

General Description

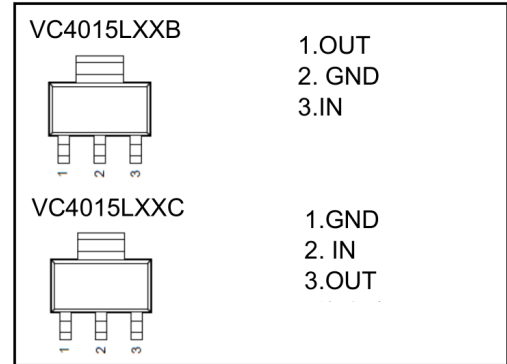
The VC4015LXX series is a high-voltage, low-quiescent-current LDO linear regulator with an input voltage up to 40 V, a quiescent current of 1.6 μ A and a maximum output current of 200 mA. The VC4015LXX delivers fast transient response against input voltage and load current fluctuations, and ensures no voltage overshoot occurs during device startup and short-circuit recovery. Integrated with short-circuit protection, current limiting protection and thermal shutdown protection, the VC4015LXX series offers nine fixed output voltage options: 1.8 V, 2.5 V, 2.8 V, 3.0 V, 3.3 V, 3.6 V, 4.0 V, 4.2 V and 5.0 V.

Feature

- Low quiescent current: 1.6 μ A
- Wide input voltage range: 3 V ~ 40 V
- High output current: 200 mA
- Low dropout voltage: 600 mV @ 100 mA
- Fixed output voltages: 1.8 V, 2.5 V, 2.8 V, 3.0 V, 3.3 V, 3.6 V, 4.0 V, 4.2 V and 5.0 V
- Output voltage accuracy: $\pm 1\%$, $\pm 2\%$
- Integrated current limiting protection
- Integrated thermal protection

Applications

- Battery-powered devices
- Smoke detectors and sensors
- Microcontroller applications
- Household appliances



SOT-89-3L

Part Number	Voltage
VC4015L-15	Vout=1.5V
VC4015L-18	Vout=1.8V
VC4015L-25	Vout=2.5V
VC4015L-33	Vout=3.3V
VC4015L-50	Vout=5.0V
VC4015L-XX	Vout can be trimmed from 1.5V to 5.5V, 0.1V/step

Ordering Information

Part No	Marking	Package	Packing	Reel	Box	Carton
VC4015LXX	4015L	SOT-89	Tape&Ree	10,00 PCS	10,000 PCS	40,000 PCS

Absolute Maximum Ratings

Parameters	Datasheet	Minimum	Maximum	Unit
Voltage	VIN ~GND	-0.3	45	V
	VOUT ~GND	-0.3	16	V
	VIN ~VOUT	-0.3	41	V
Current	Peak Current	Internal Current Limit		
Temperature	Operating Junction Temperature	-40	125	°C
	Storage Temperature	-40	150	°C
θ_{JA}	SOT89-3	130		°C/W
Maximum Power Dissipation	SOT89-3	900		mW

Note: Exceeding the specified range of rated parameters may damage the chip, and its operating performance cannot be guaranteed under such conditions. Exposure to operating conditions beyond the rated parameters will impair the reliability of the chip.

ESD Parameters

Parameters	Description	Parameter Range	Units
V_{ESD}	HBM	4	KV
	CDM	2	KV

Note: Exceeding the specified absolute maximum ratings may result in permanent damage to the device. Operation outside the rated parameter range is not guaranteed. Exposure to conditions beyond the rated specifications will degrade device reliability.

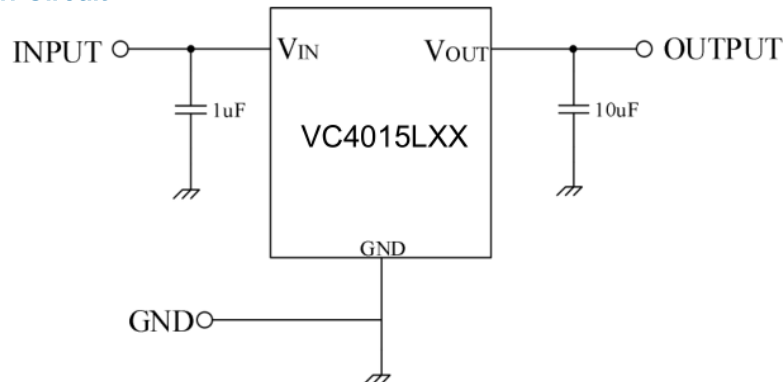
Electrical Parameters

(Unless otherwise specified, all parameters below are measured at $T_A=25^{\circ}\text{C}$, $C_{IN}=1\mu\text{F}$, $V_{IN}=V_{OUTNOM}+1\text{V}$, $C_{OUT}=10\mu\text{F}$ test conditions)

