Features

- Low power consumption
- Low voltage drop
- Low temperature coefficient
- High input voltage - up to 20V
- Output voltage accuracy: tolerance ±2%
- Over current protection
- SOT23-3LSOT89-3 Package Available

Applications

- Battery-powered equipment
- Communication equipment
- Audio/Video equipment

General Descrition

The TPMCP1703T device series are low power high voltage regulators implemented in CMOS technology which have the advantages of low voltage drop and low quiescent current. They allow input voltages as high as 20V. They are available with several fixed output voltages ranging from 2.1V to 5.0V. The soft-start function inhibits the problem of output overshoot during power on.

Although designed primarily as fixed voltage regulators, these devices can be used with external components to obtain variable voltages and currents.

Ordering Information

**TPMCP1703T-3302E/CB**

MB:SOT89-3 Package
CB:SOT23-3L Package

Output voltage: 12=1.2V
15=1.5V
18=1.8V
30=3.0V
33=3.3V
50=5.0V

Marking Information

SOT23-3

SOT89-3
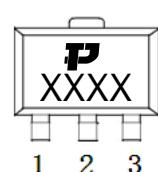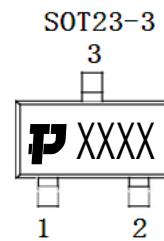
P is Logo
XXXX: Marking ID

1

PIN CONFIGURATION

SOT89

SOT23
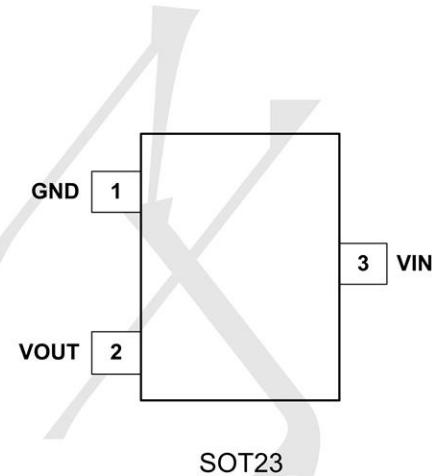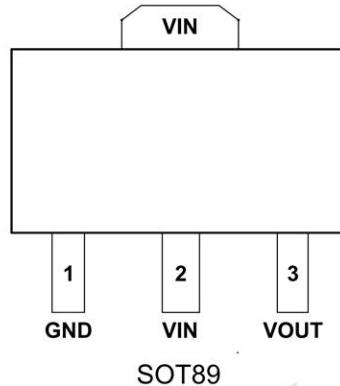
Pin Name	Pin Function
VIN	Power Input Voltage
GND	Ground
OUT	Output Voltage

Typical Application Circuit
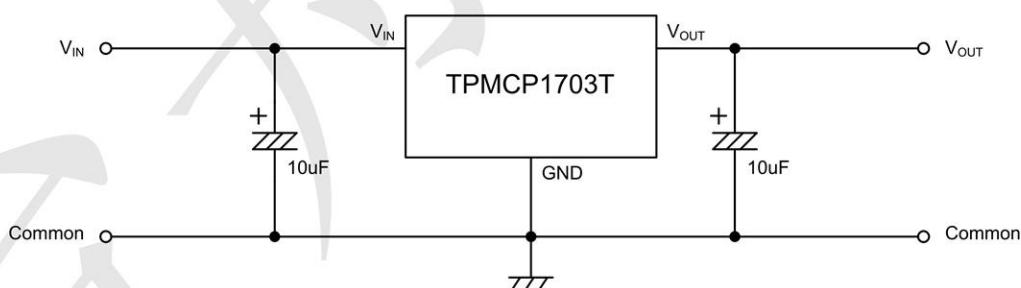
BLOCK DIAGRAM
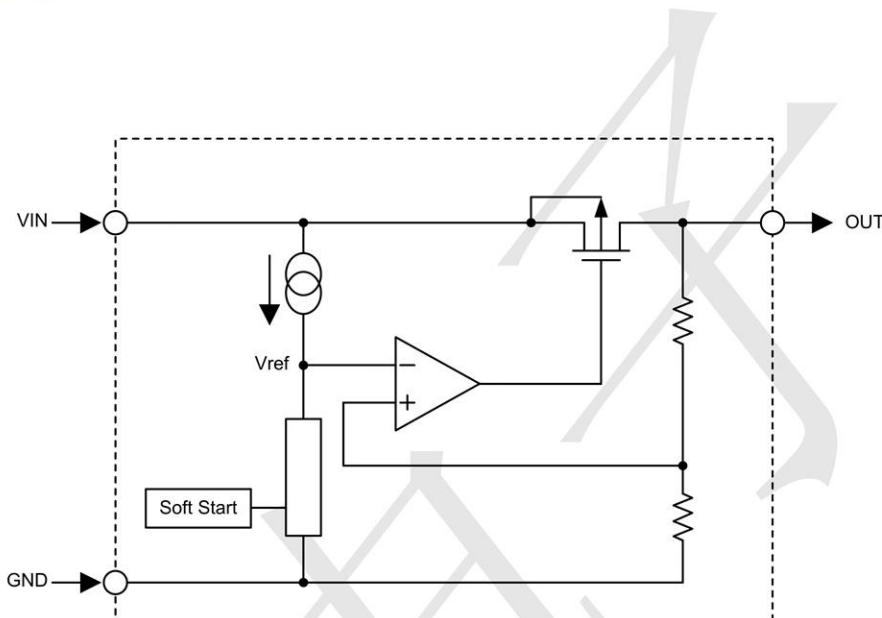
Absolute Maximum Ratings

