



General Description

TPS7A05xxPDBZR series are a highly precise, lower consumption, 3 terminal, positive voltage regulators manufactured using CMOS and laser trimming technologies. The series provides large currents with a significantly small dropout voltage.

The TPS7A05xxPDBZR consists of a current limiter circuit, a driver transistor, a precision reference voltage and an error correction circuit. The series is compatible with low ESR ceramic capacitors. The current limiters fold back circuit operates as a short circuit protection as well as the output current limiter for the output pin. Output voltages are internally by laser trimming technologies. It is selectable in 0.1V increments within a range of 1.2V to 3.6V. TPS7A05xxPDBZR series are available in SOT-23 package.

Features

- Low Power Consumption
- Low Voltage Drop
- Low Temperature Coefficient
- Low Quiescent Current: 1uA at 6V
- Output voltage accuracy: tolerance $\pm 2\%$

Application

- Battery-powered Equipments
- Reference Voltage Sources
- Cameras, video cameras
- Portable AV systems
- Mobile phones
- Portable games

Pin Configuration And Descriptions

SOT-23-3L (Top View)

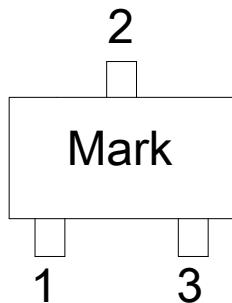


Table1: TPS7A05xxPDBZR series

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

Order Information

Orderable Device	Package	Output Voltage	Packing Option
TPS7A05xxPDBZR	SOT-23-3L	1.2V-3.6V	3000/Reel

xx:From 12-36

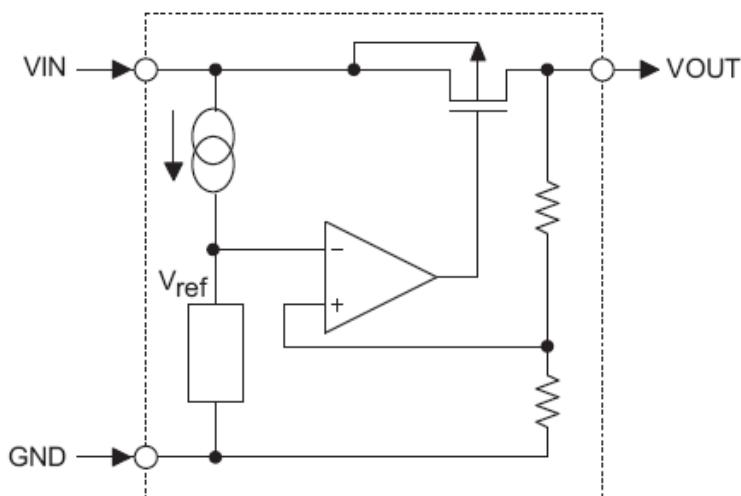


Absolute Maximum Ratings

Description	Symbol	Value Range	Unit
Input Voltage	V_{IN}	8	V
Storage Temperature Range	T_{STG}	-55~+125	°C
Operating Free-air Temperature Range	T_A	-40~+85	°C
Power Dissipation	P_d	0.2	W
Output Current	I_{OUT}	300	mA
Output Voltage	V_{OUT}	$V_{SS} -0.3 \sim V_{IN} +0.3$	V

Note: Stresses greater than those listed under “Absolute Maximum Ratings” may cause permanent damage to the device. These are stress ratings only, and functional operation of the device at these or any other conditions beyond those indicated under “Recommended Operating Conditions” is not implied. Exposure to “Absolute Maximum Ratings” for extended periods may affect device reliability.

Block Diagram





DC Characteristics (unless otherwise noted $T_A = 25^\circ\text{C}$)

