



XTP2401

150mA High Voltage Regulator

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40V150mA, High Voltage Regulator

DESCRIPTION

The XTP2401 is a high voltage and low power consumption linear regulator. It is capable of supplying 150mA output current. And support up to 40V input voltage range with very-low quiescent (I_Q).

Other features include short-circuit current limit and thermal shutdown protection.

The XTP2401 is available in green SOT89-3 and SOT23-3 packages.

FEATURES

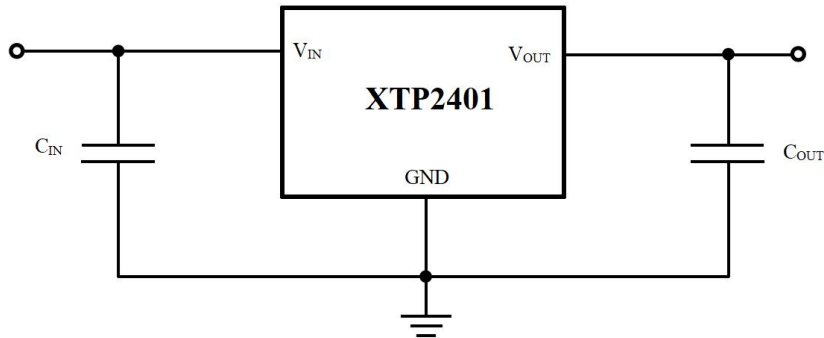
- Operating Input Voltage Range: 2.7V~40V
- Fixed Output Voltage: 1.8V, 3.3V, 5.0V, 12V
- Output Voltage Accuracy : $\pm 2\%$
- Low Quiescent Current: 6uA (TYP)
- PSRR: 40dB@1KHz
- Current Limiting Protection
- Thermal Shutdown Protection
- Operation Temperature: $-40^{\circ}\text{C}\sim+85^{\circ}\text{C}$
- Package: SOT89-3 and SOT23-3

APPLICATIONS

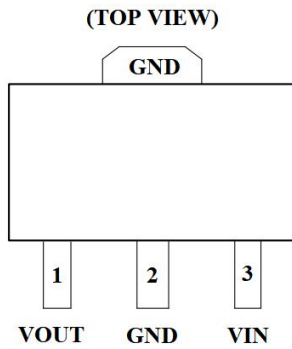
- ◇ Palmtops
- ◇ High power Boost Applications
- ◇ Power source for Battery-Powered Equipment
- ◇ Home electronic Appliances

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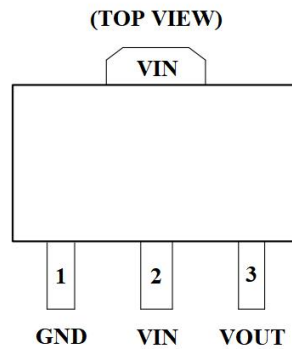
TYPICAL APPLICATION CIRCUIT



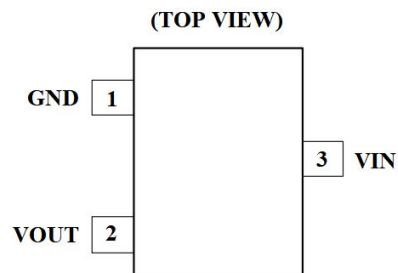
PIN CONFIGURATIONS



SOT89-3



SOT89-3 (L-Type)



SOT23-3

SOT89-3	SOT89-3(L-Type)	SOT23-3	NAME	DESCRIPTION
1	3	2	VOUT	Regulator Output
2	1	1	GND	GND
3	2	3	VIN	Input Voltage Supply

