



DESCRIPTION

The A6152 series is a group of positive voltage output, high voltage input, low power consumption, low dropout voltage regulator.

The A6152 can afford 150mA output current when input-output voltage differential drops to 900mV.

The A6152 can provide output value in the range of 2.5V to 12V every 0.1V step and also can be customized on customer requirement.

The A6152 includes high accuracy voltage reference, error amplifier, current limit circuit and output driver module, the A6152 has excellent load and line transient response and good temperature characteristics, when can assure the stability of chip and power system. And it uses trimming technique to guarantee output voltage accuracy within $\pm 2\%$.

The A6152 is available in SOT-23, SOT-89 and SOT-25 package.

ORDERING INFORMATION

Package Type	Part Number	
SOT-23	E3	A6152E3R-XXX
SOT-25	E5	A6152E5R-XXX
SOT-89-3	K3	A6152K3R-XXX
Note	XXX: Output Voltage 025=2.5V, 120=12V... R: Tape & Reel	
AiT provides all Pb free products		

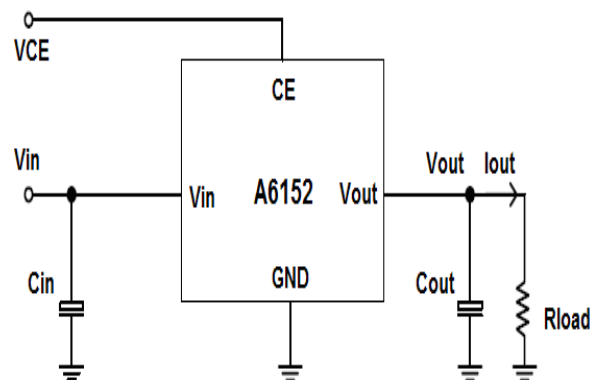
FEATURES

- Low Power Consumption: 9uA (Typ.)
- Small Input-Output Differential:
900mV@150mA ($V_{out}=3.3V$)
- High Input Voltage: Up to 24V
- Output Range: 2.5V to 12V (0.1V step)
- Highly Accurate: $\pm 2\%$
- Excellent Load and Lin Transient Response
- Output Current Limit
- Available in SOT-23, SOT-25 and SOT-89 package

APPLICATION

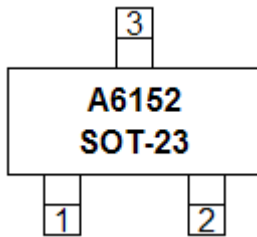
- Audio/Video Equipment
- Battery Powered Equipment
- Power Management of MP3, PDA, DSC, Mouse, PS2 Games
- Reference Voltage Source
- Communication Equipment

Typical Application

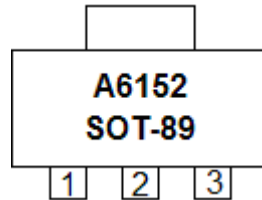




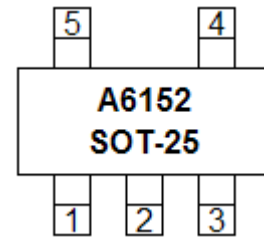
PIN DESCRIPTION



Top View



Top View



Top View

Pin Number			Symbol	Function
SOT-23	SOT-89-3	SOT-25		
1	1	1	V _{SS}	Ground Pin
2	3	3	V _{OUT}	Output Pin
3	2	2	V _{IN}	Input Pin
-	-	4, 5	NC	No Connection



ABSOLUTE MAXIMUM RATINGS

Max Input Voltage	26V
Junction Temperature (T _J)	125°C
Ambient Temperature (T _A)	200mA
Power Dissipation	-40°C ~ +85°C
SOT-23	250mW
SOT-25	250mW
SOT-89-3	500mW
Storage Temperature (T _s)	-45°C~150°C
Lead Temperature and Time	260°C, 10S

Stresses beyond 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

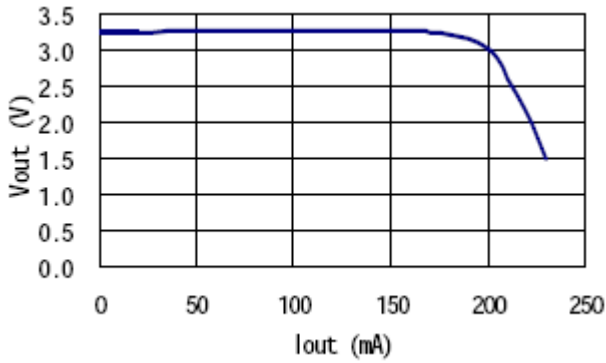
Test Conditions: $C_{IN}=1\mu F$, $C_{OUT}=1\mu F$, $T_A=25^\circ C$, unless otherwise noted.

