DESCRIPTION

A6618 series is a group of positive voltage output, low power consumption, low dropout voltage regulator.

A6618 can provide output value adjustable from 0.8V to 5.0V.

A6618 includes high accuracy voltage reference, error amplifier, current limit circuit and output driver module with discharge capability.

A6618 has excellent load and line transient response and good temperature characteristics, which can assure the stability of chip and power system. It uses trimming technique to guarantee output voltage accuracy within ±2%. And it also provides foldback short-circuit protection, thermal protection and output current limit function.

The A6618 is available in SOT-25 package.

ORDERING INFORMATION

Package Type	Part Number	
SOT-25 SPQ: 3,000pcs/Reel	E5	A6618E5R
		A6618E5VR
Note	V: Halogen free Package R: Tape & Reel	
AiT provides all RoHS products		

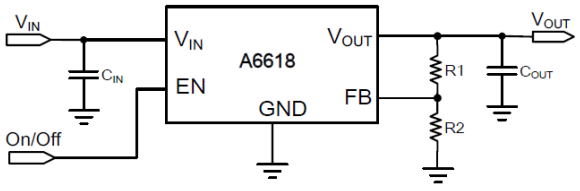
FEATURES

- Low Power Consumption: 40μA (Typ.)
- Maximum output current: 600mA
- Low dropout Voltage:
  170mV@I_{OUT}=300mA, V_{OUT}=3.3V
  355mV@I_{OUT}=600mA, V_{OUT}=3.3V
- Build-in chip enable and discharge circuit
- Input voltage range: 2.5 to 6V
- Adjustable Output from 0.8V to 5.0V
- Output Voltage Accuracy: ±2%
- Output current limit: 1A (Typ.)
- OCP/SCP/TSD protection
- Available in SOT-25 package

APPLICATION

- Power source for cellular phones and various kind of PCSs
- Battery Powered equipment
- Power Management of MP3, PDA, DSC, Mouse, PS2 Games
- Reference Voltage Source
- Regulation after Switching Power

TYPICAL APPLICATION

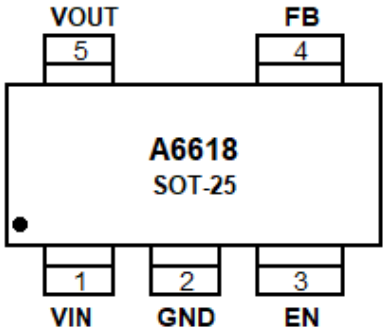


NOTE:

1) Input capacitor (C_{IN}=1uF) and Output capacitor (C_{OUT}=1uF) are recommended in all application circuit.

2) $V_{OUT}=V_{FB}*(1+\frac{R1}{R2})$, V_{FB}=0.8V

PIN DESCRIPTION



Top View

Pin #	Symbol	Function
1	V_{IN}	Supply Voltage Input. Supply voltage can range from 1.8V to 6V. Bypass with a 1μF capacitor to GND.
2	GND	Ground Pin
3	EN	Enable Pin. This pin has an internal pull-down resistor. A logic low reduces the supply current to less than 1μA. Connect to IN for normal operation.
4	FB	Feedback Pin (adjustable voltage version only). This is used to set the output voltage of the device.
5	V_{OUT}	Output Voltage

ABSOLUTE MAXIMUM RATINGS

Max Input Voltage		8V
T_J, Operating Junction Temperature		150°C
T_A, Ambient Temperature		-40°C~85°C
Power Dissipation	SOT-25	400mW
T_S, Storage Temperature		-40°C~150°C
Lead Temperature & Time		260°C,10s

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	Value
Input Voltage Range	2.5V to 6V
Ambient Temperature	-40°C to 85°C

