GENERATION DESCRIPTION

The LW55XX Series is a 40V μA-power high accuracy LDO regulator. The μA-power consumption makes it ideal for most HV power-saving systems. The maximum operating voltage can be as high as 40V. The output accuracy is as excellent as ±1.0%.

The other features include low dropout voltage, current limiting protection and thermal shutdown protection.

The LW55XX Series is available in SOT23-3L, SOT23-5, SOT89-3 and TO-252 packages.

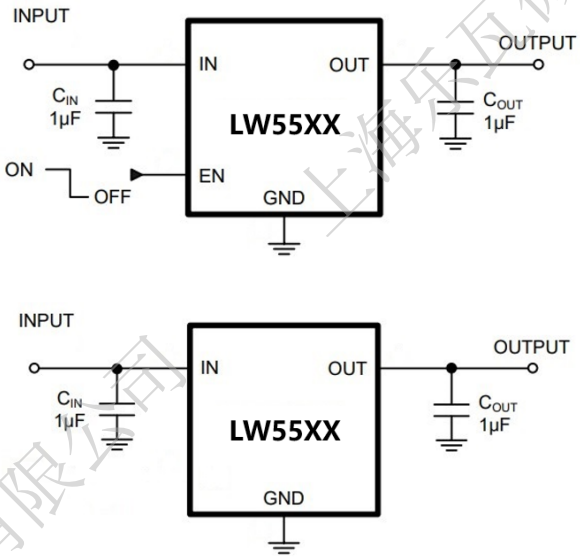
FEATURES

- Maximum Operating Voltage: 40V
- Output Voltage: 1.8V, 2.5V, 3.0V, 3.3V, 3.6V, 4.0V, 4.2V and 5.0V
- Output Accuracy: ±1.0%
- Low Power Consumption: 1.3μA
- Low Standby Current When Shutdown
- Low Temperature Coefficient
- Current Limiting, Thermal Shutdown
- Available in SOT23-3L, SOT23-5, SOT89-3 and TO-252 Packages

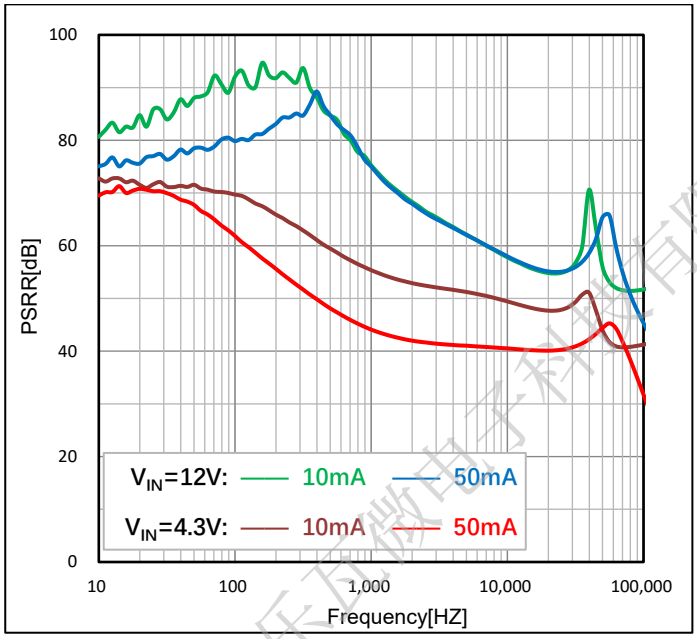
APPLICATIONS

- Battery Supplied Systems
- Telecom Systems
- Audio & Video Devices

TYPICAL APPLICATION CIRCUIT



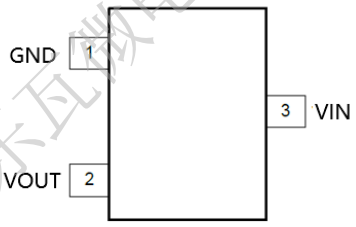
TYPICAL PERFORMANCE CHARACTERISTCS



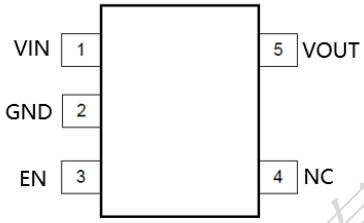
■ PIN DESCRIPTION

PIN No						SYMBOL	DESCRIPTTION
SOT23-3L	SOT23-5A	SOT23-5B	SOT89-3A	SOT89-3B	TO-252		
1	2	1	1	2	2	GND	Ground
2	5	3	3	1	3	VOUT	Output
3	1	2	2	3	1	VIN	Power Supply Input
-	3	-	-	-	-	EN	Chip Enable
-	4	4,5	-	-	-	NC	Not Connected

