FS3305

Positive Voltage Regulator
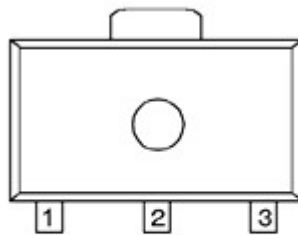
- **Features**

• Maximum Output Current 500mA

• Dropout Voltage 0.25V at I_{out} = 150mA

• Maximum Operating Voltage 8V

• Output Voltage Range 1.7V to 5.0V

• Highly Accurate ± 2%

• Low Power Consumption 60μA (TYP.)

- **General Description**

The FS3305 are highly precise, low power consumption, positive voltage regulators manufactured using CMOS and laser trimming technologies. The series provides large currents with a significantly small dropout voltage. The FS3305 consists of a current limiter Circuit, a driver transistor, a precision reference voltage and an error amplifier. Output voltage is selectable in 0.1V steps between 1.8V to 5.0V. SOT89 packages are available.
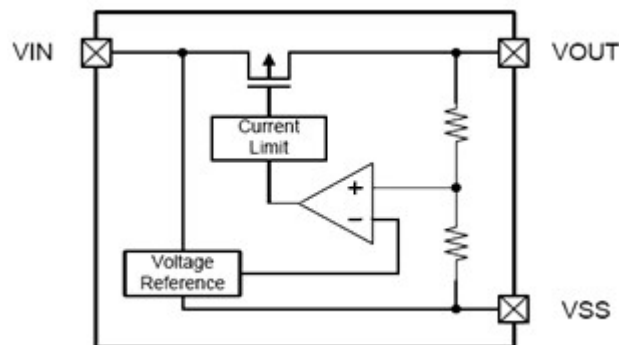
- **Package Information**

SOT-89
(TOP VIEW)

- **Pin Configurations**

PIN	SOT89(G-Type)	SOT89(N-Type)
1	V_{OUT}	GND
2	GND	V_{IN}
3	V_{IN}	V_{OUT}

- **Functional Block Diagram**

FS3305

- **Ordering information**

FS3305-① ② ③ ④ ⑤ ⑥

DESIGNATOR	SYMBOL	DESCRIPTION
① ②	Output Voltage	…25=2.5V; 27=2.7V; 30=3.0V; 33=3.3V; 36=3.6V; 50=5.0V …
③	Output Voltage Accuracy	2: ±2.0%
④	Pin Type:	G: G-Type ; N: N-Type
⑤ ⑥	Package Type:	SM:SOT89

- **Absolute Maximum Ratings**

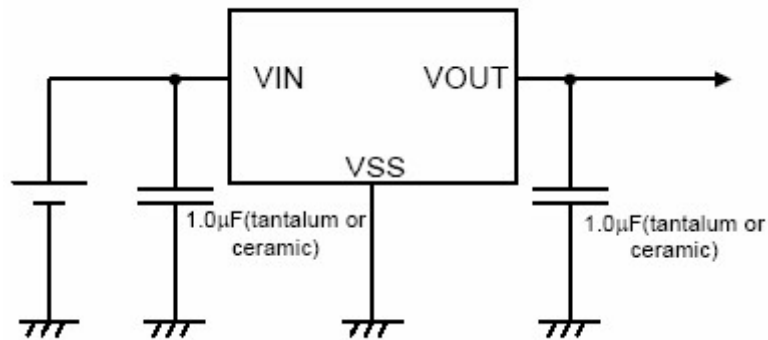| Parameter	Symbol	Limit	Unit
Input Voltage	V_{in}	-0.3 to 8.0	V
Output Current	I_{out}	500	mA
Output Voltage	V_{out}	V_{ss}-0.3 to V_{IN} +0.3	V
Power Dissipation (T_{amb} = 25℃)	SOT89	500	mW
Operating Temperature	T_{opr}	–40 to +125	℃
Storage Temperature	T_{stg}	–65 to +150	℃

- **Electrical Characteristics**

$V_{in}=V_{out}+1V$, $T_{a}=25℃$, $C_{in}=1uF$, $C_{L}=1uF$, unless otherwise sepcified.

