



DESCRIPTION

The A6531 is designed for portable RF and wireless applications that require high performance and a compact design. It features a low-voltage differential, high output current, and an integrated low on-state resistance transistor.

The device has built-in over-current protection, over-temperature protection, and short-circuit protection to ensure that the load current remains within the output transistor's current capacity.

The A6531 supports a high-voltage (30V) power supply and enables input. It is designed with low power consumption in mind, making it suitable for a variety of low-power applications.

The A6531 is available in SOT-23, SOT-25, and SOT89-3 packages.

ORDERING INFORMATION

Package Type	Part Number	
SOT89-3 SPQ: 1,000pcs/Reel	K3	A6531K3VR-XX
SOT-23 SPQ: 3,000pcs/Reel	E3	A6531E3VR-XX
SOT-25 SPQ: 3,000pcs/Reel	E5	A6531E5VR-XX
Note	XX: Output Voltage 33=3.3V, 50=5.0V V: Halogen free Package R: Tape & Reel	
AiT provides all RoHS products		

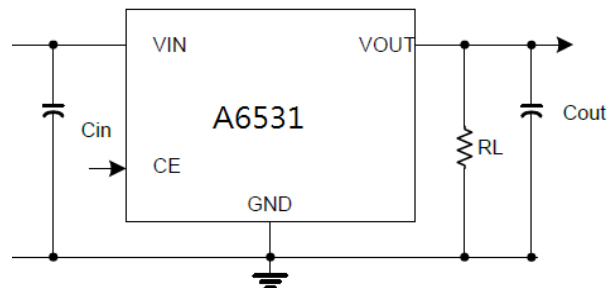
FEATURES

- High ripple rejection ratio : 50dB (1 kHz)
- Low current consumption : 5µA (TYP.)
- Standby current : <1µA
- Low input/ output differential pressure : 300 mV typical value (Products with an output value of 3.0V, When I_{OUT}=100mA)
- Maximum output current : 500mA (V_{IN}≥V_{OUT}+1V)
- Over Current Protection
- Over Temperature Protection
- Short Circuit Protection

APPLICATION

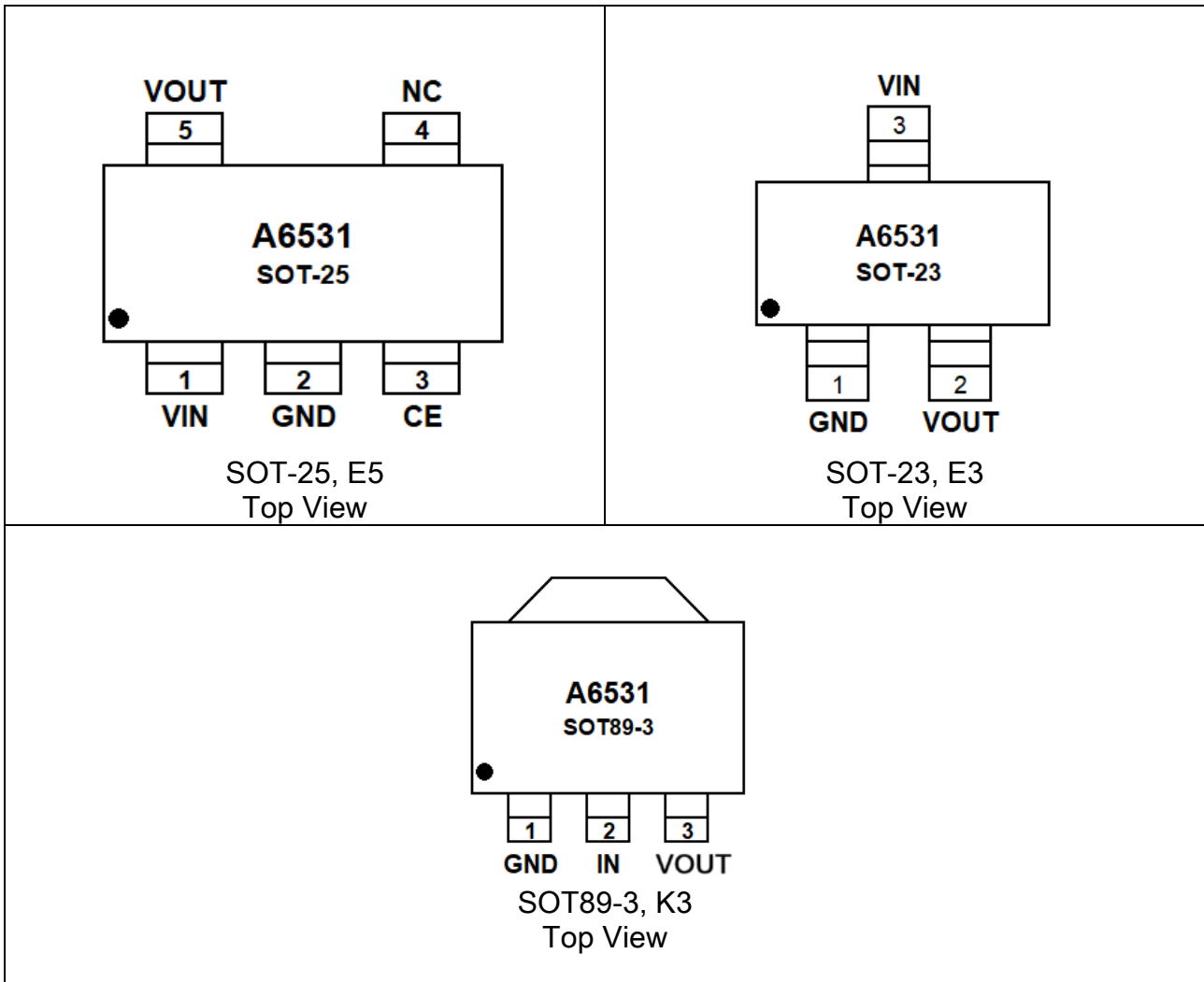
- Mobile phone
- Cordless telephone
- Camera, video recording equipment
- Portable game machine
- Portable AV device
- Voltage reference
- Battery powered system

