

### General Description

The TPMCP1700 is an Ultra Low Quiescent low dropout voltage regulator. Current, The output voltages are of 1.2, 1.5V, 1.8V, 2.0V, 2.5V, 3.0V, 3.3V and 5V. Dropout voltage of 200mV is guaranteed at 300mA output current and 3.3V output voltage. The low quiescent and wide input voltage range make this device ideal for portable microprocessor applications.

The TPMCP1700 requires output ceramic capacitor of a minimum 1μF for stability. Built-in output current limiting and thermal limiting provide maximal protection to the TPMCP1700 against fault conditions.

### Features

- 1.6 μA Ground Current at no Load
- ±2% Output Accuracy
- 300mA Output Current
- 10nA Disable Current (by option)
- Wide Operating Input Voltage Range: 1.2V to 5.5V
- Dropout Voltage: 0.19V at 250mA ( $V_{OUT}=2.8V$ )
- Support Fixed Output Voltage 1.2V, 1.5V, 1.6V, 1.8V, 2.5V, 2.8V, 3.0V, 3.3V,3.6V
- Stable with Ceramic or Tantalum Capacitor
- Current Limit Protection
- Over-Temperature Protection
- SOT23-3 Package

### Applications

- Portable, Battery Powered Equipment
- Low Power Microcontrollers
- Laptop, Palmtops and PDAs
- Wireless Communication Equipment
- Audio/Video Equipment

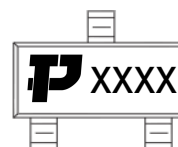
### Ordering Information

**TPMCP1700T-3302E/TT**

TT:SOT23-3 Or SOT23 Package

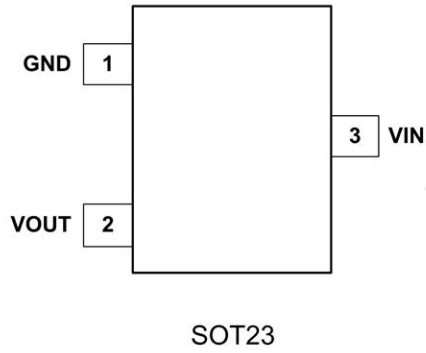
Output voltage: 12=1.2V  
15=1.5V  
18=1.8V  
30=3.0V  
33=3.3V  
36=3.6V

### Marking:



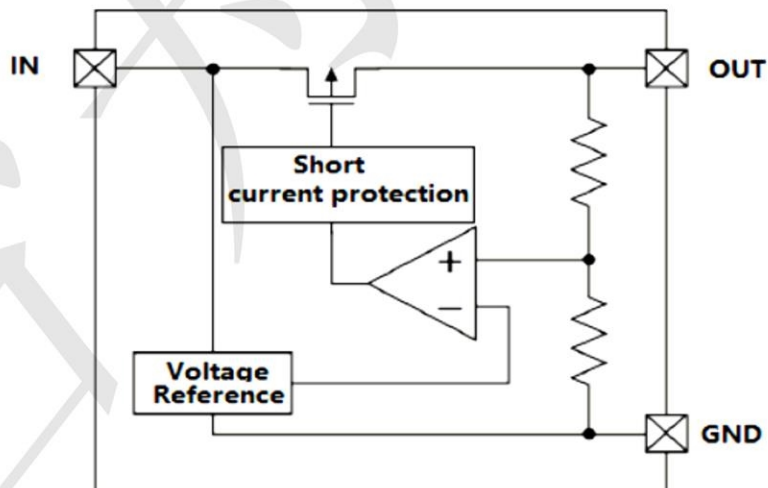
**P** : Logo  
XXX: Marking ID

## PIN CONFIGURATION



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

## BLOCK DIAGRAM



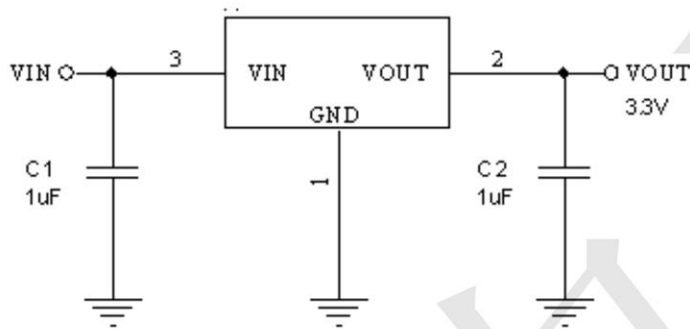
### Absolute Maximum Rating

Parameter		Value	Unit
Supply Voltage		-0.3~+6.5	V
Power Dissipation	SOT-23	300	mW
	SOT-23-3	400	mW
	SOT-89	600	mW
Thermal Resistance,Junction-to-Ambient	SOT-23	330	°C/W
	SOT-23-3	380	°C/W
	SOT-89	180	°C/W
Operating Junction Temperature		-40 ~ +125	°C
Storage Temperature Range		-65 ~ +150	°C
Lead Temperature (Soldering, 10 sec)		300	°C
ESD(HBM mode, ESDA/JEDECJS-001-2017)		+2000	V

