

CA 6217

150 mA CMOS LDO REGULATOR

Description

The CAT6217 is a 150 mA CMOS low dropout regulator that provides fast response time during load current and line voltage changes.

The quick-start feature allows the use of an ezfb capacitor to reduce the overall output noise without affecting the turn-on time of just 150 μ s.

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

CAT6217

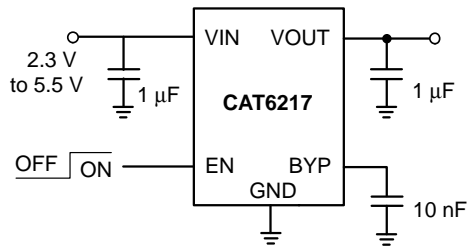


Figure 1. Typical Application Circuit

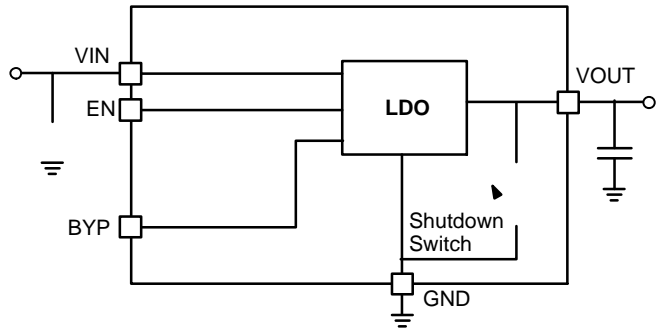


Figure 2. CAT6217 Functional Block Diagram

CAT6217

Table 3. ELECTRICAL OPERATING CHARACTERISTICS (Note 3)

($V_{IN} = V_{OUT} + 1.0$ V, $V_{EN} = \text{High}$, $I_{OUT} = 100$ μA , $C_{IN} = C_{OUT} = 1$ μF , ambient temperature of 25°C (over recommended operating conditions unless specified otherwise). **Bold numbers** apply for the entire junction temperature range.)

Symbol	Parameter	Conditions	Min	Typ	Max	Unit
$V_{OUT-ACC}$	Output Voltage Accuracy	Initial accuracy for $V_{OUT} \geq 2.0$ V (Note 6)	-1.0		+1.0	%
			-2.0		+2.0	
TC_{OUT}	Output Voltage Temp. Coefficient			40		ppm/°C

V

CAT6217

TYPICAL CHARACTERISTICS (shown for 2.80 V output option)

($V_{IN} = 3.85$ V, $I_{OUT} = 100$ μ A, $C_{IN} = C_{OUT} = 1$ μ F, $C_{BYP} = 10$ nF, $T_A = 25^\circ$ C unless otherwise specified.)

Figure 3. Dropout Characteristics

Figure 4. Line Regulation

Figure 5. Load Regulation

Figure 6. Output Voltage v9.1

CAT6217

TYPICAL CHARACTERISTICS (shown for 2.80 V output option)

($V_{IN} = 3.85\text{ V}$, I_{OUT}

CAT6217

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($V_{IN} = 3.85\text{ V}$, $I_{OUT} = 100\text{ }\mu\text{A}$, $C_{IN} = C_{OUT} = 1\text{ }\mu\text{F}$, $C_{BYP} = 10\text{ nF}$, $T_A = 25^\circ\text{C}$ unless otherwise specified.)

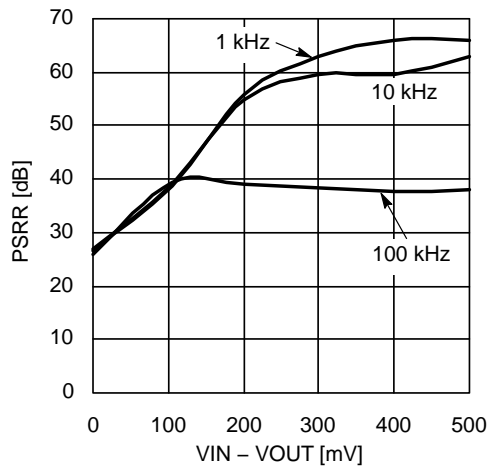


Figure 15. PSRR (30 mA Load)

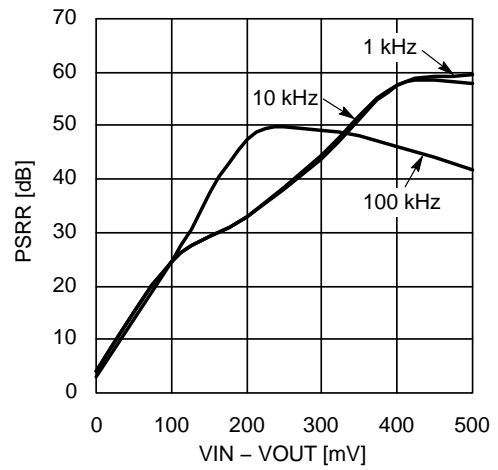


Figure 16. PSRR (150 mA Load)

CAT6217

TRANSIENT CHARACTERISTICS (shown for 2.80 V output option)

($V_{IN} = 3.85\text{ V}$, $I_{OUT} = 100\ \mu\text{A}$, $C_{IN} = C_{OUT} = 1\ \mu\text{F}$, $C_{BYP} = 10\ \text{nF}$, $T_A = 25^\circ\text{C}$ unless otherwise specified.)

