

500mA Low Dropout Linear Regulator

FEATURES

- Low Dropout Voltage of 650mV at 500mA Output Current (3V Output Version).
- Guaranteed 500mA Output Current.
- Low Ground Current at 65 μ A.
- 2% Accuracy Output Voltage of 1.8V/ 2.0V /2.5V /2.7V/ 3.0V/ 3.3V/ 3.5V/ 3.7V/ 3.8V/ 5.0V/ 5.2V.
- Needs only 4.7 μ F for Stability.
- Current and Thermal Limiting.

APPLICATIONS

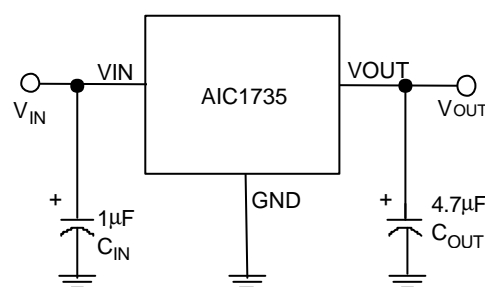
- Voltage Regulator for CD-ROM Drivers.
- Voltage Regulator for LAN Cards.
- Voltage Regulator for Microprocessor.
- Voltage Regulator for RAM Module.
- Wireless Communication Systems.
- Battery Powered Systems.

DESCRIPTION

The AIC1735 is a 3-pin low dropout linear regulator. The superior characteristics of the AIC1735 include zero base current loss, very low dropout voltage, and 2% accuracy output voltage. Typical ground current remains approximately 65 μ A, from no load to maximum loading conditions. Dropout voltage at 100mA output current is exceptionally low. Output current limiting and thermal limiting are built in to provide maximal protection to the AIC1735 against fault conditions.

The AIC1735 comes with the popular SOT-223 and TO-252 packages.

TYPICAL APPLICATION CIRCUIT

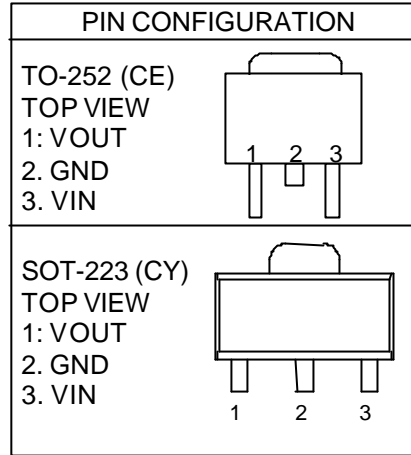


Low Dropout Linear Regulator

ORDERING INFORMATION

AIC1735-~~XX~~CX~~XX~~

- PACKING TYPE
TR: TAPE & REEL
TB: TUBE
- PACKAGE TYPE
E: TO-252
Y: SOT-223
- 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: AIC1735-18CETR
 → 1.8V Version, in TO-252 Package &
 Tape & Reel Packing Type

ABSOLUTE MAXIMUM RATINGS

Input Supply Voltage.....	-0.3~12V
Operating Junction Temperature Range	-40°C~ 85°C
Storage Temperature Range	-65°C~150°C
Thermal Resistance θ_{JC}	
TO-252 Package	12.5°C/W
SOT-223 Package	15°C/W

TEST CIRCUIT

Refer to the TYPICAL APPLICATION CIRCUIT

■ **ELECTRICAL CHARACTERISTICS** ($T_A=25^\circ\text{C}$, $C_{IN}=1\text{mF}$, $C_{OUT}=4.7\text{mF}$, unless otherwise specified.)