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ORDERING INFORMATION

Model	V _{OUT} (V)	Package	Ordering Number
XTP2401-1.8	1.8	SOT89-3	XTP2401-180ASA0CT
XTP2401-3.3	3.3	SOT89-3	XTP2401-330ASA0CT
XTP2401-5.0	5.0	SOT89-3	XTP2401-500ASA0CT
XTP2401-12	12	SOT89-3	XTP2401-12HASA0CT
XTP2401-1.8	1.8	SOT89-3 (L-Type)	XTP2401-180ASA1CT
XTP2401-3.3	3.3	SOT89-3 (L-Type)	XTP2401-330ASA1CT
XTP2401-5.0	5.0	SOT89-3 (L-Type)	XTP2401-500ASA1CT
XTP2401-12	12	SOT89-3 (L-Type)	XTP2401-12HASA1CT
XTP2401-1.8	1.8	SOT23-3	XTP2401-180AS1CT
XTP2401-3.3	3.3	SOT23-3	XTP2401-330AS1CT
XTP2401-5.0	5.0	SOT23-3	XTP2401-500AS1CT
XTP2401-12	12	SOT23-3	XTP2401-12HAS1CT

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PACKAGE/ORDERING INFORMATION

Package	Quantity/Reel	Operating Temperature Range
SOT89-3	3000	-40°C~85°C
SOT23-3	3000	-40°C~85°C

ABSOLUTE MAXIMUM RATINGS

Parameter		Min	Max	Unit
Power Supply Voltage	V_{IN}	-0.3	44	V
T_j	Maximum Junction Temperature	-40	125	°C
T_{OPR}	Operating Temperature Range	-40	85	°C
T_{stg}	Storage Temperature Range	-65	150	°C
T_L	Lead Temperature (Soldering 10 sec)		260	°C

Note: Stresses beyond those listed under Absolute Maximum Ratings may cause permanent damage to the device.

Exposure to any Absolute Maximum Rating condition for extended periods may affect device reliability and lifetime.

ESD,ELECTROSTATIC DISCHARGE PROTECTION

Symbol	Parameter	Condition	Minimum Level	Unit
HBM	Human Body Model ESD	ANSI/ESDA/JEDEC JS-001 ⁽¹⁾	4000	V
CDM	Charged Device Model ESD	ANSI/ESDA/JEDEC JS-002 ⁽²⁾	1000	V

(1) JEDEC document JEP155 states that 500-V HBM allows safe manufacturing with a standard ESD control process.

(2) JEDEC document JEP157 states that 250-V CDM allows safe manufacturing with a standard ESD control process.

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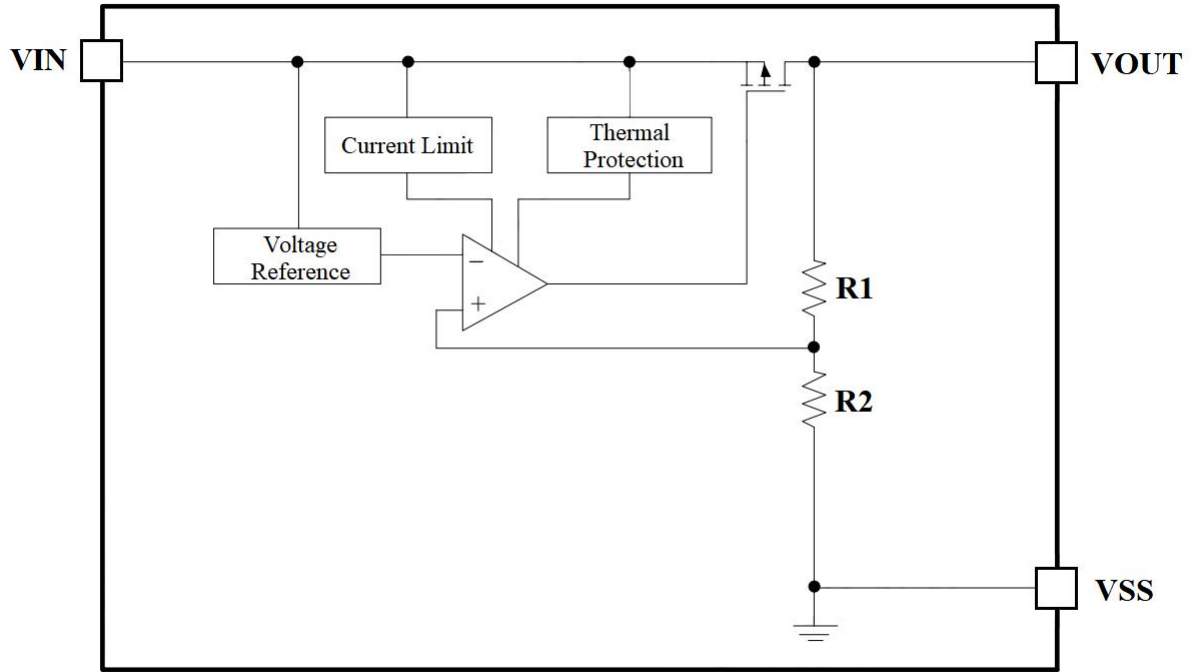
ELECTRICAL CHARACTERISTICS

