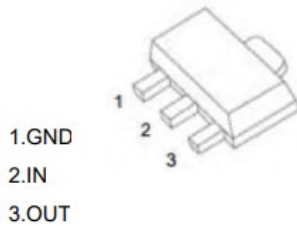




INTRODUCTION

The WS75XX series are a group of positive voltage regulators manufactured by CMOS technologies with low power consumption and low dropout voltage, which provide large output currents even when the difference of the input output voltage is small. The WS75XX series can deliver 250mA output current and allow an input voltage as high as 36V. The series are very suitable for the battery powered equipments, such as RF applications and other systems requiring a quiet voltage source.

SOT-89-3L



Marking: HT75xx

- Cordless Phones
- Radio control systems
- Laptop, Palmtops and PDAs
- Single-lens reflex DSC
- PC peripherals with memory
- Wireless Communication Equipments
- Portable Audio Video Equipments
- Car Navigation Systems
- LAN Cards
- Ultra Low Power Microcontrollers

SOT-89-3L Plastic-Encapsulate Voltage Regulators

特征 Features

- Low Quiescent Current: 2 μ A
- Operating Voltage Range: 2.5V~36V
- Output Current: 250mA
- Low Dropout Voltage: 700mV@100mA(VOUT=3.3V)
- Output Voltage: 2.1~ 12V
- High Accuracy: $\pm 2\%/\pm 1\%$ (Typ.)
- High Power Supply Rejection Ratio: 70dB@1kHz
- Low Output Noise: 27xVOUT μ V_{RMS}(10Hz~100kHz)
- Excellent Line and Load Transient Response
- Built-in Current Limiter, Short-Circuit Protection
- Over-Temperature Protection
- Stable with Ceramic or Tantalum Capacitor

机械数据 Mechanical Data

- SOT-89-3L Small Outline Plastic Package
- Epoxy UL: 94V-0
- Mounting Position: Any

Absolute Maximum Ratings (Unless otherwise specified, TA=25°C)

Parameters	Symbol	Value	Unit
Input Voltage	V_i	-0.3~40	V
Output Voltage	V_{out}	-0.3~13	V
Power Dissipation	P_d	0.6	W
Operating Ambient Temperature Range	T_a	-40~+85	°C
Operating Junction Temperature Range	T_j	-40~+125	°C
Storage Temperature Range	T_{stg}	-40~+125	°C
Lead Temperature(Soldering, 10 sec)	T_{solder}	260	°C

MODEL DEFINITION INFORMATION

Model	Output Voltage
7521	2.1V
7523	2.3V
7525	2.5V
7527	2.7V
7530	3.0V
7533	3.3V
7536	3.6V
7540	4.0V
7544	4.4V
7550	5.0V
7560	6.0V
7570	7.0V
7580	8.0V
7590	9.0V
75A0	10.0V
75C0	12.0V



