GENERAL DESCRIPTION

ACP1233 series is a group of positive voltage output, low power consumption, low dropout voltage, three terminal regulator. It can provide 200mA output current when input / output voltage differential drops to 418mV, V_{OUT} = 3.3V, And it also provides foldback short-circuit protection and output current limit function. The very low power consumption of ACP1233 can greatly improve natural life of batteries.

ACP1233 can provide output value in the range of 1.2V~5.0V in 0.1V steps. It also can customized on command. Includes high accuracy voltage reference, error amplifier, current limit circuit and output driver module. Has well load transient response and good temperature characteristic.

The device is available in SOT23 and SOT89-3 packages.

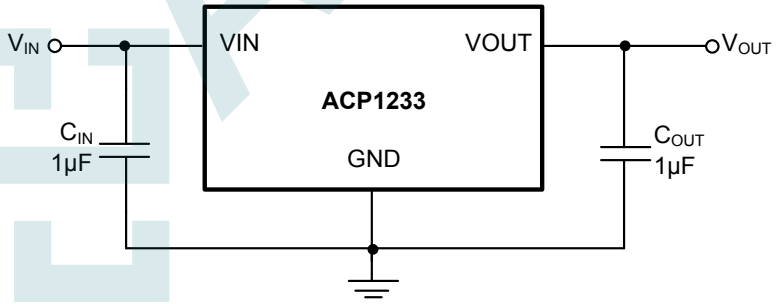
FEATURES

- Input Voltage Range: 2.5V to 16V
- Maximum Output Current: 250mA
- V_{OUT} Range: 1.2V to 5V
- Maximum Output Current: 250mA
- Highly Accurate: ±2%
- Output Current Limit: 500mA
- Foldback Short Circuit Current: 85mA
- Small Dropout Voltage:
  211mV@100mA (V_{OUT} = 3.3V)
  418mV@200mA (V_{OUT} = 3.3V)

APPLICATION

- MP3, PDA, DSC, Mouse
- Battery Powered Equipment
- Reference Voltage Source Regulation after Switching Power

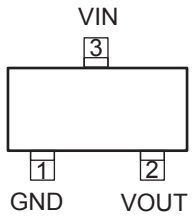
APPLICATION CIRCUIT

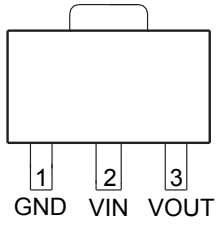


NOTE:
Input capacitor (C_{IN}=1μF) and Output capacitor (C_{OUT}=1μF) are recommended in all application circuit. ceramic capacitor is recommended.

Typical ACP1233 Application Circuit

PIN CONFIGURATION

Pin Configuration	Pin Description		
SOT23	**Pin#**	**Symbol**	**Function**
	1	GND	Ground
	2	VOUT	Output Voltage Pin
	3	VIN	Power Input Pin

Pin Configuration	Pin Description		
SOT89-3	**Pin#**	**Symbol**	**Function**
	1	GND	Ground
	2	VIN	Power Input Pin
	3	VOUT	Output Voltage Pin

ORERING INFORMATION

Standard Part NO.	Package	Packing	Min. Quantity
ACP1241-AAA	SOT23	Tape & Reel	3000PCS
ACP1241-GAE	SOT89-3	Tape & Reel	1000PCS

ABSOLUTE MAXIMUM RATINGS

Parameter	Symbol	Rating	Unit
Max Input Voltage	V_{IN}	20	V
Power Dissipation(SOT23)	P_D	250	mW
Power Dissipation(SOT89-3)		500	
Operating Junction Temperature	T_J	125	°C
Storage Temperature	T_S	-40 to 150	
Lead Temperature	T_L	260	