Symbol	Parameter	Conditions	Min	Typ	Max	Unit
V_{IN}	Input Voltage				24	V
V_{OUT}	Output Voltage	$V_{IN}=V_{OUT}+2V$	V_{OUT} $\times 0.98$		V_{OUT} $\times 1.02$	V
$I_{OUT} (Max)$	Max Output Current	$V_{IN}-V_{OUT}=1.5V$	150			mA
Dropout Voltage	Input-Output Voltage Differential	$I_{OUT}=20mA$		270	500	mV
		$I_{OUT}=150mA$		900	1200	
ΔV_{OUT} $\Delta V_{IN} \times V_{OUT}$	Line Regulation	$I_{OUT}=20mA$ $V_{OUT}+1V \leq V_{IN} \leq 24V$		0.2	0.3	%/V
ΔV_{OUT}	Load Regulation	$V_{IN}-V_{OUT}=2V$ $1mA \leq I_{OUT} \leq 40mA$		30	60	mV
I_q	Quiescent Current	$V_{IN}-V_{OUT}=2V$, $V_{IN}=V_{CE}$		9	15	μA
I_{LIM}	Current Limit	$V_{IN}-V_{OUT}=2V$	250			mA
V_{CEH}	CE Input Voltage "H"		1.5		V_{IN}	V
V_{CEL}	CE Input Voltage "L"		0		0.3	V