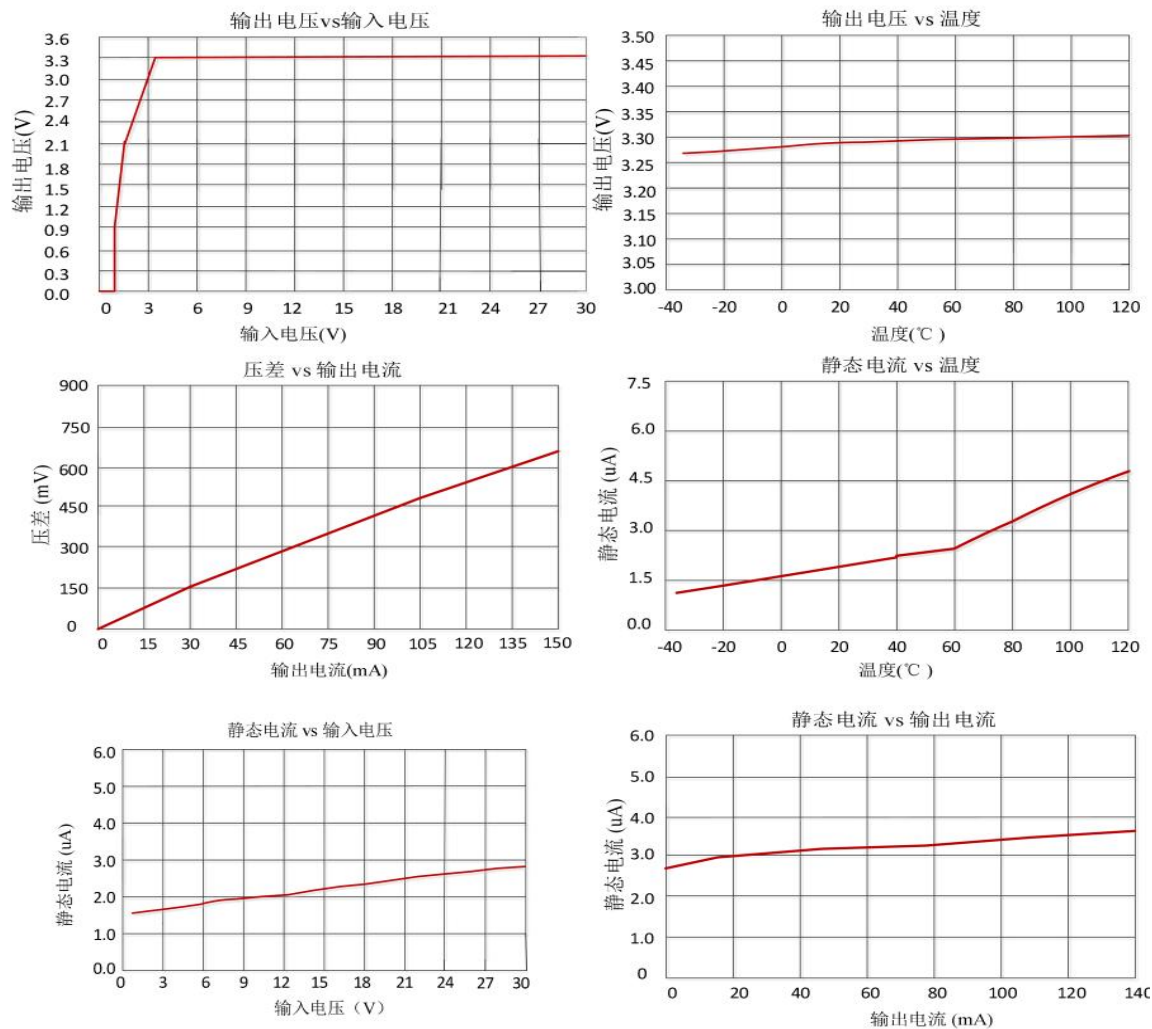
Parameters	Symbol	Test Conditions	Minimum	Typical	Maximum	Unit
Input Voltage	V_{IN}		3	—	40	V
Quiescent Current	I_{GND}	$V_{IN}=12\text{V}$, No load	1.3	1.6	1.8	μA
Output Voltage	V_{OUT}	$V_{IN}=12\text{V}$, $I_{OUT}=10\text{mA}$	$V_{OUTNOM} * 0.98$	V_{OUTNOM}	$V_{OUTNOM} * 1.02$	V
Output Current	I_{OUT_MAX}		—	200	—	mA
Dropout Voltage (52L33B)	V_{DROP}	$I_{OUT}=100\text{mA}$, $V_{IN}=V_{OUTNOM}-0.1\text{V}$	—	600	—	mA
		$I_{OUT}=150\text{mA}$, $V_{IN}=V_{OUTNOM}-0.1\text{V}$	—	1000	—	
Voltage Difference (52L50B)		$I_{OUT}=100\text{mA}$, $V_{IN}=V_{OUTNOM}-0.1\text{V}$	—	400	—	mA
		$I_{OUT}=150\text{mA}$, $V_{IN}=V_{OUTNOM}-0.1\text{V}$	—	700	—	
Load Regulation	$\Delta V_{OUT}/\Delta I_{OUT}$	$V_{IN}=7\text{V}$, $1\text{mA} \leq I_{OUT} \leq 150\text{mA}$	—	0.1	—	mV/mA
Line Regulation	$\Delta V_{OUT}/\Delta V_{IN}$	$I_{OUT}=1\text{mA}$, $V_{OUTNOM}+1\text{V} \leq V_{IN} \leq 30\text{V}$	—	0.1	—	mV/V
Current Limit	I_{LIMIT}		—	370	—	mA
Short Circuit Current	I_{SHORT}	Short-circuit Current to GND	—	120	—	mA
Over Temperature Protection	T_{SHDN}	Temperature Rise, OTP Trip Temperature	—	154	—	$^{\circ}\text{C}$
		OTP Recovery Temperature (Temperature Falling)	—	125	—	