TYPICAL APPLICATION





PIN DESCRIPTION



SOT-25	SOT89-3	SOT-23	Symbol	Function
1	2	3	V _{IN}	Input Voltage
2	1	1	GND	Ground
3	-	-	CE	Enable Pin
4	-	-	NC	Not connected
5	3	2	V _{OUT}	Output Voltage



ABSOLUTE MAXIMUM RATINGS

V _{IN} , Input Voltage	GND-0.3 ~ GND+30 V	
V _{CE} , Enable voltage	GND-0.3 ~ V _{IN} +0.3 V	
V _{OUT} , Output voltage	GND-0.3 ~ 8 V	
P _D , Power Dissipation	SOT-25	350 mW
T _{OPR} , Operating Ambient Temperature	-40 ~ +85 °C	
T _{STG} , Storage Temperature	-40 ~ +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.

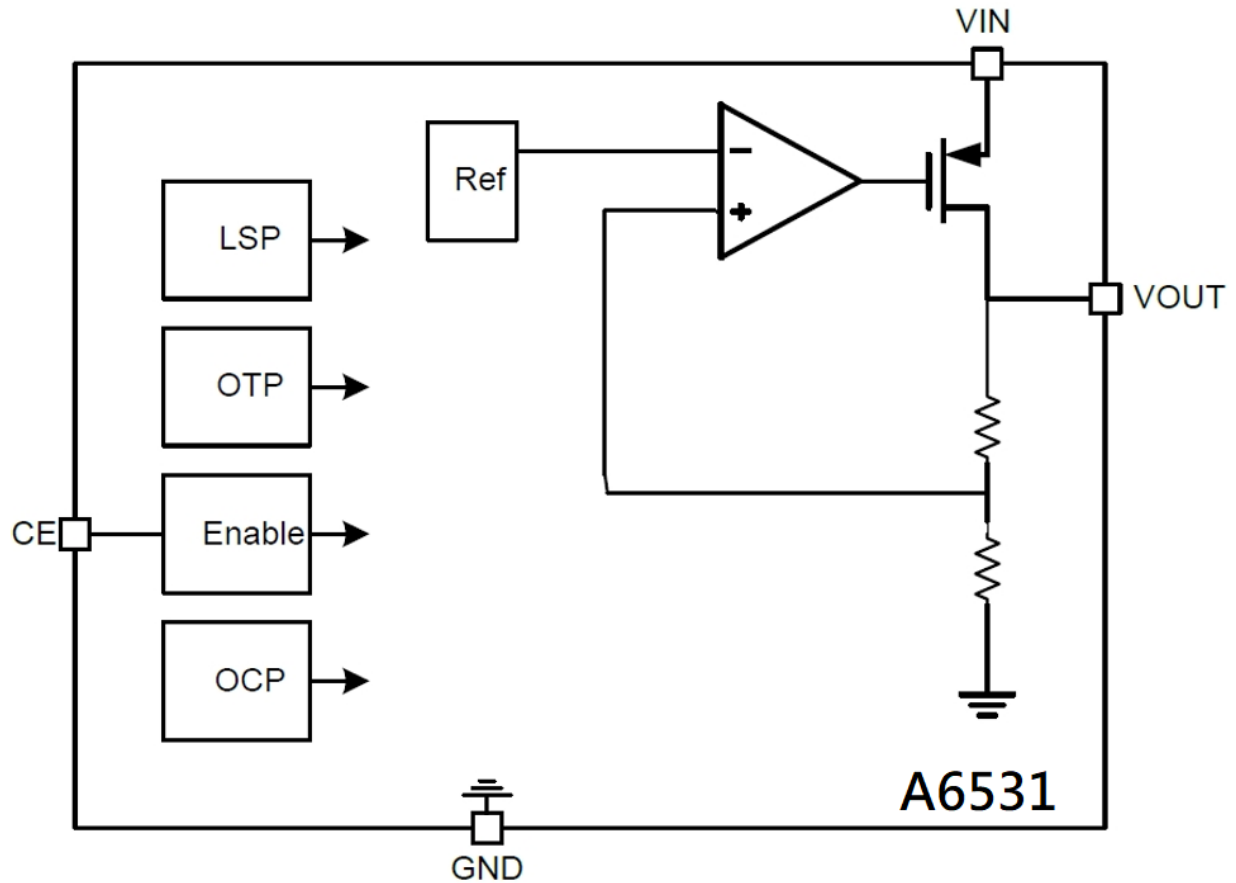
ELECTRICAL CHARACTERISTICS

T_A=25°C unless otherwise noted

Parameter	Symbol	Conditions	Min.	Typ.	Max.	Units
Output voltage	V _{OUT}	V _{IN} =5V, V _{out} =3.3V, I _{OUT} =30 mA	0.98* V _{OUT}	V _{OUT}	1.02* V _{OUT}	mV
Output Current	I _{OUT}	V _{IN} ≥V _{OUT(S)} +1.0 V	-	500	-	mA
