300mA Low Dropout Linear Regulator

FEATURES

- Low dropout voltage of 470mV at an output current of 300mA (3.0V output version).
- Guaranteed 300mA output current.
- Low ground current of 55μA
- Output voltage accuracy of 2% at 1.8V/ 2.0V /2.5V /2.7V/ 3.0V/ 3.3V/ 3.5V/ 3.7V/ 3.8V/ 5.0V/5.2V
- Only needs 1μF output capacitor for stability.
- Current and thermal limiting.
- **Pb-free lead finish (second-level interconnect).**

APPLICATIONS

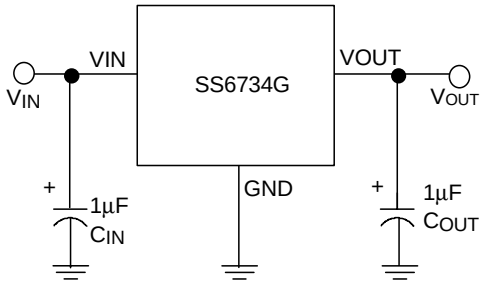
- CD-ROM Drivers.
- LAN Cards.
- Microprocessors.
- DRAM Modules.
- Wireless Communication Systems.
- Battery Powered Systems.

DESCRIPTION

The SS6734G is a 3-pin low-dropout linear regulator with superior characteristics, which include zero base current loss, very low drop-out voltage, and output voltage accuracy of 2%. Typical ground current remains approximately 55μA, for loads ranging from zero to maximum. Dropout voltage at an output current of 300mA is exceptionally low. Built-in output current limiting and thermal limiting provide maximum protection against fault conditions.

The SS6734G is available in SOT-23-3, SOT-89, and TO-92 packages.

TYPICAL APPLICATION CIRCUIT



Low Dropout Linear Regulator

(C_{IN} and C_{OUT} are electrolytic capacitor)

ORDERING INFORMATION

SS6734-XXGXX XX

- Packing:
  - TR: Tape and reel
- Package type:
  - U: SOT-23-3
  - XA: SOT-89
  - XT: SOT-89
  - ZT: TO-92
  - ZL: TO-92
- G: Commercial, Pb-free lead finish
- Output voltage:
  - 18: 1.8V
  - 20: 2.0V
  - 25: 2.5V
  - 27: 2.7V
  - 30: 3.0V
  - 33: 3.3V
  - 35: 3.5V
  - 37: 3.7V
  - 38: 3.8V
  - 50: 5.0V
  - 52: 5.2V

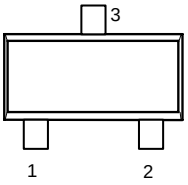
Example: SS6734-18GXATR

→ 1.8V version, in SOT-89 package, with Pb-free lead finish, shipped on tape and reel.

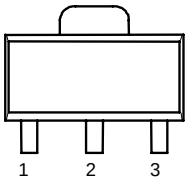
PIN CONFIGURATION

SOT-23 (GU)

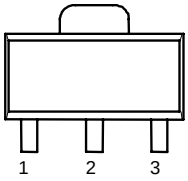
1: GND
2: VOUT
3: VIN



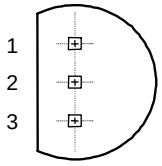
SOT-89 (GXA)
TOP VIEW
1: GND
2. VIN
3. VOUT



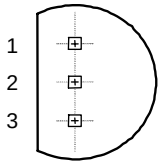
SOT-89 (GXT)
TOP VIEW
1: VOUT
2. GND
3. VIN



TO-92 (GZT)
TOP VIEW
1: GND
2. VIN
3. VOUT



TO-92 (GZL)
TOP VIEW
1: VIN
2. GND
3. VOUT



SOT-23 MARKING

Part No.	GU	Part No.	GU
SS6734-18GU	CD18P	SS6734-35GU	CD35P
SS6734-20GU	CD20P	SS6734-37GU	CD37P
SS6734-25GU	CD25P	SS6734-38GU	CD38P
SS6734-27GU	CD27P	SS6734-50GU	CD50P
SS6734-30GU	CD30P	SS6734-52GU	CD52P
SS6734-33GU	CD33P		

