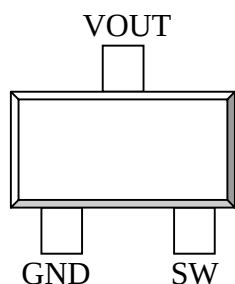
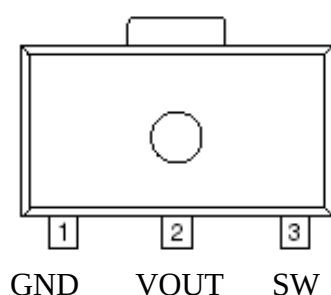


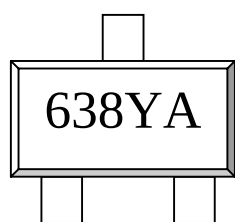
Step-Up DC/DC Converter**ST1638****High Efficiency PFM****DESCRIPTION**

The ST1638 is a high efficiency PFM step-up DC/DC converter for application using battery powered devices. Only three external components are required to construct a low ripple, high efficiency converter. ST1638 can start up from 0.9V input voltage with 1mA load.

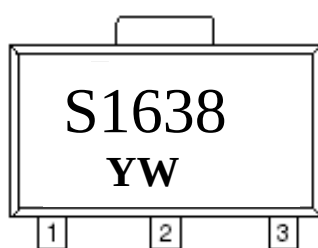
The space saving SOT-89 and SOT-23 packages make ST1638 an ideal choice for space conscious applications.

PIN CONFIGURATION**SOT-23-3L****SOT-89****APPLICATIONS**

- Battery Powered Devices
- Camera
- PDA
- Hand Held Communication Equipment
- Camcorder
- Power Source for Applications which Require Higher Voltage than Batteries can Provide

PART MARKING**SOT-23-3L**

Y : Year
A : Day Code

SOP-89

Y : Year
A : Day Code

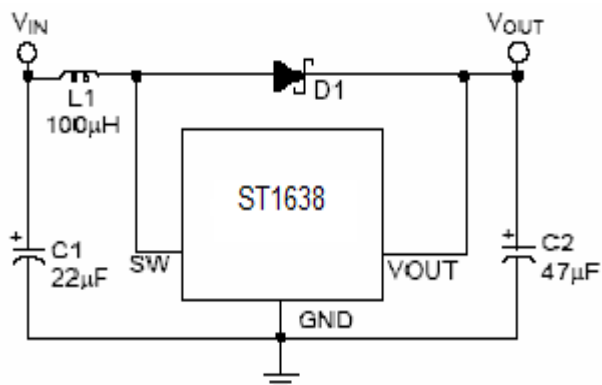
FEATURES

- Larger than 85% Efficiency
- Low Startup Voltage, 0.9V at 1mA
- Low Ripple and Low Noise
- Low Quiescent Current
- Minimum Number of External Components
- SOT-89 and SOT-23 Small Package

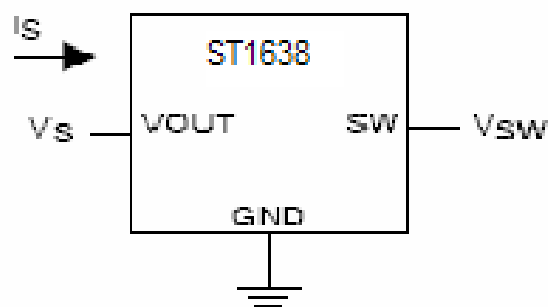
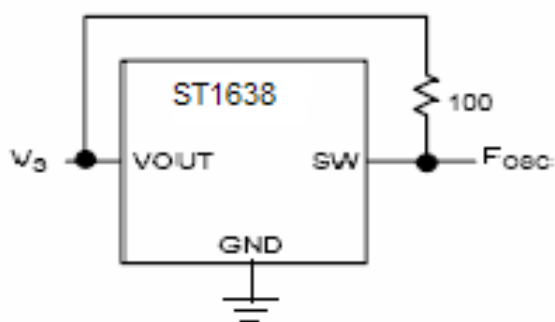
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120 Bentley Square, Mountain View, Ca 94040 USA
TEL: (650) 9389294 FAX: (650) 9389295

