



Low ESR Cap Compatible Positive Voltage Regulators

General Description

The **ME6401** series are highly precise, low power consumption, high voltage, positive voltage regulators manufactured using CMOS and laser trimming technologies. The series provides large currents with a significantly small dropout voltage.

The series is compatible with low ESR ceramic capacitors. The current limiter's foldback circuit also operates as a short protect for the output current limiter and the output pin.

Features

- Maximum Output Current: 450mA
($V_{IN}=3.8V, V_{OUT}=2.8V$)
- Dropout Voltage: 200mV@ $I_{OUT}=100mA$
- Operating Voltage Range: 1.2V~5.0V
- Highly Accuracy: $\pm 2\%$
- Low Power Consumption: 90uA (TYP.)
- Standby Current: 0.1uA (TPY.)

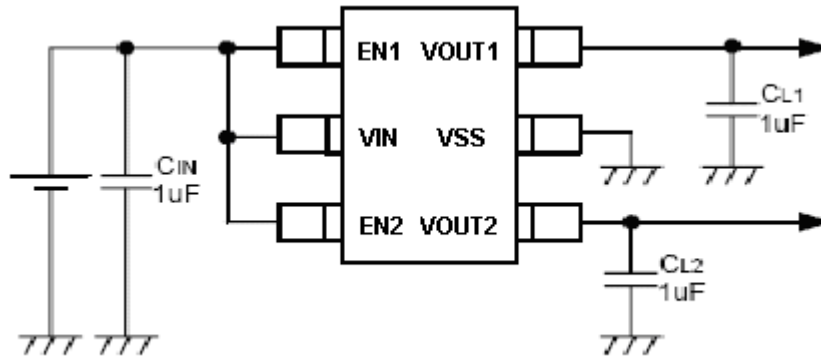
Typical Application

- Mobile phones
- Cordless phones, radio communication equipment
- Portable games
- Cameras, Video cameras
- Reference voltage sources
- Battery powered equipment

