

Features

- Low Quiescent Current: 50 μ A
- Low Output Noise: 40 μ V_{RMS}(10Hz~100kHz)
- Operating Voltage Range: 1.8V ~ 6.0V
- Low Dropout Voltage: 50mV@100mA
- Output Voltage: 1.05~ 5.0V
- High Accuracy: $\pm 2\%$ (Typ.)
- TTL-Logic-Controlled Shutdown Input
- Excellent Line and Load Transient Response
- Built-in Current Limiter, Short-Circuit Protection
- ESD Protected up to 4KV (HBM), 200V(MM)
- Moisture Sensitivity Level 1
- Epoxy Meets UL 94 V-0 Flammability Rating
- Halogen Free Available Upon Request By Adding Suffix "-HF"
- 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 MC6225 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 MC6225 series work with low-ESR ceramic capacitors, reducing the amount of board space necessary for power applications. The MC6225 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.

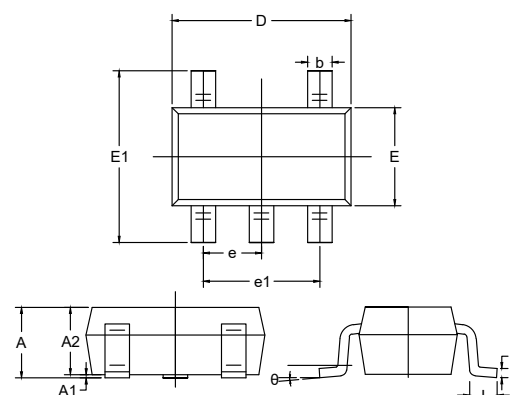
MCC Part Number	Device Marking
MC6225-1.2	ADdXX ⁽¹⁾
MC6225-1.8	ADJXX ⁽¹⁾
MC6225-2.5	ADqXX ⁽¹⁾
MC6225-3.0	ADvXX ⁽¹⁾
MC6225-3.3	ADyXX ⁽¹⁾

Note:

1. "XX" indicate DateCode.

Low Noise CMOS Voltage Regulators

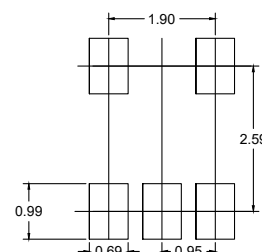
SOT23-5L



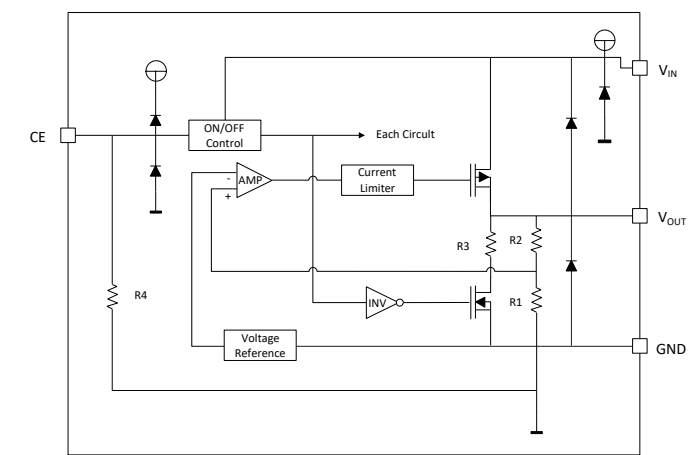
DIMENSIONS

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°	

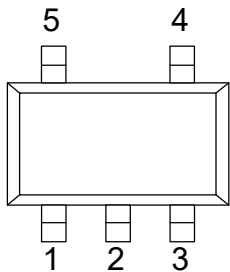
Suggested Solder Pad Layout



Functional Block Diagram

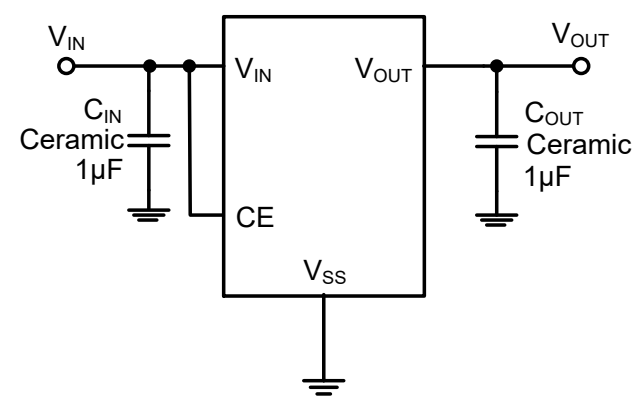


Pin Configuration and Functions (Top View)



