

Low Output Voltage, 300mA Low Dropout Linear Regulator

FEATURES

- Low Dropout Voltage of 180mV at 100mA Output Current (3.0V Output Version).
- Guaranteed 300mA Output Current.
- Low Ground Current at 55 μ A.
- Input Voltage Range up to 12V.
- Internal 1.3 Ω P-MOSFET Draws no Base Current.
- 2% Accuracy Output Voltage of 1.8V/ 2.0V/ 2.5V/ 2.7V/ 3.0V.
- Current Limiting and Thermal Protection.

APPLICATIONS

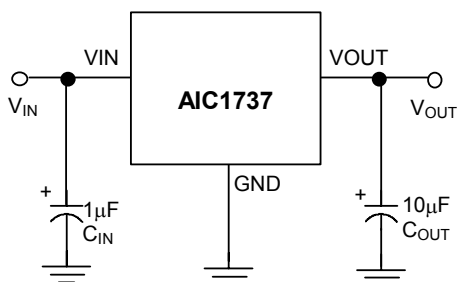
- CD-ROM Drivers.
- LAN Cards.
- Microprocessor.
- RAM Module.
- Wireless Communication Systems.
- Battery Powered Systems.

DESCRIPTION

The AIC1737 is a 3-pin low dropout linear regulator. The superior characteristics of the AIC1737 include zero base current loss, very low dropout voltage, and 2% accuracy output voltage. Typical ground current remains approximately 55 μ A, for loading ranging from zero to maximum. Dropout voltage is exceptionally low. Built-in output current limiting and thermal limiting provide maximal protection to the AIC1737 against fault conditions.

The AIC1737 is available in popular 3-pin SOT-89 package.

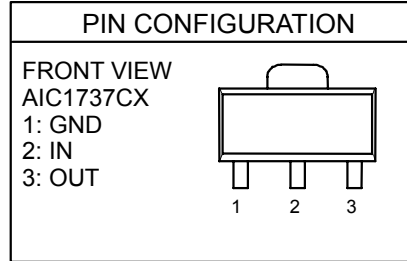
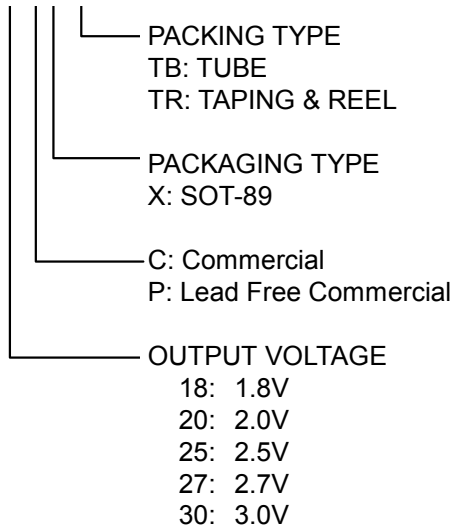
TYPICAL APPLICATION CIRCUIT



Low Dropout Linear Regulator

ORDERING INFORMATION

AIC1737-XXXXXX



Example: AIC1737-18CXTR
 → 1.8V version in SOT-89 Package & Taping & Reel Packing Type
 AIC1737-18PXTR
 → 1.8V version in SOT-89 Lead Free Package & Taping & Reel Packing Type

SOT-89 MARKING

Part No.	CX	PX
AIC1737-18	BM18	BM18P
AIC1737-20	BM20	BM20P
AIC1737-25	BM25	BM25P
AIC1737-27	BM27	BM27P
AIC1737-30	BM30	BM30P

■ 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
Power Dissipation	SOT-89 Package..... 0.5W

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

■ TEST CIRCUIT

Refer to TYPICAL APPLICATION CIRCUIT.

■ ELECTRICAL CHARACTERISTICS ($T_A=25^\circ\text{C}$, $C_{IN}=1\mu\text{F}$, $C_{OUT}=10\mu\text{F}$, unless otherwise specified.)

PARAMETER	TEST CONDITIONS		MIN.	TYP.	MAX.	UNIT
Output Voltage	No Load					V
	AIC1737-30	$V_{IN}=4.0\sim 12\text{V}$	2.940	3.000	3.060	
	AIC1737-27	$V_{IN}=4.0\sim 12\text{V}$	2.646	2.700	2.754	
	AIC1737-25	$V_{IN}=4.0\sim 12\text{V}$	2.550	2.500	2.550	
	AIC1737-20	$V_{IN}=4.0\sim 12\text{V}$	1.960	2.000	2.040	
	AIC1737-18	$V_{IN}=4.0\sim 12\text{V}$	1.764	1.800	1.836	
Output Voltage Temperature Coefficiency	(Note 1)			50	150	PPM/°C
Line Regulation	$I_L=1\text{mA}$	$V_{IN}=4.0\sim 12\text{V}$		3	10	mV

■ ELECTRICAL CHARACTERISTICS (Continued)

Load Regulation (Note 2)	$V_{IN}=5V, I_L=0.1\sim 300mA$		7	25	mV
Current Limit (Note 3)	$V_{IN}=5V, V_{OUT}=0V$		320	440	mA
Dropout Voltage (Note 4)	AIC1737	$I_L=0.1mA$	0.2	10	mV
	AIC1737-30	$I_L=300mA$	540	640	
	AIC1737-27	$I_L=300mA$	570	670	
	AIC1737-25	$I_L=300mA$	610	710	
	AIC1737-20	$I_L=300mA$	820	970	
	AIC1737-18	$I_L=300mA$	920	1070	
Ground Current	$I_O=0.1mA\sim I_{MAX}$	$V_{IN}=4\sim 12V$	55	80	μA

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.