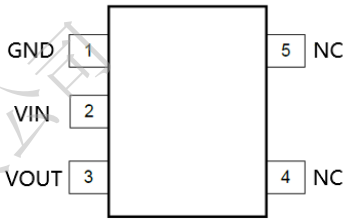
■ PIN ASSIGNMENT



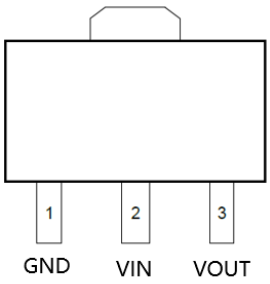
SOT23-3L



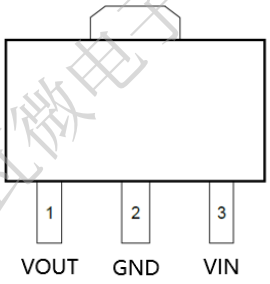
SOT23-5A



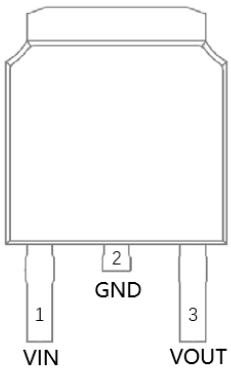
SOT23-5B



SOT89-3A



SOT89-3B



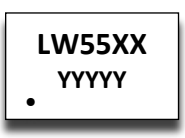
TO-252

■ MARK INFORMATION:

SOT23-3L, SOT23-5, SOT89-3, TO-252

XX: VOLTAGE

YY: DATE CODE



■ ABSOLUTE MAXIMUM RATINGS (1)

(T_A =25℃, unless otherwise specified.)

Symbol	Item		Rating	Unit
V_{IN}	Supply Voltage		-0.3~44	V
V_{EN}	EN pin to GND Voltage		-0.3~44	V
V_{OUT}	VOUT pin Voltage		-0.3~6.0	V
$V_{(ESD)}$	ESD Susceptibility, Human-body model(2)		+/-2000	V
P_D	Maximum Power Dissipation	SOT23-3L	0.4	W
		SOT23-5	0.6	W
		SOT89-3	1.2	W
		TO-252	2.3	W
$R_{\theta JA}$	Junction-to-ambient Thermal Resistance	SOT23-3L	312	℃/W
		SOT23-5	208	℃/W
		SOT89-3	104	℃/W
		TO-252	55	℃/W
T_J	Junction Temperature Range		-40~150	℃
T_{STG}	Storage Temperature Range		-40~150	℃
T_{SOLDER}	Lead Temperature (Soldering)		260℃, 10s	

Note:

1. Absolute Maximum Ratings are threshold limit values that must not be exceeded even for an instant under any condition. Moreover, such values for any two items must not be reached simultaneously. Operation above these absolute maximum ratings may cause degradation or permanent damage to the device. These are stress ratings only and do not necessarily imply functional operation below these limits.

2. per ANSI/ESDA/JEDEC JS-001

■ RECOMMANDED OPERATING RANGE:

Symbol	Item	Rating	Unit
V_{IN}	VIN Supply Voltage	2.5~40	V
V_{EN}	EN Pin Voltage	0~40	V
V_{OUT}	VOUT pin Voltage	1.8~5.0	V
I_{OUT}	Output Current	0~150	mA
T_J	Junction Temperature Range	-40~125	℃

■ ELECTRICAL CHARACTERISTICS

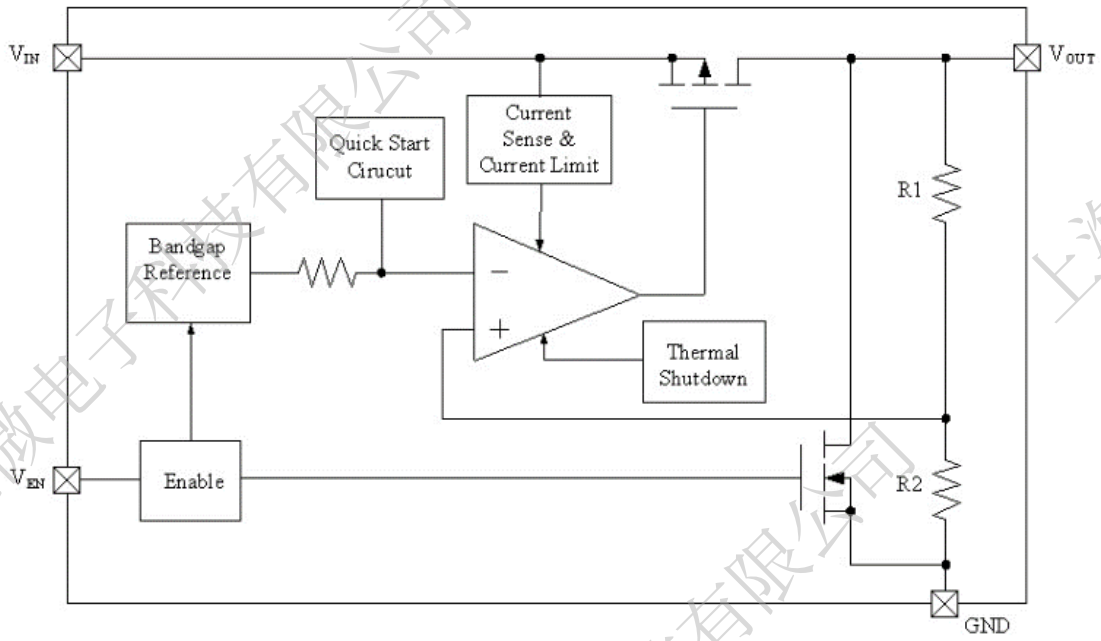
(V_{IN}=V_{OUT}+1V, V_{OUT} =3.3V, C_{IN}= C_{OUT}=1uF, T_A =25℃, unless otherwise specified.)