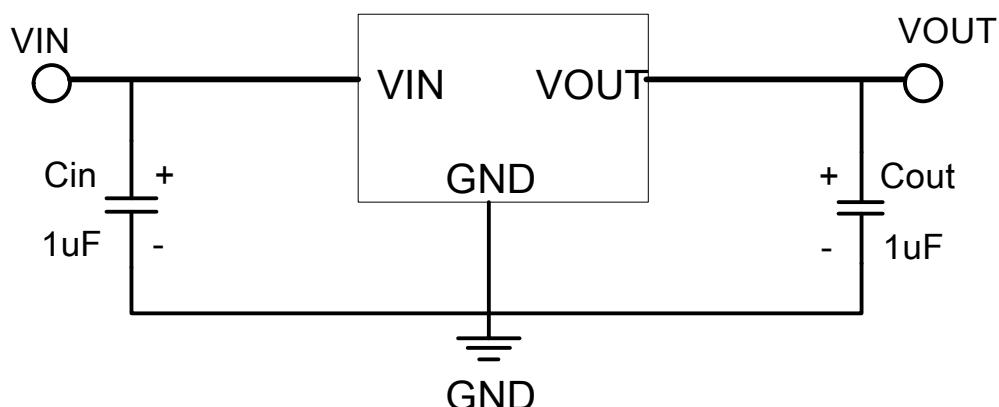
Parameter	Symbol	Conditions	Min.	Typ.	Max.	Unit
Output Voltage	V_{out}	$V_{\text{in}}=V_{\text{out}}+1\text{V}$ $1.0\text{mA} \leq I_{\text{out}} \leq 30\text{mA}$	$V_{\text{out}} \times 0.98$	--	$V_{\text{out}} \times 1.02$	V
Output Current*1	I_{out}	$V_{\text{in}}-V_{\text{out}}=1\text{V}$	--	300	--	mA
Low dropout*2	V_{drop}	Refer to the next table				
Line Regulation	$\Delta V_{\text{out}}/(\Delta V_{\text{in}} \cdot V_{\text{out}})$	$1.6\text{V} \leq V_{\text{in}} \leq 6.5\text{V}$ $I_{\text{out}}=40\text{mA}$	--	0.05	0.2	%/V
Load Regulation	$\Delta V_{\text{out}} / \Delta I_{\text{out}}$	$V_{\text{in}}= V_{\text{out}}+1\text{V}$ $1.0\text{mA} \leq I_{\text{out}} \leq 80\text{mA}$	--	12	30	mV
Output voltage Temperature Coefficient	$\Delta V_{\text{out}} / (T_a \cdot V_{\text{out}})$	$I_{\text{out}}=30\text{mA}$ $0^\circ\text{C} \leq T_a \leq 70^\circ\text{C}$	--	± 75	--	Ppm/°C
Supply Current	I_{ss}	--	--	1	1.5	uA
Input Voltage	V_{in}	--	--	6	8	V

Electrical Characteristics by Output Voltage:

Output Voltage $V_{\text{out}}(\text{V})$	Dropout Voltage V_{dif} (V)		
	Conditions	Typ.	Max.
$V_{\text{out}} \leq 1.5\text{V}$	$I_{\text{out}}=100\text{ mA}$	0.39	0.66
$V_{\text{out}}=1.6\text{V}$		0.35	0.57
$V_{\text{out}}=1.7\text{V}$		0.32	0.50
$1.8 \leq V_{\text{out}} \leq 2$		0.30	0.45
$2.1 \leq V_{\text{out}} \leq 2.7$		0.28	0.42
$2.8 \leq V_{\text{out}} \leq 3.6$		0.25	0.35

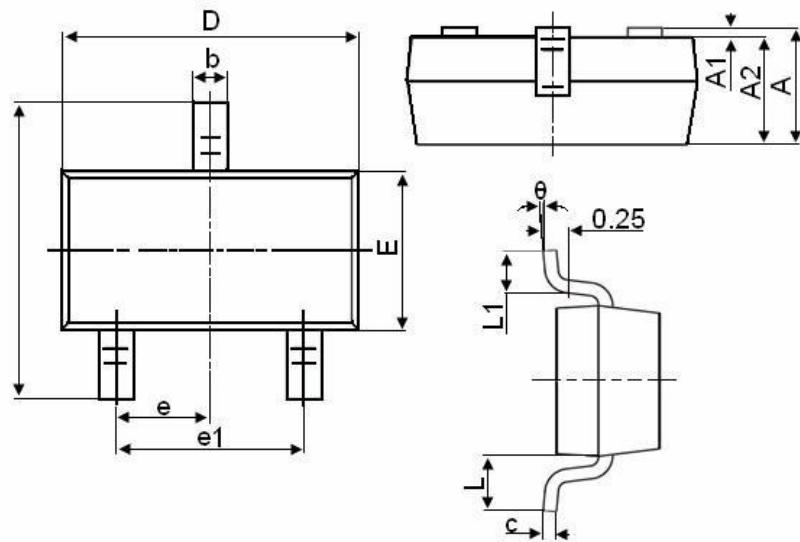
Application Circuit

Basic Circuits





Package Outline Dimensions
SOT-23-3L



Symbol	Dimensions in Millimeters	
	MIN.	MAX.
A	1.050	1.250
A1	0.000	0.100
A2	1.050	1.150
b	0.300	0.500
c	0.100	0.200
D	2.800	3.000
E	1.500	1.700
E1	2.650	2.950
e	0.950TYP	
e1	1.800	2.000
L	0.550REF	
L1	0.300	0.600
θ	0°	8°



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