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

- Operating Free Air Temperature Range: -40~+85°C
- Operating Junction Temperature Range: -40~+125°C
- Storage Temperature Range: -40~+125°C
- Thermal Resistance: 258°C/W Junction to Ambient
- Thermal Resistance: 82°C/W Junction to Case

Parameter	Symbol	Ratings	Units
Input Voltage	V_{IN}	$V_{SS}-0.3 \sim V_{SS}+7$	V
Output Voltage	V_{OUT}	$V_{SS}-0.3 \sim V_{IN}+0.3$	V
Output Current	I_{OUT}	500	mA
Power Dissipation	P_D	0.38	W

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	$V_{OUT(E)}^{(2)}$	$I_{OUT}=1mA$	$V_{out}*0.98$	V_{out}	$V_{out}*1.02$	V
Supply Current	I_{SS}	$I_{OUT}=0$		50	100	μA
Standby Current	I_{STBY}	$CE = V_{SS}$		0.1	1	μA
Output Current	I_{OUT}	—	500			mA
Dropout Voltage	$V_{dif}^{(3)}$	$I_{OUT}=100mA$ $V_{OUT} \geq 3.3V$		50		mV
Load Regulation	ΔV_{OUT}	$V_{IN}=V_{OUT}+1V$, $1mA \leq I_{OUT} \leq 100mA$		1		mV
Line Regulation		$I_{OUT}=10mA$ $V_{OUT}+1V \leq V_{IN} \leq 6V$		0.01	0.2	%/V
Output Voltage Temperature Characteristics		$I_{OUT}=10mA$ $-40 \leq T \leq +85$		50		ppm
Short Current	I_{Short}	$V_{OUT}=V_{SS}$		50		mA
Input Voltage	V_{IN}	—	1.8		6.0	V
Power Supply Rejection Rate	100Hz	$I_{OUT}=50mA$		75		dB
	1kHz			80		
	10kHz			80		
CE "High" Voltage	$V_{CE"H"}$		1.5		V_{IN}	V
CE "Low" Voltage	$V_{CE"L"}$				0.3	V
C_{OUT} Auto-Discharge Resistance	$R_{DISCHRG}$	$V_{IN}=5V, V_{OUT}=3.0V$, $V_{CE}=V_{SS}$		60		Ω

Note:

2. $V_{OUT(E)}$: Effective Output Voltage (i.e. The output voltage when $V_{IN} = (V_{OUT} + 1.0V)$ and maintain a certain I_{OUT} Value).
3. 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