Symbol	Parameter	Conditions	MIN	TYP	MAX	Unit
V_{IN}	Input Voltage		2.5		40	V
V_{OUT}	Output Voltage	I_{OUT}=1mA	-1.0		+1.0	%
I_{LIM}	Current Limit(1)	V_{IN}=5.0V, V_{OUT} =3.3V	150	250		mA
I_Q	Quiescent Current	V_{IN}=V_{OUT}+1V, No Load		1.3	2.0	μA
I_{SHD}	Shutdown Current	V_{IN}=12V, V_{EN}=0V		0.1	1.0	μA
V_{DROP}	Dropout Voltage(2)	I_{OUT}=10mA, V_{OUT}=3.3V		70		mV
		I_{OUT}=50mA, V_{OUT}=3.3V		350		mV
		I_{OUT}=100mA, V_{OUT}=3.3V		700		mV
		I_{OUT}=150mA, V_{OUT}=3.3V		1000		mV
S_{LINE}	Line Regulation	V_{IN}=V_{OUT}+1V to 40V, I_{OUT}=1mA		0.02	0.03	%/V
S_{LOAD}	Load Regulation	1mA≤I_{OUT}≤100mA		25	50	mV
I_{SHORT}	Short Current	V_{OUT}=0V		90		mA
V_{ENH}	EN High Voltage	V_{IN}=12V, I_{OUT} =1mA	1.5			V
V_{ENL}	EN Low Voltage				0.4	V
I_{ENH}	EN High Current	V_{IN}=12V		0	0.1	μA
I_{ENL}	EN Low Current	V_{IN}=12V, V_{EN}=0V		0	0.1	μA
PSRR	Power Supply Rejection Ratio	C_{IN} =None, f=1KHz, I_{OUT}=10mA, V_{IN}=4.3V		55		dB
		C_{IN} =None, f=1KHz, I_{OUT}=10mA, V_{IN}=12V		75		dB
T_{SD}	Thermal Shut Down	Temperature rising		165		℃
△T_{SD}	TSD Hysteresis	Temperature falling		20		℃

Note:

1. Guaranteed by design
2. The dropout voltage is defined as V_{IN} - V_{OUT}, when V_{OUT} =95%*$V_{OUT(NOM)}$

■ SIMPLIFIED BLOCK DIAGRAM:



■ DETAIL OPERATION DESCRIPTION:

The LW55XX Series is a high PSRR, low drop-out HV voltage regulator. It consists of a current limiter circuit, a driver transistor, a precision voltage reference and an error correction circuit, and is compatible with low ESR ceramic capacitors. The current limiter's fold-back circuit operates as a short circuit protection as well as the output current limiter.

Current Limiting and Short-Circuit Protection

The current limit circuitry prevents damage to the MOSFET switch and the hub downstream port but can deliver load current up to the current limit threshold through the switch. When a heavy load or short circuit is applied to an enabled switch, a large transient current may flow until the current limit circuitry responds. Once this current limit threshold is exceeded the device enters constant current mode until the thermal shutdown occurs or the fault is removed.

TYPICAL OPERATING CHARACTERISTICS

（Tested under V_{IN}=V_{OUT}+1V, V_{OUT} =3.3V, C_{IN}= C_{OUT}=1uF, T_A =25℃,unless otherwise specified）