**Electrical Characteristics** (T =25°C unless otherwise noted)

PARAMETER	CONDITIONS	SYMBOL	MIN.	TYP.	MAX.	UNITS
Operating Voltage		V <sub>IN</sub>	2.0		6.5	V
Output Voltage Accuracy	V <sub>OUT</sub> ≥ 1.0V, V <sub>IN</sub> = V <sub>OUT</sub> + 1.0V V <sub>OUT</sub> < 1.0V, V <sub>IN</sub> = 2.0V	V <sub>OUT</sub>	2.0		2.0	%
Dropout Voltage (I <sub>LOAD</sub> =250mA)	VDROP_3V	V <sub>OUT</sub> = 3V		170		mV
	VDROP_2.8V	V <sub>OUT</sub> = 2.8V		190		mV
	VDROP_2.5V	V <sub>OUT</sub> = 2.5V		220		mV
	VDROP_1.8V	V <sub>OUT</sub> = 1.8V		260		mV
	VDROP_1.5V	V <sub>OUT</sub> = 1.5V		330		mV
Short Circuit Current	V <sub>OUT</sub> =0V (Note 3)	I <sub>SHORT</sub>	250	450		mA
Output Voltage Temperature Coefficient	-40°C ≤ T <sub>A</sub> ≤ 125°C	TC		100		ppm/°C
GND Pin Current	I <sub>OUT</sub> =1mA	I <sub>GND</sub>		1.6	5	µA
	I <sub>OUT</sub> =350mA (Note 3)			1.6	5	µA
Shutdown Standby Current	V <sub>EN</sub> =0 or V <sub>EN</sub> =V <sub>IN</sub>	I <sub>STBY</sub>			0.2	µA
Ripple Rejection	F=1kHz, C <sub>OUT</sub> =1µF	PSRR		40		dB
Shutdown Pin Current	V <sub>EN</sub> = V <sub>IN</sub> ≤ 6.8V or GND	I <sub>EN</sub>		0	100	nA
Shutdown Exit Delay Time	I <sub>OUT</sub> = 30mA	Δt		0.5		mS
Max Output Discharge Resistance to GND during Shutdown		RDSON_C LMP		20	40	Ω
V <sub>EN</sub> threshold	High threshold	V <sub>ENH</sub>			2	V
	Low threshold	V <sub>ENL</sub>	0.6			V
Thermal Shutdown Temperature		T <sub>SD</sub>		150		°C
Thermal Shutdown Hysteresis		ΔT <sub>SD</sub>		15		°C

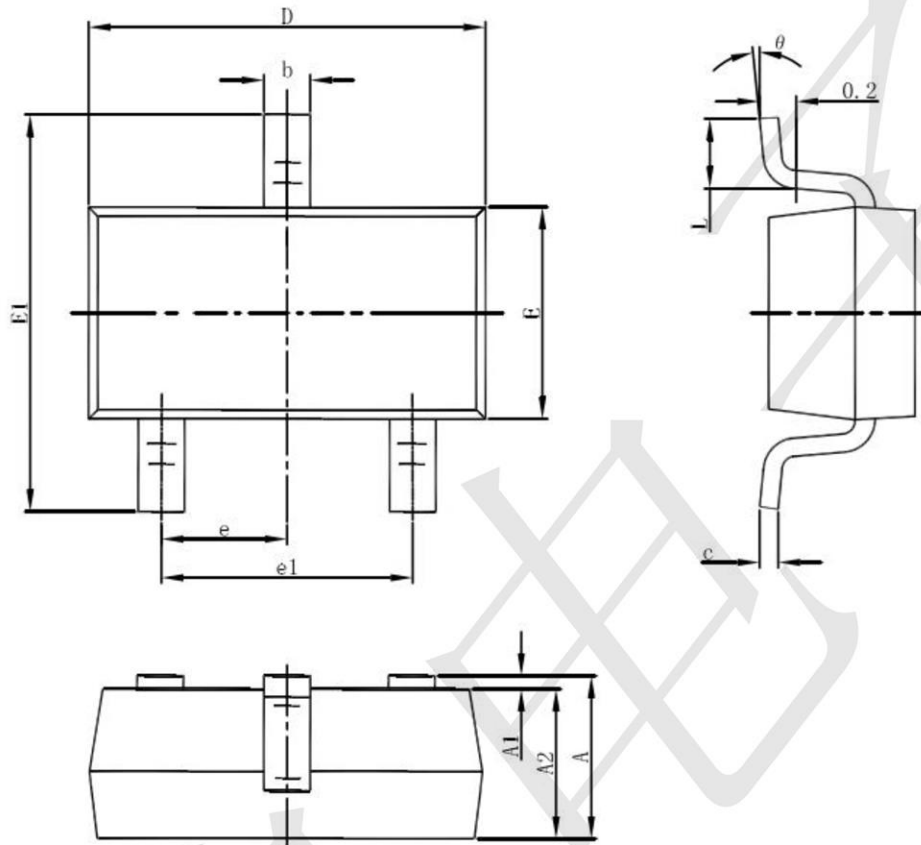
**TYPICAL APPLICATION**



## Package informantion

[www.sot23.com.tw](http://www.sot23.com.tw)

### 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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