

Features

- Low Quiescent Current: 5 μ A
- Operating Voltage Range: 2.0V~7.0V
- Low Dropout Voltage: 150mV@150mA
- Output Voltage: 1.2~ 5.0V
- High Accuracy: \pm 2%(Typ.)
- High Ripple Rejection: 65dB@1kHz
- TTL-Logic-Controlled Shutdown Input
- Excellent Line and Load Transient Response
- Built-in Current Limiter, Short-Circuit Protection
- Epoxy Meets UL 94 V-0 Flammability Rating
- Halogen Free. "Green" Device (Note 1)
- Lead Free Finish/RoHS Compliant ("P" Suffix designates RoHS Compliant. See ordering information)

Applications

- Cellular and Smart Phones
- Radio Control Systems
- Laptop, Palmtops and PDAs
- Digital Still and Video Cameras
- MP3,MP4 Player
- Battery-Powered Equipment

Description

The MC6230 series are a group of positive voltage regulators manufactured by CMOS technologies with high ripple rejection, ultra-low noise, low power consumption and low dropout voltage, which can prolong battery life in portable electronics. The MC6230 series work with low-ESR ceramic capacitors, reducing the amount of board space necessary for power applications. The MC6230 series consume less than 0.1 μ A in shutdown mode and have fast turn-on time less than 50 μ S. The series are very suitable for the battery-powered equipments, such as RF applications and other systems requiring a quiet voltage source.

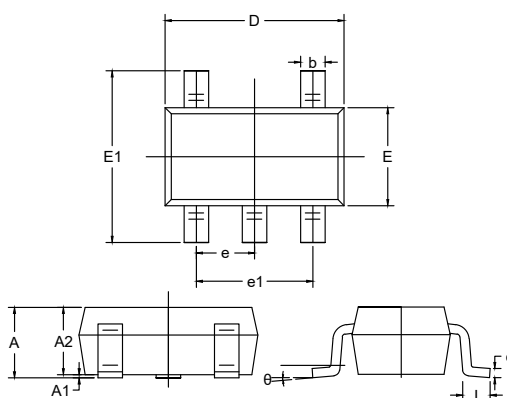
| MCC Part Number | Device Marking |
|-----------------|----------------|
| MC6230-1.2 | 9VBM |
| MC6230-1.5 | B9qYM |
| MC6230-1.8 | 9VKM |
| MC6230-2.5 | B9vYM |
| MC6230-2.8 | 9VXM |
| MC6230-3.0 | B9zYM |
| MC6230-3.3 | 9A2M |
| MC6230-3.6 | 9A5M |

Note:

1. Halogen free "Green" products are defined as those which contain <900ppm bromine, <900ppm chlorine (<1500ppm total Br + Cl) and <1000ppm antimony compounds.

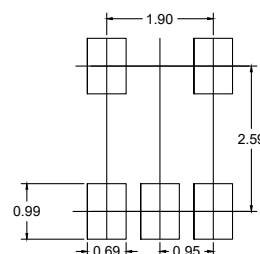
Low Consumption Current High PSRR 300mA CMOS Voltage Regulators