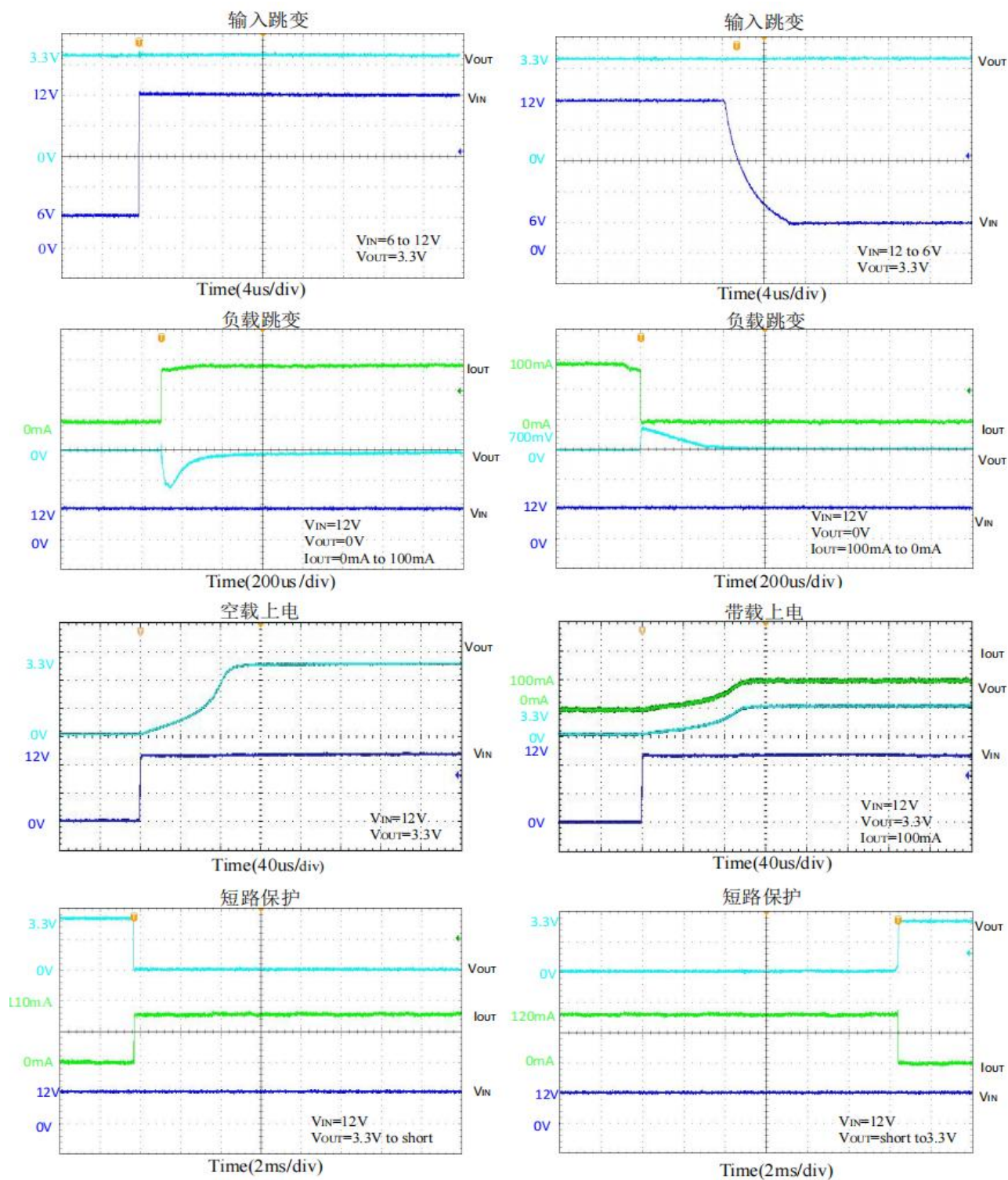
(1) Dropout voltage is the voltage difference between input and output, at which the output voltage drops by 2% from its nominal value.