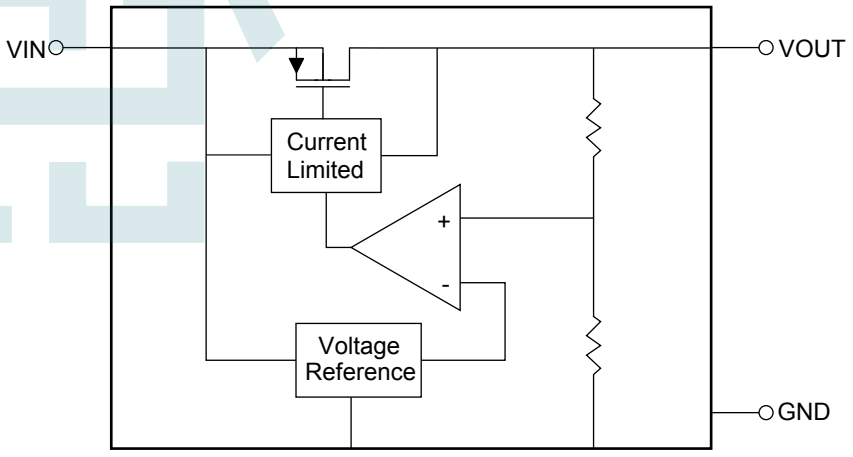
RECOMMENDED WORK CONDITIONS

Parameter	Symbol	Rating	Unit
Input Voltage Range	V_{IN}	16	V
Ambient Temperature	T_A	-40 to +85	°C

ELECTRICAL CHARACTERISTICS(T_A = +25°C)

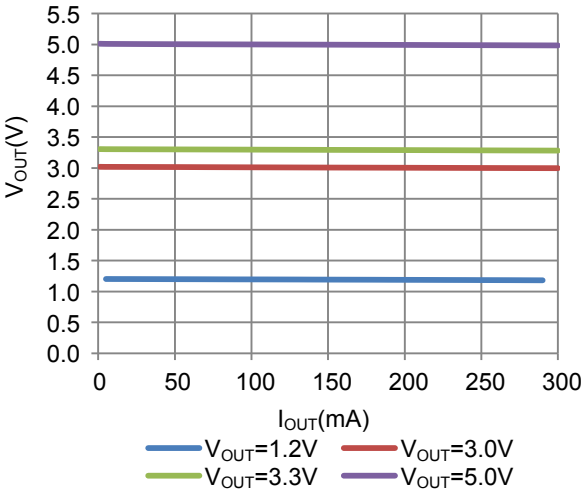
Parameter	Symbol	Conditions	Min	Typ	Max	Unit
Input Voltage	V_{IN}				16	V
Output Voltage	V_{OUT}		V_{OUT} *0.98		V_{OUT} *1.02	
Maximum Output Current	$I_{OUT(Max)}$	V_{IN} – V_{OUT} =1V	250			mA
Line Regulation		I_{OUT} = 10mA, 2V ≤ V_{IN} ≤ 16V		0.2	0.3	%/V
Load Regulation		V_{IN} = Set V_{OUT} +1V 1mA ≤ I_{OUT} ≤ 100mA		20	40	mV
Quiescent Current	I_Q	V_{IN} = Set V_{OUT}+1V		3		μA
Dropout Voltage	V_{DROP}	Input-Output Voltage Differential		210	400	mV
Output Voltage Temperature Coefficient		I_{OUT} = 10mA		100		ppm/°C