ELECTRICAL CHARACTERISTICS

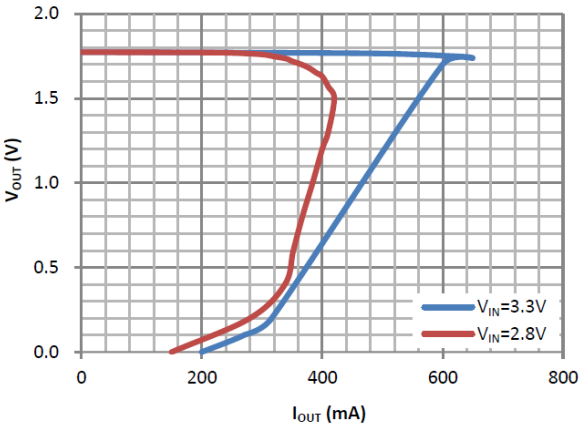
Test Conditions: C_{IN}=1uF, C_{OUT}=1uF, T_A=25℃, unless otherwise specified.

Parameter	Symbol	Conditions	Min.	Typ.	Max.	Unit
Input Voltage	V_{IN}		2.5	-	6	V
Regulated Feedback Voltage	V_{FB}	V_{IN}=3.3V, I_{OUT}=10mA	0.784	0.8	0.816	V
Dropout Voltage	V_{DROP}*	V_{OUT}=1.8V, I_{OUT}=300mA	-	900	1350	mV
		V_{OUT}=2.5V, I_{OUT}=600mA	-	550	825	
		V_{OUT}=3.3V, I_{OUT}=600mA	-	355	500	
Line Regulation	$\frac{\Delta V_{OUT}}{\Delta V_{IN} \times V_{OUT}}$	I_{OUT}=10mA, 2.5V≤V_{IN}≤6V	-	0.05	0.2	%/V
Load Regulation	$\Delta V_{OUT}/\Delta I_{OUT}$	V_{IN}=4.3V, V_{OUT}=3.3V 0mA≤I_{OUT}≤600mA	-	50	80	mV
Supply Current	I_Q	V_{IN}=V_{OUT}+1V	-	40	100	μA
Supply Current (Standby)	$I_{STANDBY}$	V_{IN}=V_{OUT}+1V, V_{EN}=GND	-	0.1	1.0	μA
Output Voltage Temperature Coefficient	$\frac{\Delta V_{OUT}}{\Delta T \times V_{OUT}}$	I_{OUT}=10mA	-	±100	-	ppm/°C
Ripple Rejection	PSRR	f=1kHz, Ripple=1Vp-p V_{IN}=V_{OUT}+1V	-	60	-	dB
Current Limit	I_{LIM}	V_{IN}=4.3V, V_{OUT}=3.3V	-	1	-	A
Short Current Limit	I_{SHORT}	V_{OUT}=0V	-	200	-	mA
Discharge Resistor	$R_{DISCHARGE}$	EN=0, V_{OUT}=3V	-	280	-	ohm
EN Input Voltage “H”	V_{ENH}		1.3	-	V_{IN}	V
EN Input Voltage “L”	V_{ENL}		0	-	0.35	V
Thermal Shutdown Temp	T_{SD}		-	160	-	°C
Thermal Shutdown Hysteresis	T_{SH}		-	30	-	°C

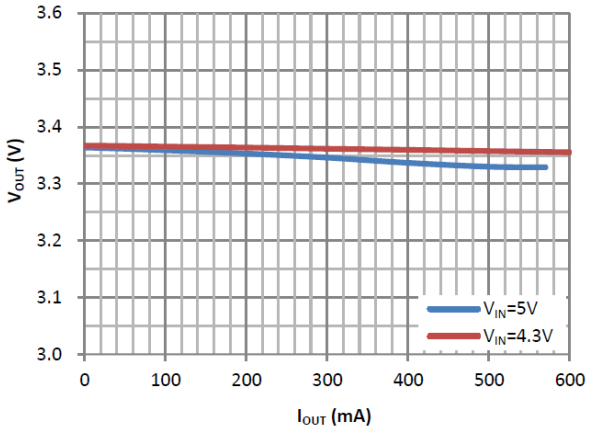
NOTE: * V_{DROP}=V_{IN}1-(V_{OUT}2*0.98) V_{OUT}2 is the output voltage when V_{IN} = V_{OUT}1+1.0V and I_{OUT}=600mA. V_{IN}1 is the input voltage at which the output voltage becomes 98% of V_{OUT}1 after gradually decreasing the input voltage.