Fig. 1 - Output Voltage vs Input Voltage

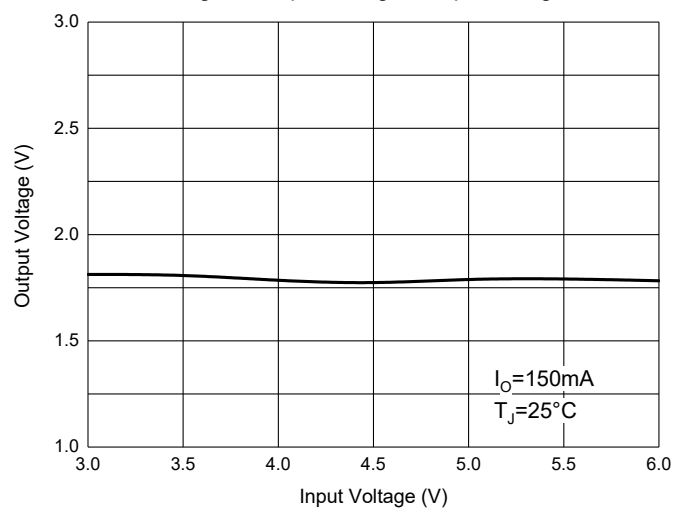


Fig. 2 - Output Voltage vs Temperature

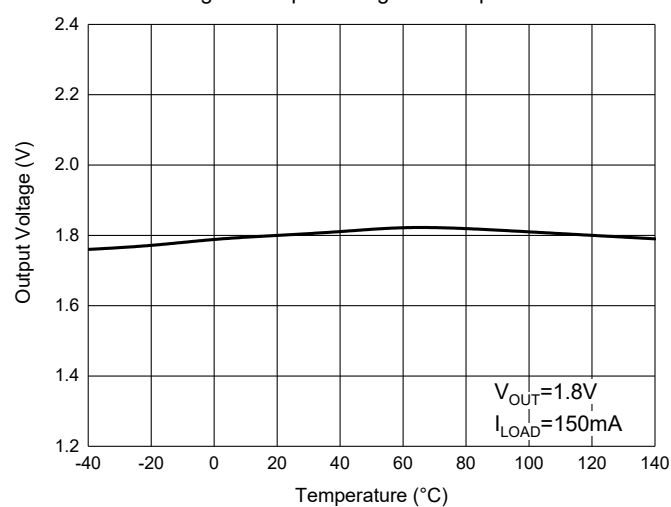


Fig. 3 - Quiescent Current

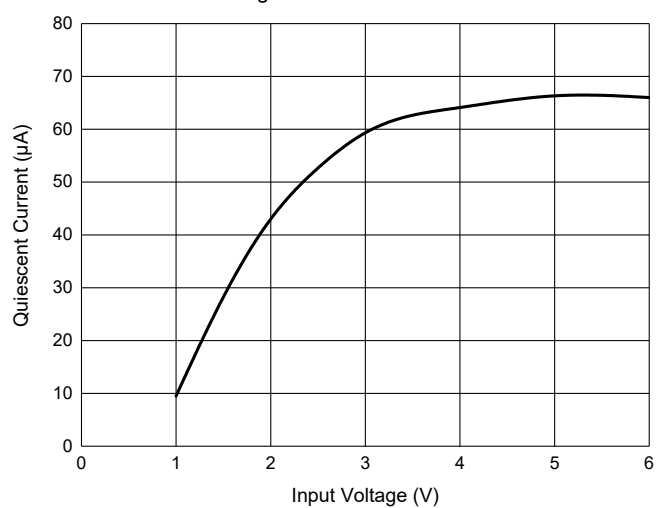


Fig. 4 - Current Cut-off Grid Voltage

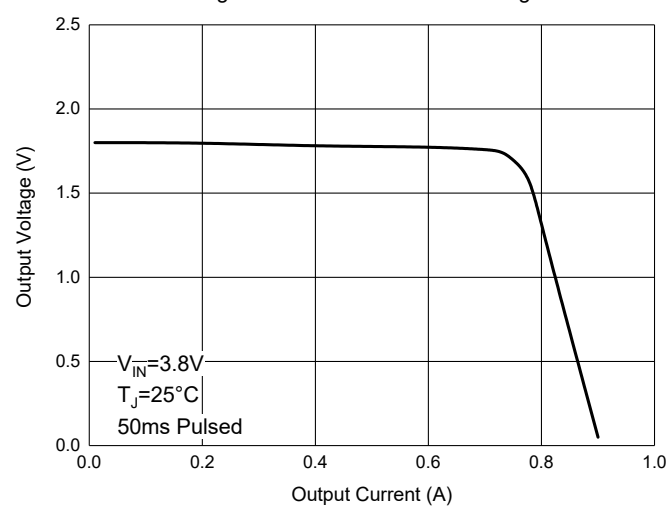
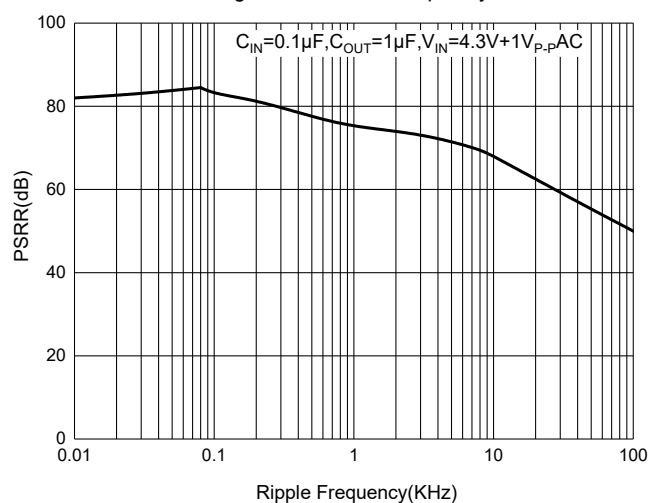


Fig. 5 - PSRR vs. Frequency



Ordering Information

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

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