SOT23-5L

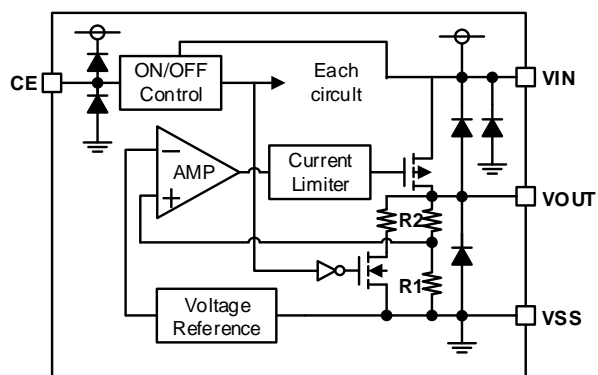


| DIM | INCHES | | MM | | NOTE |
|----------|------------|-------|------------|------|------|
| | MIN | MAX | MIN | MAX | |
| A | 0.041 | 0.049 | 1.05 | 1.25 | |
| A1 | 0.000 | 0.004 | 0.00 | 0.10 | |
| A2 | 0.041 | 0.045 | 1.05 | 1.15 | |
| b | 0.012 | 0.020 | 0.30 | 0.50 | |
| c | 0.004 | 0.008 | 0.10 | 0.20 | |
| D | 0.111 | 0.119 | 2.82 | 3.02 | |
| E | 0.059 | 0.067 | 1.50 | 1.70 | |
| E1 | 0.104 | 0.116 | 2.65 | 2.95 | |
| e | 0.037(BSC) | | 0.950(BSC) | | |
| e1 | 0.071 | 0.079 | 1.80 | 2.00 | |
| L | 0.012 | 0.024 | 0.30 | 0.60 | |
| θ | 0° | 8° | 0° | 8° | |

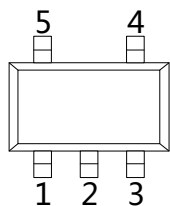
Suggested Solder Pad Layout



Functional Block Diagram

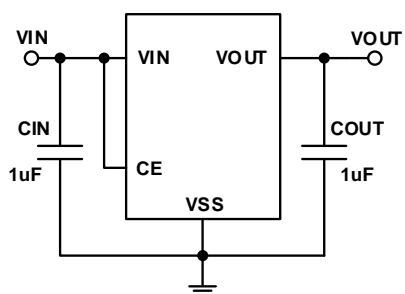


Pin Configuration and Functions (Top View)



| Number | Name | Function |
|--------|-----------|-----------------|
| 1 | V_{IN} | Power Input Pin |
| 2 | V_{SS} | Ground |
| 3 | CE | Chip Enable Pin |
| 4 | NC | No Connection |
| 5 | V_{OUT} | Output Pin |

Typical Application Circuit



Absolute Maximum Ratings

- Input Voltage: $V_{SS}-0.3V \sim V_{SS}+8V$
- Output Voltage: $V_{SS}-0.3V \sim V_{IN}+0.3V$
- Output Current: 300mA
- Power Dissipation: 500mW
- Operating Free Air Temperature Range: $-40\sim+85^{\circ}C$
- Operating Junction Temperature Range: $-40\sim+125^{\circ}C$
- Storage Temperature Range: $-40\sim+125^{\circ}C$
- Lead Temperature & Time: $260^{\circ}C, 10s$

Electrical Characteristics

($V_{IN}=V_{OUT}+1V, C_{IN}=C_{OUT}=1\mu F, T_A=25^{\circ}C$, unless otherwise specified)

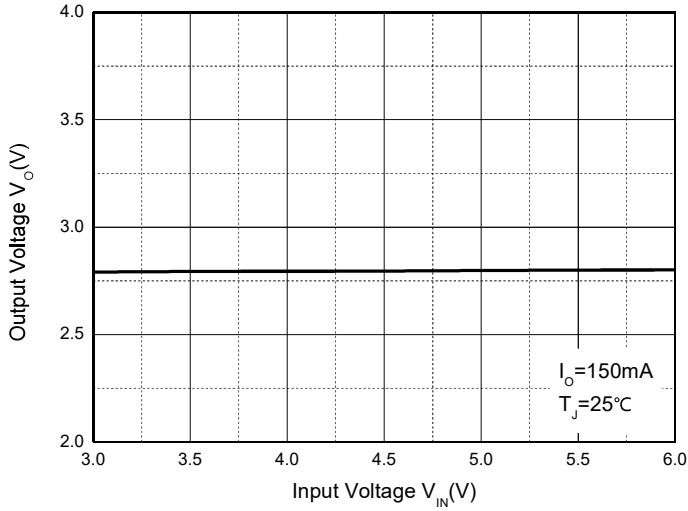
| Parameter | Symbol | Conditions | Min. | Typ. | Max. | Units |
|--|---|---|------------------|-----------|------------------|---------|
| Output Voltage | $V_{OUT(E)}^{(1)}$ | $I_{OUT}=1mA$ | $V_{OUT} * 0.98$ | V_{OUT} | $V_{OUT} * 1.02$ | V |
| Supply Current | I_{SS} | $I_{OUT}=0$ | | 5 | 10 | μA |
| Standby Current | I_{STBY} | $CE = V_{SS}$ | | | 0.1 | μA |
| Output Current | I_{OUT} | — | 300 | | | mA |
| Dropout Voltage ⁽²⁾ | V_{dif} | $I_{OUT} = 150mA$ $V_{OUT} \geq 3.0V$ | | 150 | | mV |
| Load Regulation | ΔV_{OUT} | $V_{IN} = V_{OUT} + 1V,$ $1mA \leq I_{OUT} \leq 100mA$ | | 10 | | mV |
| Line Regulation | $\frac{\Delta V_{OUT}}{V_{OUT} \times \Delta V_{IN}}$ | $I_{OUT} = 10mA$ $V_{OUT} + 1V \leq V_{IN} \leq 6V$ | | 0.01 | 0.2 | %/V |
| Output Voltage Temperature Characteristics | $\frac{\Delta V_{OUT}}{\Delta T \times V_{OUT}}$ | $I_{OUT} = 10mA$ $-40 \leq T \leq +85$ | | 100 | | ppm |
| Current Limit | I_{LIM} | $V_{OUT} = 0.5 \times V_{OUT(Normal)}$ $V_{IN} = V_{OUT} + 1V$ | 350 | 750 | | mA |
| Short Current | I_{Short} | $V_{OUT} = V_{SS}$ | | 50 | | mA |
| Input Voltage | V_{IN} | — | 2.0 | | 7.0 | V |
| Power Supply Rejection Rate | 1kHz | PSRR | $I_{OUT}=50mA$ | | 65 | dB |
| | 10kHz | | | | 50 | |
| CE "High" Voltage | $V_{CE} "H"$ | | 1.5 | | V_{IN} | V |
| CE "Low" Voltage | $V_{CE} "L"$ | | | | 0.3 | V |