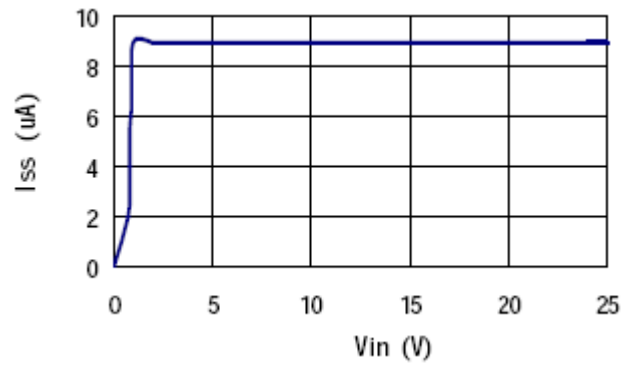


TYPICAL PERFORMANCE CHARACTERISTICS

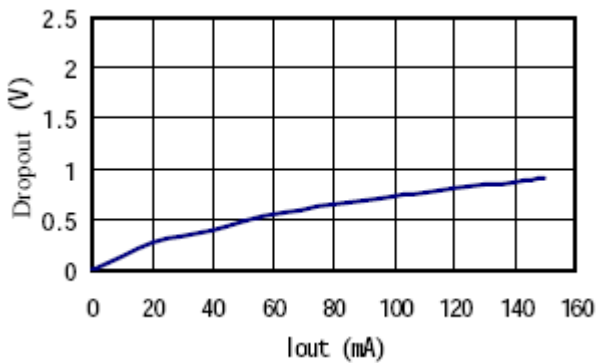
1. V_{OUT} vs. I_{OUT}



2. I_{SS} vs. V_{IN}

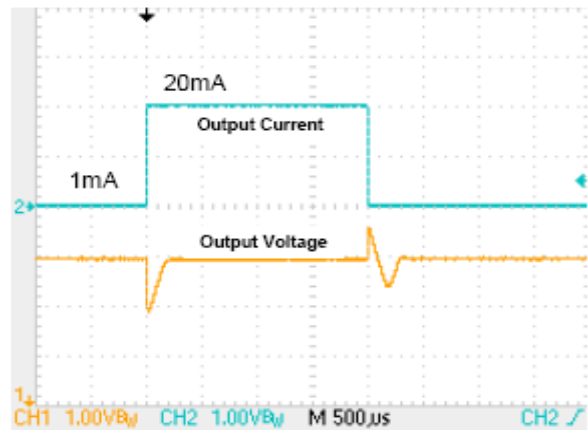


3. Dropout vs. V_{OUT}



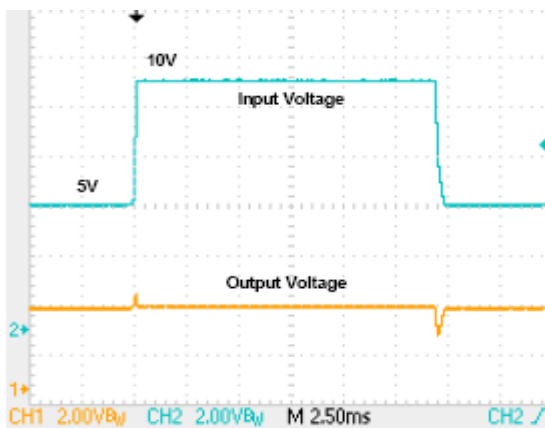
4. Load Transient Response

$C_{OUT}=0.1\mu F$, $V_{IN}=5.3V$



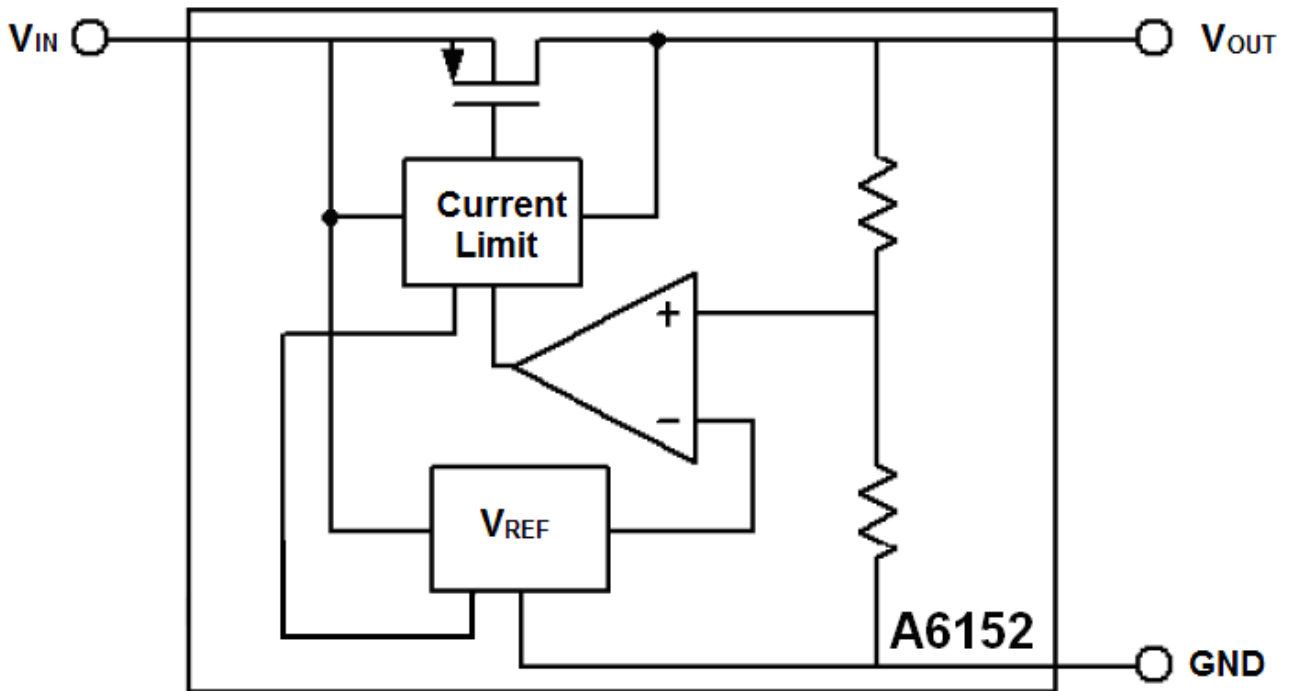
5. Input Transient Response

$I_{OUT}=20mA$, $C_{OUT}=0.1\mu F$





BLOCK DIAGRAM





DETAILED INFORMATION

The A6152 is a series of low dropout voltage and low power consumption regulator. Its application circuits are simple only needs to outside capacitors. It's composed of these modules:

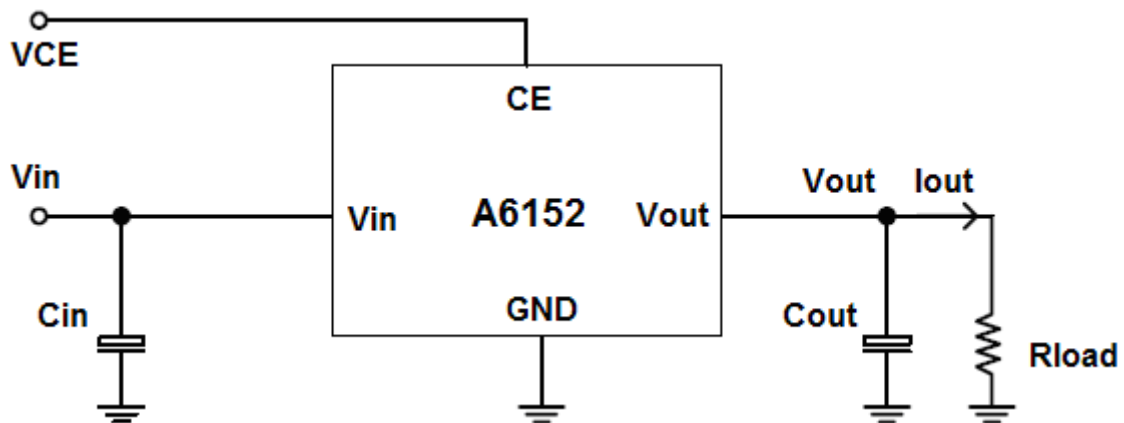
High accuracy voltage reference, current limit circuit, error amplifier, output driver and power transistor.

Current Limit Module

Current Limit Module can keep A6152 and power system away from danger when load current is more than 150mA.