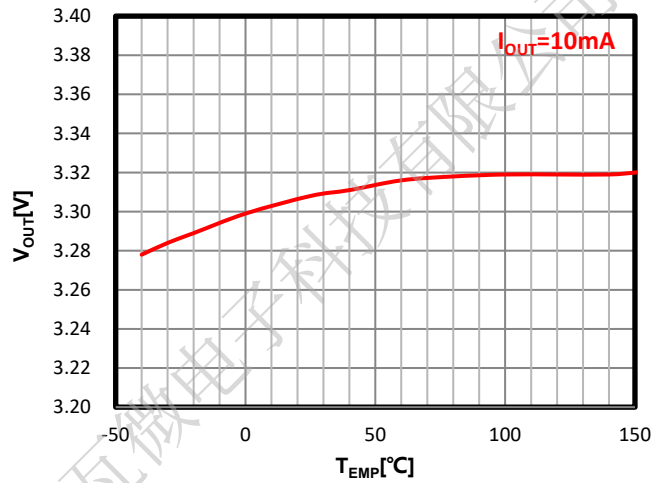


Figure 1. V_{OUT} vs Temperature

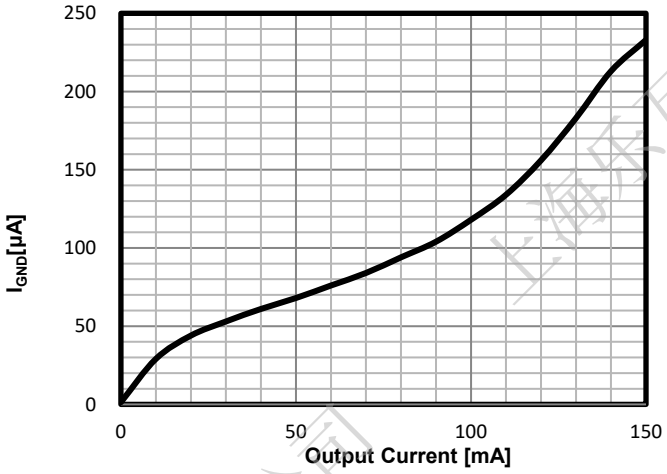


Figure 2. Ground Current vs Output Current

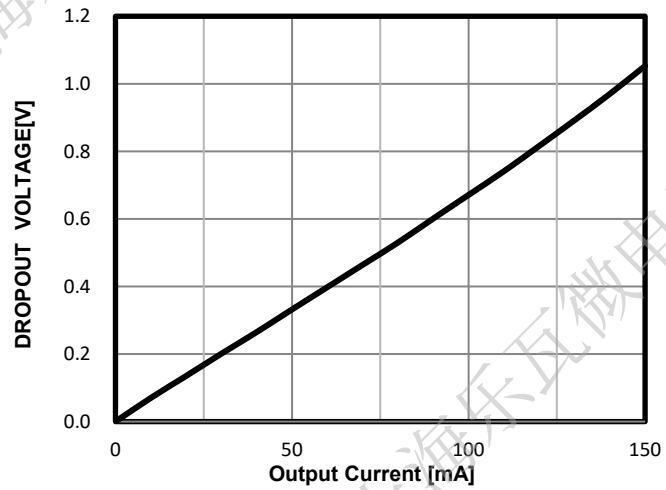


Figure 3. Dropout Voltage vs Output Current

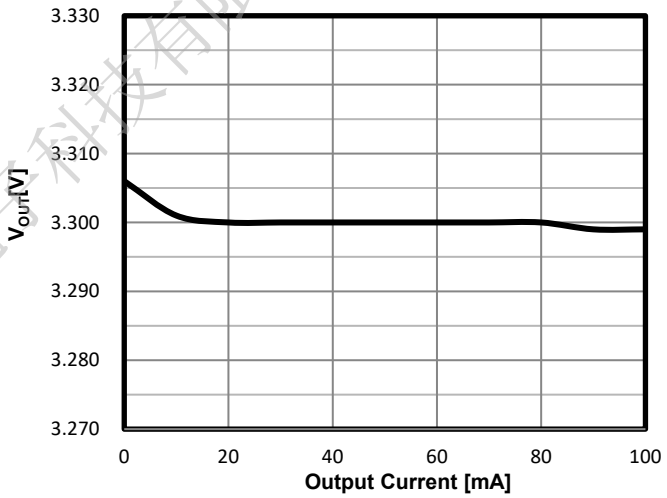


Figure 4. Load Regulation vs Output Current

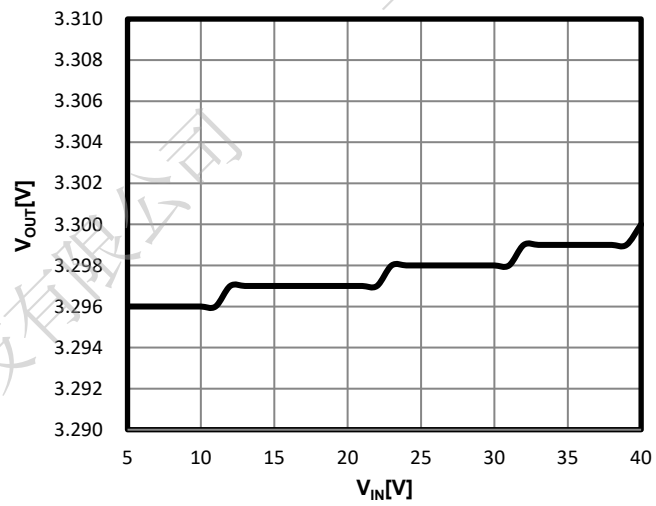


Figure 5. Line Regulation vs V_{IN}

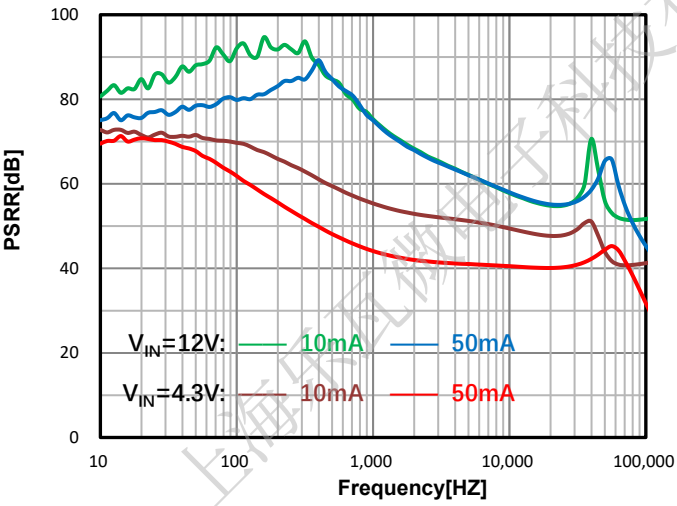
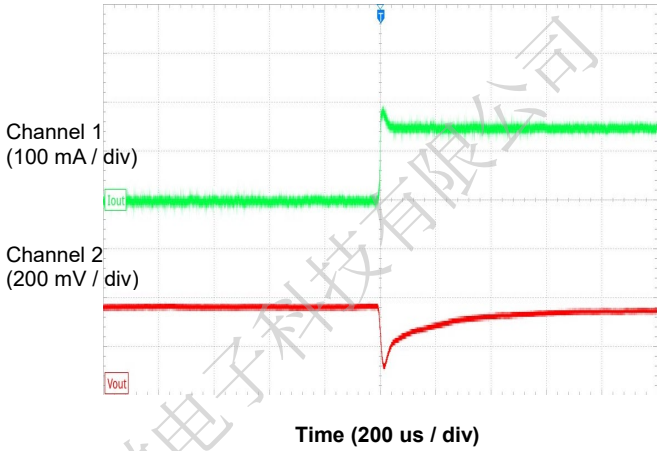
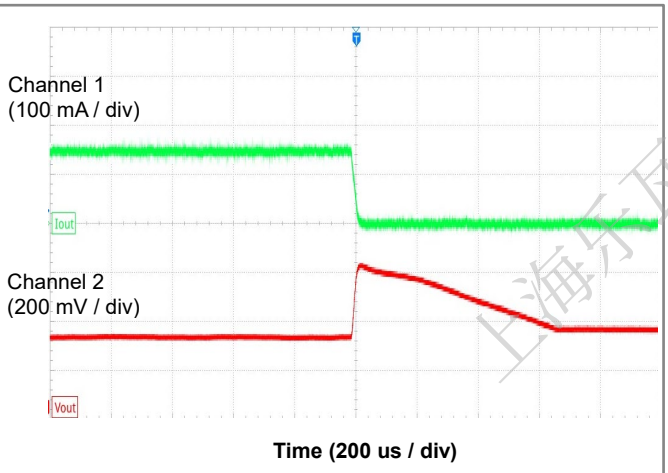


Figure 6. PSRR vs Frequency



