



Low Dropout Voltage Linear Regulator

General Description

The FC182C series is a group of positive voltage output, three-pin regulators, it provide a high current even when the input/output voltage differential is small. Low power consumption and high accuracy is achieved through CMOS and laser trimming technologies.

The FC182C consists of a high-precision voltage reference, an error amplification circuit, and a current limited output driver. Load Transient response has improved in comparison to the existing series. SOT-89, SOT-23-3 and DFN2*2-6L packages are available.

Features

- Low voltage drop: 0.23V@100mA
- High input voltage: 15V
- Low temperature coefficient
- Large Output Current: >0.5A
- Low Quiescent Current: 2.0uA
- Output voltage accuracy: tolerance $\pm 2\%$
- Built-in current limiter
- SOT-89, SOT-23-3 ,DFN2*2-6L packages

Applications

- Battery-powered equipment
- Hand-Hold Equipment
- GRS Receivers
- Wireless LAN

Ordering Information

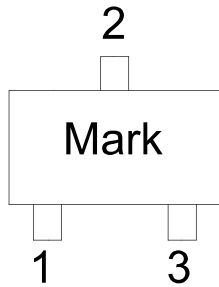
FC182C 33 D6

S5: SOT-23-5 Package
S3L: SOT-23-3 Package
T3: SOT-89-3 Package
D6: DFN2X2-6L Package

Output voltage: 12=1.2V
15=1.5V
18=1.8V
30=3.0V
33=3.3V
XX=X.XV

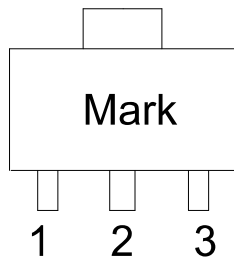
PIN CONFIGURATION

SOT-23-3(Top View)



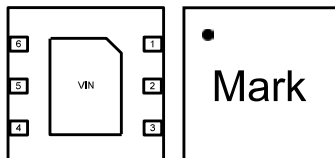
PIN NO.	PIN NAME	FUNCTION
1	GND	GND pin
2	VIN	Input voltage pin
3	VOUT	Output voltage pin

SOT-89 (Top View)



PIN NO.	PIN NAME	FUNCTION
1	GND	GND pin
2	VIN	Input voltage pin
3	VOUT	Output voltage pin

DFN2*2-6L (Bottom/Top View)



PIN NO.	PIN NAME	FUNCTION
1	CE	Enable pin
2	GND	GND pin
3	VIN	Input voltage pin
4	VOUT	Output voltage pin
5	NC	--
6	NC	--



FC182C

ABSOLUTE MAXIMUM RATINGS

Supply Voltage3.5V to 18V Storage Temperature-40°C to 125°C
 Operating Temperature-40°C to 85°C

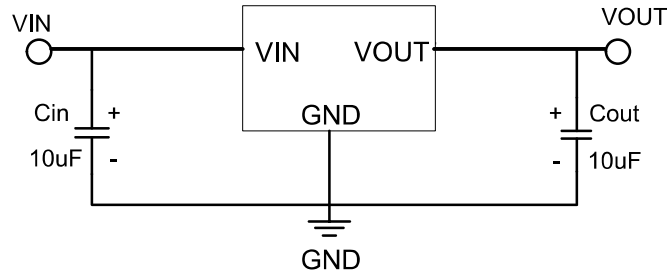
Note: These are stress ratings only. Stresses exceeding the range specified under “Absolute Maximum Ratings” may cause substantial damage to the device. Functional operation of this device at other conditions beyond those listed in the specification is not implied and prolonged exposure to extreme conditions may affect device reliability.

Parameter	Symbol	Conditions	Min.	Typ.	Max.	Unit
Output Voltage	Vout	Vin=Vout+1V 1.0mA≤Iout≤30mA	Vout×0.98	--	Vout×1.02	V
Output Current*1	Iout	Vin-Vout=1V	--	500	-	mA
Low dropout*2	Vdrop	Refer to the next table				
Line Regulation	$\frac{\Delta V_{OUT}}{\Delta V_{IN} \times V_{OUT}}$	1.6V≤Vin≤8V Iout=100mA	--	0.05	0.2	%/V
Load Regulation	ΔVout	Vin= Vout+1V 1.0mA≤Iout≤100mA	--	12	30	mV
Output voltage Temperature Coefficiency	$\frac{\Delta V_{OUT}}{\Delta Ta}$	Iout=30mA 0°C≤Ta≤70°C	--	±100	--	Ppm/°C
PSRR	PSRR	F=1KHz Vin=Vout+1V	--	40	--	dB
Supply Current	Iss1	-	-	1	2	uA
Input Voltage	Vin	-	3.5	--	15	V

