CJ86XX Series

■ INTRODUCTION

The CJ86XX 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 CJ86XX series can deliver 250mA output current and allow an input voltage as high as 45V. The series are very suitable for the battery-powered equipments, such as RF applications and other systems requiring a quiet voltage source.

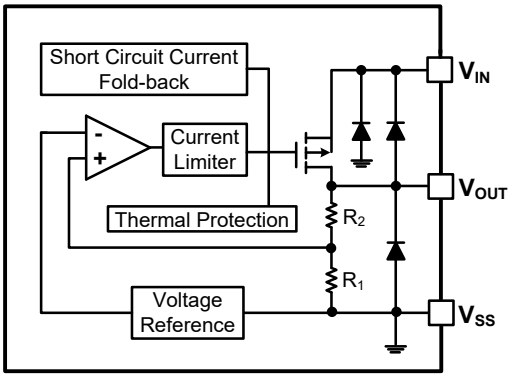
■ APPLICATIONS

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

■ FEATURES

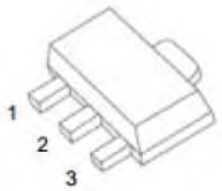
- Low Quiescent Current: 2μA
- Operating Voltage Range: 2.5V～45V
- Output Current: 250mA
- Low Dropout Voltage：
  700mV@100mA(V_{OUT}=3.3V)
- Output Voltage: 2.1~ 12V
- High Accuracy: ±2%/±1%(Typ.)
- High Power Supply Rejection Ratio:
  70dB@1kHz
- Low Output Noise:
  27xV_{OUT} μV_{RMS}(10Hz~100kHz)
- Excellent Line and Load Transient Response
- Built-in Current Limiter, Short-Circuit Protection
- Over-Temperature Protection
- Stable with Ceramic or Tantalum Capacitor

■ BLOCK DIAGRAM



■ PACKAGING INFORMATION

SOT-89-3L



1.GND
2.IN
3.OUT

■ ABSOLUTE MAXIMUM RATINGS(1)

(Unless otherwise specified, T_A=25°C)

PARAMETER		SYMBOL	RATINGS	UNITS
Input Voltage(2)		V_{IN}	-0.3~50	V
Output Voltage(2)		V_{OUT}	-0.3~12	V
Output Current		I_{OUT}	250	mA
Power Dissipation	SOT-89-3L	P_D	0.6	W
Operating Junction Temperature Range(3)		T_j	-40~+125	°C
Operating Ambient Temperature		T_A	-40~+85	°C
Storage Temperature		T_{stg}	-40~+125	°C
Soldering Temperature		T_{solder}	260°C, 10s	

(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 my 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 over-load. 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		45	V
Operating junction temperature range, T_j	-40		125	°C
Operating free air temperature range, T_A	-40		85	°C

■ MODEL DEFINITION INFORMATION

Model	Output Voltage
CJ8633	3.3V
CJ8636	3.6V
CJ8650	5.0V
CJ86120	12V

Electrical Characteristics

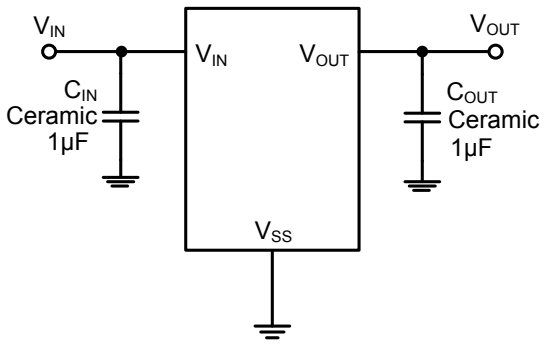
CJ86XX Series (V_{IN}=V_{OUT}+2V, C_{IN}=C_{OUT}=1μF, T_A=25℃, unless otherwise specified)

