

CJ75XXS

INTRODUCTION

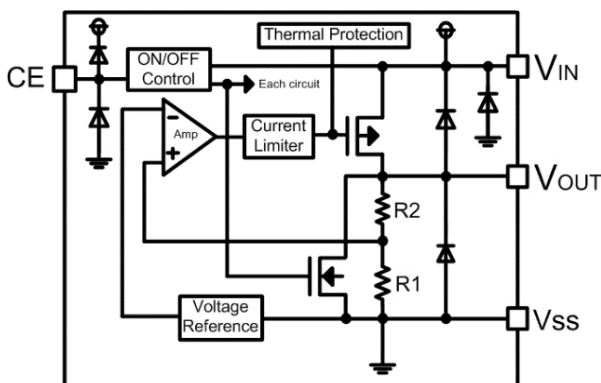
The CJ75XXS Series are a group of positive voltage regulators manufactured by CMOS technologies with low power consumption and low dropout voltage, which provide large output currents even when the difference of the input-out-put voltage is small.

The CJ75XXS Series can deliver 300 mA 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.

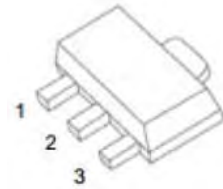
FEATURES

- Low Quiescent Current: 2 μ A
- Operating Voltage Range: 2.5V~36V
- Output Current: 300mA
- Low Dropout Voltage:
200mV@100mA($V_{OUT}=3.3V$)
- Output Voltage: 2.1~ 12V
- High Accuracy: $\pm 1\%$ (Typ.)
- High Power Supply Rejection Ratio:
70dB@1kHz
- Low Output Noise:
27x V_{OUT} 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

BLOCK DIAGRAM



SOT-89-3L

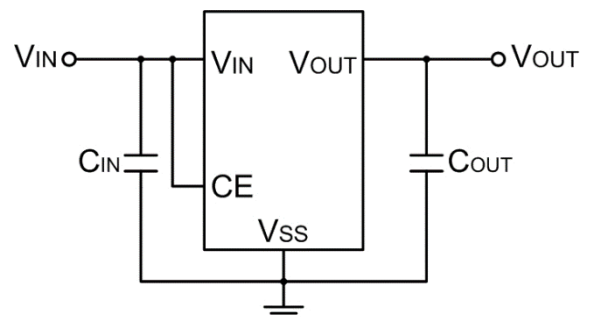


- 1.GND
- 2.IN
- 3.OUT

APPLICATIONS

- 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

TYPICAL APPLICATION CIRCUIT



For CJ75XXS series, input and output capacitors are required to achieve stability and help the equipment obtain better transient response and PSRR. It is recommended to use 1 μ F input and 1 μ F output capacitors.

Electrical Characteristics

ABSOLUTE MAXIMUM RATINGS

(Unless otherwise specified, $T_A=25^{\circ}\text{C}$)

PARAMETER	SYMBOL	RATINGS	UNITS
Input Voltage ⁽²⁾	V_{IN}	-0.3~40	V
Output Voltage ⁽²⁾	V_{OUT}	-0.3~13	V
Power Dissipation	P_D	0.6	W
Output Current	I_{OUT}	600	mA
Operating Ambient Temperature Range	T_A	-40~+85	$^{\circ}\text{C}$
Operating Junction Temperature Range ⁽³⁾	T_j	-40~+125	$^{\circ}\text{C}$
Storage Temperature	T_{stg}	-40~+125	$^{\circ}\text{C}$
Lead Temperature(Soldering, 10 sec)	T_{solder}	260	$^{\circ}\text{C}$

(1) Stresses beyond 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-rated conditions for extended periods may affect device reliability.

(2) All voltages are with respect to network ground terminal.

(3) This IC includes over temperature protection that is intended to protect the device during momentary overload. Junction temperature will exceed 125°C when over temperature protection is active. Continuous operation above the specified maximum operating junction temperature may impair device reliability.