Electrical Characteristics (T_A =25°C unless otherwise noted)

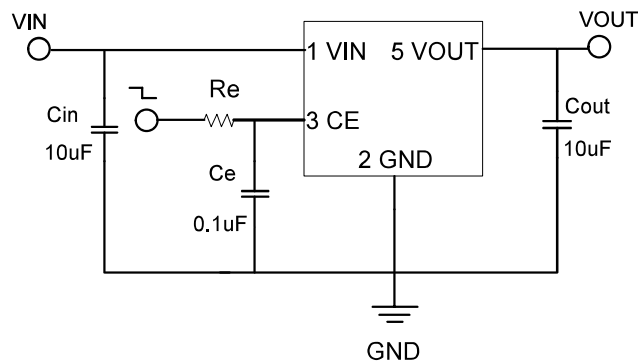
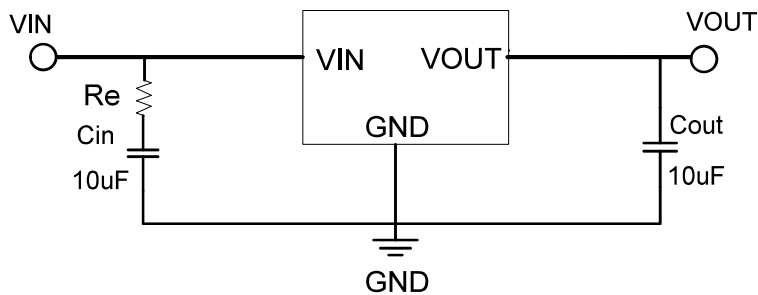
Output Voltage Vout(V)	Dropout Voltage Vdif (V)		
	Conditions	Typ.	Max.
Vout ≤ 2.0V	Iout=60 mA	0.1	0.12
2.0 < Vout ≤ 3.0	Iout=80 mA	0.12	0.14
3.0 < Vout ≤ 4.0	Iout=100 mA	0.16	0.18
4.0 < Vout ≤ 5.0		0.17	0.18
3.0 < Vout ≤ 4.0	Iout=200 mA	0.21	0.24
4.0 < Vout ≤ 6.0		0.20	0.22
3.0 < Vout ≤ 4.0	Iout=500 mA	0.8	0.85
4.0 < Vout ≤ 6.0		0.75	0.80

Typical Application Circuit



Note1: $C_{in}=C_{out}=10\mu F$. (10uF Electrolytic capacitor is recommended).

Note2: If the input and output capacitors are ceramic, add a resistor at the input, as follows.



Note1: Input capacitor $C_N=10\mu F$.

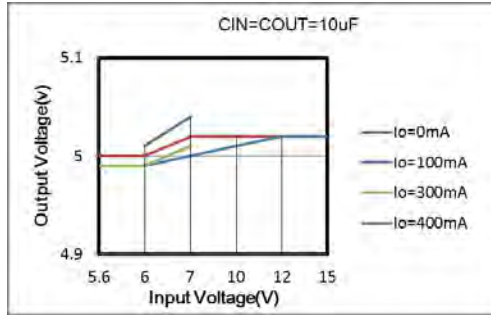
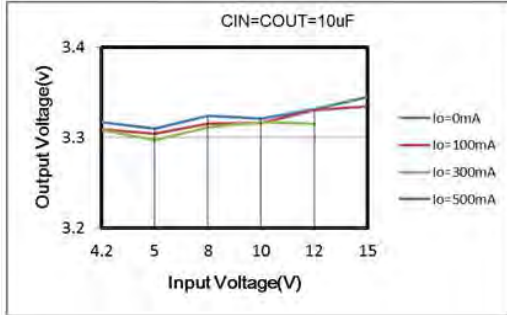
Note2: Output capacitor $C_{OUT}=10\mu F/6.8\mu F$ (1uF Tantalum capacitor or 6.8uF ceramic capacitor is recommended).

Note3: The CE port is recommended to connect the current limiting resistor Re. The recommended resistance is 10K~47K. When the input voltage is larger than or equal to 12V, it is recommended to add a 0.01uF capacitor Ce.