Parameter		Value	Unit
V_{IN}		-0.3 to +24	V
Operating Temperature Range, T_a		-40 to +85	°C
Maximum Junction Temperature, $T_{J(MAX)}$		+150	°C
Storage Temperature Range		-65 to +165	°C
Junction-to-Ambient Thermal Resistance, θ_{JA}	SOT23	200	°C/W
	SOT89-3	500	°C/W
Power Dissipation, $P_{D(MAX)}$	SOT23	0.20	W
	SOT89-3	0.50	W

Note: $P_{D(MAX)}$ is measured at $T_a = 25°C$

Recommended Operating Range

Parameter	Value	Unit
V_{IN}	V_{OUT}+2 to 24	V

Electrical Characteristics

+3.3V Output Ta=25℃

Symbol	Parameter	Test Conditions	Min.	Typ.	Max.	Unit
V_{IN}	Input Supply Voltage	—	—	—	20	V
V_{OUT}	Output Voltage	$V_{IN}=V_{OUT}+1V$ $I_{OUT}=40mA$	3.201	3.300	3.399	V
I_{OUT}	Output Current	$V_{IN}=V_{OUT}+1V$ $V_{OUT}≥2.97V$	300	—	—	mA
$\triangle V_{OUT}$	Load Regulation	$V_{IN}=V_{OUT}+1V$ $1mA ≤I_{OUT}≤80mA$	—	45	90	mV
V_{DIF}	Voltage Drop(Note)	$I_{OUT}=40mA,$ $\triangle Vo=2\%$	—	90	—	mV
I_{SS}	Current Consumption	无负载	—	2	3	uA
$\frac{\triangle VOUT}{\triangle VIN \times VOUT}$	Line Regulation	$Vo+1V≤V_{IN}≤18V$ $I_{OUT}=40mA$	—	0.2	0.4	%/V
$\frac{\triangle VOUT}{\triangle Ta}$	Temperature Co efficient	$V_{IN}=V_{OUT}+1V$ $I_{OUT}=40mA$ $-40℃＜Ta＜85℃$	—	±0.7	—	mV/℃

+5.0V Output Ta=25℃

Symbol	Parameter	Test Conditions	Min.	Typ.	Max.	Unit
V_{IN}		—	—	—	20	V
V_{OUT}	Output Voltage	$V_{IN}=V_{OUT}+1V$ $I_{OUT}=40mA$	4.85	5	5.150	V
I_{OUT}	Output Current	$V_{IN}=V_{OUT}+1V$ $V_{OUT}≥4.5V$	300	—	—	mA
$\triangle V_{OUT}$	Load Regulation	$V_{IN}=V_{OUT}+1V$ $1mA ≤I_{OUT}≤100mA$	—	45	90	mV
V_{DIF}	Voltage Drop(Note)	$I_{OUT}=40mA,$ $\triangle Vo=2\%$	—	60	—	mV
I_{SS}	Current Consumption	$I_{OUT}=0mA$	—	2	3	uA
$\frac{\triangle VOUT}{\triangle VIN \times VOUT}$	Line Regulation	$Vo+1V≤V_{IN}≤18V$ $I_{OUT}=40mA$	—	0.2	0.3	%/V
$\frac{\triangle VOUT}{\triangle Ta}$	Temperature Co efficient	$V_{IN}=V_{OUT}+1V$ $I_{OUT}=80mA$ $-40℃＜Ta＜85℃$	—	±0.7	—	mV/℃