PARAMETER	SYMBOL	CONDITIONS		MIN.	TYP.(4)	MAX.	UNITS
Input Voltage	V_{IN}			2.5	—	45	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	10	μA
Line Regulation	$\frac{\Delta V_{OUT}}{V_{OUT} \times \Delta V_{IN}}$	I_{OUT} =10mA V_{OUT} +1V≤V_{IN}≤36V		—	0.01	0.3	%/V
Load Regulation	ΔV_{OUT}	V_{IN}= V_{OUT} +2V, 1mA≤I_{OUT}≤100mA		—	8	—	mV
Temperature Coefficient	$\frac{\Delta V_{OUT}}{V_{OUT} \times \Delta T_A}$	I_{OUT}=40mA, -40°C<T_A<85°C			50		ppm
Output Current Limit	I_{LIM}	V_{OUT}= 0.5 x $V_{OUT(Normal)}$			260		mA
Short Current	I_{SHORT}	V_{OUT} =V_{SS}		—	30	—	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 x V_{OUT}	—	μV_{RMS}
Thermal Shutdown Temperature	T_{SD}	I_{LOAD} = 30mA		—	160	—	°C
Thermal Shutdown Hysteresis	ΔT_{SD}	——		—	20	—	°C

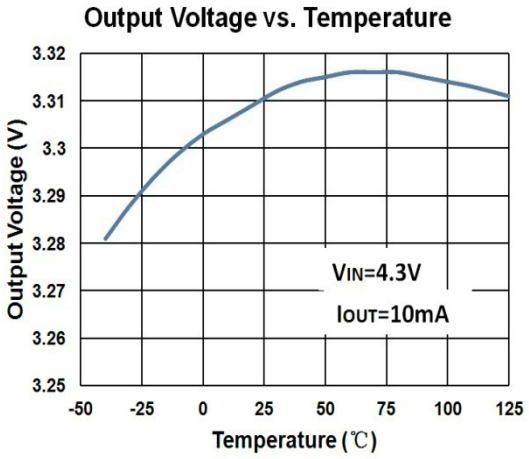
(4) Typical numbers are at 25°C and represent the most likely norm.

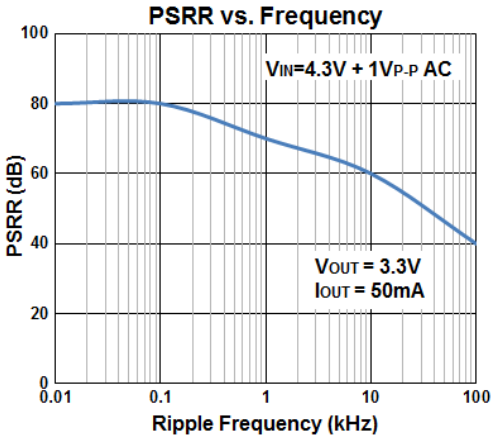
(5) V_{dif}: The Difference Of Output Voltage And Input Voltage When Input Voltage Is Decreased Gradually Till Output Voltage Equals To 98% Of V_{OUT} (E).