SOT-89 MARKING

Part No.	GXA	Part No.	GXT
SS6734-18GXA	CA18P	SS6734-18GXT	CB18P
SS6734-20GXA	CA20P	SS6734-20GXT	CB20P
SS6734-25GXA	CA25P	SS6734-25GXT	CB25P
SS6734-27GXA	CA27P	SS6734-27GXT	CB27P
SS6734-30GXA	CA30P	SS6734-30GXT	CB30P
SS6734-33GXA	CA33P	SS6734-33GXT	CB33P
SS6734-35GXA	CA35P	SS6734-35GXT	CB35P
SS6734-37GXA	CA37P	SS6734-37GXT	CB37P
SS6734-38GXA	CA38P	SS6734-38GXT	CB38P
SS6734-50GXA	CA50P	SS6734-50GXT	CB50P
SS6734-52GXA	CA52P	SS6734-52GXT	CB52P

ABSOLUTE MAXIMUM RATINGS

Input Supply Voltage ..... -0.3 ~12V

Operating Temperature Range ..... -40°C~ 85°C

Storage Temperature Range ..... -65°C~150°C

Maximum Junction Temperature ..... 125°C

Lead Temperature (Soldering) 10 sec. ..... 260°C

Thermal Resistance Junction to Ambient	SOT-89 Package	160°C/W
(Assumes no ambient airflow, no heatsink)	TO-92 Package	150°C/W
	SOT-23 Package	180°C/W

Absolute Maximum Ratings are those values beyond which the life of a device may be impaired.

TEST CIRCUIT

Refer to the TYPICAL APPLICATION CIRCUIT

ELECTRICAL CHARACTERISTICS

(T_A=25°C, C_{IN}=1μF, C_{OUT}=1μF, unless otherwise specified.) (Note1)

PARAMETER	TEST CONDITIONS		MIN.	TYP.	MAX.	UNIT
Output Voltage	No Load					V
	SS6734-52	V_{IN}=5.5~12V	5.100	5.200	5.300	
	SS6734-50	V_{IN}=5.5~12V	4.900	5.000	5.100	
	SS6734-38	V_{IN}=4.1~12V	3.725	3.800	3.875	
	SS6734-37	V_{IN}=4.0~12V	3.625	3.700	3.775	
	SS6734-35	V_{IN}=4.0~12V	3.430	3.500	3.570	
	SS6734-33	V_{IN}=4.0~12V	3.235	3.300	3.365	
	SS6734-30	V_{IN}=4.0~12V	2.940	3.000	3.060	
	SS6734-27	V_{IN}=4.0~12V	2.646	2.700	2.754	
	SS6734-25	V_{IN}=4.0~12V	2.450	2.500	2.550	
	SS6734-20	V_{IN}=4.0~12V	1.960	2.000	2.040	
	SS6734-18	V_{IN}=4.0~12V	1.764	1.800	1.836	
Output Voltage Temperature Coefficient	(Note 2)			50		PPM/°C
Line Regulation	I_L=1mA,					mV
	1.4V≤V_{OUT}≤3.2V	V_{IN}=4V~12V		3	10	
	3.3V≤V_{OUT}≤5.2V	V_{IN}=5.5V~12V		3	10	
Load Regulation (Note 3)	I_L=0.1~300mA					mV
	1.4V≤V_{OUT}≤3.9V	V_{IN}=5V		7	20	
	4.0V≤V_{OUT}≤5.2V	V_{IN}=7V		15	40	
Current Limit (Note 4)	V_{IN}=7V, V_{OUT}=0V		300			mA
Dropout Voltage (Note 5)	I_L=300mA	4.0V≤V_{OUT}≤5.2V		400		mV
		3.0V≤V_{OUT}≤3.9V		470		
		2.5V≤V_{OUT}≤2.9V		570		
		2.0V≤V_{OUT}≤2.4V		800		
		1.4V≤V_{OUT}≤1.9V		1260		
Ground Current	I_O=0.1mA~I_{MAX}					μA
	1.4V≤V_{OUT}≤3.9V	V_{IN}=5~12V		55	80	
	4.0V≤V_{OUT}≤5.2V	V_{IN}=7~12V		55	80	