TYPICAL APPLICATION CIRCUIT



TEST CIRCUITS



PIN DESCRIPTION

Pin	Symbol	Description
1	GND	Ground
2	VOUT	Output Voltage
3	SW	Switch Voltage

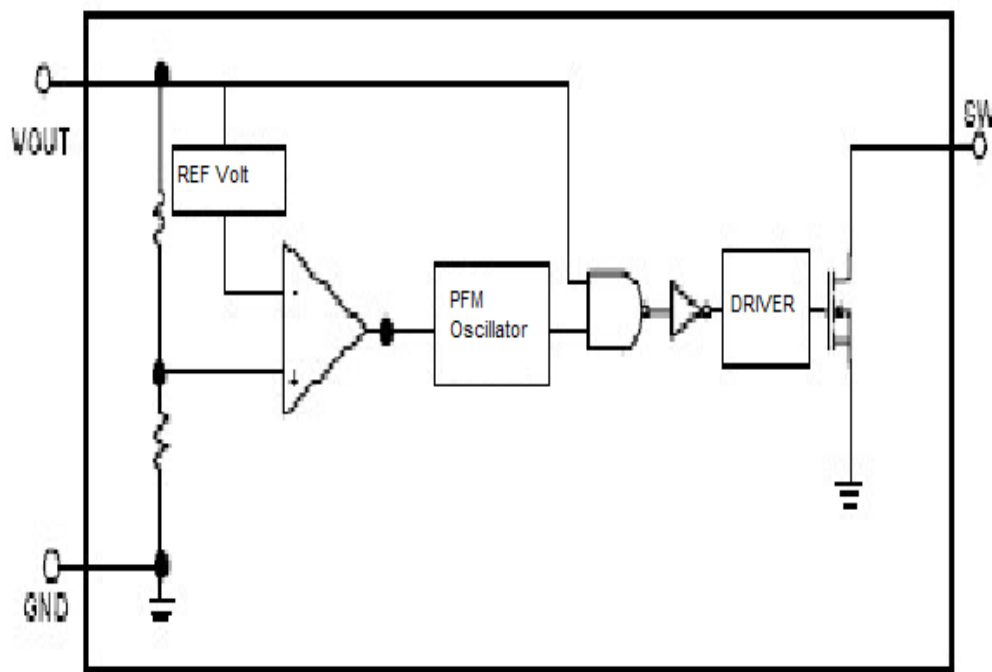


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BLOCK DIAGRAM



ORDERING INFORMATION

Part Number	Package	Part Marking
ST1638-XXS89	SOT-89	ST1638
ST1638-XXS23	SOT-23	1638

※ XX: Output Voltage Tape Reel; Pb – Fr

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High Efficiency PFM**ABSOLUTE MAXIMUM RATINGS** (Ta=25°C, unless otherwise specified.)

The following ratings designate persistent limits beyond which damage to the device may occur.

Symbol	Parameter		Value	Unit
V _{OUT}	DC Supply Voltage		6	V
V _{SW}	SW Pin Voltage		6	V
I _{SW}	Switching Current		0.6	A
P _d	Power Dissipation @ Ta=25°C* SOT-89 SOT-23		0.5 0.25	W
P _j	Operating Junction Temperature Range		-40 to 85	°C
T _{stg}	Storage Temperature Range		-65 to 150	°C
T _{lead}	Lead Soldering Temperature for 10 sec	SOT-89	260	°C
		SOT-23	220	
R _{θjc}	Thermal Resistance Junction-Case(*)	SOT-89	100	°C/W
		SOT-23	95	

(*)The power dissipation and thermal resistance are evaluated under copper board mounted with free air conditions.

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ELECTRICAL CHARACTERISTICS (Ta=25°C, Vcc=15V, unless otherwise specified.)