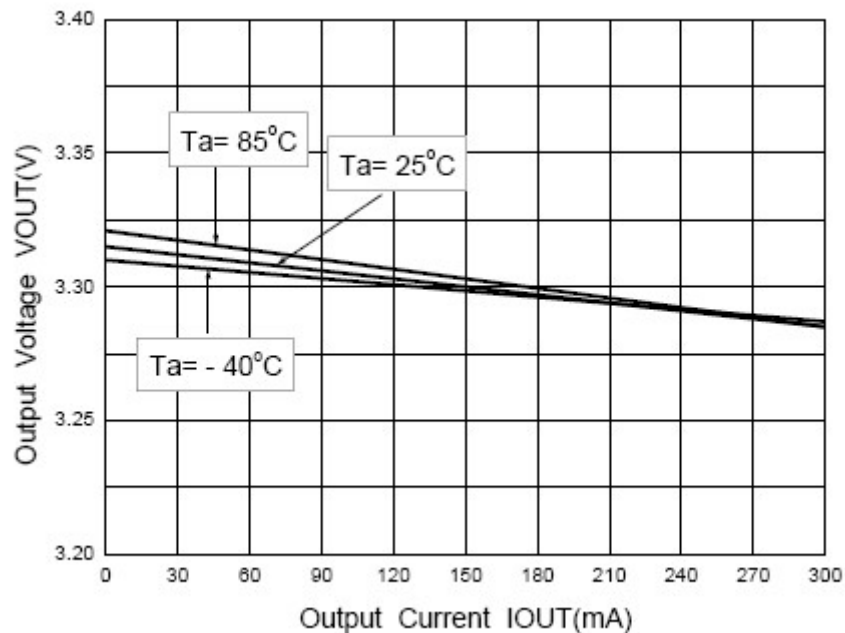| Parameter	Symbol	Conditions	Min	Typ	Max	Unit
Output Voltage	$V_{OUT(E)}$	I_{OUT} = 40mA $V_{IN}=V_{OUT (T)}+1V$	$0.98×V_{OUT (T)}$	$V_{OUT (T)}$	$1.02×V_{OUT (T)}$	V
Maximum Output Current	$I_{OUT max}$	V_{IN} = V_{OUT}+1V	500	--	--	mA
Load Regulation	$△V_{OUT}$	V_{IN} = V_{OUT}+1V 1mA ≤ I_{OUT} ≤ 150mA	--	20	50	mV
Dropout Voltage	V_{drop}	I_{OUT} = 150mA	--	250	300	mV
Supply Current	I_{SS}	V_{IN} = V_{OUT} + 1V	--	60	80	uA
Line Regulation	$△V_{OUT}/$ $(△V_{IN}·V_{OUT})$	I_{OUT} = 40mA V_{OUT} + 1V ≤ V_{IN} ≤ 6V	--	0.2	0.3	%V
Input Voltage	V_{IN}	--	--	--	6	v
Output Voltage Temperature Characteristics	$△V_{OU}T/$ $(△V_{IN}·V_{OUT})$	I_{OUT} = 40mA $-40℃ ≤ T_{a} ≤ 85℃$	--	±100	--	ppm /℃

Note:

1. $V_{out(T)}$ = Specified output Voltage.

2. $V_{out(E)}$ = Effective output Voltage (i.e. the output voltage when "V_{out} (T)+1.0V" is provided at the V_{IN} pin while maintaining a certain I_{out} value)

3. V_{drop} = { V_{IN1} (note5) - V_{OUT1} (note4) }

4. V_{out1} = A voltage equal to 98% of the output voltage whenever an amply stabilized I_{out} ($V_{out(T)}$ +1.0V) is input.

5. V_{IN1} = The input voltage when V_{out} = V_{OUT1}

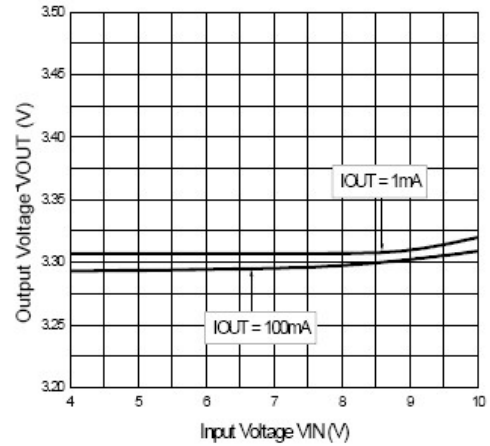● **Typical Performance Characteristics** (T_J =25℃ Noted)
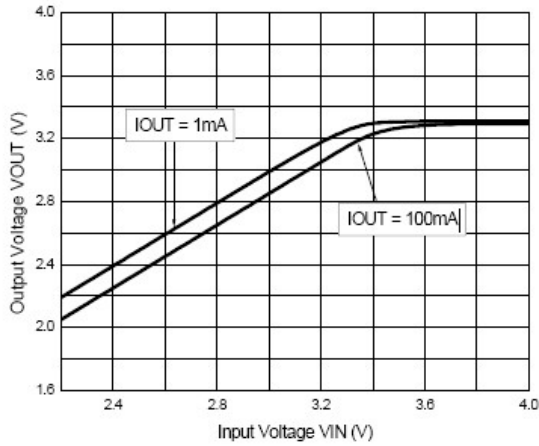

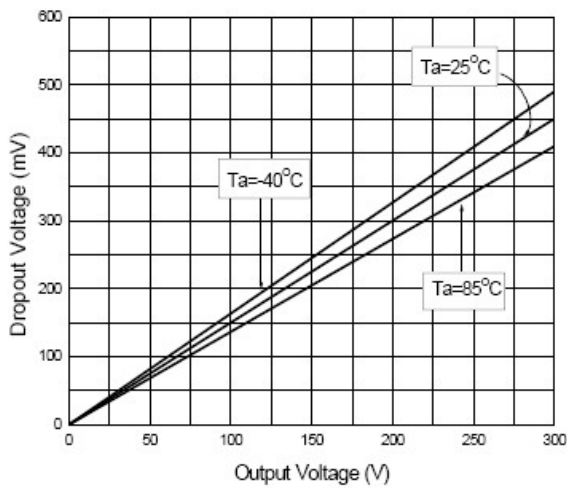● **Typical Performance Characteristics**