Note5: Specifications over $-40^{\circ}C$ to $85^{\circ}C$ operating temperature range are guaranteed by design with Statistical Quality Controls (SQC), not production test.

TYPICAL PERFORMANCE CHARACTERISTICS

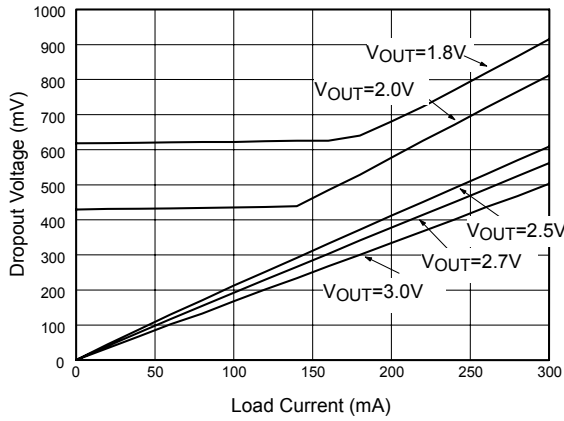


Fig. 1 Dropout Voltage vs Load Current

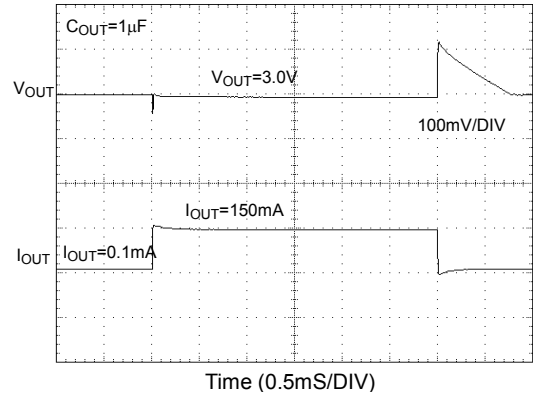


Fig. 2 Load Transient Response

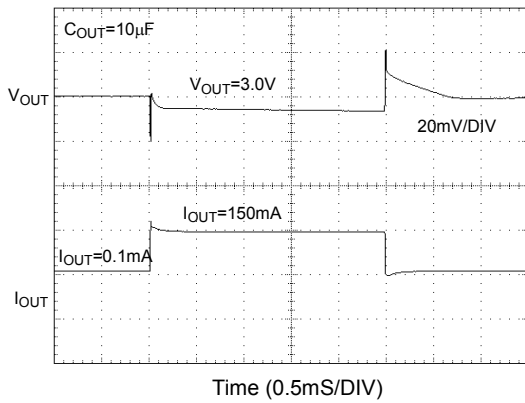


Fig. 3 Load Transient Response

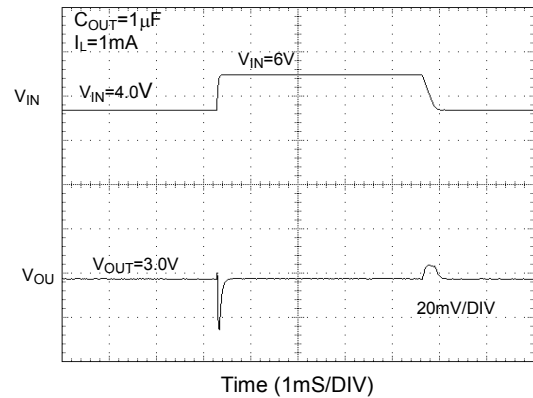


Fig. 4 Line Transient Response

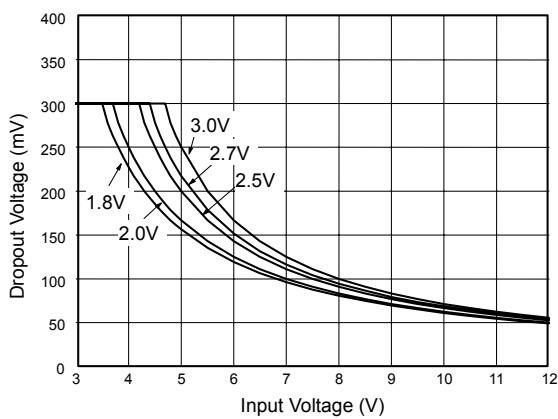
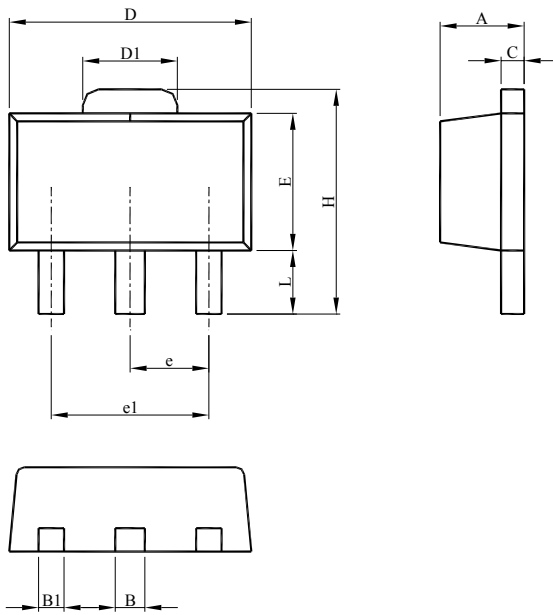


Fig. 5 Recommended max. Output Current vs. Input

■ PHYSICAL DIMENSIONS (unit: mm)

- SOT-89



SYMBOL	SOT-89	
	MILLIMETERS	
	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

Note:

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