



TECH PUBLIC

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TPRT9013 Series

500mA Higt PSRR Voltage Reaulators

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

## General Description

The TPRT9013 is a high-performance, 500mA LDO regulator, offering extremely high PSRR and ultra-low dropout. Ideal for portable RF and wireless applications with demanding performance and space requirements.

The TPRT9013 is available in 5pin SOT23-5 Package .t output standards of 1.2V 1.5V 1.8V 2.5V 2.8V 3.0V 3.3V

## Features

- Quiescent Current: 60uA
- PSRR:75dB@1KHz
- < 1uA current at shutdown mode
- Output voltage accuracy: tolerance  $\pm 2\%$
- Output current:500mA(Typ.)
- SOT23-5 package

## Applications

- CDM/GSM mobile phone
- PDAs /MP3
- Audio/Video equipment

## Ordering Information

TPRT9013-33GB

GB:SOT23-5 Package

Output voltage: 33=3.3V

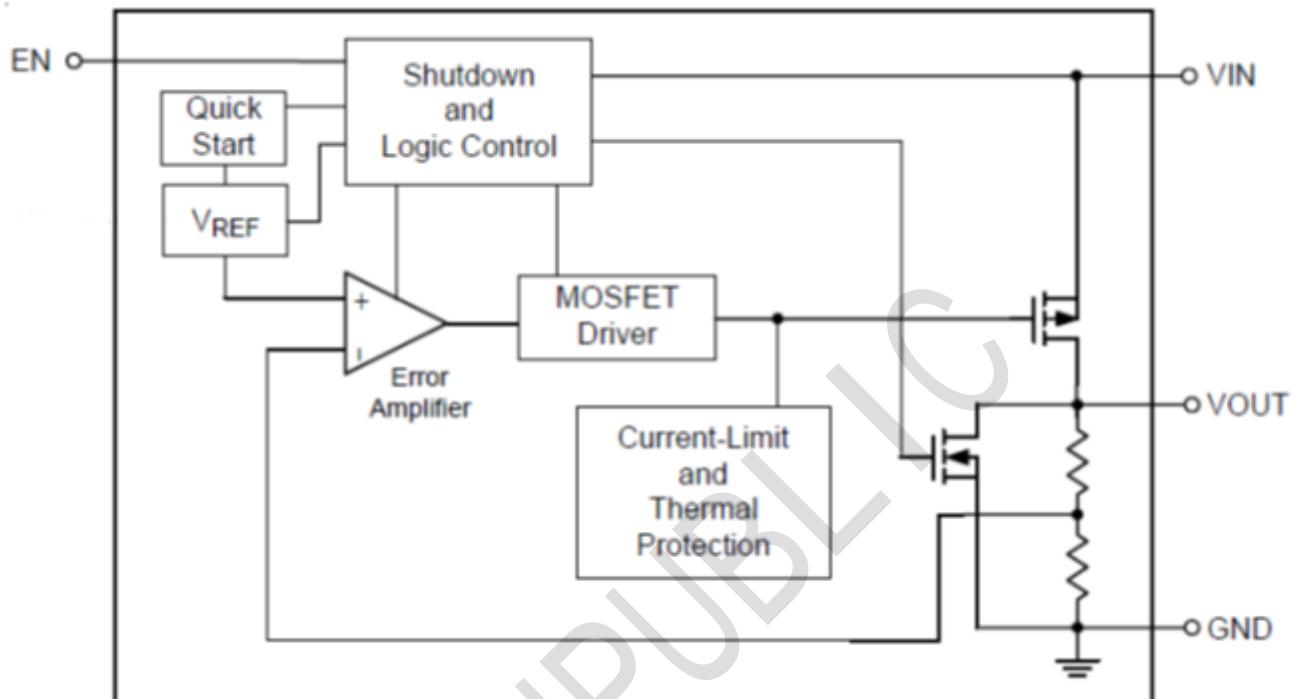
50=5.0V

28=2.8V

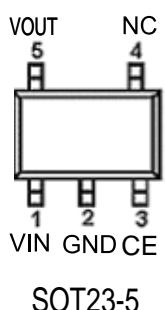
30=3.0V

XX=X.XV

## BLOCK DIAGRAM



## PIN CONFIGURATION



Pin Name	Function
VIN	Supply power
GND	Ground
CE	Enable pin
NC	NC
VOUT	Voltage output



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**Absolute Maximum Rating** ( $T_A=25^\circ\text{C}$  unless otherwise noted)

Parameter	Symbol	Maximum Rating		Unit
Input Voltage	$V_{IN}$	7		V
Output Voltage	$V_{OUT}$	$V_{SS}-0.3 \sim V_{IN}+0.3$		
Output Current	$I_{out}$	600		mA
Power Dissipation	$P_D$	SOT-23-5	250	mW $^\circ\text{C}$
Operating Ambient Temperature	$T_{opr}$	-40~+85		
Storage Temperature	$T_{stg}$	-40~+125		

**Electrical Characteristics** ( $T = 25^\circ\text{C}$  unless otherwise noted)

(Vin=Vout+1V,Cin=Cout=1uF,Ta=25°C)