RECOMMENDED OPERATING CONDITIONS

PARAMETER	MIN.	NOM.	MAX.	UNITS
Supply voltage at V_{IN}	2.5		36	V
Operating junction temperature range, T_j	-40		125	$^{\circ}\text{C}$
Operating free air temperature range, T_A	-40		85	$^{\circ}\text{C}$

ELECTRICAL CHARACTERISTICS

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		$I_{OUT}=10\text{mA}$	-1	—	1	%	
Dropout Voltage	$V_{dif}^{(5)}$	$I_{OUT}=100\text{mA}, V_{OUT}=3.3\text{V}$	—	200	—	mV	
Supply Current	I_{SS}	$I_{OUT}=0\text{A}$	—	2	5	μA	
Line Regulation	$\frac{\Delta V_{OUT}}{V_{OUT} \times \Delta V_{IN}}$	$I_{OUT}=10\text{mA}$ $V_{OUT}+1\text{V} \leq V_{IN} \leq 36\text{V}$	—	0.01	0.3	%/V	
Load Regulation	ΔV_{OUT}	$V_{IN}=V_{OUT}+2\text{V}$, $1\text{mA} \leq I_{OUT} \leq 100\text{mA}$	—	10	—	mV	
Temperature Coefficient	$\frac{\Delta V_{OUT}}{V_{OUT} \times \Delta T_A}$	$I_{OUT}=40\text{mA}$, $-40^{\circ}\text{C} < T_A < 85^{\circ}\text{C}$		50		ppm	
Output Current Limit	I_{LIM}	$V_{OUT}=0.5 \times V_{OUT(\text{Normal})}$		260		mA	
Short Current	I_{SHORT}	$V_{OUT}=V_{SS}$	—	25	—	mA	
Power Supply Rejection Ratio	PSRR	$I_{OUT}=50\text{mA}$	100Hz		75		dB
			1kHz	—	70	—	
			10kHz	—	55	—	
			100kHz	—	40	—	

Electrical Characteristics

PARAMETER	SYMBOL	CONDITIONS	MIN.	TYP. ⁽⁴⁾	MAX.	UNITS
Output Noise Voltage	V _{ON}	BW=10Hz to 100kHz	—	27 x V _{OUT}	—	μV _{RMS}
Thermal Shutdown Temperature	T _{SD}	I _{LOAD} = 30mA	—	160	—	°C
Thermal Shutdown Hysteresis	ΔT _{SD}	—	—	20	—	°C
Standby Current	I _{STBY}	CE =V _{SS}			0.5	μA
CE "High" Voltage	V _{CE "H"}		1.5		V _{IN}	V
CE "Low" Voltage	V _{CE "L"}				0.3	V