PARAMETER	TEST CONDITIONS	MIN.	TYP.	MAX.	UNIT	
Output Voltage	No Load					
	AIC1735-52	$V_{IN}=5.5\sim 12\text{V}$	5.100	5.200	5.300	V
	AIC1735-50	$V_{IN}=5.5\sim 12\text{V}$	4.900	5.000	5.100	
	AIC1735-38	$V_{IN}=4.7\sim 12\text{V}$	3.725	3.800	3.875	
	AIC1735-37	$V_{IN}=4.7\sim 12\text{V}$	3.625	3.700	3.775	
	AIC1735-35	$V_{IN}=4.7\sim 12\text{V}$	3.430	3.500	3.570	
	AIC1735-33	$V_{IN}=4.7\sim 12\text{V}$	3.235	3.300	3.365	
	AIC1735-30	$V_{IN}=4.0\sim 12\text{V}$	2.940	3.000	3.060	
	AIC1735-27	$V_{IN}=4.0\sim 12\text{V}$	2.646	2.700	2.754	
	AIC1735-25	$V_{IN}=4.0\sim 12\text{V}$	2.450	2.500	2.550	
AIC1735-20	$V_{IN}=4.0\sim 12\text{V}$	1.960	2.000	2.040		
AIC1735-18	$V_{IN}=4.0\sim 12\text{V}$	1.764	1.800	1.836		
Output Voltage Temperature Coefficiency	(Note 1)		50		PPM/ $^\circ\text{C}$	
Line Regulation	$I_L=1\text{mA}$, $1.4\text{V}\leq V_{OUT}\leq 3.2\text{V}$	$V_{IN}=4\text{V}\sim 12\text{V}$		3	10	mV
	$3.3\text{V}\leq V_{OUT}\leq 5.2\text{V}$	$V_{IN}=5.5\text{V}\sim 12\text{V}$		3	10	
Load Regulation (Note 2)	$I_L=0.1\sim 500\text{mA}$, $1.4\text{V}\leq V_{OUT}\leq 3.9\text{V}$	$V_{IN}=5\text{V}$		10	30	mV
	$4.0\text{V}\leq V_{OUT}\leq 5.2\text{V}$	$V_{IN}=7\text{V}$		20	50	
Current Limit (Note 3)	$V_{IN}=7\text{V}$, $V_{OUT}=0\text{V}$		500		mA	
Dropout Voltage (Note 4)	$I_L=500\text{mA}$	$4.0\text{V}\leq V_{OUT}\leq 5.2\text{V}$		510		mV
		$3.0\text{V}\leq V_{OUT}\leq 3.9\text{V}$		650		
		$2.5\text{V}\leq V_{OUT}\leq 2.9\text{V}$		780		
		$2.0\text{V}\leq V_{OUT}\leq 2.4\text{V}$		1100		
Ground Current	$I_O=0.1\text{mA}\sim I_{MAX}$, $1.4\text{V}\leq V_{OUT}\leq 3.9\text{V}$	$V_{IN}=5\sim 12\text{V}$		65	90	μA
	$4.0\text{V}\leq V_{OUT}\leq 5.2\text{V}$	$V_{IN}=7\sim 12\text{V}$		65	90	

