Three-Terminal Positive Voltage Regulator

LM78L12

SOT-23   Unit: mm

```
2.9±0.1
0.4±0.1
2.4±0.1    1.3±0.1
0.95±0.1
1.9±0.1
0.4
0.55
0.1 +0.05 -0.01
0~0.1   0.38±0.1   0.97±0.1
```

1.OUT
2.IN
3.GND

■ Features

● Maximum Output current I$_O$: 0.1A

● Output Voltage V$_O$: 12V

● Continuous Total Dissipation P$_D$: 0.35W (T$_a$ = 25℃)
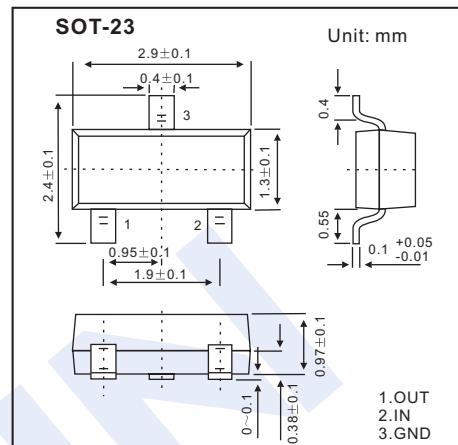
■ Absolute Maximum Ratings (Operating temperature range applies unless otherwise specified)

Parameter	Symbol	Rating	Unit
Input Voltage	V$_I$	35	V
Operating Junction Temperature Range	T$_{OPR}$	-55 ～ +125	℃
Storage Temperature Range	T$_{STG}$	-55 ～ +150	℃

■ Electrical Characteristics (V$_I$=19V, I$_O$=40mA, C$_I$=0.33μF, C$_O$=0.1μF, unless otherwise specified)

Parameter	Symbol	Testconditons	Min	Typ	Max	Unit
Output Voltage	V$_O$	T$_J$ = 25℃	11.5	12	12.5	V
		T$_J$ = 0～125℃, 14V≤V$_I$≤27V, I$_O$=1mA～40mA	11.4	12	12.6	V
		T$_J$ = 0～125℃, I$_O$=1mA～70mA	11.4	12	12.6	V
Load Regulation	△V$_O$	T$_J$ = 25℃, I$_O$=1mA～100mA		22	100	mV
		T$_J$ = 25℃, I$_O$=1mA～40mA		13	50	mV
Line Regulation	△V$_O$	T$_J$ = 25℃, 14.5V≤V$_I$≤27V		55	250	mV
		T$_J$ = 25℃, 16V≤V$_I$≤27V		49	200	mV
Quiescent Current	I$_Q$	T$_J$ = 25℃		4.3	6.5	mA
Quiescent current Change	△I$_Q$	T$_J$ = 0～125℃, 16V≤V$_I$≤27V			1.5	mA
		T$_J$ = 0～125℃, 1mA≤I$_O$≤40mA			0.1	
Output Noise Voltage	V$_N$	T$_J$ = 25℃, 10Hz≤f≤100KHz		70		μV
Ripple Rejection	RR	T$_J$ = 0～125℃, 15V≤V$_I$≤25V, f = 120Hz	37	42		dB
Dropout Voltage	V$_D$	T$_J$ = 25℃		1.7		V

■ Typical Application

```
V$_I$  2 ┌─────────┐ 1  V$_O$
 ○──┬──│ LM78L12 │──┬──○
    │  └────┬────┘  │
    │       3       │
   C$_I$           C$_O$
  0.33μF        0.1μF
    │       │       │
    └───────┴───────┘
            ⏚
```
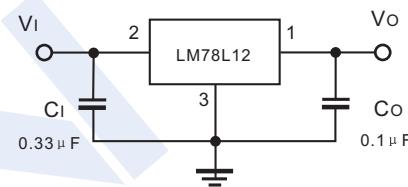
Note: Bypass capacitors are recommended for optimum stability and transient response and should be located as close as possible to the regulators.

LM78L12

■ Typical Characteristics

Output Characteristics

$I_O = 0$, $T_J = 25℃$

V_O (V) vs V_{IN} (V)

Load Characteristics

$V_{IN} = 19V$, $T_J = 25℃$

V_O (V) vs I_O (mA)

Thermal Shutdown

$V_{IN} = 19V$, $I_O = 0mA$

V_O (V) vs T_A (℃)

Short Circuit Output Current

$T_J = 25℃$

I_O (mA) vs $V_{IN} - V_O$ (V)