Dropout Voltage	V _{drop}	I _{OUT} =50 mA	-	0.12	0.20	V
		I _{OUT} =100 mA	-	0.30	0.45	
Line Regulations	$\frac{\Delta V_{OUT1}}{ \Delta V_{IN} \cdot V_{OUT}}$	V _{OUT(S)} +0.5 V ≤ V _{IN} ≤ 6V I _{OUT} =30 mA	-	0.10	0.20	%/V
Load Regulation	ΔV _{OUT2}	V _{IN} =V _{OUT(S)} +1.0 V 1.0 mA ≤ I _{OUT} ≤ 100 mA	-	50	100	mV
Output Voltage Temperature Characteristics	$\frac{\Delta V_{OUT}}{\Delta T_a \cdot V_{OUT}}$	V _{IN} =V _{OUT(S)} +1.0 V, I _{OUT} =10 mA -40°C ≤ T _a ≤ 85°C	-	±100	-	ppm/°C
Supply Current	I _{SS1}	V _{IN} =V _{OUT(S)} +1.0 V	-	5	8	μA
Turn off current	I _{shut}	V _{IN} =5 V, V _{CE} =0	-	-	1	μA
Input Voltage	V _{IN}	-	2.0	-	30	V
Ripple-Rejection	PSRR	V _{IN} =V _{OUT(S)} +1.0V, f=1kHz V _{rip} =0.5 V _{rms} , I _{OUT} =50mA	-	50	-	dB
Short-circuit Current	I _{short}	V _{IN} =V _{OUT(S)} +1.0 V, ON/OFF=ON, V _{OUT} =0V	-	70	-	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)} +1V	-	800	-	mA