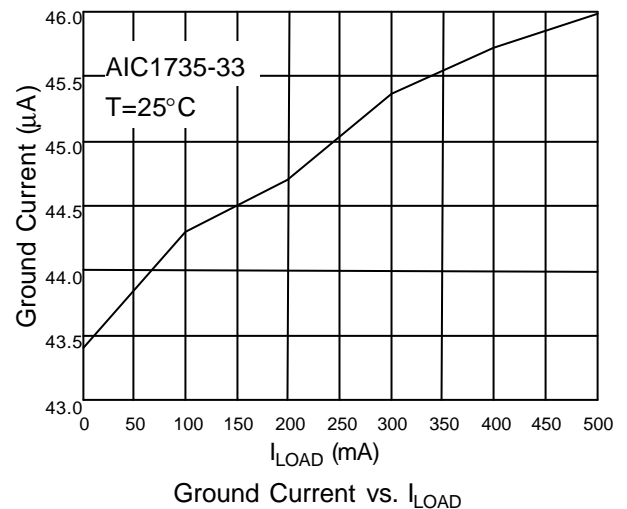
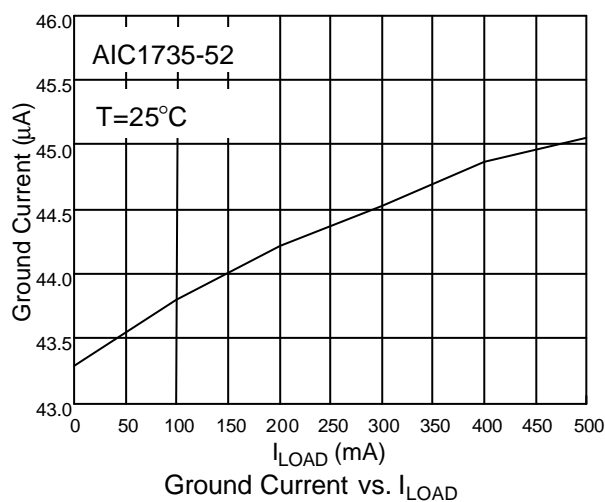
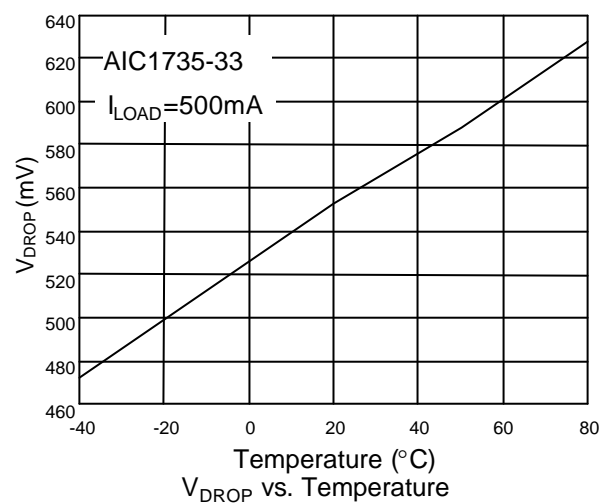
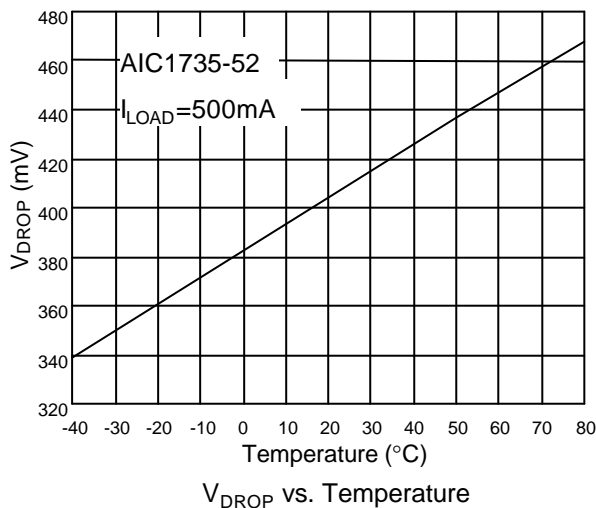
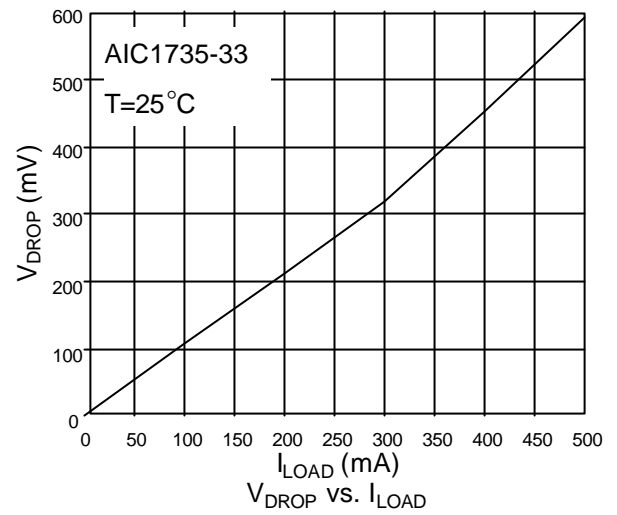
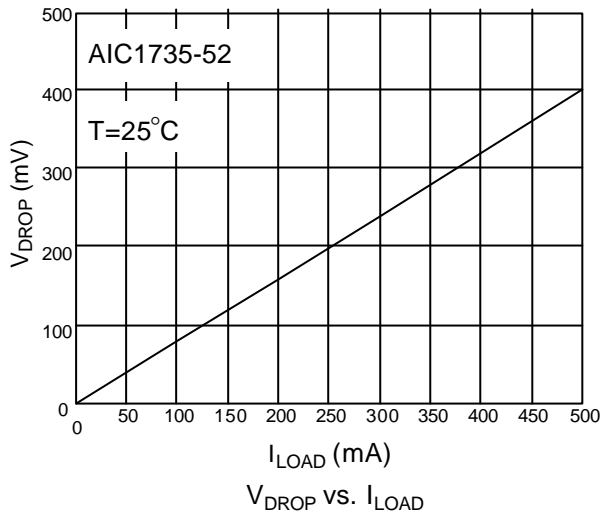
Note 1: Guaranteed by design.