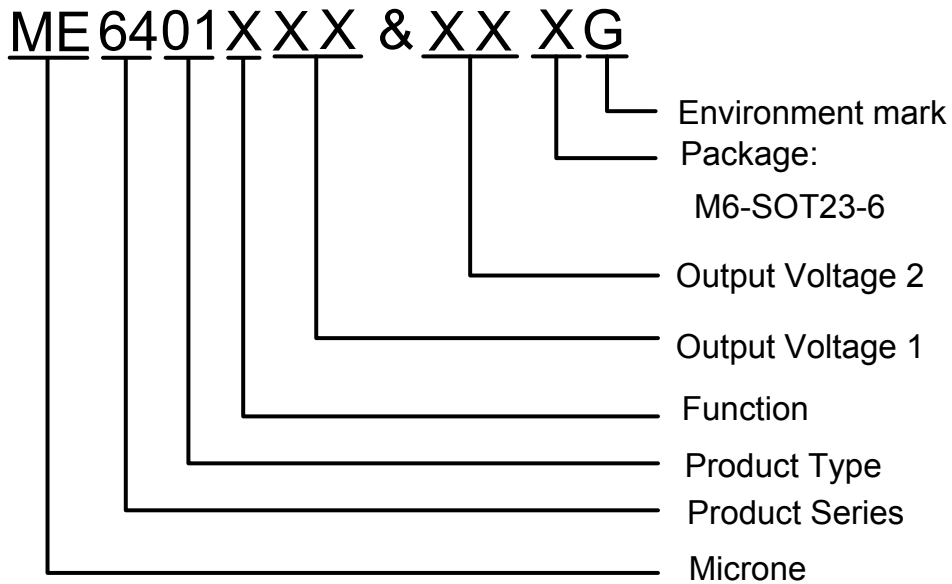
Package

- 6-pin SOT23-6

Typical Application Circuit

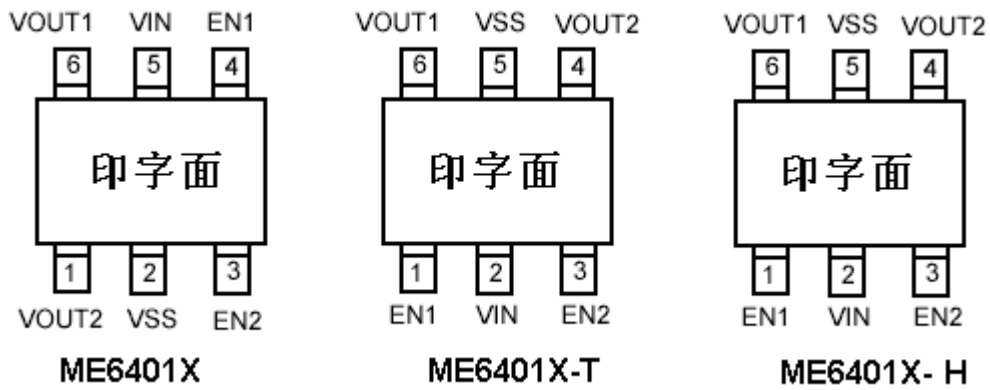


Selection Guide



product series	Output voltage	Package
ME6401C18&C28M6G	Vo1=2.8V, Vo2=1.8V	SOT23-6
ME6401C18&28M6G-T	Vo1=1.8V, Vo2=2.8V	SOT23-6
ME6401C18&28M6G-H	Vo1=2.8V, Vo2=1.8V	SOT23-6

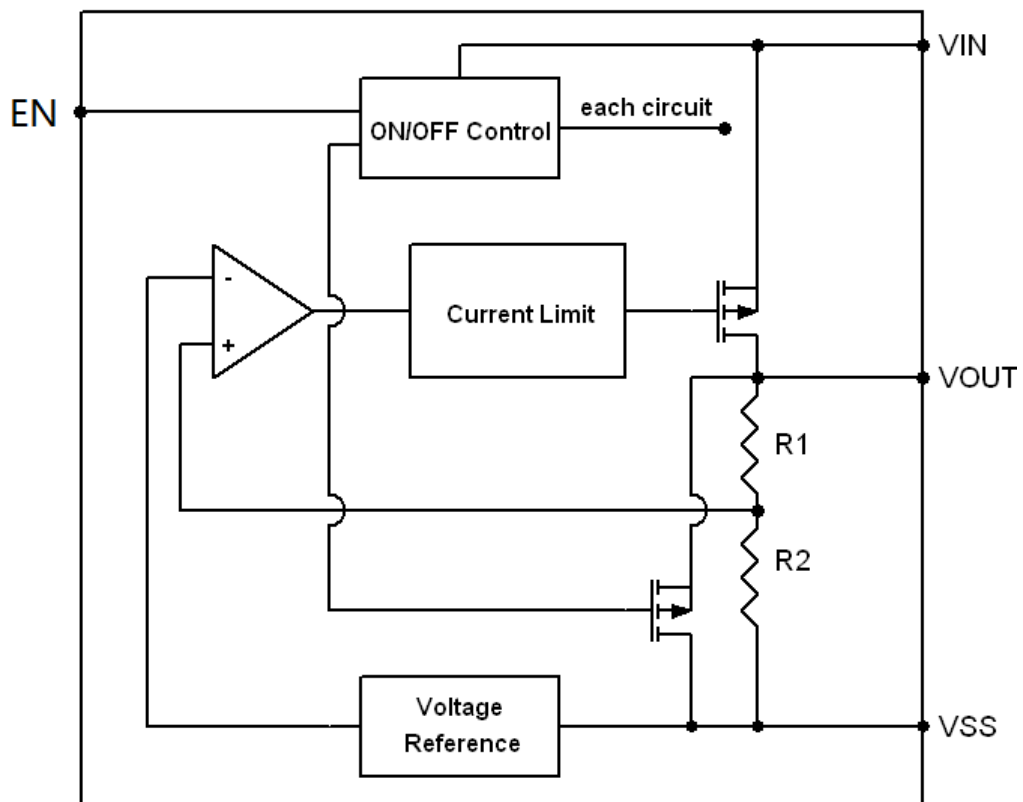
Pin Configuration



Pin Assignment

Pin Name	Functions
V_{IN}	Power Input
V_{SS}	Ground
EN	ON / OFF Control
NC	No Connect
V_{OUT}	Output