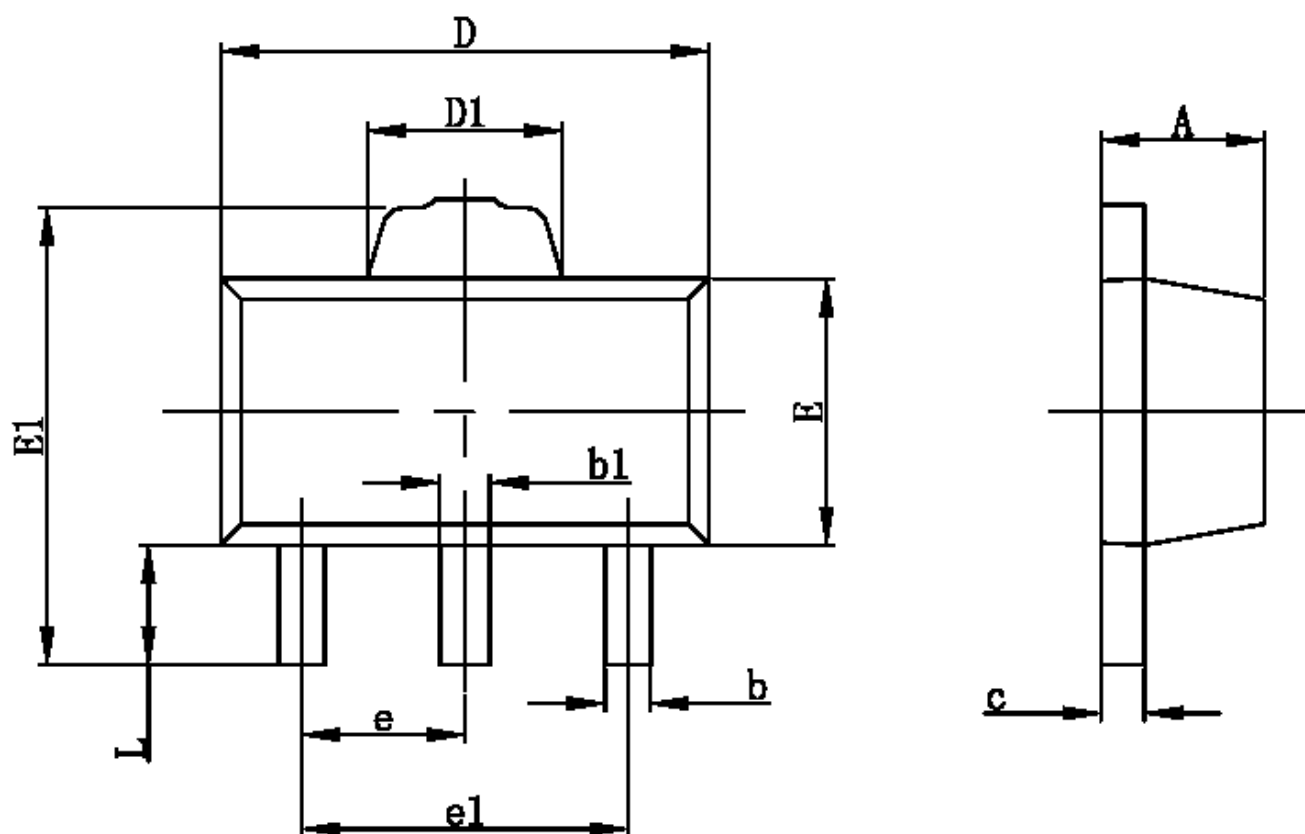
Symbol	Parameter	Conditions	Min.	Typ.	Max.	Unit
ΔV_{OUT}	Output Voltage Accuracy		-2.5		2.5	%
I _{IN}	Input Voltage				6	V
V _{START}	Start Up Voltage	I _{OUT} = 1 mA, V _{IN} : 0→2V		0.8	0.9	V
V _{HOLD}	Hold On Voltage	I _{OUT} = 1 mA, V _{IN} : 2→0V	0.7			V
I _{IN}	Input Current at No Load	I _{OUT} = 0 mA		15		μ A
I _{S1}	Supply Current	V _S = V _{OUT} X 0.95	20		70	μ A
I _{S2}	Supply Current	V _S = V _{OUT} + 0.5V		9		μ A
R _{ON}	SW Switch-On Resistance	V _S = V _{OUT} X 0.95, V _{SW} = 0.4V	1		1.3	Ω
I _{LEAKAGE}	SW Leakage Current	V _{SW} = 6V			0.5	μ A
F _{OSC}	Max Oscillator Freq.	V _S = V _{OUT} X 0.95	80	120	160	KHz
D _{OSC}	Oscillator Duty Cycle	V _S = V _{OUT} X 0.95	65	75	85	%
	Efficiency			85		%

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SOT- 89 PACKAGE OUTLINE



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	0.360	0.560	0.014	0.022
c	0.350	0.440	0.014	0.017
D	4.400	4.600	0.173	0.181
D1	1.400	1.800	0.055	0.071
E	2.300	2.600	0.091	0.102
E1	3.940	4.250	0.155	0.167
e	1.500TYP		0.060TYP	
e1	2.900	3.100	0.114	0.122
L	0.900	1.100	0.035	0.043