TYPICAL PERFORMANCE CHARACTERISTICS

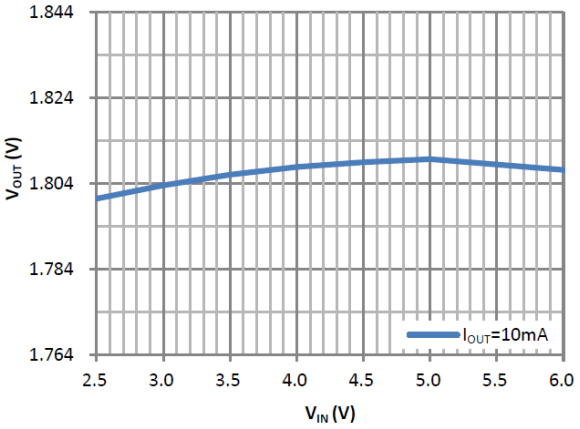
1. Load Regulation (V_{OUT}=1.8V)



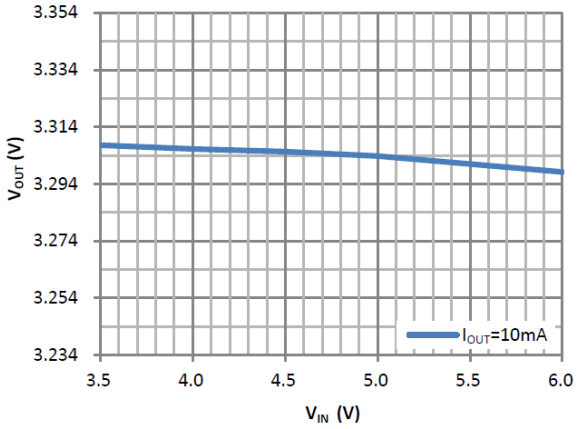
2. Load Regulation (V_{OUT}=3.3V)



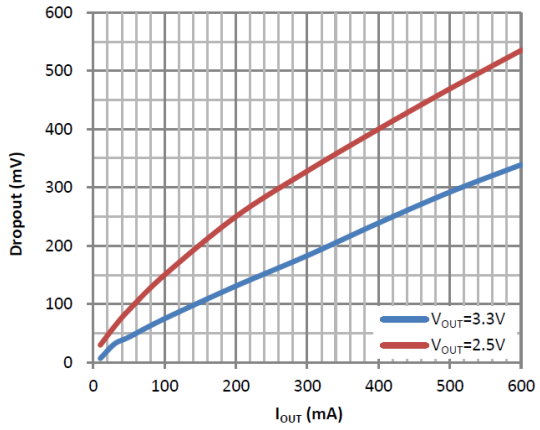
3. Line Regulation (V_{OUT}=1.8V)



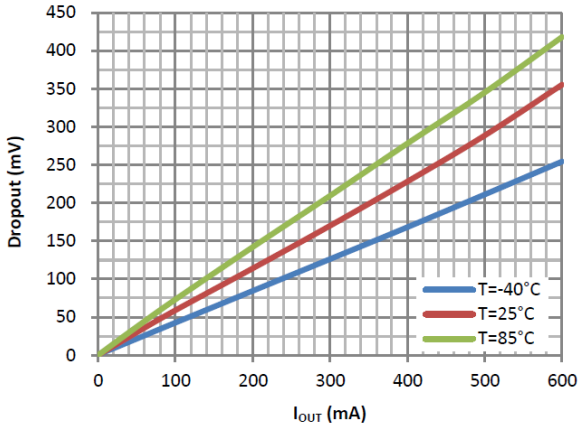
4. Line Regulation (V_{OUT}=3.3V)



