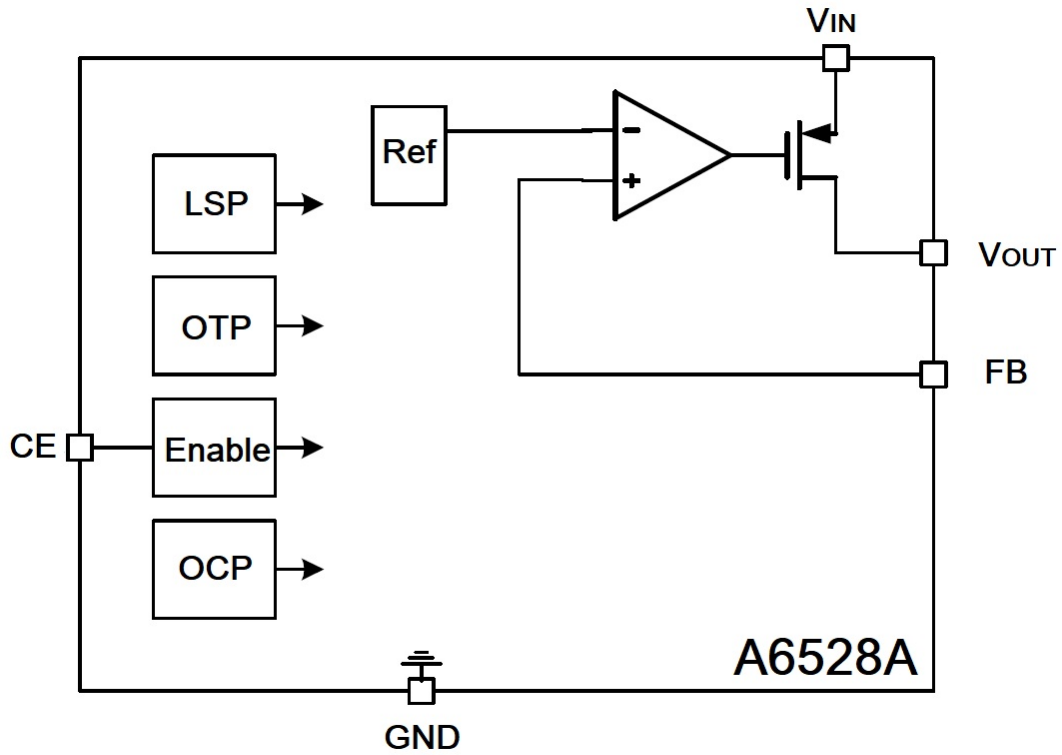
Fig 2. Transient Response of Input Voltage

$V_{OUT}=1.8V, V_{IN}=2.8V\sim 3.8V, I_{OUT}=50mA, C_{IN}=C_{OUT}=4.7\mu F$



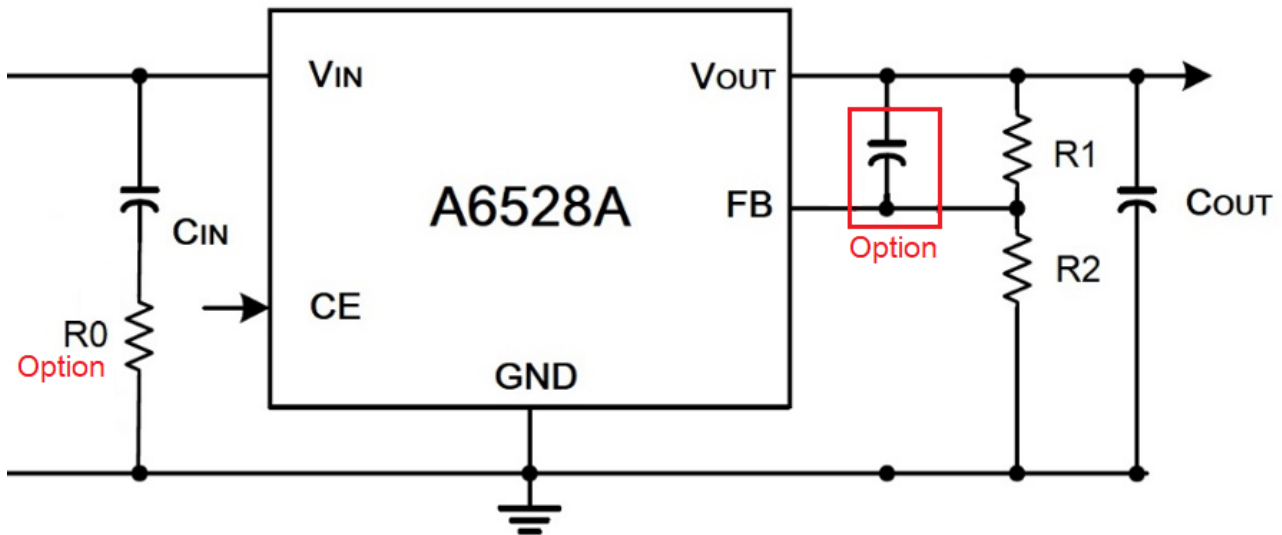


BLOCK DIAGRAM





DETAILED INFORMATION



Input Output Capacitance

It is recommended to use electrolytic capacitor as input capacitor, and the withstand voltage should be at least 35V. If ceramic capacitor is used, it is recommended to use a 1Ω resistor (R0) in series; The output capacitor is recommended to be more than 4.7uF; CE pin forbids the control signal to appear separately when VIN has no input signal.