Block Diagram (single)



Absolute Maximum Ratings

Parameter	Symbol	Ratings	Units
Input Voltage	V_{IN}	6.0	V
Output Current	I_{OUT}	600	mA
Output Voltage	V_{OUT}	$V_{SS}-0.3 \sim V_{IN} + 0.3$	V
EN Pin Voltage	V_{CE}	$V_{SS}-0.3 \sim V_{IN} + 0.3$	V
Power Dissipation	P_D	250	mW
SOT23-6			
Operating Temperature Range	T_{OPR}	$-40 \sim +150$	$^{\circ}C$
Storage Temperature Range	T_{STG}	$-40 \sim +150$	$^{\circ}C$

Electrical Characteristics

ME6401 ($V_{IN} = V_{OUT} + 1V$, $V_{CE} = V_{IN}$, $C_{IN} = C_L = 1\mu F$, $T_a = 25^{\circ}C$, unless otherwise noted)

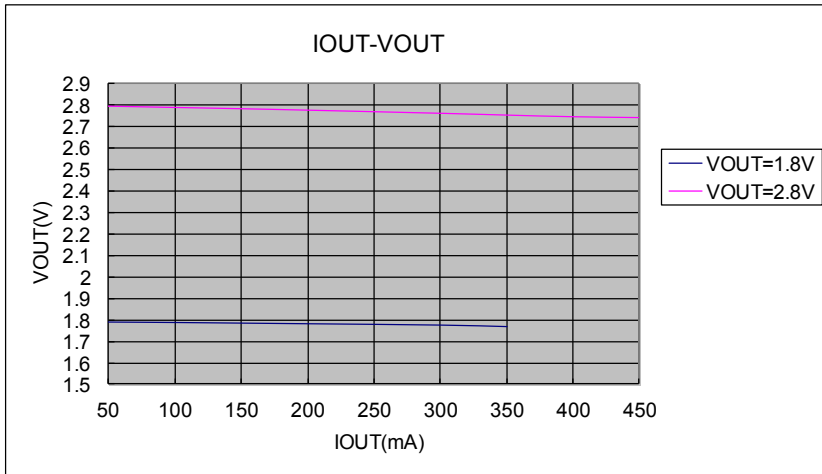
PARAMETER	SYMBOL	CONDITION	MIX	TYP	MAX	UNIT
Output Voltage	$V_{OUT(E)}$ (Note 2)	$I_{OUT} = 10mA$	X 0.98	$V_{OUT(T)}$ (Note 1)	X 1.02	V
Maximum Output Voltage	$I_{OUT} (max)$	$V_{OUT} (1.8V)$		300		mA
		$V_{OUT} (2.8V)$		450		mA
Load Regulation	ΔV_{OUT}	$1mA \leq I_{OUT} \leq 100mA$		9		mV
Dropout Voltage (Note 3)	V_{dif1}	$I_{OUT} = 100mA$		200		mV
	V_{dif2}	$I_{OUT} = 200mA$		400		mV
Supply Current	I_{SS}			90		μA
Stand-by Current	I_{CEL}	$V_{EN} = V_{SS}$		0.1		μA
Line Regulations	$\frac{\Delta V_{OUT}}{\Delta V_{IN} \cdot V_{OUT}}$	$I_{OUT} = 40mA$ $V_{OUT} + 1V \leq V_{IN} \leq 6V$		0.05		%/V
EN "High" Voltage	V_{CEH}	Start up	1.0			V
EN "Low" Voltage	V_{CEL}	Shut down			0.7	V
Power Supply Ripple Rejection Ratio	PSRR	$V_{in} = [V_{out} + 1]V + 1V_{p-pAC}$ $I_{OUT} = 50mA, f = 1kHz$		70		dB
Output noise	EN	$I_{OUT} = 40mA$ $300Hz \sim 50kHz$		50		μV_{rms}
Short Circuit Current	I_{SHORT}	$V_{OUT} (1.8V) = V_{SS}$		30		mA
		$V_{OUT} (2.8V) = V_{SS}$		100		mA