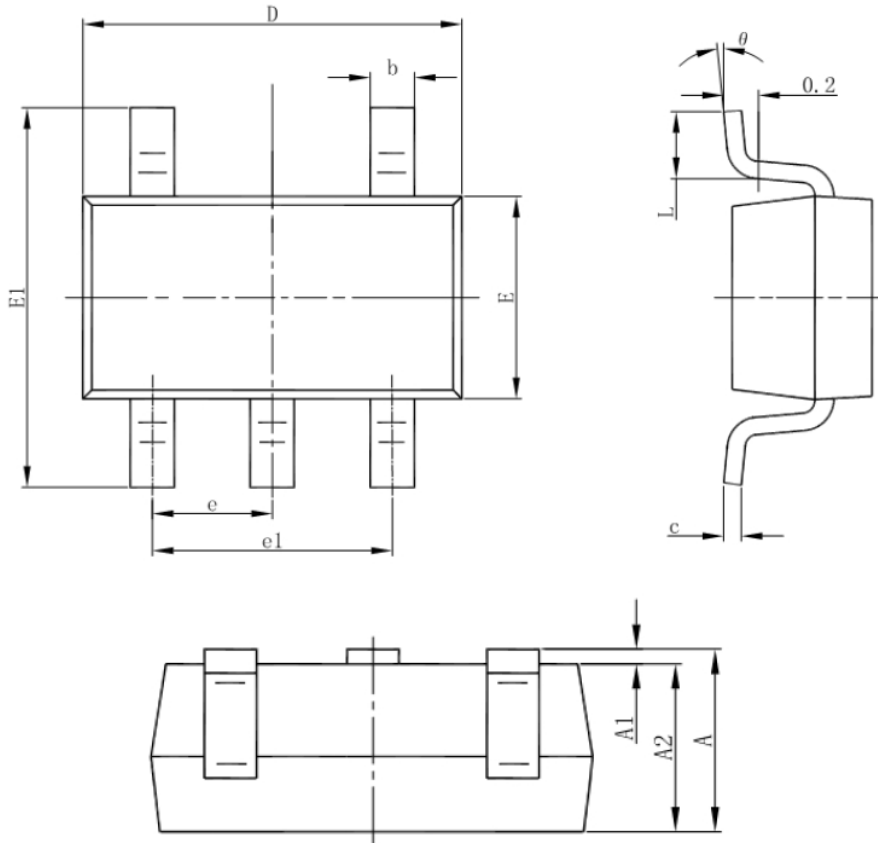
BLOCK DIAGRAM





PACKAGE INFORMATION

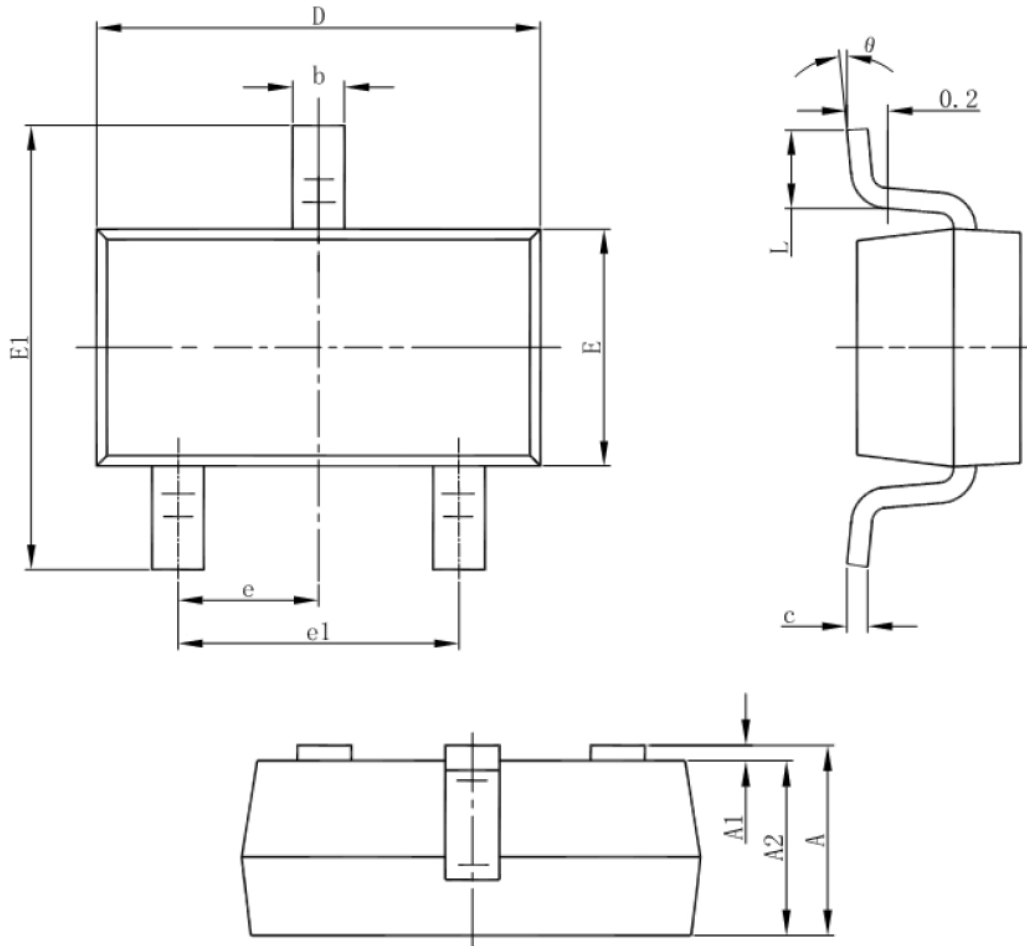
Dimension in SOT-25 (Unit: mm)