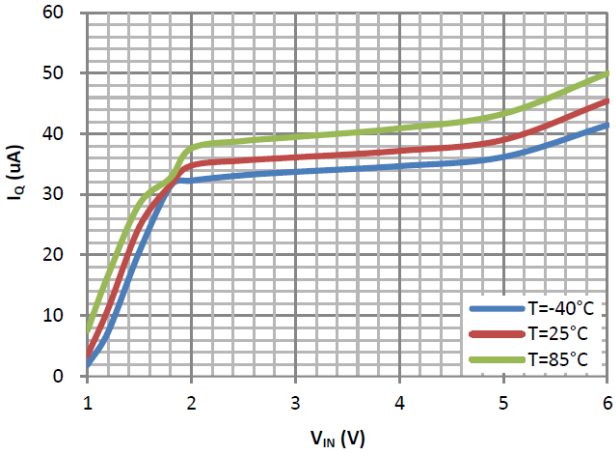
5. Dropout Voltage



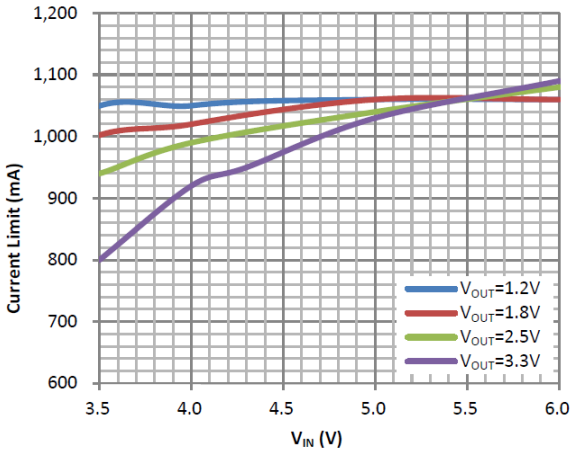
6. Dropout Voltage vs. Temp (V_{OUT}=3.3V)



7. I_Q (V_{OUT}=1.8V)

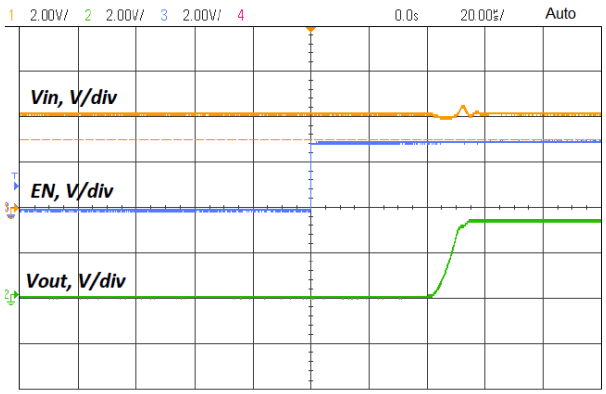


8. Current Limit vs. V_{IN}

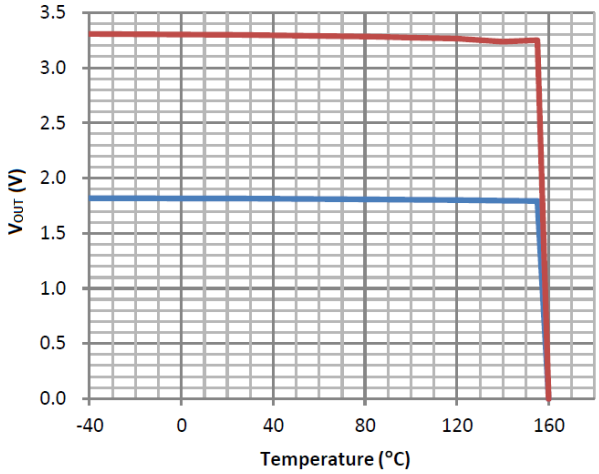


9. EN Chip Enable Response

(Orange: V_{IN}; Blue: EN; Green: V_{OUT})



