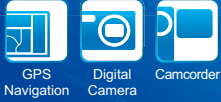


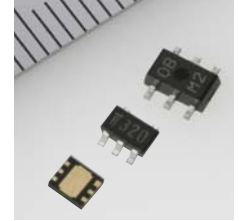
10.5V Input, Low Power Consumption, High Speed 200mA LDO Regulator

XC6505 Series



The XC6505 series of LDO regulators achieve a load-transient response characteristic (ripple rejection ratio of 60dB at 1kHz) on the same level as regular high-speed LDOs with a very small supply current of only 5.5 μ A. An input voltage range from 1.7V to as high as 10.5V is supported.

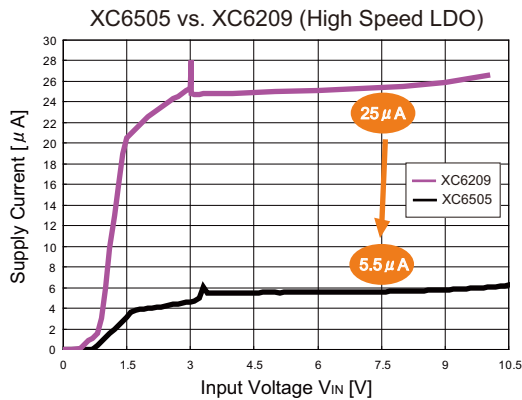
These regulators are ideal for applications that operate on two-cell Li-ion batteries, four 1.5V dry-cell batteries, and rectangular 9V dry-cell batteries, and in applications that supply 5V at the back end of a 6V output DC/DC. Operation at 105°C can be guaranteed for in-vehicle accessories and industrial equipment applications.



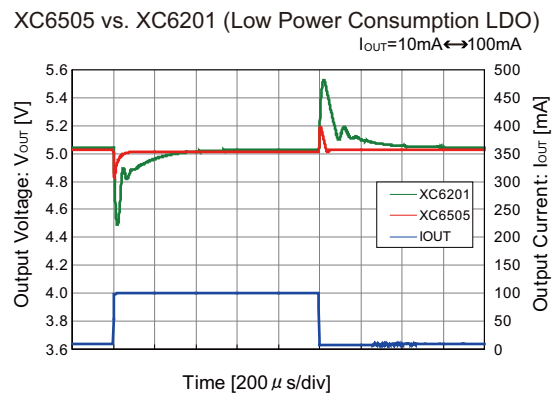
USP-6C, SOT-25,
SOT-89-5



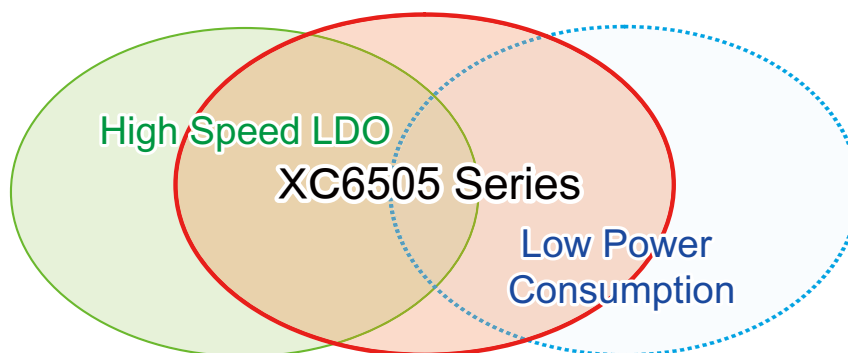
Low power consumption with high speed LDO characteristics (PSRR=60dB at 1kHz)!



High load transient response at a supply current of 5.5 μ A!



The XC6505 Series combines high speed LDO and low supply current characteristics: Makes commonality of parts possible



Features			
Maximum Output Current	200mA	High Ripple Rejection	60dB@1kHz
Input Voltage Range	1.7V~10.5V	Protection	Current Limiter (300mA, TYP.)
Output Voltage Range	1.5V~8.0V		Short Circuit Protection (110mA, TYP.)
Output Voltage Accuracy	$\pm 1.0\%$ (2.0V~8.0V), $\pm 20\text{mV}$ (1.5V~1.9V)		Thermal Shutdown
Temperature Stability	$\pm 30\text{ppm} / ^\circ\text{C}$	Type	XC6505A without CL High Speed Discharge
Dropout Voltage	190mV@V _{OUT} =3.3V, I _{OUT} =100mA		XC6505B with CL High Speed Discharge
Low Power Consumption	5.5 μ A (TYP.)	Operating Ambient Temperature	-40°C~+105°C
Chip Enable (CE)	Active High, 0.1 μ A (Stand-by)	Packages	USP-6C, SOT-25, SOT-89-5



High Speed 200mA LDO Regulator **KC6505 Series**



Product development concept

In many instances, multiple regulators are necessary to handle different types of control applications such as audio and video in car navigation and other multimedia devices. For example, a high speed response is required for video processing, and a low supply current is desirable for backup power supplies for which there are normally almost no fluctuations of load.