Note 2: Regulation is measured at constant junction temperature, using pulse testing with a low ON time.

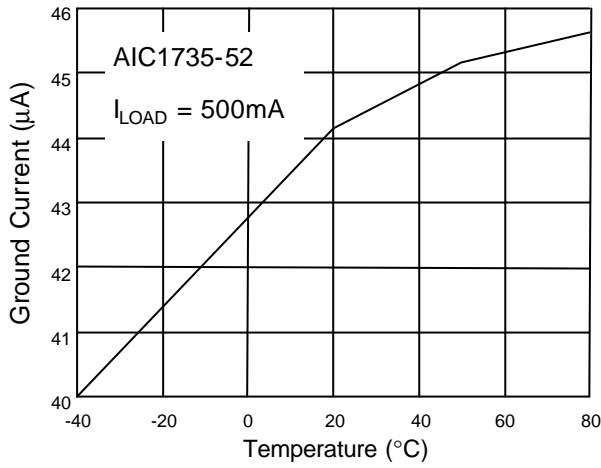
Note 3: Current limit is measured by pulsing a short time.

Note 4: Dropout voltage is defined as the input to output differential at which the output voltage drops 100mV below the value measured with a 1V differential.

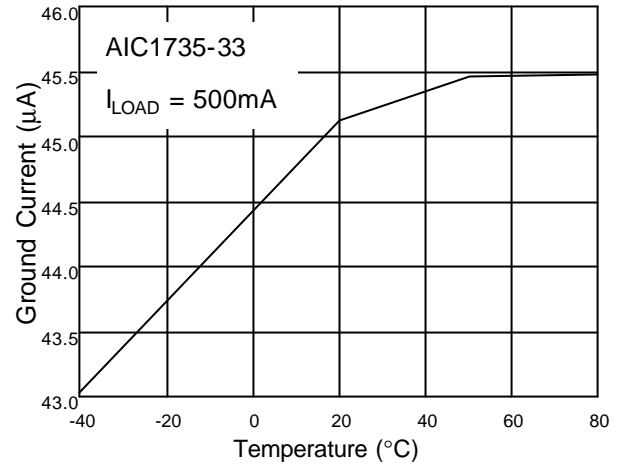
TYPICAL PERFORMANCE CHARACTERISTICS



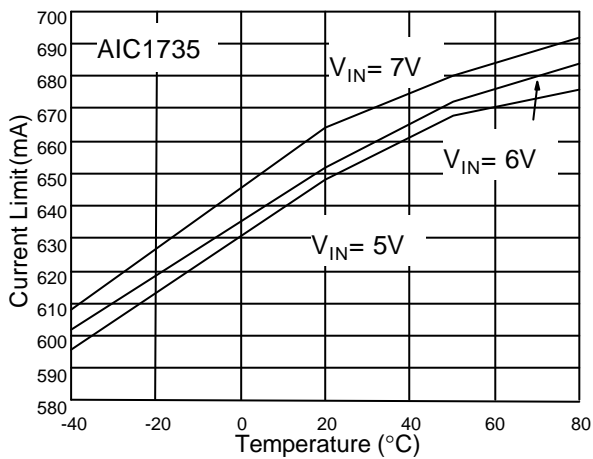
■ TYPICAL PERFORMANCE CHARACTERISTICS (Continued)