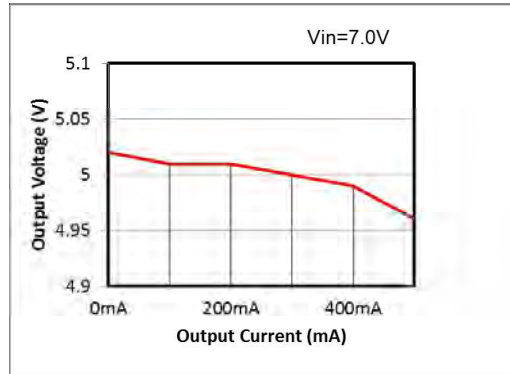
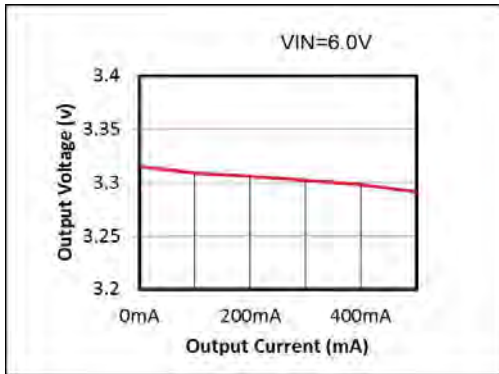
Note4: $R_e=1.2\Omega \sim 1.8\Omega$

Typical Performance Characteristics

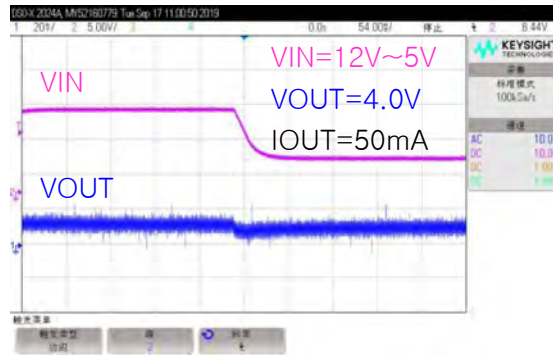
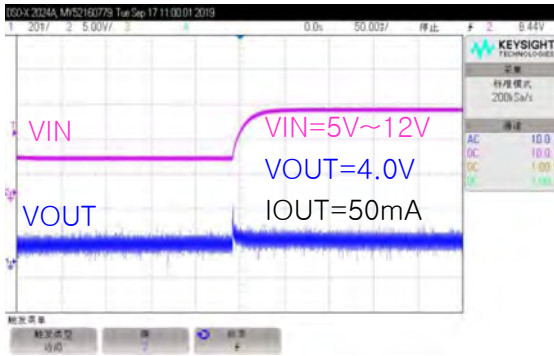
(1) Output Voltage vs. Input Voltage (FC182C33 and FC182C50)



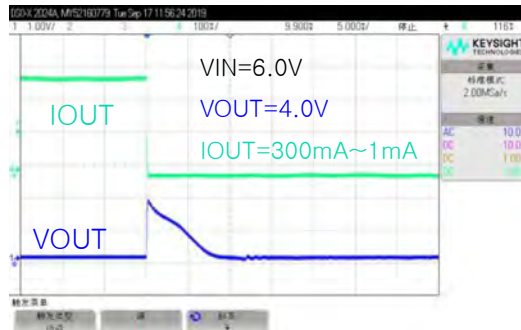
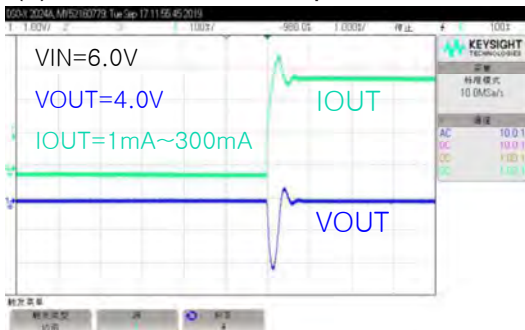
(2) Output Voltage vs. Output Current (FC182C33 and FC182C50)