The XC6505 achieves both a high speed response and a low supply current, making it possible to use a common regulator in multimedia devices that previously required different types of regulators. Using a common regulator shortens evaluation time and results in lower cost.

The XC6505 can be used in high ambient temperatures such as in-vehicle accessories, and expands the temperature range (-40°C to 105°C) over previous products to allow for self heating caused by step-down from a high input voltage. Along with expansion of the temperature range, we reexamined the internal reference power at the device level and achieved a temperature characteristic of $\pm 30\text{ppm}/^\circ\text{C}$ (Fig. 1). Through improvement of the temperature characteristic and a high-speed response characteristic, the XC6505 supplies a more stable output voltage.

Fig.1 Output Voltage vs. Ambient Temperature

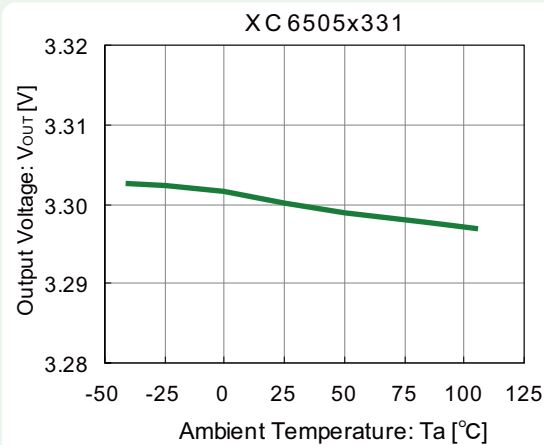
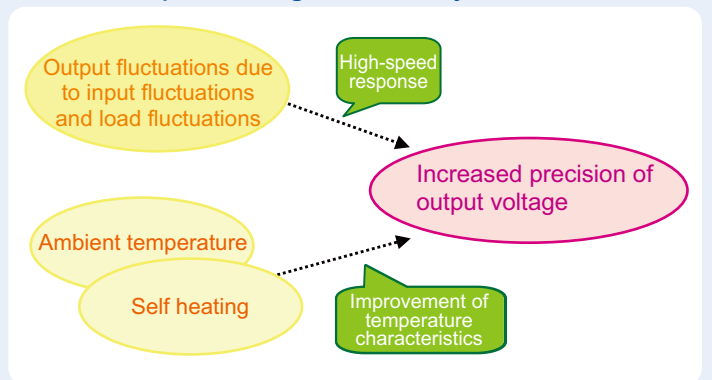


Fig.2 Schematic representation of increased output voltage accuracy



Comparison of characteristics with previous products

	High Speed·Low Power Consumption	High Speed	Low Power Consumption
	XC6505	XC6209	XC6201
Maximum Output Current	200mA	300mA	200mA
Input Voltage Range	1.7V ~ 10.5V	2.0V ~ 10.0V	10.0V
Output Voltage Range	1.5V ~ 8.0V	0.9V ~ 6.0V	1.3V ~ 6.0V
Low Power Consumption	5.5 μ A (TYP.)	25 μ A (TYP.)	2.0 μ A (TYP.)
Ripple Rejection	60dB@1kHz	80dB@1kHz	33dB@1kHz
Protection Circuit	Thermal shutdown, Current Limit, Short-circuit protection	Current Limit, Short-circuit protection	Current Limit
CE Pin	Available	Available	Not Available
Operating Ambient Temperature	-40°C ~ +105°C	-40°C ~ +85°C	-40°C ~ +85°C
Package (mm)	USP-6C (1.8 × 2.0) SOT-25 (2.8 × 2.9) SOT-89-5 (4.35 × 4.5)	USP-6B (1.8 × 2.0) SOT-25 (2.8 × 2.9) SOT-89-5 (4.35 × 4.5)	USP-6B (1.8 × 2.0) SOT-25 (2.8 × 2.9) SOT-89 (4.0 × 4.5) TO-92 (14.8 × 4.65)