Typical Circuit

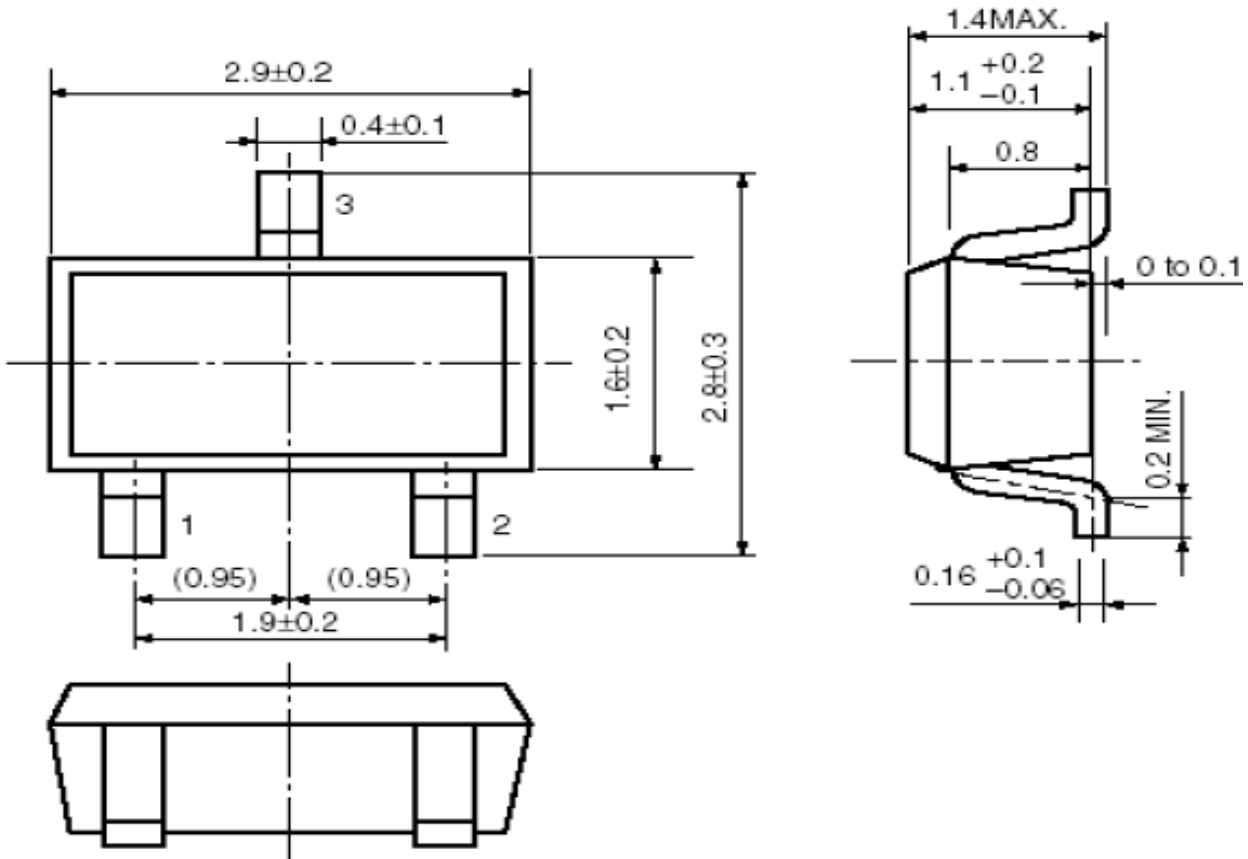
Input capacitor ($C_{IN}=1\mu F$) is recommended in all application circuit. Tantalum capacitor is recommended. Output capacitor ($C_{OUT}=1\mu F$) is recommended in all application to assure the stability of circuit. Tantalum capacitor is recommended.





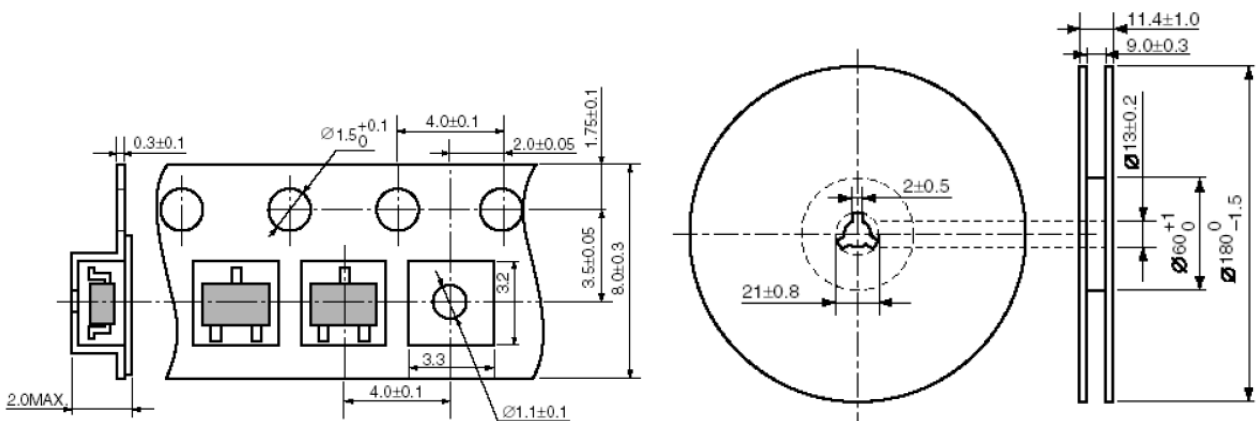
PACKAGE INFORMATION

Dimension in SOT-23 (Unit: mm)