Typical Application Circuit

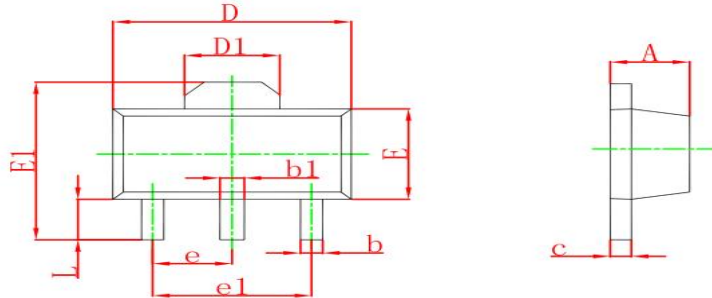


Typical Performance Characteristics (Unless otherwise specified, all parameters below are measured at $T_A=25^{\circ}\text{C}$, $C_{IN}=1\mu\text{F}$, $V_{IN}=V_{OUTNOM}+1\text{V}$, $C_{OUT}=10\mu\text{F}$, $V_{out}=3.3\text{V}$ test conditions)



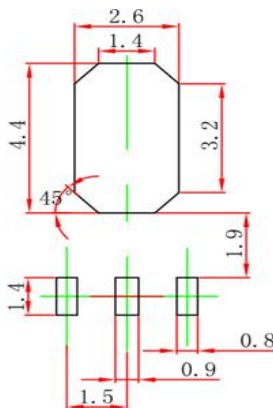


Package Outline Dimensions



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	0.020
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

Suggested Pad Layout



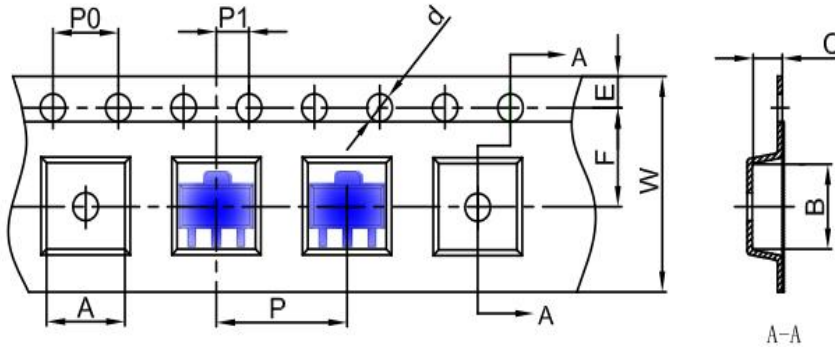
Note: 1.The Pad Layout is for reference purposes only.
2.All Dimensions are in mm.
3.General tolerance:±0.05 mm.

