

FEATURES

- Supply Voltage: 4.75V~40V
- Output Range: 1.8V, 3.3V, 3.6V, 5.0V~10V
- Output Accuracy: $\pm 2\%$
- Output Current: 100mA (Up to 500mA Typ.)
- PSRR : 45dB @ 100Hz
- Dropout Voltage : 300mV @ $I_{OUT}=100mA$
- Quiescent Current : $6\mu A @ V_{IN}=7V$ (Typ.)
- Recommend Capacitor : 10uF

DESCRIPTION

The BL9153 series is a high accuracy, high input voltage low quiescent current, high speed, and low dropout Linear regulator with high ripple rejection. The device is manufactured with Bi-CMOS process. The BL9153 offers over-current limit and over temperature protection to ensure the device working in well conditions. The BL9153 regulators are available in standard SOT-89-3L packages. Standard products are Pb-free and Halogen-free.

APPLICATIONS

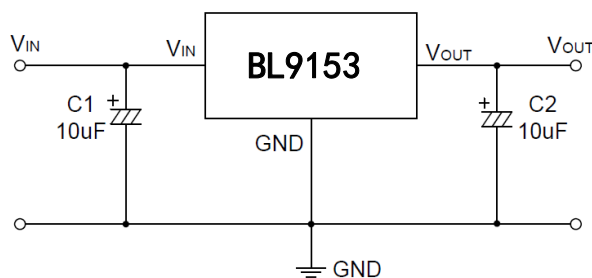
- Smart Meter
- Instrumentation
- Home appliances
- Industrial control
-

ORDERING INFORMATION

Part No.	BL9153-xxCC3TR
Package Type	SOT-89-3L
Tape & Reel	1000pcs/Reel

xx: Output voltage, e.g.
18=1.8V, 33=3.3V, 36=3.6V, 50=5.0V, etc

TYPICAL APPLICATION



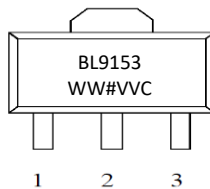
ABSOLUTE MAXIMUM RATING (Ta=25°C)

Parameter Name	Rating	Unit
Power Dissipation	Internal limited	mW
V _{IN} Range	-0.3~45	V
V _{OUT} Range	-0.3~12	V
Lead Temperature Range	260	°C
Storage Temperature Range	-55~150	°C
Operating Junction Temperature Range	125	°C
ESD MM	400	V
ESD HBM	4K	V

RECOMMENDED OPERATING CONDITIONS (Ta=25°C)

Parameter Name	Rating	Unit
Operating Supply voltage	4.75~40	V
Operating Temperature Range	-40~85	°C
Thermal Resistance(On PCB), R _{θJA}	43.5	°C/W
Power Dissipation	1000	mW

BODYING MARKING (SOT89-3L/TOP VIEW)



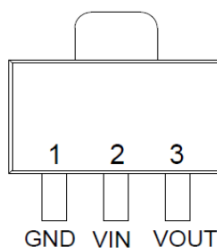
“#”: represents a space;

“WW”: represents the packaging week;

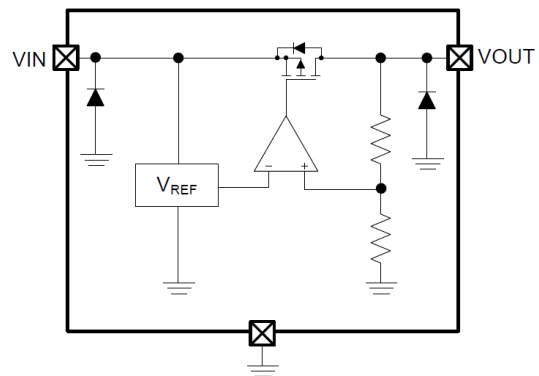
“VV”: represents voltage code,

VV	33	36	50	...
Voltage	3.3V	3.6V	5.0V	...