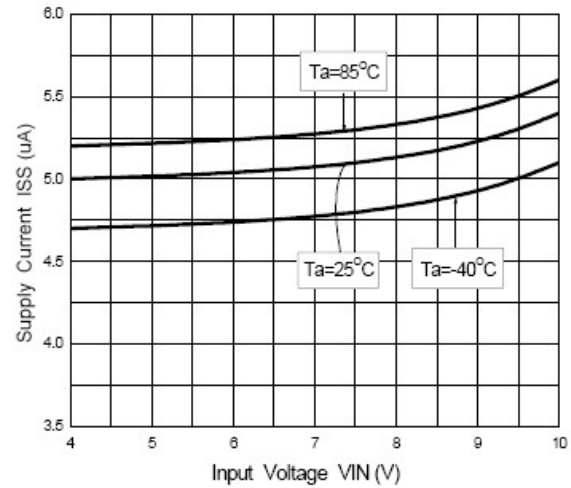 1. **Output Voltage vs. Output Current**

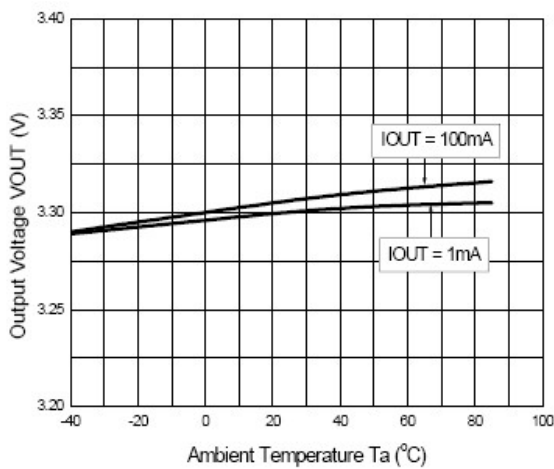## 2. Output Voltage vs. Input Voltage

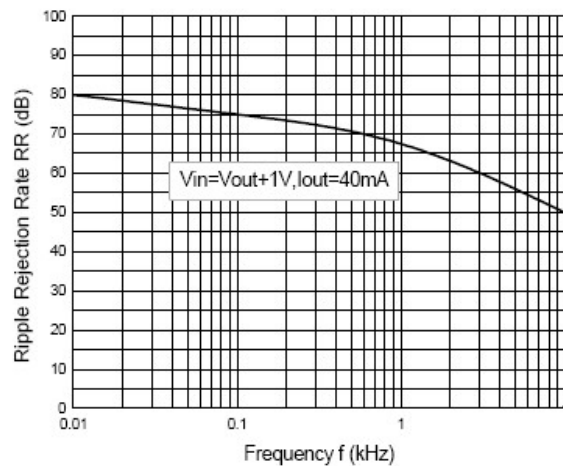## 3. Dropout Voltage vs. Output Current

4. Supply Current vs. Input Voltage
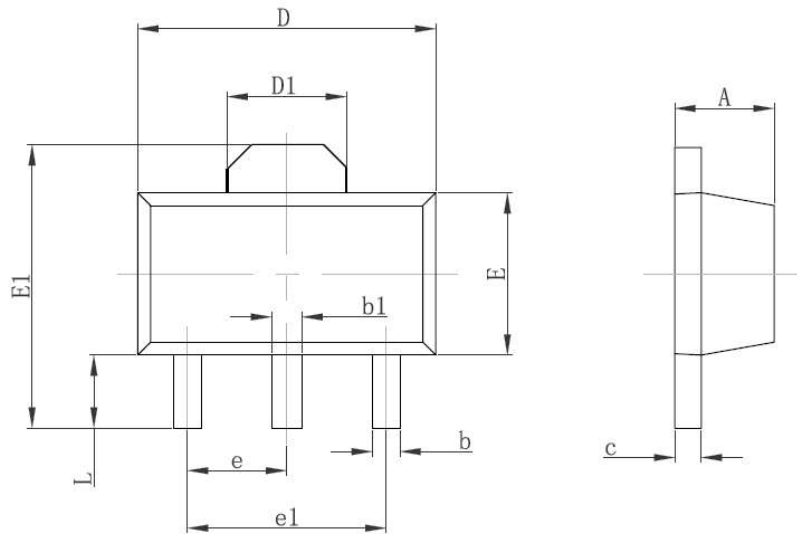

5. Output Voltage vs. Ambient Temperature

6 . Ripple Rejection Rate

● **Package Information**

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		0.060TYP	
e1	3.000 TYP		0.118TYP	
L	0.900	1.200	0.035	0.047