10. V_{OUT} vs. Temperature

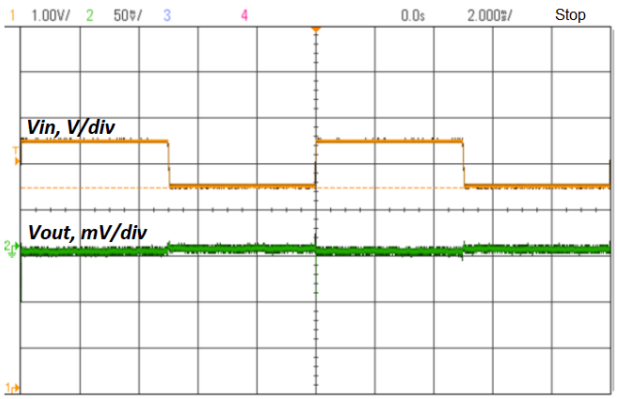


11. Line Transient Response

V_{OUT}=3.3V, I_{OUT}=10mA

V_{IN}=4.3-5.3V, $V_{OUT\ p\text{-}p}$=78mV

(Orange: V_{IN}; Green: V_{OUT})

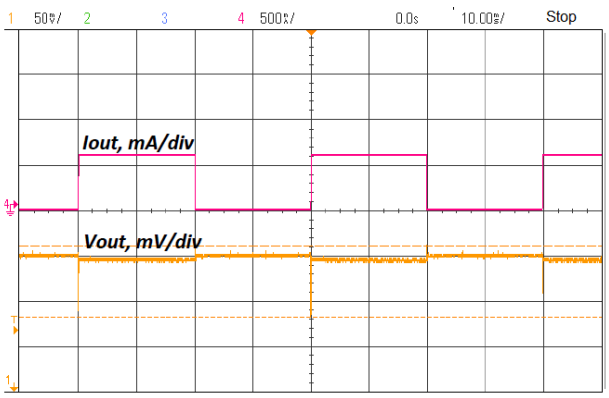


12. Load Transient Response

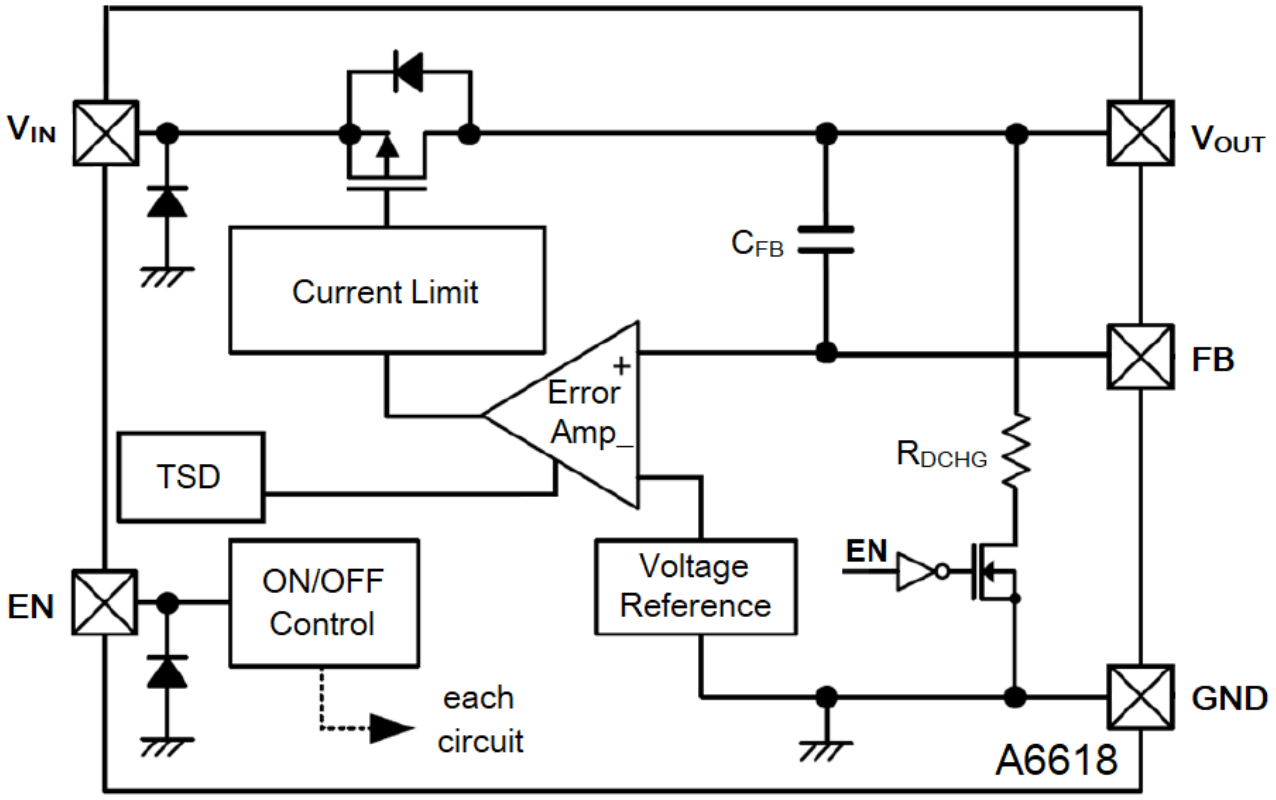
V_{IN}=4.3V, V_{OUT}=3.3V, I_{OUT}=10-600mA