PCB Layout

In order to get better use effect, the main precautions of PCB layout are as follows :

The input capacitance and output capacitance should be as close to the chip pin as possible.

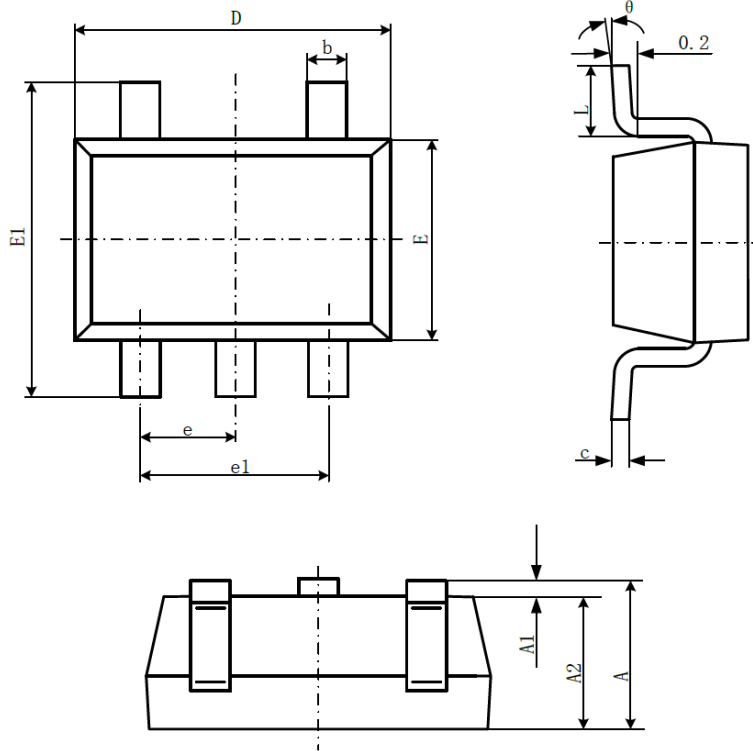
The wiring of VIN and VOUT should use thick wire as far as possible to reduce the wiring resistance and improve the load performance.

PCB to do heat treatment to ensure the normal operation of the chip.



PACKAGE INFORMATION

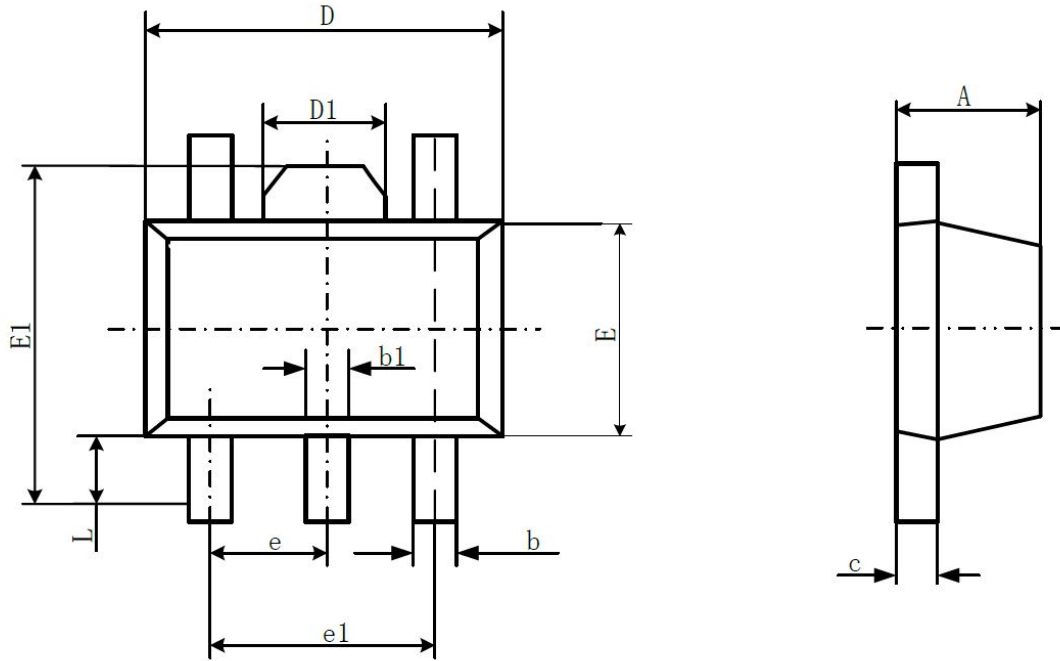
Dimension in SOT-25 (Unit: mm)



Symbol	Min.	Max.
A	1.050	1.250
A1	0.000	0.100
A2	1.050	1.150
b	0.300	0.500
c	0.100	0.200
D	2.820	3.020
E	1.500	1.700
E1	2.650	2.950
e	0.950(BSC)	
e1	1.800	2.000
L	0.300	0.600
θ	0°	8°



Dimension in SOT89-5 (Unit: mm)



Symbol	Min.	Max.
A	1.400	1.600
b	0.320	0.520
b1	0.360	0.560
c	0.350	0.400
D	4.400	4.600
D1	1.400	1.800
E	2.300	2.600
E1	3.940	4.250
e	1.500 TYP	
e1	2.900	3.100
L	0.900	1.100



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