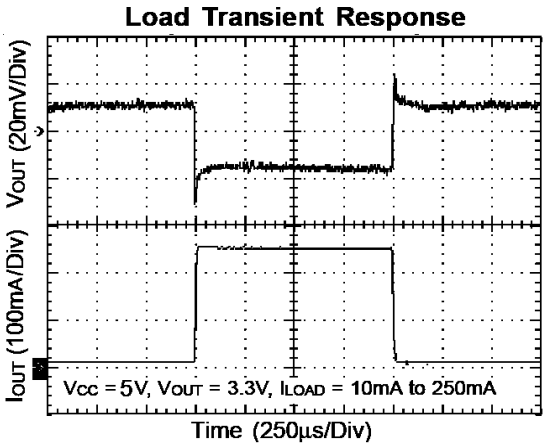
■ TYPICAL APPLICATION CIRCUIT

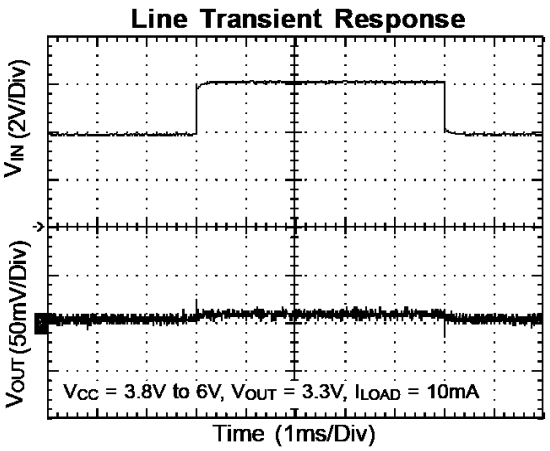


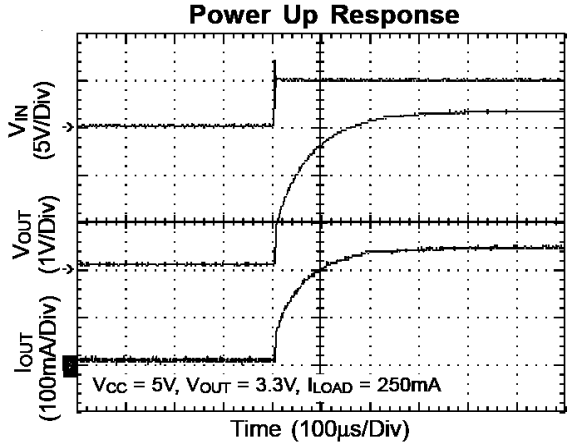
Typical Characteristics

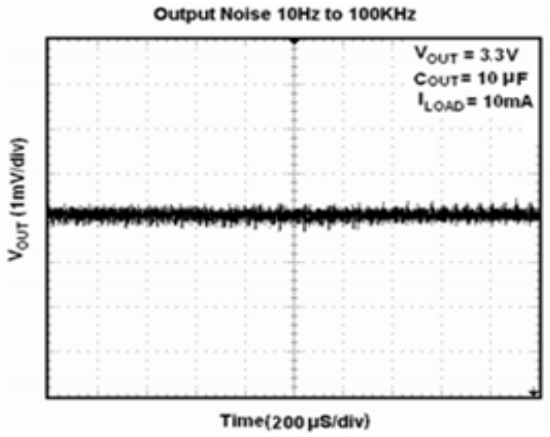




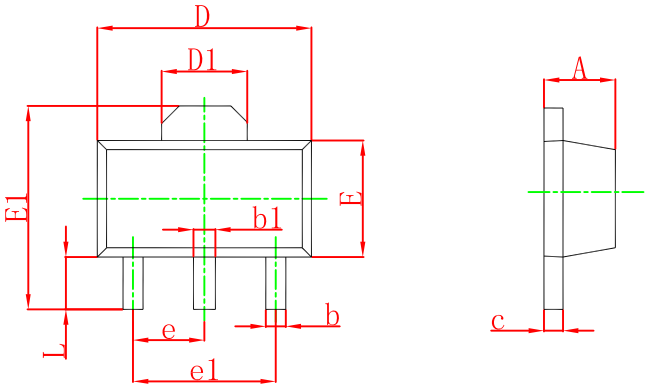






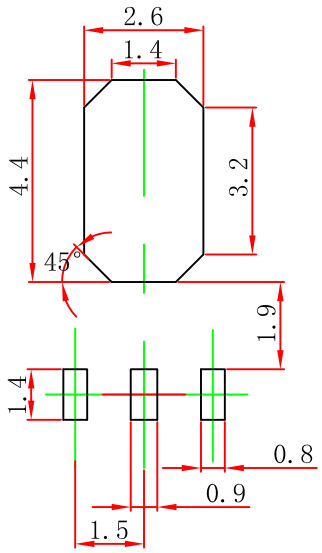


SOT-89-3L Package Outline Dimensions



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 dimemsion"in"milimeters.
2.General tolerance: ±0.05mm.
3.The pad layout is for reference purpose only.

DISCLAIMER

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