Note:

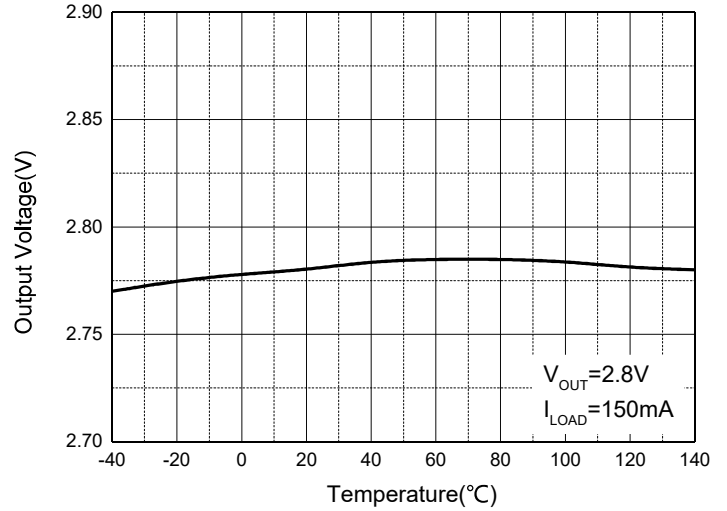
1. $V_{OUT(E)}$: Effective Output Voltage (i.e. The output voltage when $V_{IN}=(V_{OUT} + 1.0V)$ and maintain a certain I_{OUT} Value).
2. V_{dif} : The Difference Of Output Voltage And Input Voltage When Input Voltage Is Decreased Gradually Till Output Voltage Equals To 98% Of $V_{OUT(E)}$.