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°



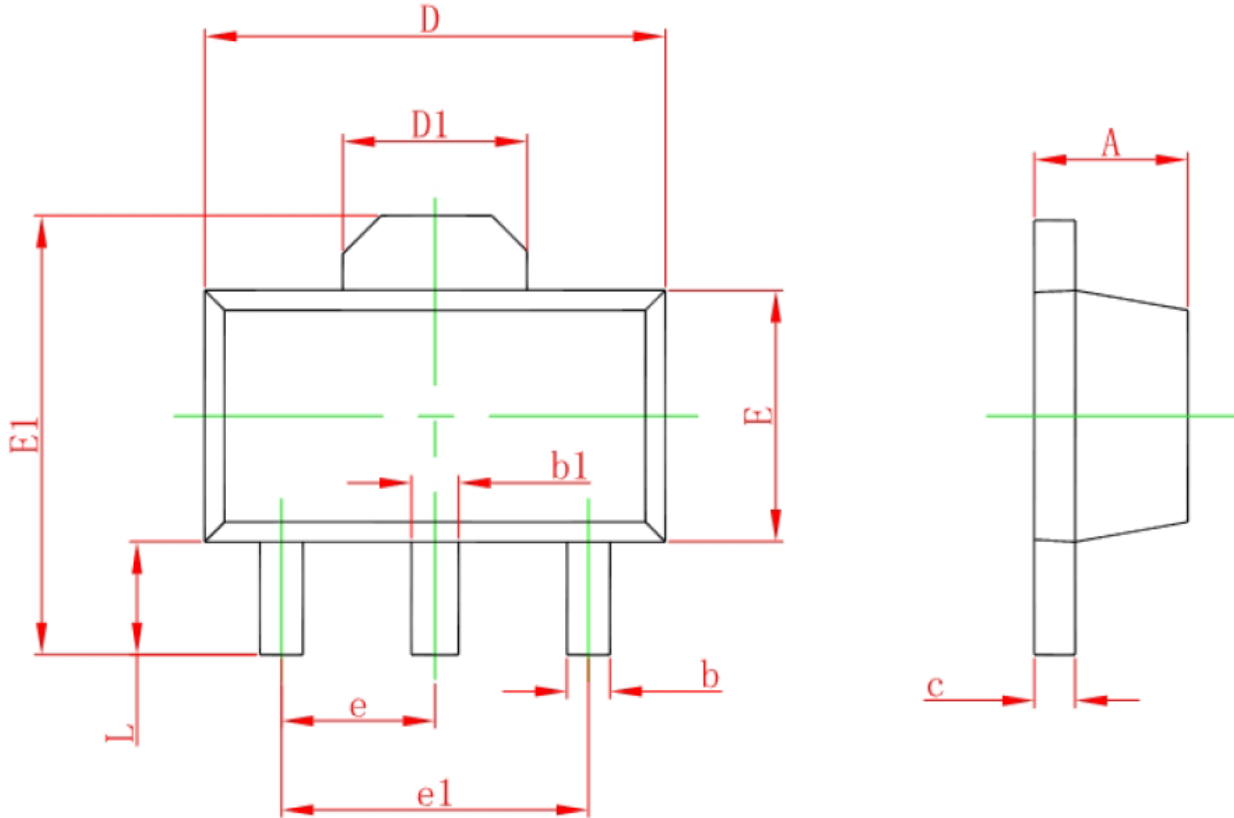
Dimension in SOT-23 (Unit: mm)



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
theta	0°	8°



Dimension in SOT89-3 (Unit: mm)



Symbol	Min.	Max.
A	1.400	1.600
b	0.320	0.520
b1	0.400	0.580
c	0.350	0.440
D	4.400	4.600
D1	1.550 REF	
E	2.300	2.600
E1	3.940	4.250
e	1.500 TYP	
e1	3.000 TYP	
L	0.900	1.200



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