PARAMETER	SYMBOL	CONDITIONS	MIN	TYP	MAX	UNITS
Output Voltage	$V_{OUT}(E)$ (Note 2)	$I_{OUT}=40\text{mA}$ , $V_{IN}=V_{out}+1\text{V}$	X 0.98	$V_{OUT}(T)$ (Note 1)	X 1.02	V
Input Voltage	$V_{IN}$				7.0	V
Max. Output Current	$I_{OUTmax}$	$V_{IN}=V_{out}+1\text{V}$		500		mA
CE Enable Voltage	$V_{CE}$	$V_{IN}=V_{out}+1\text{V}$		1.1		V
Load Regulation	$\Delta V_{OUT}$	$V_{IN}=V_{out}+1\text{V}$ , $1\text{mA} \leq I_{OUT} \leq 100\text{mA}$		50		mV
Dropout Voltage (Note 3)	$V_{dif1}$	$I_{OUT} = 100\text{mA}$		100		mV
	$V_{dif2}$	$I_{OUT} = 200\text{mA}$		300		mV
Supply Current	$I_{SS}$	$V_{IN}=V_{out}+1\text{V}$		60		$\mu\text{A}$
Standby Current	$I_{CEL}$	$V_{ce}=0\text{V}$		1		$\mu\text{A}$
Line Regulation	$\frac{\Delta V_{OUT}}{\Delta V_{IN} \cdot V_{OUT}}$	$I_{OUT} = 40\text{mA}$ $V_{out}+1\text{V} \leq V_{IN} \leq 8\text{V}$		0.03		%/V
Output Noise	en	$I_{OUT} = 40\text{mA}$ , 300Hz~50kHz		50		$\text{uVrms}$
Ripple Rejection Rate	PSRR	$V_{in} = [V_{out}+1]\text{V}$ +1Vp-pAC $I_{OUT} = 40\text{mA}, f = 1\text{kHz}$		70		dB

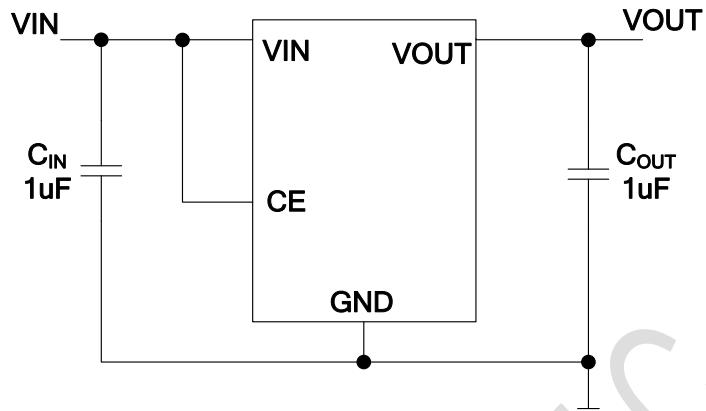


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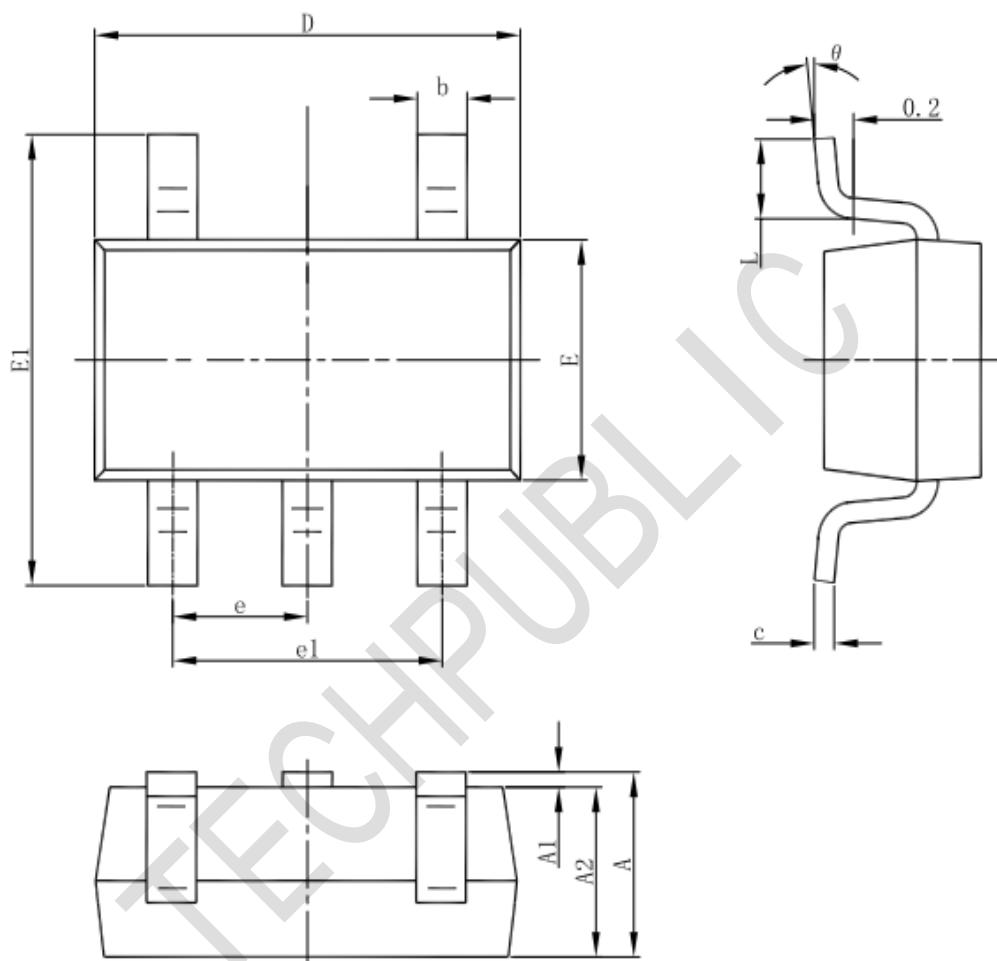
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## TYPICAL APPLICATION



## Package information

SOT23-5



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°