Package informantion

SOT89-3
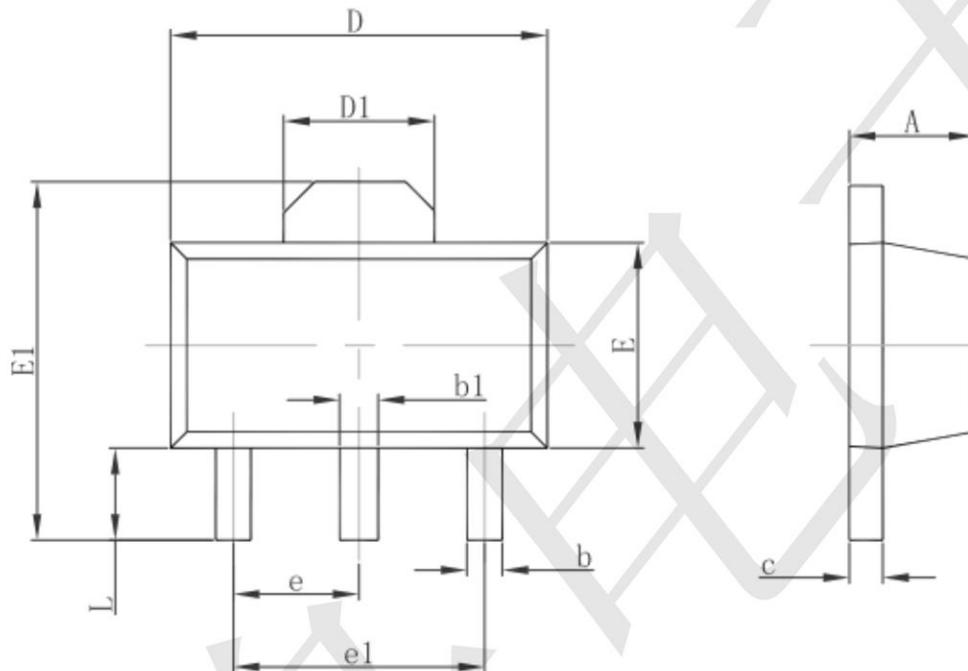
Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min.	Max.	Min.	Max.
A	1.400	1.600	0.055	0.063
b	0.320	0.520	0.013	0.020
b1	0.400	0.580	0.016	0.023
c	0.350	0.440	0.014	0.017
D	4.400	4.600	0.173	0.181
D1	1.550 REF.		0.061 REF.	
E	2.300	2.600	0.091	0.102
E1	3.940	4.250	0.155	0.167
e	1.500 TYP.		0.060 TYP.	
e1	3.000 TYP.		0.118 TYP.	
L	0.900	1.200	0.035	0.047

Package informantion

3-pin SOT23-3 Outline Dimensions
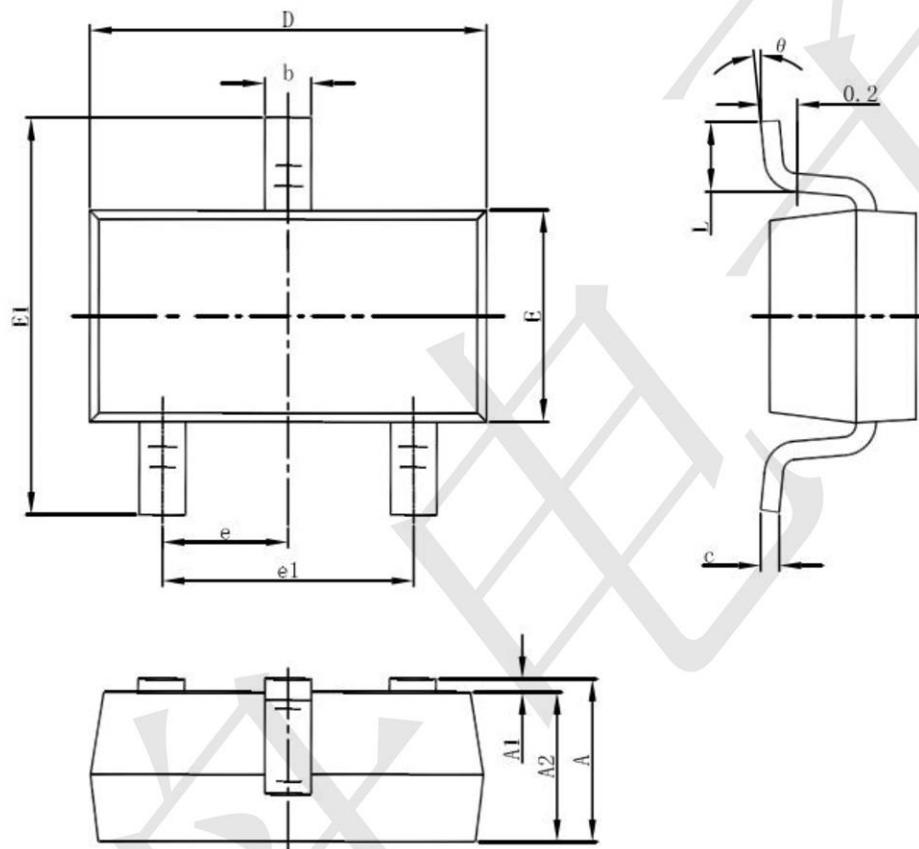
Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min	Max	Min	Max
A	1.050	1.250	0.041	0.049
A1	0.000	0.100	0.000	0.004
A2	1.050	1.150	0.041	0.045
b	0.300	0.500	0.012	0.020
c	0.100	0.200	0.004	0.008
D	2.820	3.020	0.111	0.119
E	1.500	1.700	0.059	0.067
E1	2.650	2.950	0.104	0.116
e	0.950(BSC)		0.037(BSC)	
e1	1.800	2.000	0.071	0.079
L	0.300	0.600	0.012	0.024
θ	0°	8°	0°	8°

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