$V_{IN}=V_{OUT}+2V$ or $4V$, whichever is greater, $C_{IN}=C_{OUT}=1\mu F$, $T_A=25^\circ C$ unless otherwise noted

Symbol	Parameter	Test Conditions	Min	Typ	Max	Unit
V_{IN}	Operating Supply Voltage		2.7		40	V
I_{OUT}	Output Current			150		mA
I_Q	Quiescent Current	No load		6	10	uA
V_{OUT}	Output Voltage Accuracy	$I_{OUT} = 1mA$	-2		2	%
V_{DROP}	Dropout Voltage	$V_{OUT} \geq 3V, I_{OUT} = 150mA$		650		mV
ΔV_{OUT}	Load Regulation	$V_{IN} = V_{OUT} + 2V$ or $4V$, $1mA \leq I_{OUT} \leq 150mA$		12	30	mV
$\frac{\Delta V_{OUT}}{\Delta V_{IN} * V_{OUT}}$	Line Regulation	$I_{OUT}=5mA$, $V_{OUT}+2V \leq V_{IN} \leq 40V$		0.005	0.015	%V
PSRR	Power Supply Rejection Ratio	$V_{OUT} = 3.3V, I_{OUT}=10mA$, @1KHz		45		dB
T_{SHDN}	Thermal Shutdown Temperature			150		$^\circ C$
$T_{SHDNHYS}$	Thermal Shutdown Hysteresis			20		$^\circ C$

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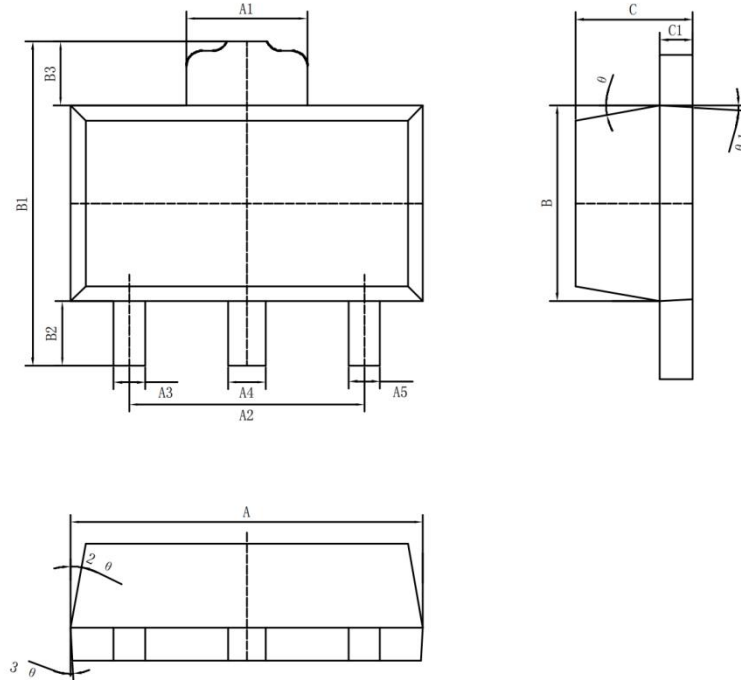
FUNCTION BLOCK DIAGRAM