Trise=1μs, Tfall=1μs, $V_{OUT\ p\text{-}p}$=74mV

(Pink: I_{OUT}; Orange: V_{OUT})



BLOCK DIAGRAM



EXPLANATION

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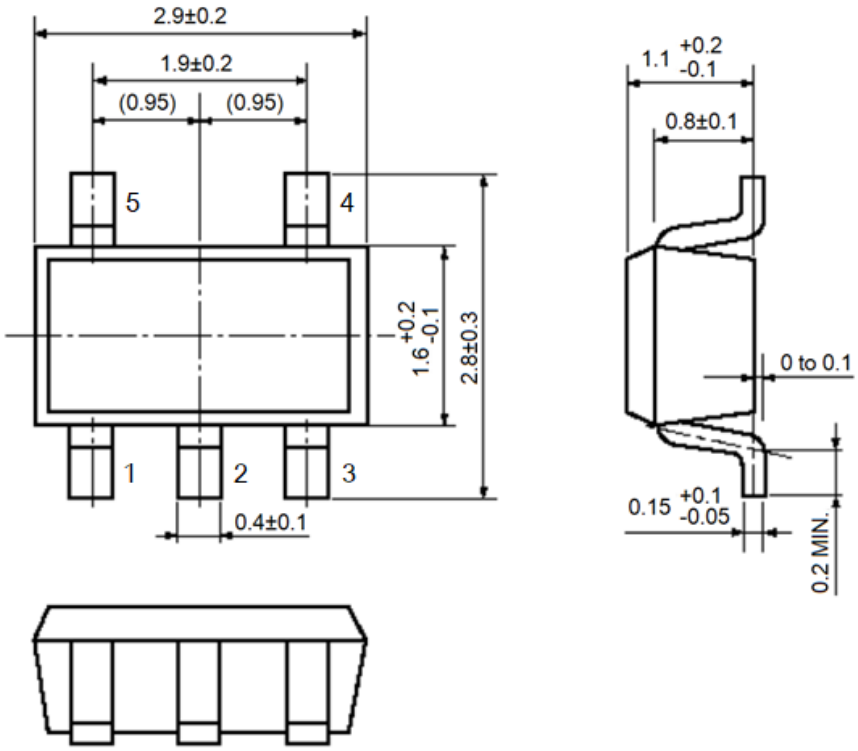
PACKAGE INFORMATION

Dimension in SOT-25 (Unit: mm)



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