Electrical Characteristics at Specified Virtual Junction Temperature

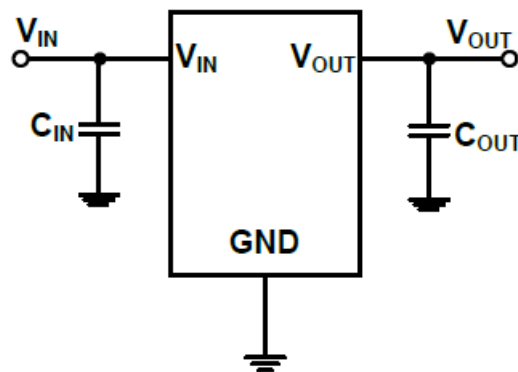
PARAMETER	SYMBOL	CONDITIONS	MIN.	TYP. ⁽⁴⁾	MAX.	UNITS	
Input Voltage	V_{IN}		2.5	—	36	V	
Output Voltage Range	V_{OUT}		2.1	—	12	V	
DC Output Accuracy		$I_{OUT}=10mA$	-2	—	2	%	
			-1	—	1	%	
Dropout Voltage	$V_{dif}^{(5)}$	$I_{OUT}=100mA, V_{OUT}=3.3V$	—	700	—	mV	
Supply Current	I_{SS}	$I_{OUT}=0A$	—	2	5	μA	
Line Regulation	$\frac{\Delta V_{OUT}}{V_{OUT} \times \Delta V_{IN}}$	$I_{OUT}=10mA$ $V_{OUT}+1V \leq V_{IN} \leq 36V$	—	0.01	0.3	%/V	
Load Regulation	ΔV_{OUT}	$V_{IN}=V_{OUT}+2V,$ $1mA \leq I_{OUT} \leq 100mA$	—	10	—	mV	
Temperature Coefficient	$\frac{\Delta V_{OUT}}{V_{OUT} \times \Delta T_A}$	$I_{OUT}=40mA,$ $-40^{\circ}C < T_A < 85^{\circ}C$	—	50	—	ppm	
Output Current Limit	I_{LIM}	$V_{OUT}=0.5 \times V_{OUT(Normal)}$	—	350	—	mA	
Short Current	I_{SHORT}	$V_{OUT}=V_{SS}$	—	25	—	mA	
Power Supply Rejection Ratio	PSRR	$I_{OUT}=50mA$	100Hz	—	80	—	dB
			1kHz	—	70	—	
			10kHz	—	60	—	
			100kHz	—	50	—	
Output Noise Voltage	V_{ON}	BW=10Hz to 100kHz	—	$27 \times V_{OUT}$	—	μV_{RMS}	
Thermal Shutdown Temperature	T_{SD}	$I_{LOAD}=30mA$	—	160	—	$^{\circ}C$	
Thermal Shutdown Hysteresis	ΔT_{SD}	—	—	20	—	$^{\circ}C$	

(4) Typical numbers are at 25°C and represent the most likely norm.

(5) V_{dif} : The Difference Of Output Voltage And Input Voltage When Input Voltage Is Decreased Gradually Till Output Voltage Equals To 98% Of V_{OUT} (E).