FUNCTION BLOCK

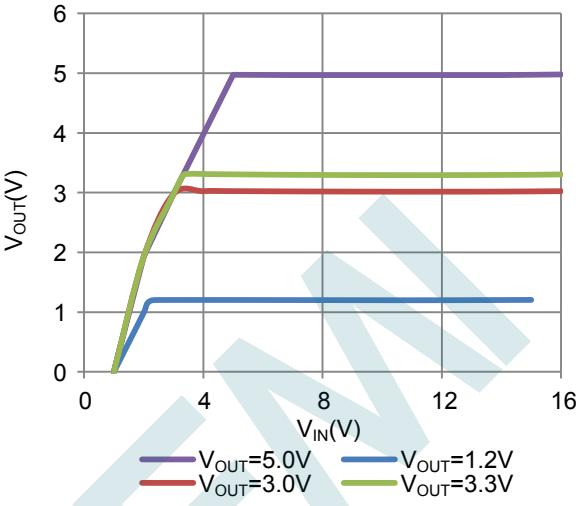


Functional Block Diagram

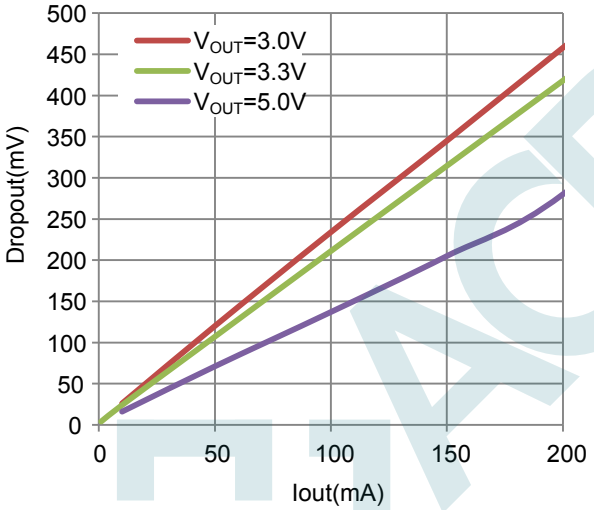
PERFORMANCE CHARACTERISTIC



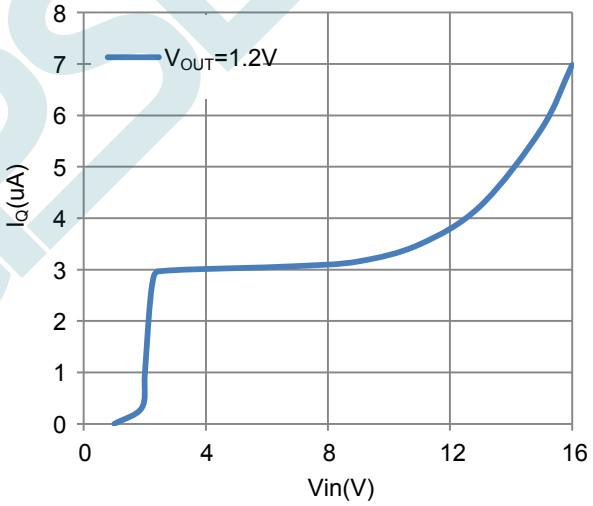
Load Regulation



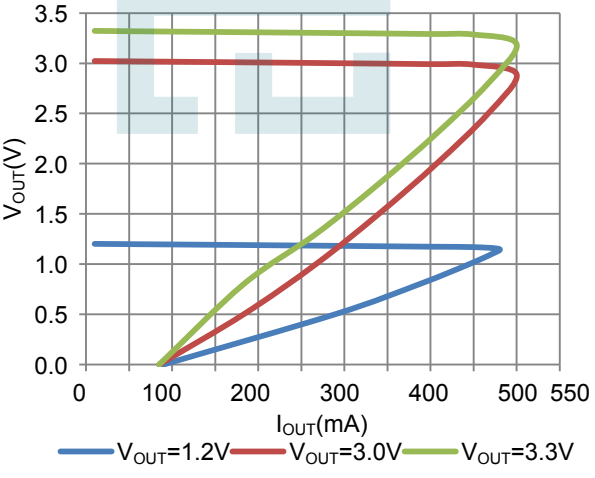
Line Regulation



Dropout



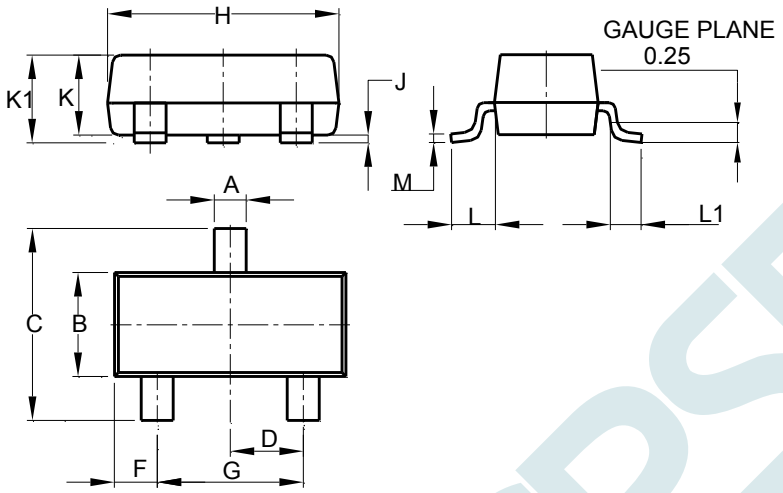
IQ



Current Limit

PACKAGE INFORMATION

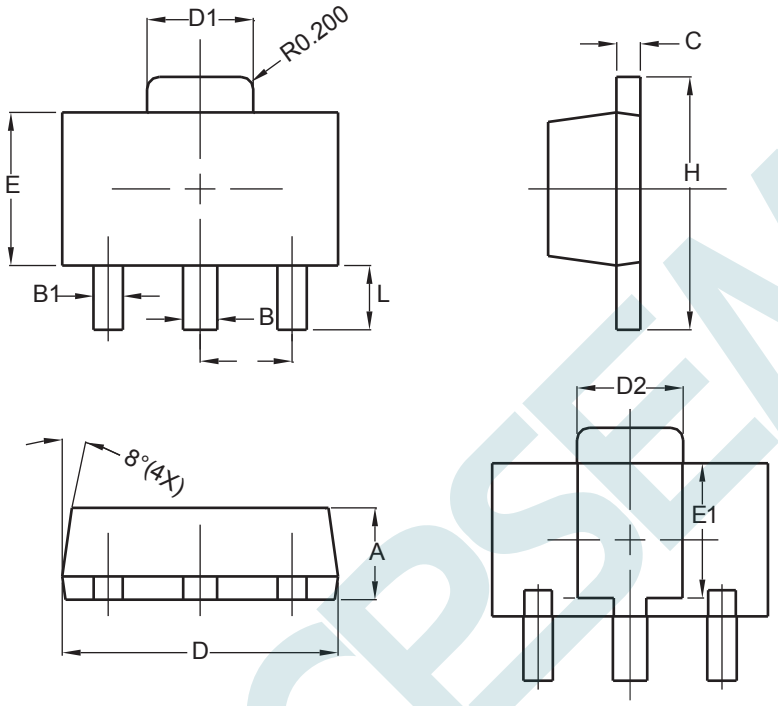
- **SOT23**



SOT23		
Dim	**Min**	**Max**
A	0.370	0.510
B	1.200	1.400
C	2.300	2.500
D	0.890	1.030
F	0.450	0.600
G	1.780	2.050
H	2.800	3.000
J	0.013	0.100
K	0.890	1.000
K1	0.930	1.100
L	0.450	0.610
L1	0.250	0.550
M	0.085	0.150
All Dimensions in mm		

PACKAGE INFORMATION

- **SOT89-3**



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min	Max	Min	Max
A	1.400	1.500	0.055	0.063
B	0.410	0.530	0.016	0.020
B1	0.360	0.480	0.014	0.018
C	0.350	0.430	0.013	0.016
D	4.400	4.600	0.177	0.181
D1	1.600	1.850	0.062	0.072
D2	1.600	1.830	0.062	0.072
E	2.400	2.600	0.094	0.102
E1	2.050	2.350	0.080	0.092
H	3.950	4.250	0.155	0.167
L	0.900	1.200	0.035	0.047