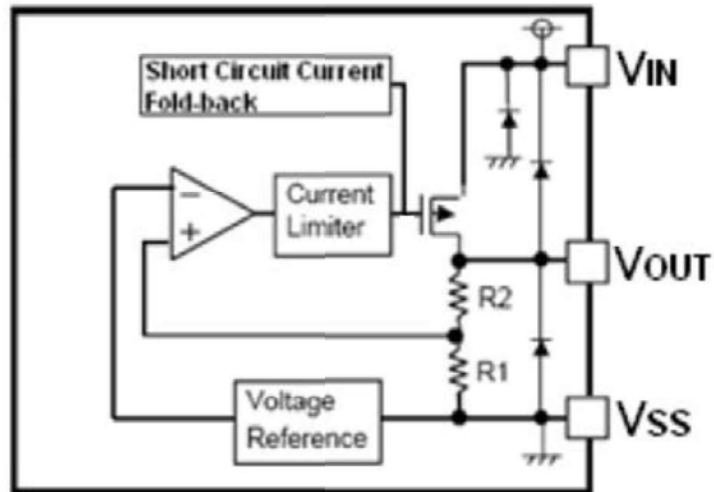
(3) Input Transient Response



(4) Load Transient Response

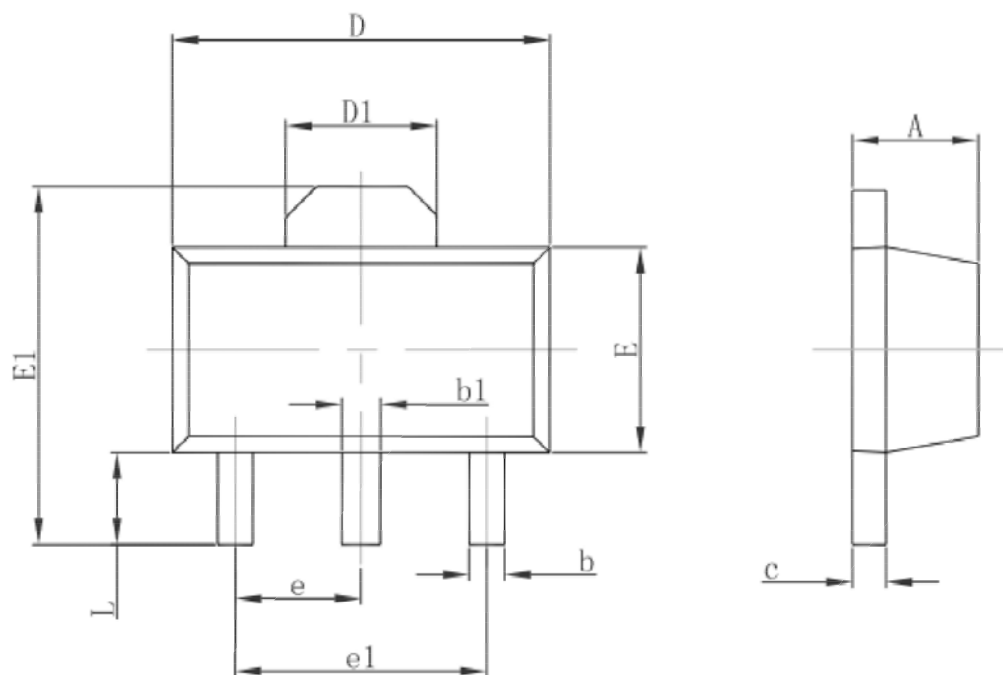


BLOCK DIAGRAM



Package information

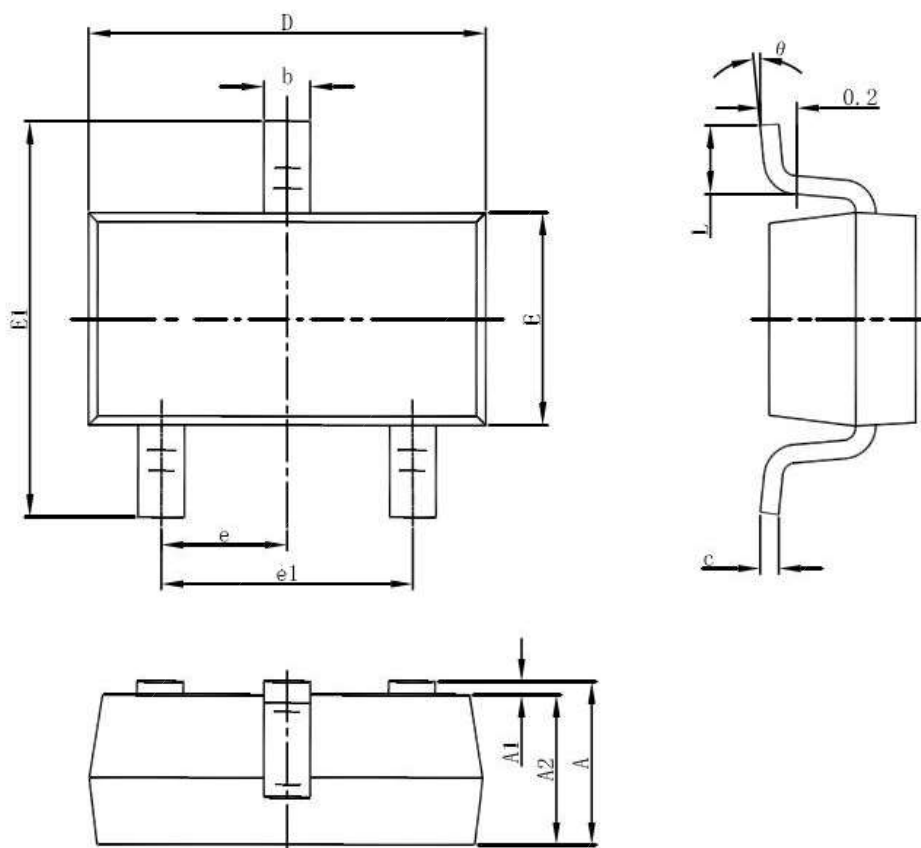
SOT-89-3



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min.	Max.	Min.	Max.
A	1.400	1.600	0.055	0.063
b	0.320	0.520	0.013	0.020
b1	0.400	0.580	0.016	0.023
c	0.350	0.440	0.014	0.017
D	4.400	4.600	0.173	0.181
D1	1.550 REF.		0.061 REF.	
E	2.300	2.600	0.091	0.102
E1	3.940	4.250	0.155	0.167
e	1.500 TYP.		0.060 TYP.	
e1	3.000 TYP.		0.118 TYP.	
L	0.900	1.200	0.035	0.047

Package information

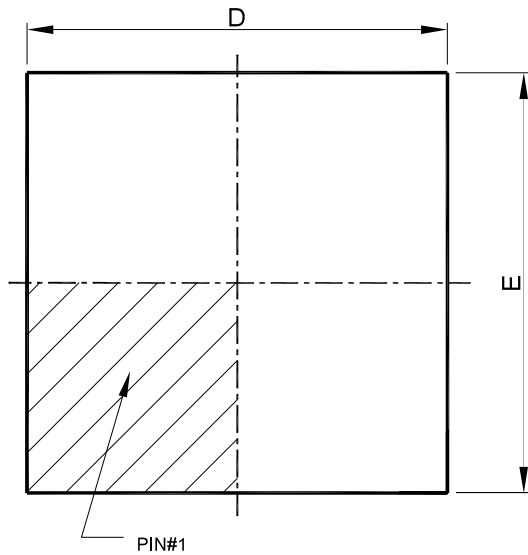
SOT-23-3