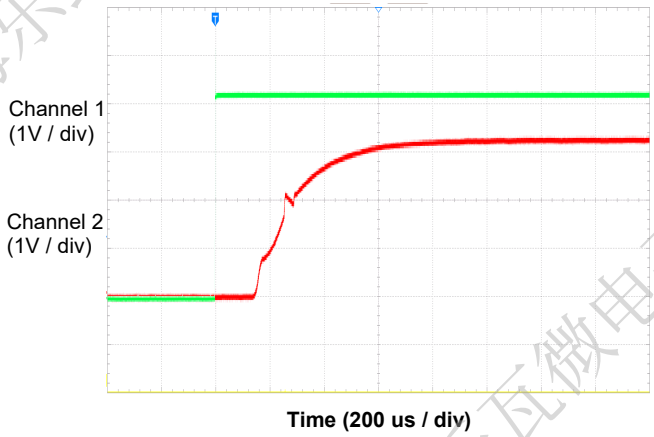
Channel 1 = I_{OUT}, channel 2 =V_{OUT}, V_{IN} = 4.3 V

Figure 7. Load Transient (1 mA to 150 mA)



Channel 1 = I_{OUT}, channel 2 =V_{OUT}, V_{IN} = 4.3 V

Figure 8. Load Transient (150 mA to 1 mA)



Channel 1 = En, channel 2 =V_{OUT}, V_{IN} = 4.3 V, I_{OUT}=10mA

Figure 9. Power-Up with Enable

■ ORDER INFORMATION

LW55①②③④⑤⑥

Designator	Item	Symbol	Description
①②	Output Voltage	18~50	e.g.2.8V→①=2,②=8
③④⑤⑥	Packages	A23D	SOT23-3L
		A23E	SOT23-5A
		B23E	SOT23-5B
		A89C	SOT89-3A
		B89C	SOT89-3B
		A52B	TO-252