Ground Current vs. Temperature

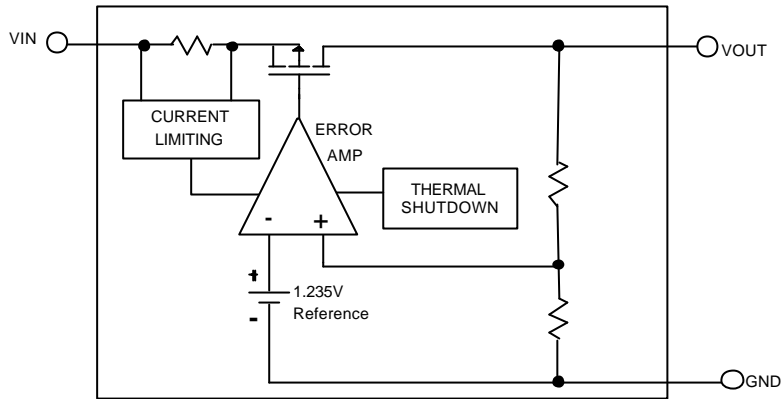


Ground Current vs. Temperature



Current Limit vs. Temperature

■ BLOCK DIAGRAM



■ PIN DESCRIPTION

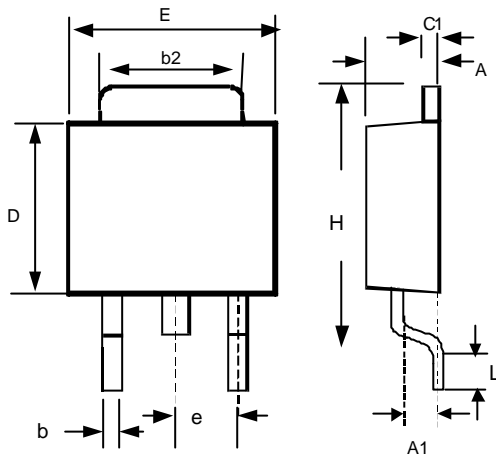
VOUT PIN - Output pin.

GND PIN - Power GND.

VIN PIN - Power Supply Input.

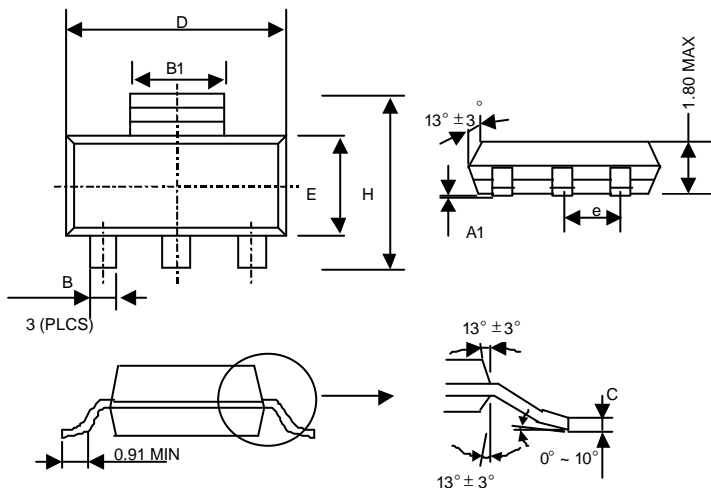
■ PHYSICAL DIMENSIONS

● TO-252 (unit: mm)



SYMBOL	MIN	MAX
A	2.19	2.38
A1	1.02	1.27
b	0.64	0.88
b2	5.21	5.46
C1	0.46	0.58
D	5.33	5.59
E	6.35	6.73
e	2.28 (TYP.)	
H	9.40	10.42
L	0.51	-

● SOT-223 (unit: mm)



SYMBOL	MIN	MAX
A1	0.02	0.12
B	0.60	0.80
B1	2.90	3.15
C	0.24	0.35
D	6.30	6.80
E	3.30	3.70
e	2.30 (TYP.)	
H	6.70	7.30

● SOT-223 MARKING

Part No.	Marking	Part No.	Marking
AIC1735-18CY	CC18	AIC1735-35CY	CC35
AIC1735-20CY	CC20	AIC1735-37CY	CC37
AIC1735-25CY	CC25	AIC1735-38CY	CC38
AIC1735-27CY	CC27	AIC1735-50CY	CC50
AIC1735-30CY	CC30	AIC1735-52CY	CC52
AIC1735-33CY	CC33		