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PACKAGE OUTLINE DIMENSIONS

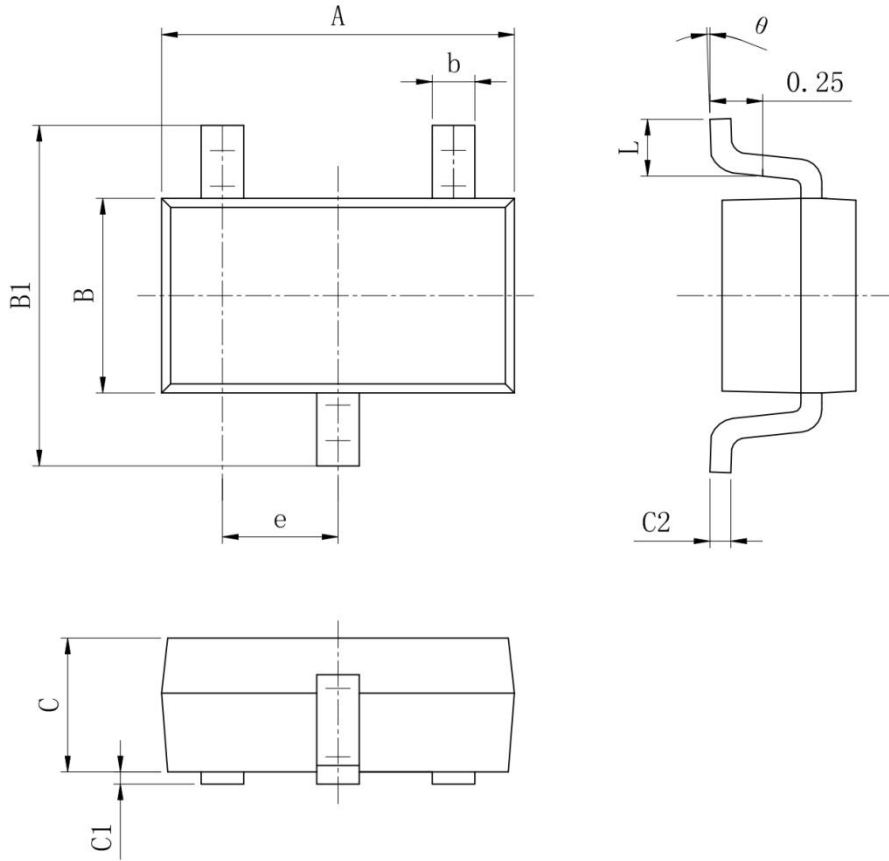
SOT89-3



SYMBOL	DIMENSIONS IN MILLIMETERS	
	MIN	MAX
A	4.40	4.60
A1	1.65	1.75
A2	2.95	3.05
A3	0.35	0.45
A4	0.43	0.53
A5	0.35	0.45
B	2.40	2.60
B1	4.05	4.25
B2	0.82	0.83
B3	0.82	0.83
C	1.40	1.60
C1	0.35	0.45
θ	6° TYP4	
θ_1	3° TYP4	
θ_2	6° TYP4	
θ_3	3° TYP4	

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SOT23-3



SYMBOL	DIMENSIONS IN MILLIMETERS	
	MIN	MAX
A	2.82	3.02
e	0.95 BSC	
b	0.28	0.45
B	1.50	1.70
B1	2.60	3.00
C	1.05	1.15
C1	0.03	0.15
C2	0.12	0.23
L	0.35	0.55
θ	0	8°

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REVISION HISTORY

Number	Date	Description
Rev 0.0	2023/02	XTP2401 datasheet release