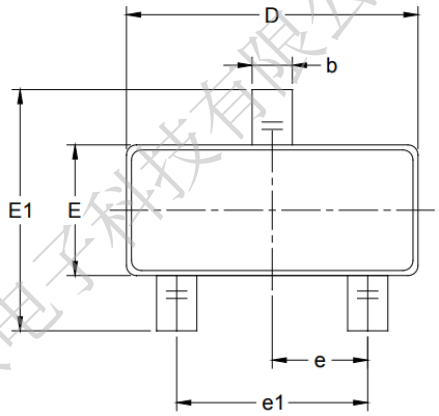
Part #	Output Voltage	Package	Shipping
LW5518A23D	1.8V	SOT23-3L	3000 Pcs / Tape & Reel
LW5525A23D	2.5V		
LW5530A23D	3.0V		
LW5533A23D	3.3V		
LW5536A23D	3.6V		
LW5540A23D	4.0V		
LW5542A23D	4.2V		
LW5550A23D	5.0V		
LW5518A23E	1.8V	SOT23-5A	3000 Pcs / Tape & Reel
LW5525A23E	2.5V		
LW5530A23E	3.0V		
LW5533A23E	3.3V		
LW5536A23E	3.6V		
LW5540A23E	4.0V		
LW5542A23E	4.2V		
LW5550A23E	5.0V		
LW5518B23E	1.8V	SOT23-5B	3000 Pcs / Tape & Reel
LW5525B23E	2.5V		
LW5530B23E	3.0V		
LW5533B23E	3.3V		
LW5536B23E	3.6V		
LW5540B23E	4.0V		
LW5542B23E	4.2V		
LW5550B23E	5.0V		

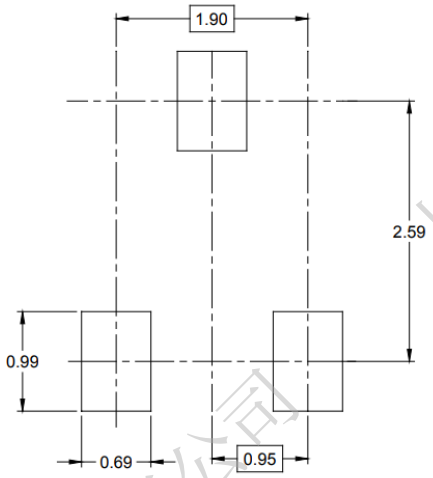
Part #	Output Voltage	Package	Shipping
LW5518A89C	1.8V	SOT89-3A	1000 Pcs / Tape & Reel
LW5525A89C	2.5V		
LW5530A89C	3.0V		
LW5533A89C	3.3V		
LW5536A89C	3.6V		
LW5540A89C	4.0V		
LW5542A89C	4.2V		
LW5550A89C	5.0V		
LW5518B89C	1.8V	SOT89-3B	1000 Pcs / Tape & Reel
LW5525B89C	2.5V		
LW5530B89C	3.0V		
LW5533B89C	3.3V		
LW5536B89C	3.6V		
LW5540B89C	4.0V		
LW5542B89C	4.2V		
LW5550B89C	5.0V		
LW5518A52B	1.8V	TO-252	2500 Pcs / Tape & Reel
LW5525A52B	2.5V		
LW5530A52B	3.0V		
LW5533A52B	3.3V		
LW5536A52B	3.6V		
LW5540A52B	4.0V		
LW5542A52B	4.2V		
LW5550A52B	5.0V		

If customers have special output voltage requirements, please contact us.

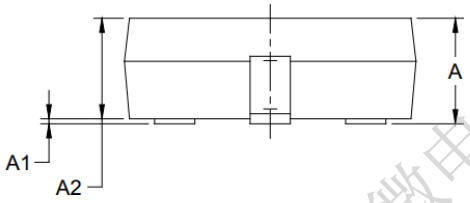
■ PACKAGE OUTLINE

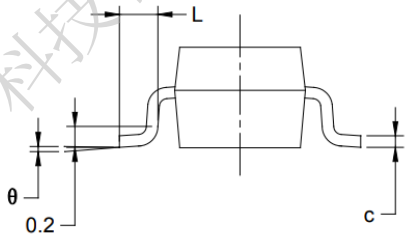
3-Pin SOT23-3L Package





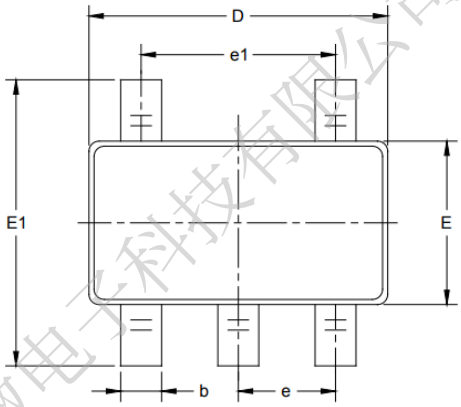
RECOMMENDED LAND PATTERN (Unit: mm)