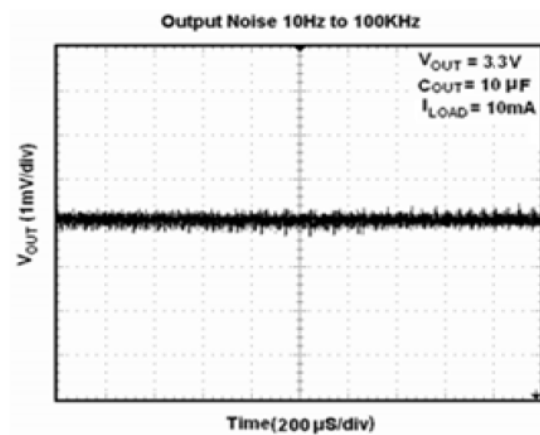
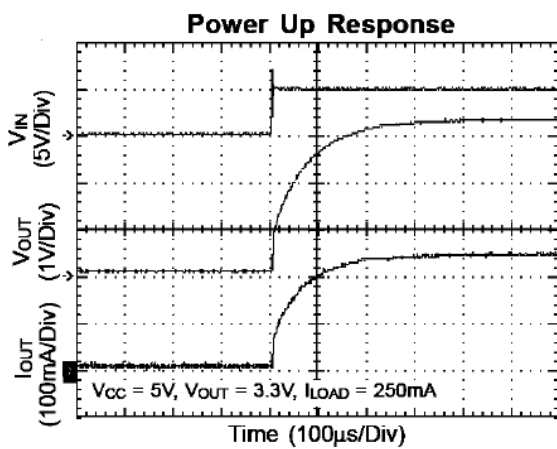
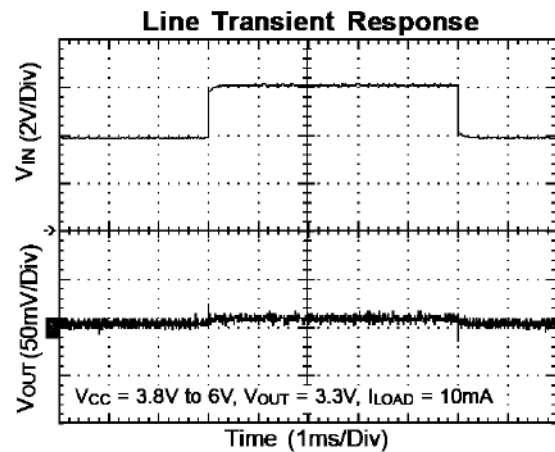
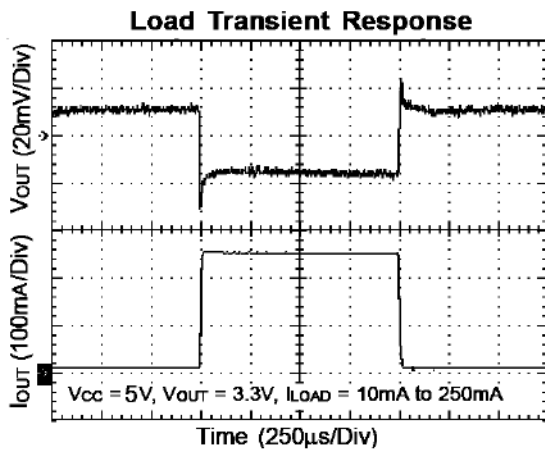
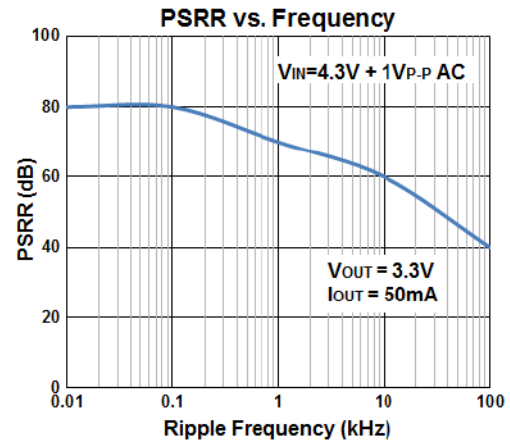
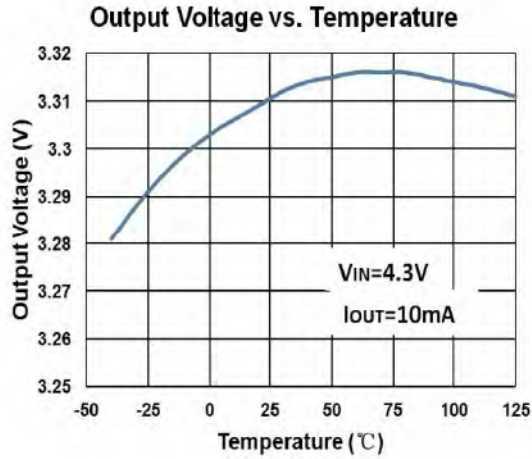
* Pulse test.

TYPICAL APPLICATION



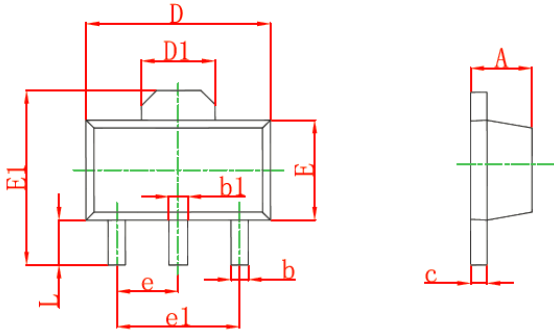


Typical characteristics





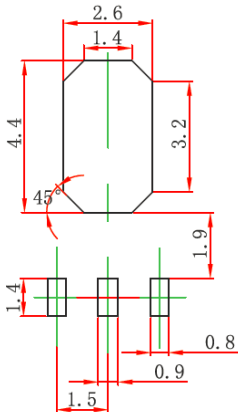
SOT-89-3L PACKAGE OUTLINE Plastic surface mounted package



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

Precautions: PCB Design

Recommended land dimensions for SOT-89-3L diode. Electrode patterns for PCBs



Note:

1. Controlling dimension: in millimeters.
2. General tolerance: $\pm 0.05\text{mm}$.
3. The pad layout is for reference purposes only.