Notice

VC reserves the right to make changes, corrections, enhancements, modifications, and improvements to products and/or to this document at any time without notice. Does not assume any liability arising out of the application or use of any product described herein.

SOT-89-3L Tape and Reel

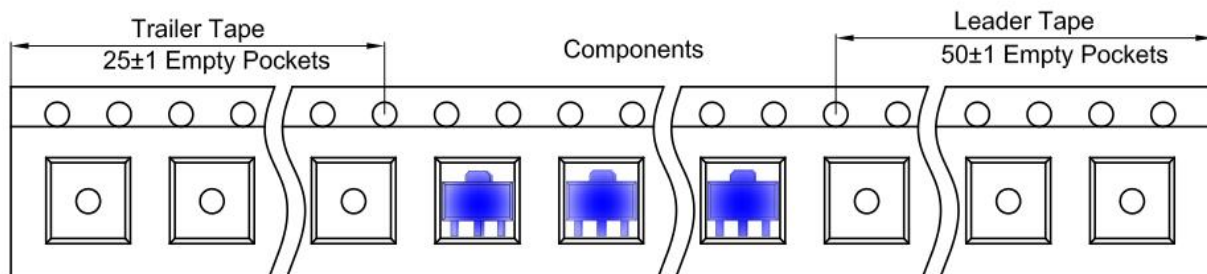
SOT-89-3L Embossed Carrier Tape



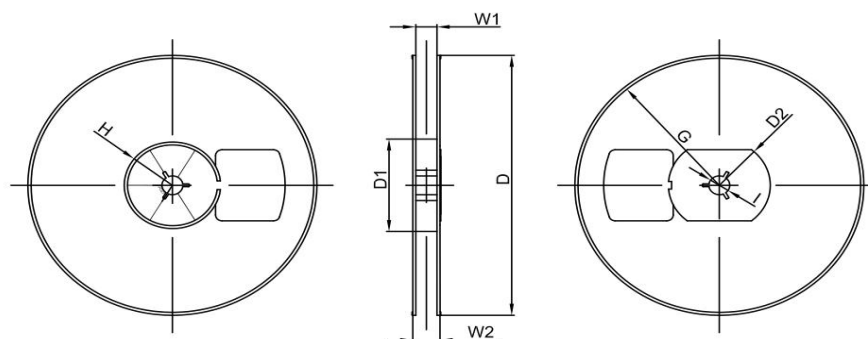
Packaging Description:
SOT-89-3L parts are shipped in tape. The carrier tape is made from a dissipative (carbon filled) polycarbonate resin. The cover tape is a multilayer film (Heat Activated Adhesive in nature) primarily composed of polyester film, adhesive layer, sealant, and anti-static sprayed agent. These reeled parts in standard option are shipped with 1,000 units per 7" or 18.0cm diameter reel. The reels are clear in color and is made of polystyrene plastic (anti-static coated).

Dimensions are in millimeter										
Pkg type	A	B	C	d	E	F	P0	P	P1	W
SOT-89-3L	4.85	4.45	1.85	Ø1.50	1.75	5.50	4.00	8.00	2.00	12.00

SOT-89-3L Tape Leader and Trailer



SOT-89-3L Reel



Dimensions are in millimeter								
Reel Option	D	D1	D2	G	H	I	W1	W2
7" Dia	Ø180.00	60.00	R32.00	R86.50	R30.00	Ø13.00	13.20	16.50

REEL	Reel Size	Box	Box Size(mm)	Carton	Carton Size(mm)	G.W.(kg)
1000 pcs	7 inch	10,000 pcs	203×203×195	40,000 pcs	438×438×220	