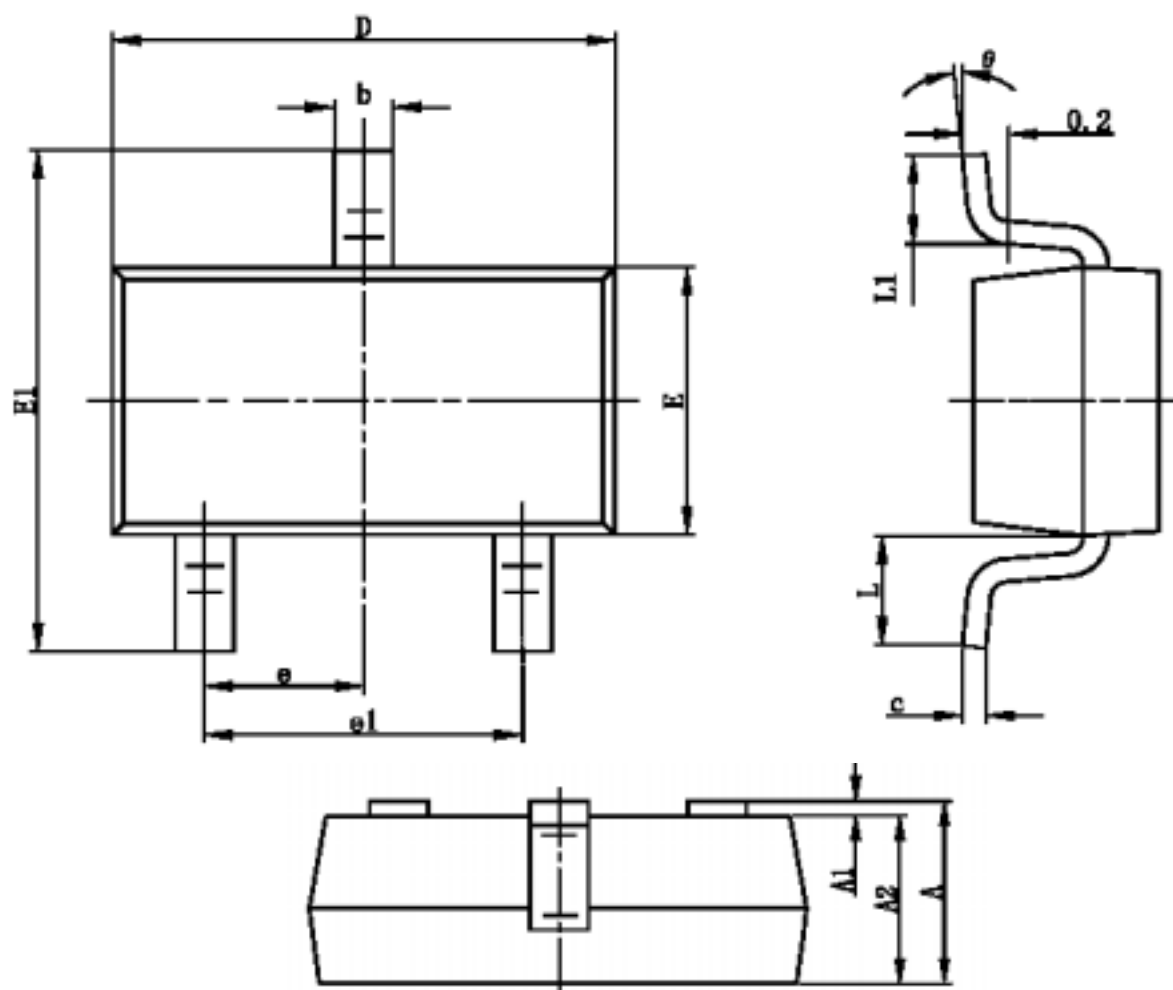
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300mA Driving Capability

SOT-23-3L PACKAGE OUTLINE



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	0.400	0.012	0.016
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	0.950TYP		0.037TYP	
e1	1.800	2.000	0.071	0.079
L	0.700REF		0.028REF	
L1	0.300	0.600	0.012	0.024
θ	0°	8°	0°	8°

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