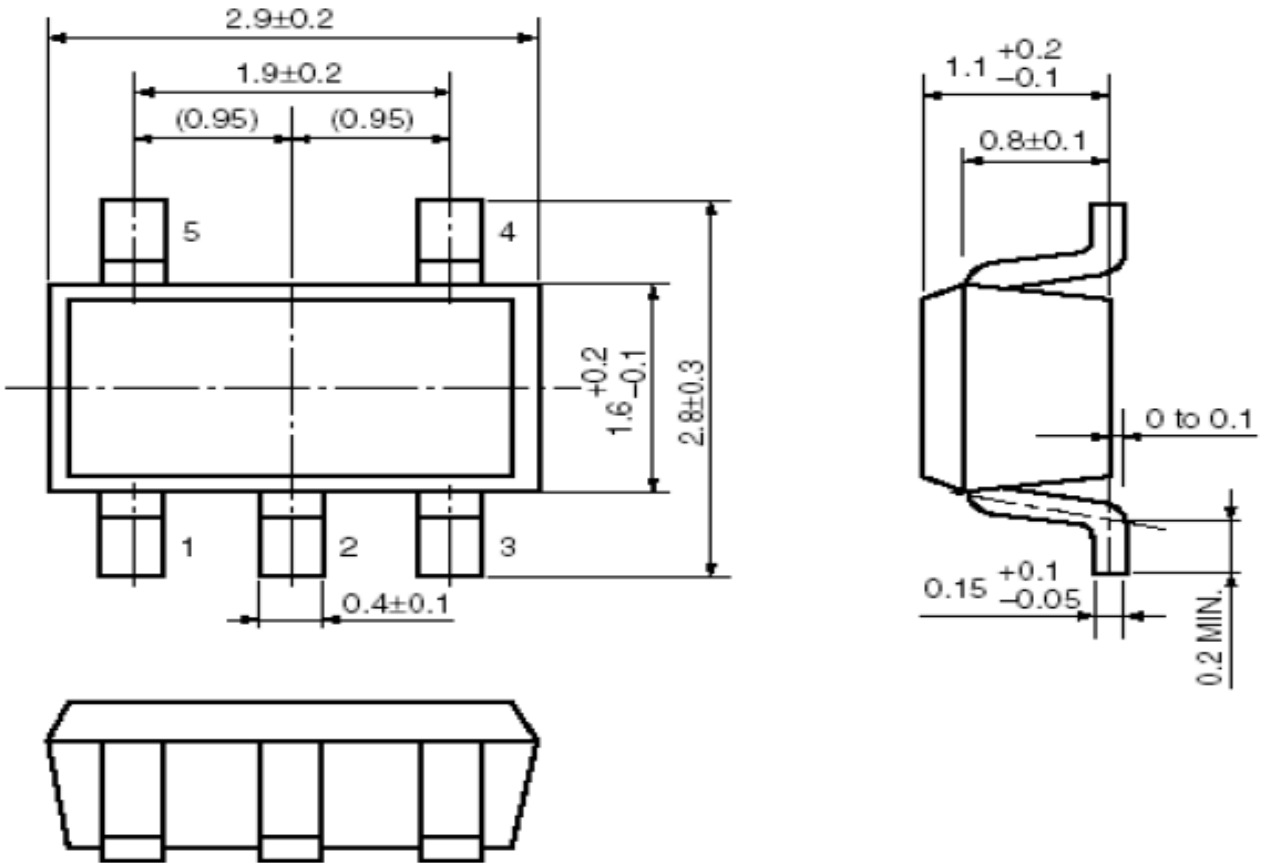
Tape Dimension

Reel Dimension

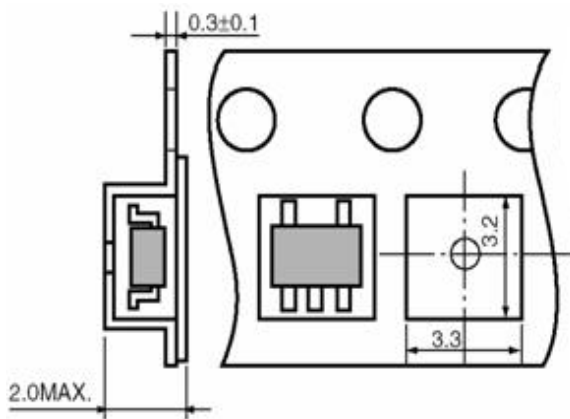




Dimension in SOT-25 (Unit: mm)



Tape Dimension



Reel Dimension