Curve Characteristics

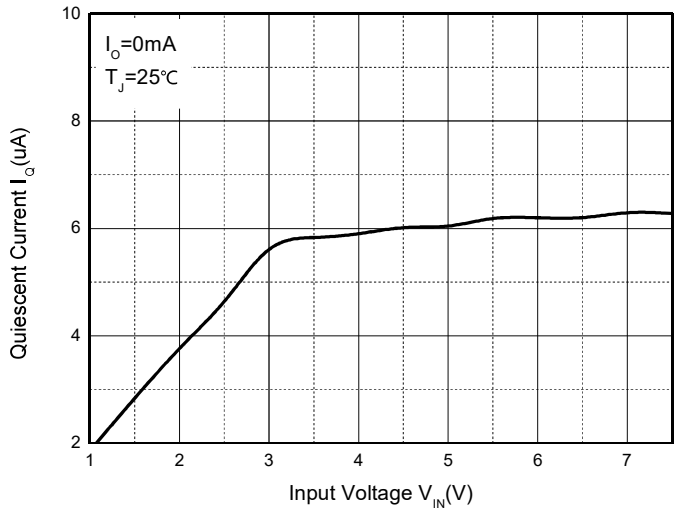
Output Characteristics



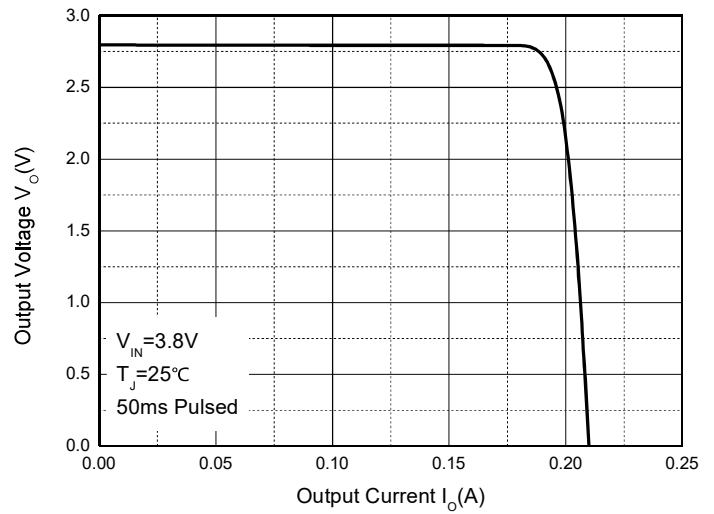
Output Voltage vs. Temperature



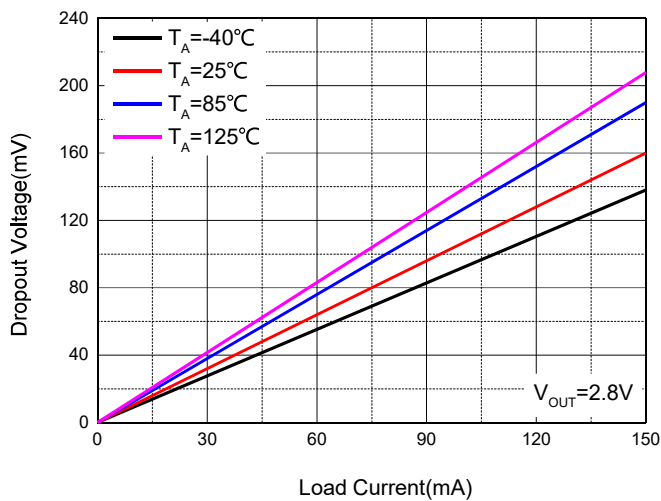
Quiescent Current



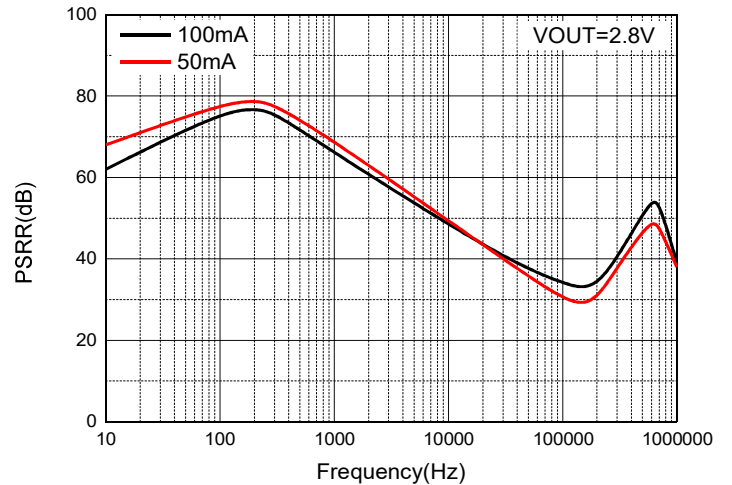
Current Cut-off Grid Voltage



Dropout Voltage vs. Load Current



PSRR vs. Frequency



Ordering Information

| Device | Packing |
|----------------|-----------------------|
| Part Number-TP | Tape&Reel: 3Kpcs/Reel |

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