Note 1: Specifications are guaranteed by Statistical Quality Control (SQC), not by 100% production testing, over the operating temperature range from -40°C to 85°C.
Note 2: Guaranteed by design.
Note 3: Regulation is measured at constant junction temperature, using pulse testing with a low ON time.
Note 4: Current limit is measured by pulsing a short time.
Note 5: Dropout voltage is defined as the input to output differential at which the output voltage drops 100mV.

TYPICAL PERFORMANCE CHARACTERISTICS

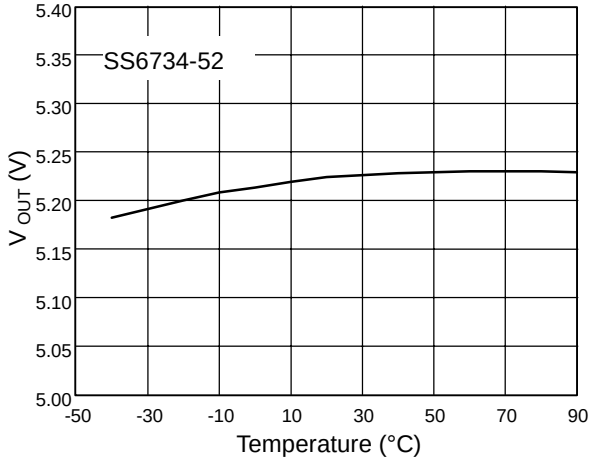


Fig. 1 V_{OUT} vs. Temperature

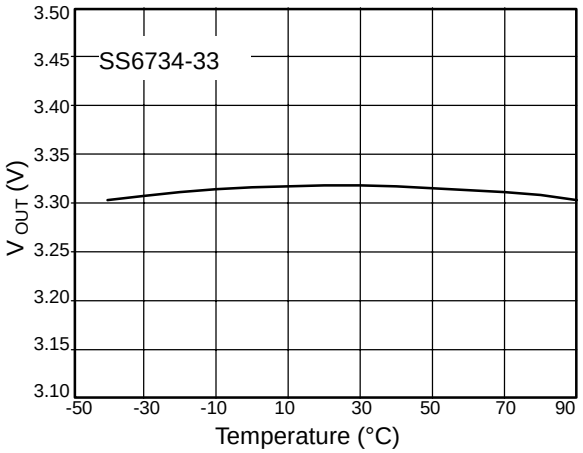


Fig. 2 V_{OUT} vs. Temperature

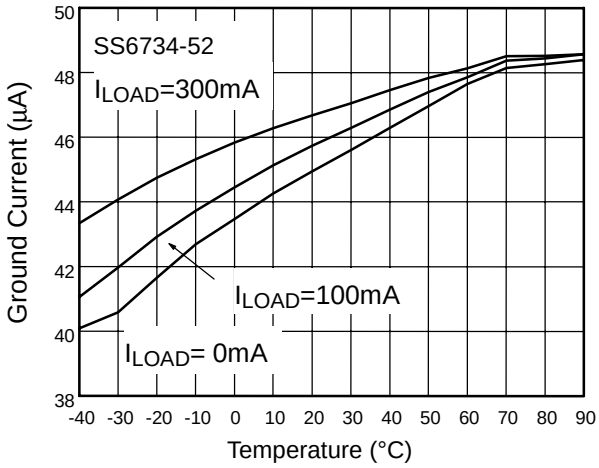


Fig. 3 Ground Current vs. Temperature

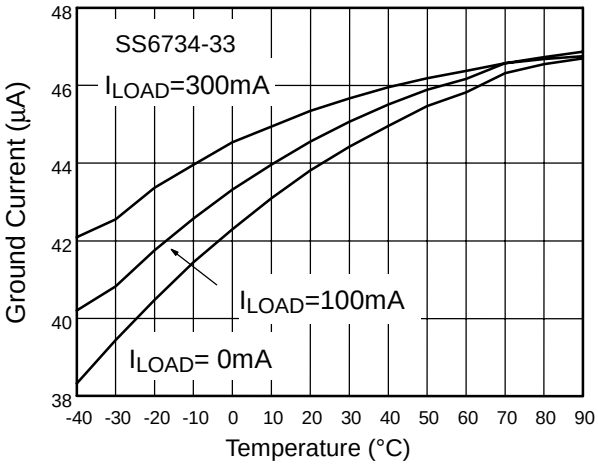


Fig. 4 Ground Current vs. Temperature

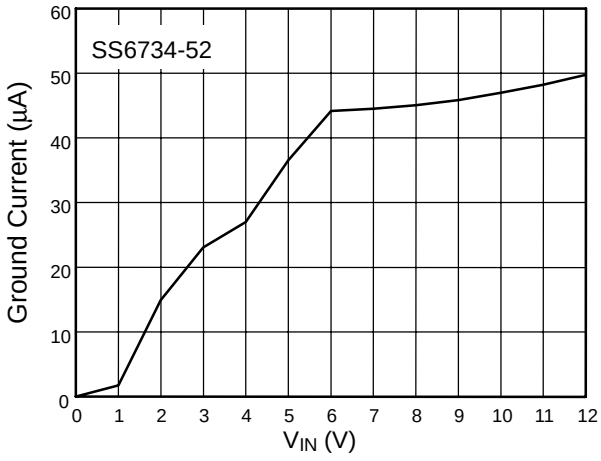


Fig. 5 Ground Current vs. V_{IN}

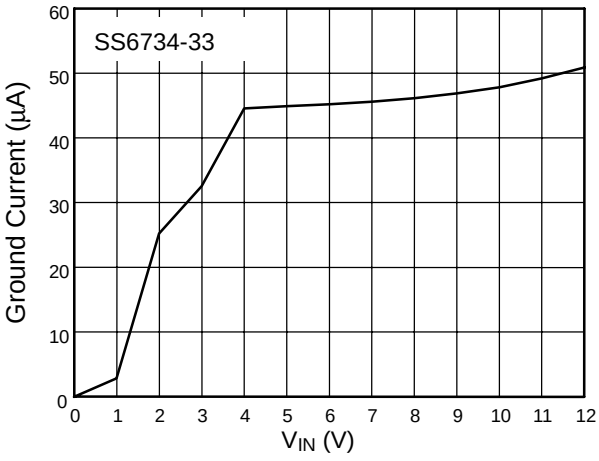


Fig. 6 Ground Current vs. V_{IN}

TYPICAL PERFORMANCE CHARACTERISTICS (Continued)