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

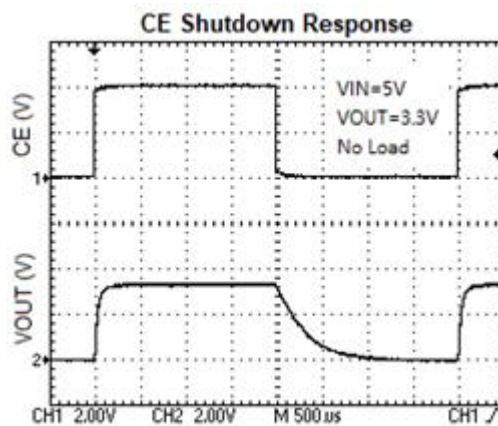
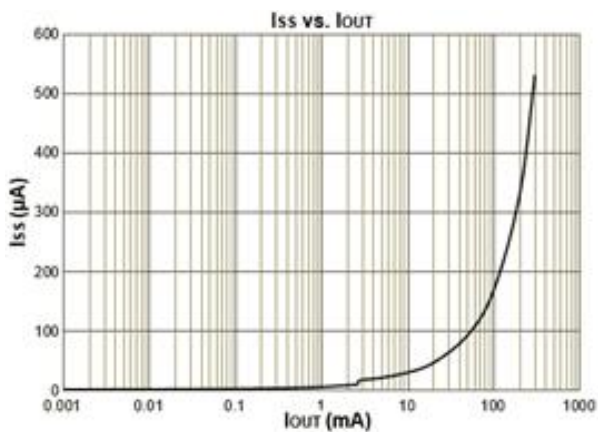
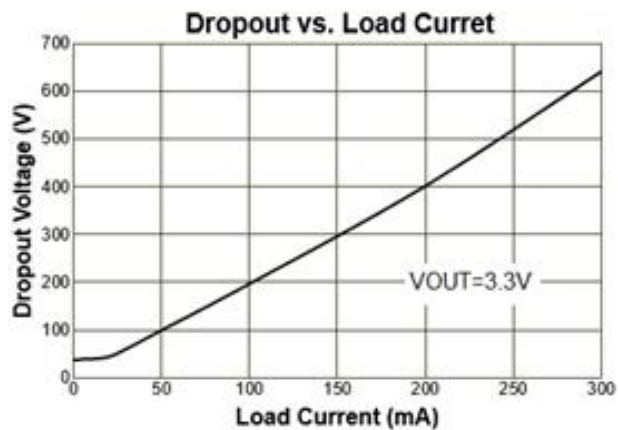
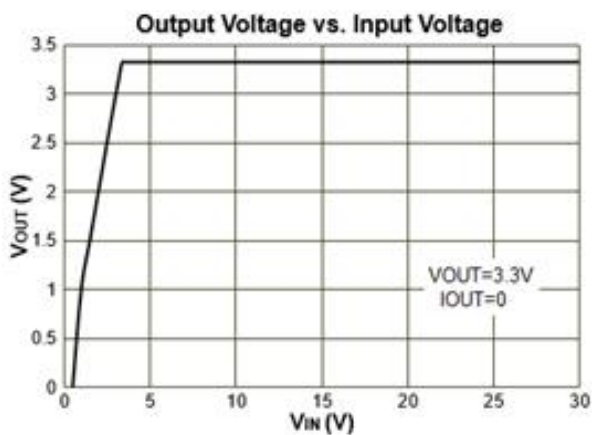
(5)V_{diff}: The Difference Of Output Voltage And Input Voltage When Input Voltage Is Decreased Gradually Till Output Voltage Equals To 98% Of V_{OUT} (E).

MODEL DEFINITION INFORMATION

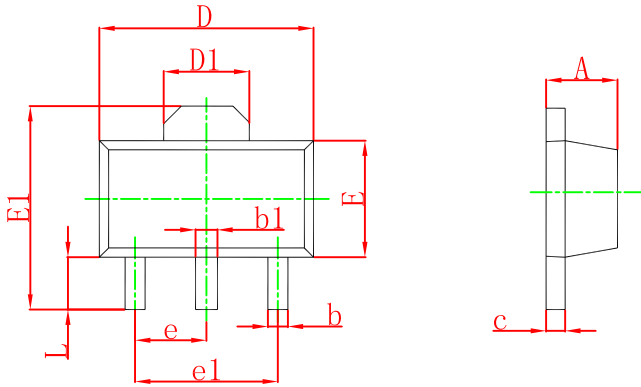
Model	Output Voltage
CJ7533S	3.3V
CJ7550S	5.0V
CJ75C0S	12.0V

Typical Characteristics

(Unless otherwise specified, $T_A=25^\circ\text{C}$)

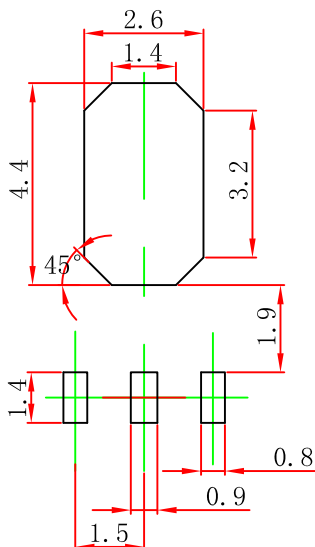


SOT-89-3L Package Outline Dimensions



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	0.197
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

SOT-89-3L Suggested Pad Layout



- Note:
1. Controlling dimension: in millimeters.
 2. General tolerance: ± 0.05 mm.
 3. The pad layout is for reference purposes only.

DISCLAIMER

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