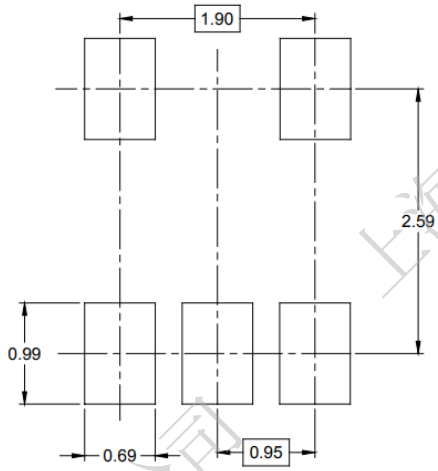




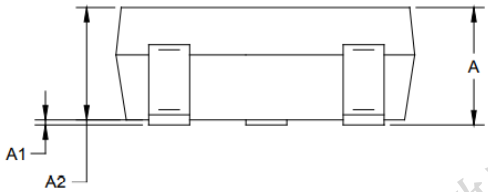
Symbol	Dimensions In Millimeters		Dimensions In Inches	
	MIN	MAX	MIN	MAX
A	1.050	1.250	0.041	0.049
A1	0.000	0.100	0.000	0.004
A2	1.050	1.150	0.041	0.045
b	0.300	0.500	0.012	0.020
c	0.100	0.200	0.004	0.008
D	2.820	3.020	0.111	0.119
E	1.500	1.700	0.059	0.067
E1	2.650	2.950	0.104	0.116
e	0.950 BSC		0.037 BSC	
e1	1.900 BSC		0.075 BSC	
L	0.300	0.600	0.012	0.024
θ	0°	8°	0°	8°

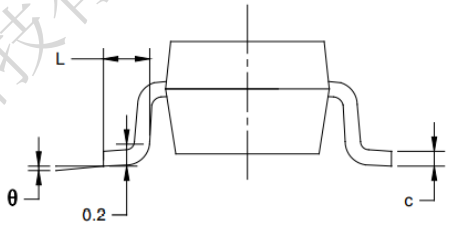
5-Pin SOT23-5 Package





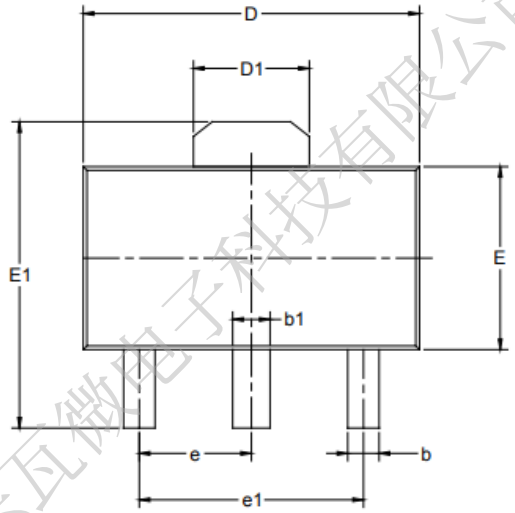
RECOMMENDED LAND PATTERN (Unit: mm)

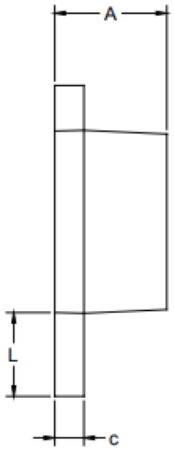


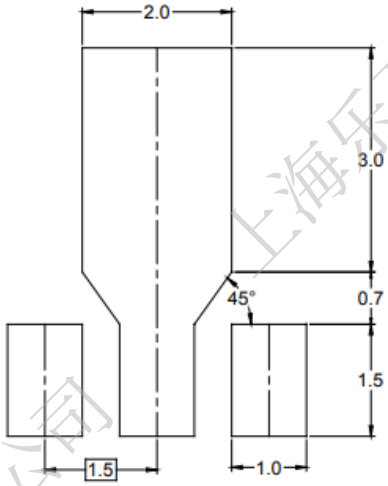


Symbol	Dimensions In Millimeters		Dimensions In Inches	
	MIN	MAX	MIN	MAX
A	1.050	1.250	0.041	0.049
A1	0.000	0.100	0.000	0.004
A2	1.050	1.150	0.041	0.045
b	0.300	0.500	0.012	0.020
c	0.100	0.200	0.004	0.008
D	2.820	3.020	0.111	0.119
E	1.500	1.700	0.059	0.067
E1	2.650	2.950	0.104	0.116
e	0.950 BSC		0.037 BSC	
e1	1.900 BSC		0.075 BSC	
L	0.300	0.600	0.012	0.024
θ	0°	8°	0°	8°