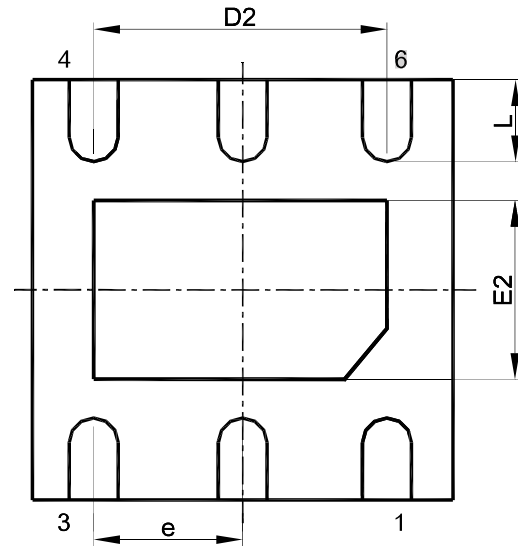
Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min	Max	Min	Max
A	1.050	1.250	0.041	0.049
A1	0.000	0.100	0.000	0.004
A2	1.050	1.150	0.041	0.045
b	0.300	0.500	0.012	0.020
c	0.100	0.200	0.004	0.008
D	2.820	3.020	0.111	0.119
E	1.500	1.700	0.059	0.067
E1	2.650	2.950	0.104	0.116
e	0.950(BSC)		0.037(BSC)	
e1	1.800	2.000	0.071	0.079
L	0.300	0.600	0.012	0.024
θ	0°	8°	0°	8°

Package information

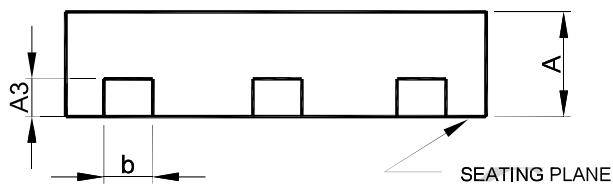
DFN2X2-6L



TOP VIEW



BOTTOM VIEW



SIDE VIEW

SYMBOL	DFN-6 (2x2x0,75-0,65)	
	MILLIMETERS	
	MIN.	MAX.
A	0.70	0.80
A3	0.20 BSC	
b	0.20	0.35
D	2.00 BSC	
D2	1.10	1.60
E	2.00 BSC	
E2	0.55	0.85
e	0.65 BSC	
L	0.25	0.45