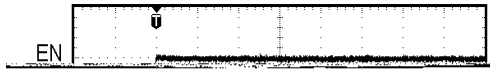


Figure 17. Enable Turn-on (100 μA Load)

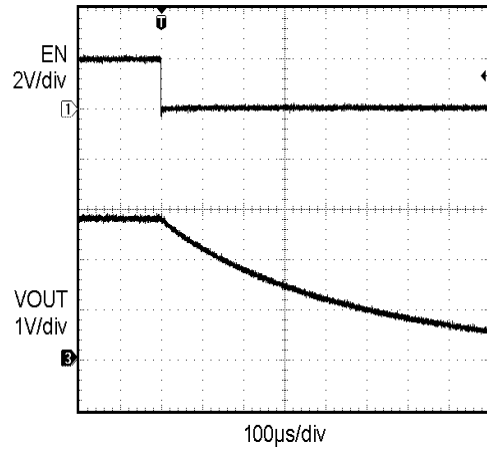


Figure 18. Enable Turn-off (100 μA Load)

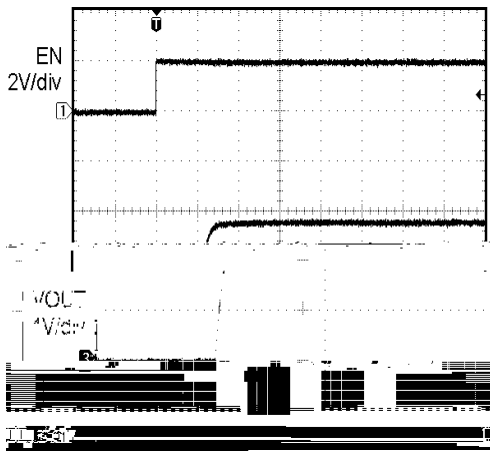


Figure 19. Enable Turn-on (150 mA Load)

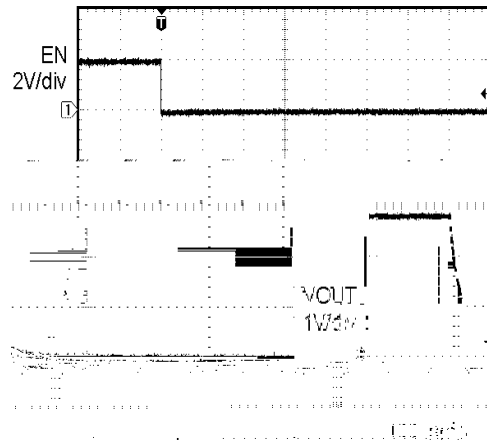


Figure 20. Enable Turn-off (150 mA Load)

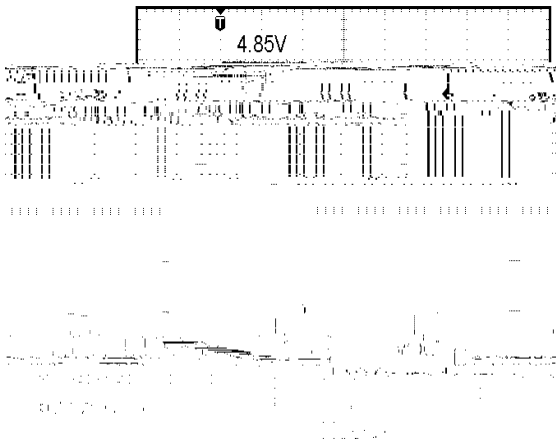


Figure 21. Line Transient Response
(3.85 V to 4.85 V)

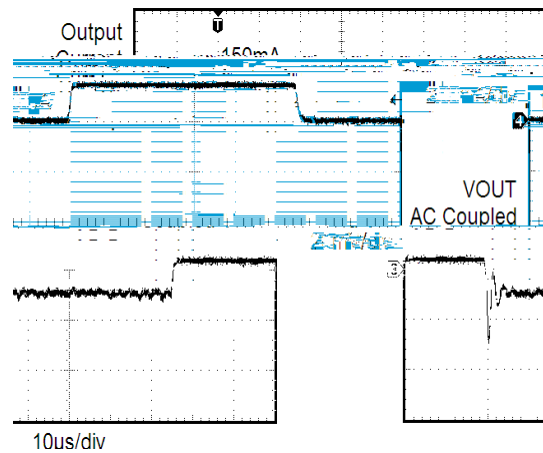
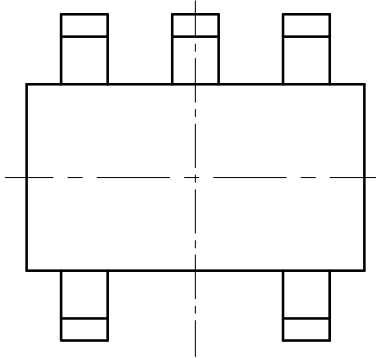


Figure 22. Load Transient Response
(0.1 mA to 150 mA)

Note: All transient characteristics are generated using the evaluation board CAT621XEVAL1.

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