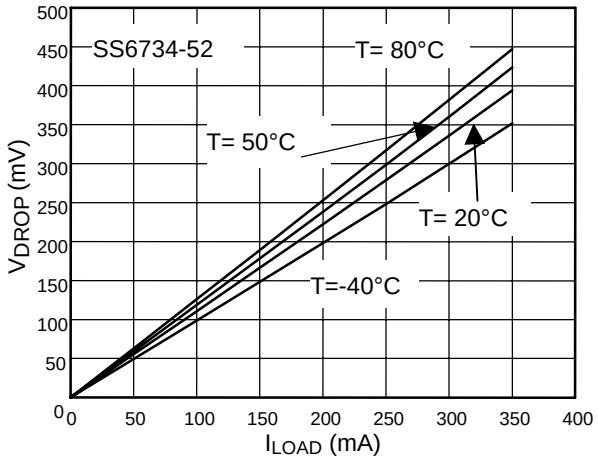


Fig. 7 V_{DROP} vs. I_{LOAD}

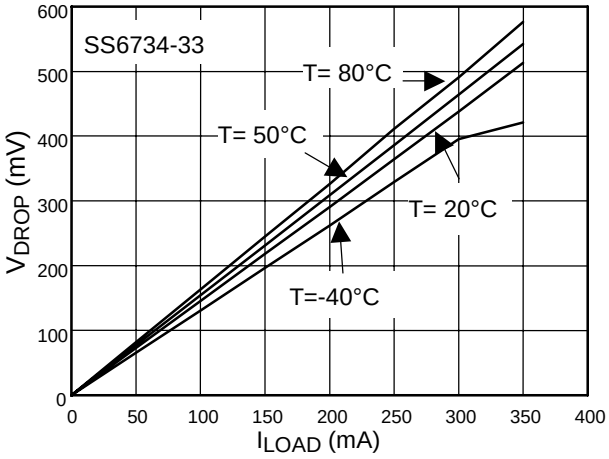


Fig. 8 V_{DROP} vs. I_{LOAD}

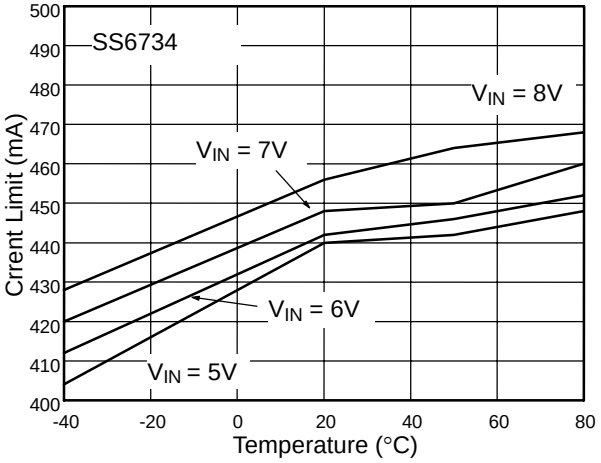
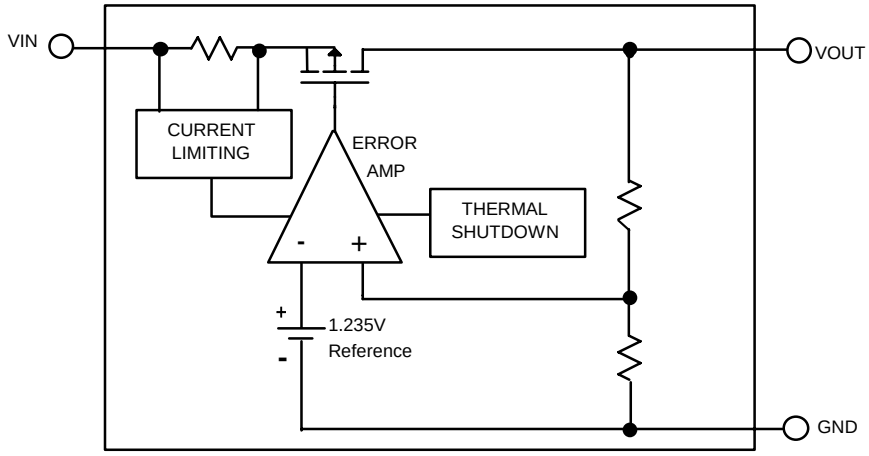


Fig. 9 Current Limit vs. Temperature

BLOCK DIAGRAM



PIN DESCRIPTIONS

VOUT PIN - Output pin.