PIN CONFIGURATION



FUNCTIONAL BLOCK DIAGRAM



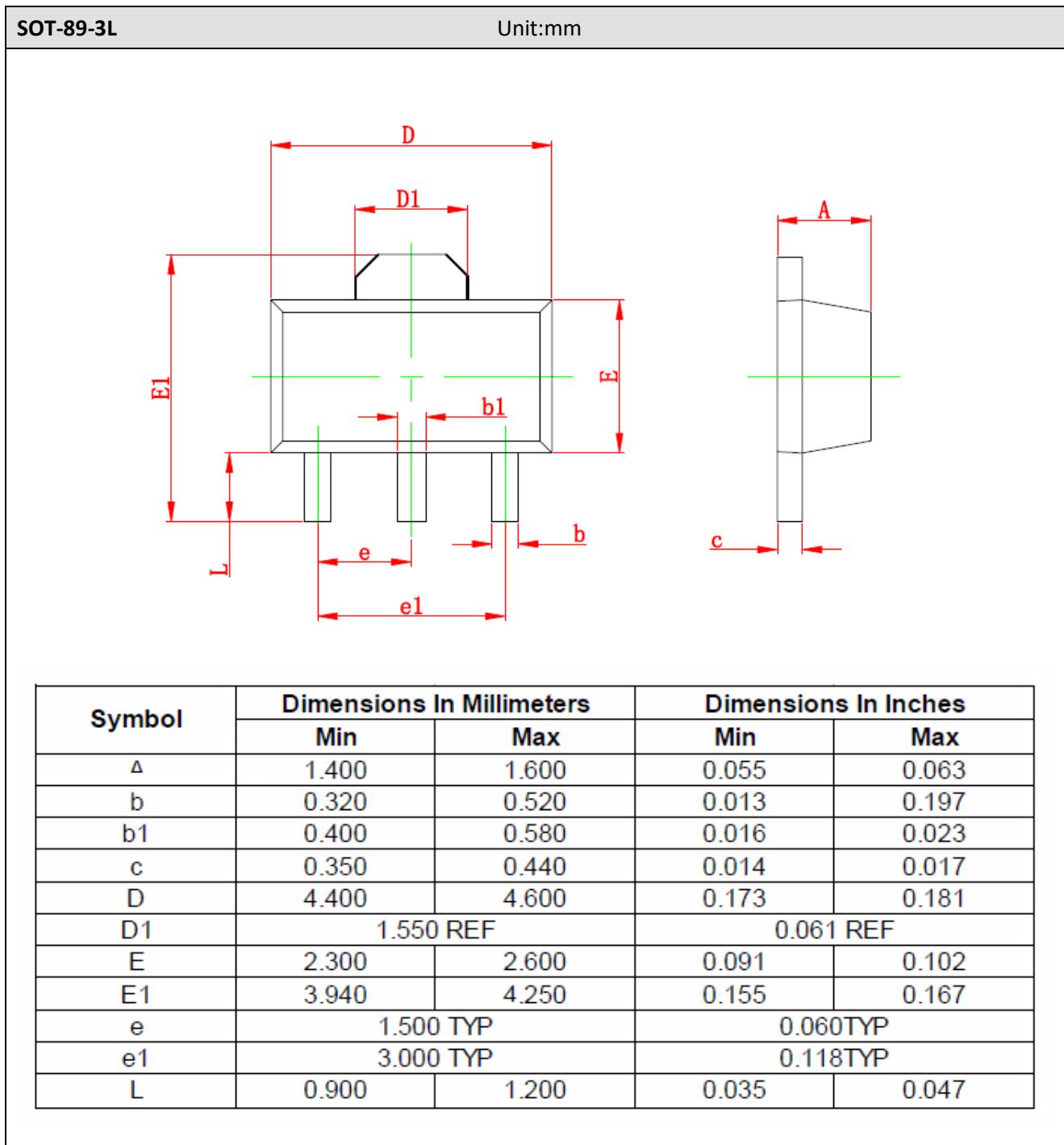
PIN DESCRIPTION

Pin Number	Pin Name	Function Description
1	GND	Ground
2	V _{IN}	Voltage Input
3	V _{OUT}	Voltage Output

ELECTRICAL CHARACTERISTICS ($T_a=25^{\circ}\text{C}$, $V_{IN}=12\text{V}$, $C_{IN}=C_{OUT}=10\mu\text{F}$, unless otherwise noted)

Parameter Name	Symbol	Test Conditions		Min	Typ	Max	Unit
Input Range	V_{IN}	$I_{OUT}=10\text{mA}$		4.75		40	V
Output Voltage	V_{OUT}	$V_{IN}=12\text{V}, I_{OUT}=10\text{mA}$		3.234	3.3	3.366	V
				3.528	3.6	3.672	
				4.9	5.0	5.1	
Maximum Output Current	I_{OUT_PK}	$V_{IN}=12\text{V}, R_L=1\Omega$			500		mA
Quiescent Current	I_Q	$V_{IN}=3.6\text{V}$, No load			5.8	7.8	μA
		$V_{IN}=5.5\text{V}$, No load			5.9	7.9	
		$V_{IN}=7\text{V}$, No load			6	8	
		$V_{IN}=24\text{V}$, No load			7.5	10	
		$V_{IN}=40\text{V}$, No load			10	15	
Dropout Voltage	V_{DROP}	$I_{OUT}=1\text{mA}$			2	12	mV
		$I_{OUT}=100\text{mA}$			300	400	
Line Regulation	LNR	$V_I=7\sim 24\text{V}, V_{OUT}=5\text{V}, I_{OUT}=1\text{mA}$			0.02		%/V
		$V_{IN}=7\sim 45\text{V}, V_{OUT}=5\text{V}, I_{OUT}=1\text{mA}$			0.1		
Load Regulation	LDR	$V_{IN}=12\text{V}, I_{OUT}=1\sim 100\text{mA}$			0.6		%
Output Noise	e_{NO}	$I_{OUT}=10\text{mA}$		-100		100	μV
Ripple Rejection	PSRR	$V_{IN}=10\text{V}$	$f=100\text{Hz}$		50		dB
		$V_{PP}=0.5\text{V}$	$f=1\text{KHz}$		40		
		$I_{OUT}=1\text{mA}$	$f=10\text{KHz}$		30		
Thermal Protection	T_{SD}	$V_{IN}=12\text{V}, I_{OUT}=1\text{mA}$			155		$^{\circ}\text{C}$
Thermal Protection Hys	T_{SD_HYS}	$V_{IN}=12\text{V}, I_{OUT}=1\text{mA}$			30		$^{\circ}\text{C}$
Temperature Coefficient	$\Delta V_o/\Delta T$	$V_{IN}=12\text{V}, I_{OUT}=1\text{mA}$			± 0.4		$\text{mV}/^{\circ}\text{C}$

OUTLINE DIMENSIONS



Storage conditions and packaging

Humidity sensitivity level: MSL 3

Warranty period: two years

Packing method: Tape

Minimum packaging: 1000

Tray information