Note :

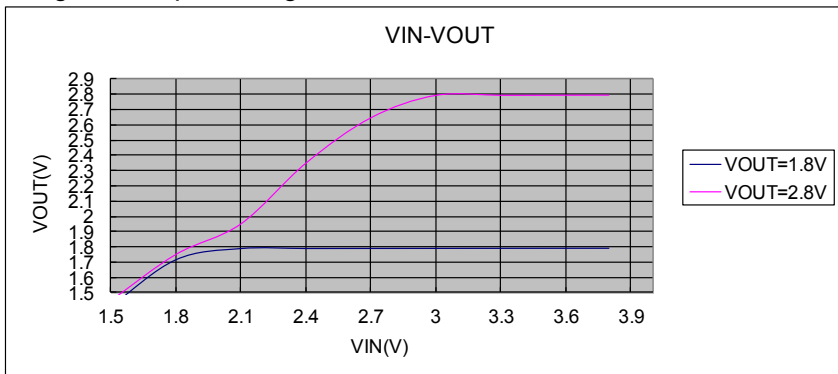
- $V_{OUT} (T)$: Specified Output Voltage
- $V_{OUT} (E)$: Effective Output Voltage (i.e. The output voltage when " $V_{OUT} (T) + 1.0V$ " is provided at the V_{in} pin while maintaining a certain I_{out} value.)
- V_{DIF} : $V_{IN1} - V_{OUT} (E)$
 V_{IN1} : The input voltage when $V_{OUT}(E)$ appears as input voltage is gradually decreased.
 $V_{OUT} (E)$ = A voltage equal to 98% of the output voltage whenever an amply stabilized I_{out} { $V_{OUT} (T) + 1.0V$ } is input.

Type Characteristics

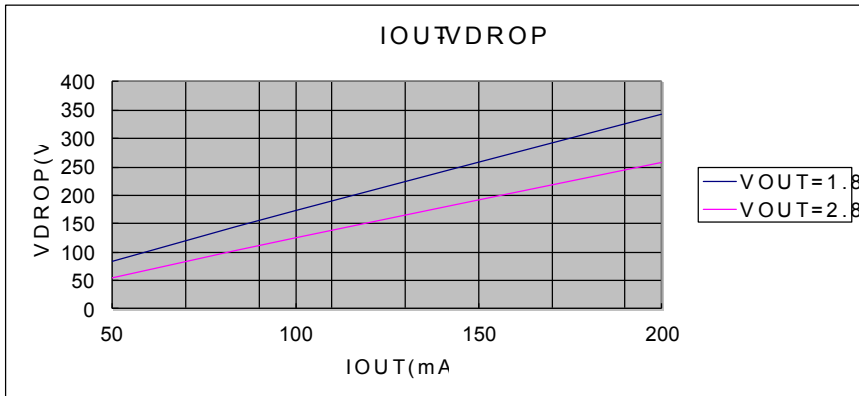
(1) Output Current VS. Output Voltage ($V_{IN}=V_{out}+1$, $T_a = 25^\circ\text{C}$)