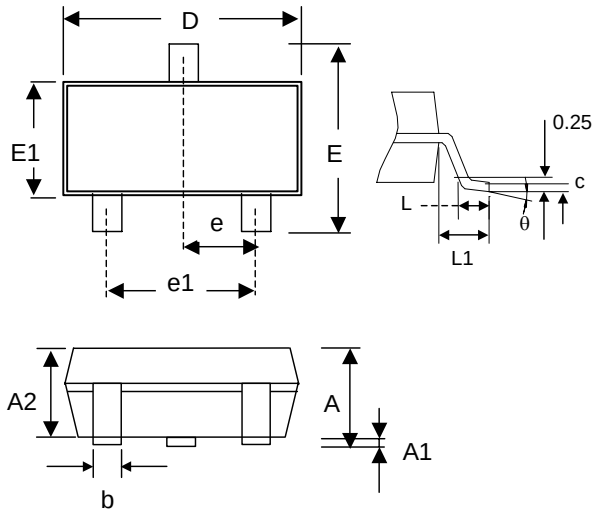
GND PIN - Power GND.

VIN PIN - Power Supply Input.

PHYSICAL DIMENSIONS (unit: mm)

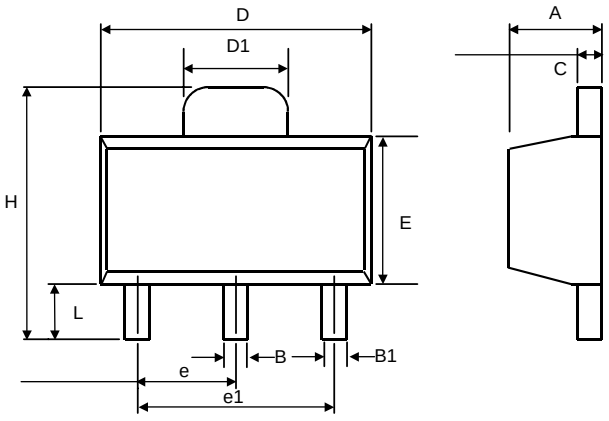
Pb-free lead finish (second-level interconnect).

SOT-23 (GU)



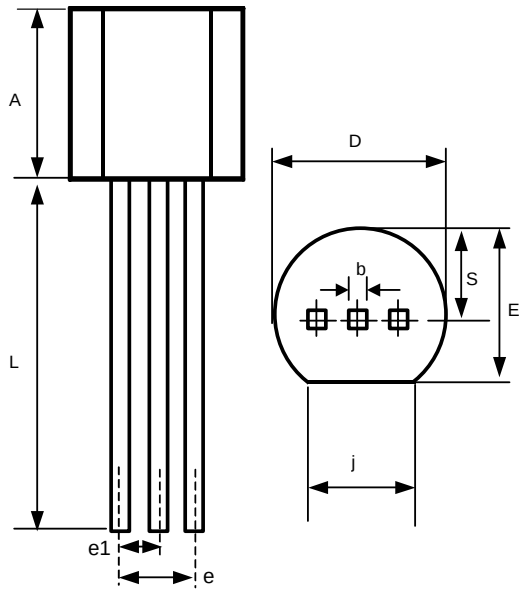
SYMBOL	MIN	MAX
A	0.95	1.45
A1	0.05	0.15
A2	0.90	1.30
b	0.30	0.50
c	0.08	0.22
D	2.80	3.00
E	2.60	3.00
E1	1.50	1.70
e	0.95 BSC	
e1	1.90 BSC	
L	0.30	0.60
L1	0.60 REF	
θ	0°	8°

SOT-89 (GXX)



SYMBOL	MIN	MAX
A	1.40	1.60
B	0.44	0.56
B1	0.36	0.48
C	0.35	0.44
D	4.40	4.60
D1	1.50	1.83
E	2.29	2.60
e	1.50 BSC	
e1	3.00 BSC	
H	3.94	4.25
L	0.89	1.20

TO-92 (GZX)



SYMBOL	MIN	MAX
A	4.32	5.33
b	0.36	0.47
D	4.45	5.20
E	3.18	4.19
e	2.42	2.66
e1	1.15	1.39
j	3.43	-
L	12.70	-
S	2.03	2.66