3-Pin SOT89-3 Package



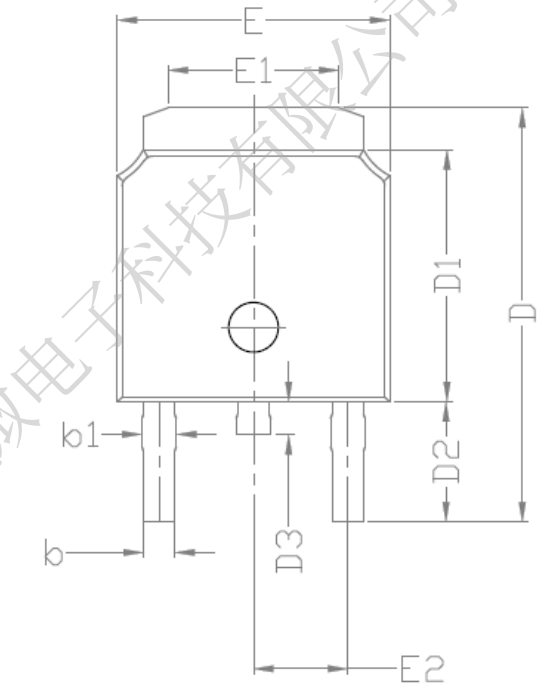


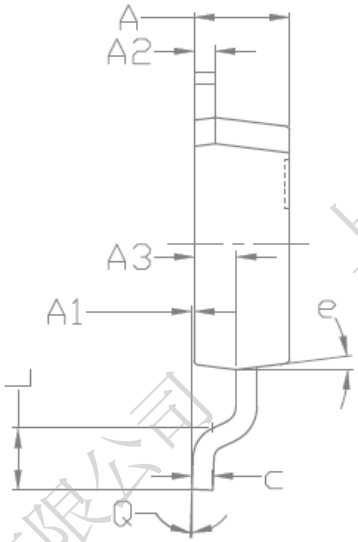


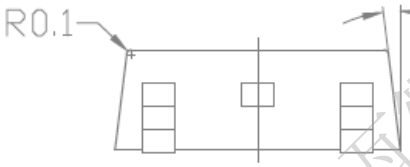
RECOMMENDED LAND PATTERN (Unit: mm)

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

3-Pin TO-252 Package







Symbol	MIN	MON	MAX
A	2.250	2.300	2.400
A1	0.010	0.060	0.150
A2	0.500	0.508	0.550
A3	0.960	1.010	1.060
b	0.740	0.760	0.800
b1	0.880	0.900	0.950
c	0.500	0.508	0.550
D	9.800	10.025	10.350
D1	6.050	6.100	6.180
D2	2.850	2.900	2.950
D3	0.700	0.800	2.900
E	6.550	6.600	6.700
E1	4.050	4.130	4.200
E2	2.250	2.286	2.300
L	1.400	1.500	1.600
e		7	
Q	0°	2°	5°

■ DISCLAIMER:

The information in this document is believed to be accurate and reliable. However, no responsibility is assumed by LW-Micro for its use. All operating parameters must be designed, validated and tested to ensure they meet the requirements of your application. LW-Micro reserves the right to make any specification and/or circuitry changes without prior notification. Before starting a brand-new project, please contact LW-Micro Sales to get the most recent relevant information.

Mailing Address: Room 301, Building 2, No.1690 CaiLun Road, China (Shanghai) Pilot Free Trade Zone
Shanghai Lewa Micro-electronics Technology Co., Ltd

X-ON Electronics

Largest Supplier of Electrical and Electronic Components

Click to view similar products for LDO Voltage Regulators ***category:***

Click to view products by Lewa Micro ***manufacturer:***

Other Similar products are found below :

AP7363-SP-13 NCV8664CST33T3G L79M05TL-E AP7362-HA-7 PT7M8202B12TA5EX TCR3DF185,LM(CT TLF4949EJ NCP4687DH15T1G NCV8703MX30TCG LP2951CN NCV4269CPD50R2G AP7315-25W5-7 NCV47411PAAJR2G AP2111H-1.2TRG1 ZLDO1117QK50TC AZ1117ID-ADJTRG1 NCV4263-2CPD50R2G NCP114BMX075TCG MC33269T-3.5G TLE4471GXT AP7315-33SA-7 NCV4266-2CST33T3G NCP715SQ15T2G NCV8623MN-50R2G NCV563SQ18T1G NCV8664CDT33RKG NCV4299CD250R2G NCP715MX30TBG NCV8702MX25TCG L974113TR TLE7270-2E NCV562SQ25T1G AP2213D-3.3TRG1 AP2202K-2.6TRE1 NCV8170BMX300TCG NCV8152MX300180TCG NCP700CMT45TBG AP7315-33W5-7 LD56100DPU28R NCP154MX180300TAG AP2210K-3.0TRE1 AP2113AMTR-G1 NJW4104U2-33A-TE1 MP2013AGG-5-P NCV8775CDT50RKG NJM2878F3-45-TE1 S-19214B00A-V5T2U7 S-19214B50A-V5T2U7 S-19213B50A-V5T2U7 S-19214BC0A-E8T1U7*1