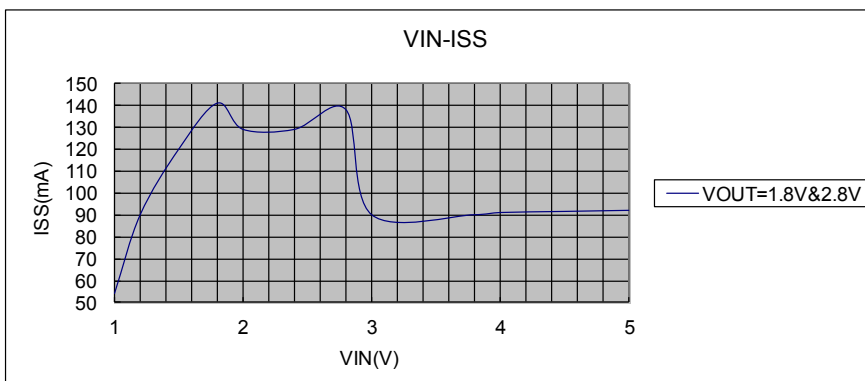
(2) Input Voltage VS. Output Voltage ($T_a = 25^\circ\text{C}$)



(3) Output Current VS. Dropout Voltage ($V_{IN}=V_{out}+1V$, $T_a = 25^\circ\text{C}$)

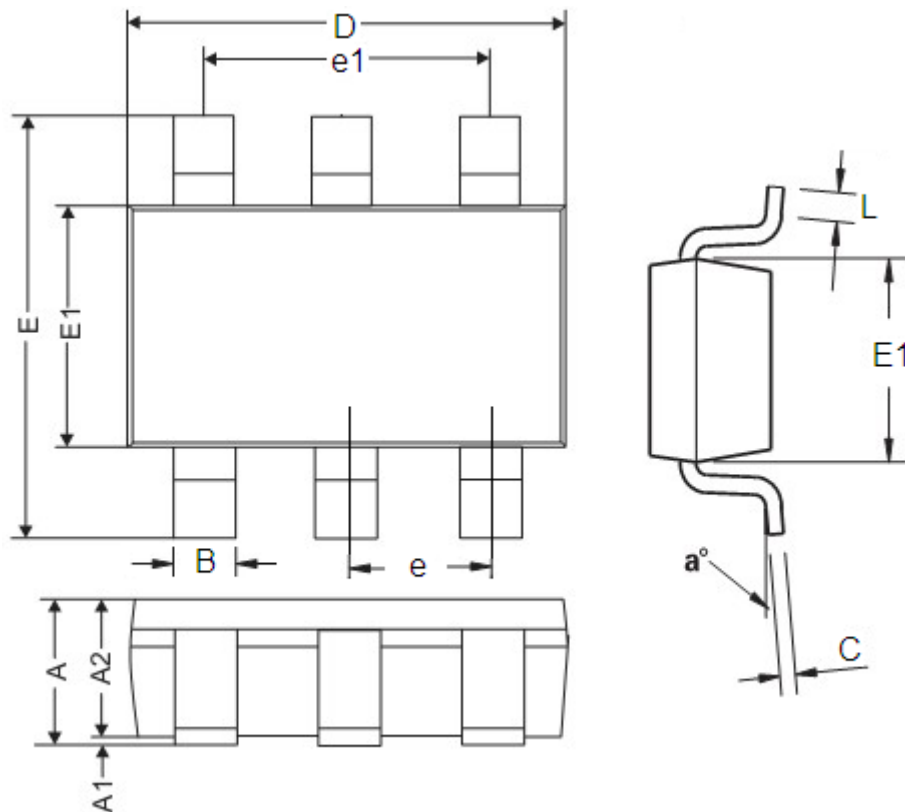


(4) Input Voltage VS. Supply Current ($T_a = 25^\circ\text{C}$)



Packaging Information

● SOT23-6



DIM	Millimeters		Inches	
	Min	Max	Min	Max
A	0.9	1.45	0.0354	0.0570
A1	0	0.15	0	0.0059
A2	0.9	1.3	0.0354	0.0511
B	0.2	0.5	0.0078	0.0196
C	0.09	0.26	0.0035	0.0102
D	2.7	3.10	0.1062	0.1220
E	2.2	3.2	0.0866	0.1181
E1	1.30	1.80	0.0511	0.0708
e	0.95REF		0.0374REF	
e1	1.90REF		0.0748REF	
L	0.10	0.60	0.0039	0.0236
a°	0°	30°	0°	30°

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