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**TPS76901-Q1, TPS76912-Q1, TPS76915-Q1, TPS76918-Q1, TPS76925-Q1  
TPS76927-Q1, TPS76928-Q1, TPS76930-Q1, TPS76933-Q1, TPS76950-Q1**  
SGZV004, February 2002

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## **ULTRA LOW POWER 100-mA LOW-DROPOUT LINEAR REGULATORS**

### **HIGHLIGHTS**

The TPS769xx-Q1 family of low-dropout (LDO) voltage regulators offers the benefits of low dropout voltage, ultra low-power operation, and miniaturized packaging. These regulators feature low dropout voltages and ultra low quiescent current compared to conventional LDO regulators. Offered in a 5-terminal, small outline integrated-circuit SOT-23 package, the TPS769xx-Q1 series devices are ideal for micropower operations and where board space is at a premium.

A combination of new circuit design and process innovation has enabled the usual PNP pass transistor to be replaced by a PMOS pass element. Because the PMOS pass element behaves as a low-value resistor, the dropout voltage is very low, typically 71 mV at 100 mA of load current (TPS76950-Q1), and is directly proportional to the load current. Since the PMOS pass element is a voltage-driven device, the quiescent current is ultra low (28  $\mu$ A maximum) and is stable over the entire range of output load current (0 mA to 100 mA). The ultra low-dropout voltage feature and ultra low-power operation result in a significant increase in system battery operating life, making this device suitable for use in automotive applications.

The TPS769xx-Q1 also features a logic-enabled sleep mode to shut down the regulator. This reduces quiescent current to 1  $\mu$ A typical at  $T_J = 25^\circ\text{C}$ . The TPS769xx-Q1 is offered in 1.2-V, 1.5-V, 1.8-V, 2.5-V, 2.7-V, 2.8-V, 3.0-V, 3.3-V and 5-V fixed-voltage versions and in a variable version (programmable over the range of 1.2 V to 5.5 V).

### **KEY FEATURES/BENEFITS**

- Qualified in Accordance with AEC-Q100 (Contact the Product Information Center for details. Q100 qualification data available upon request.)
- 100-mA Low-Dropout Regulator
- Available in 1.2-V, 1.5-V, 1.8-V, 2.5-V, 2.7-V, 2.8-V, 3.0-V, 3.3-V, and 5-V Fixed-Output and Adjustable Versions
- Only 17- $\mu$ A Quiescent Current at 100 mA
- 1- $\mu$ A Quiescent Current in Standby Mode
- Dropout Voltage Typically 71 mV at 100mA
- Over Current Limitation
- $-40^\circ\text{C}$  to  $125^\circ\text{C}$  Operating Junction Temperature Range
- 5-Pin SOT-23 (DBV) Package

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## PACKAGING

Package Option: 5-Pin SOT-23 (DBV) Package

## POWER DISSIPATION

The table below shows modeled data. This data can be used for approximating system thermal characteristics:

Package Thermal Data

Package	R <sub>θJA</sub>	R <sub>θJC</sub>
5 Pin DBV (High K board)	180.0 °C/W	65.8 °C/W

## PROCESS/PERFORMANCE OPTIONS

Available Devices

TJ	VOLTAGE	PACKAGE	PART NUMBER		SYMBOL
-40 °C to 125 °C	Variable 1.2V to 5.5V	SOT-23 (DBV)	TPS76901QDBVTQ1*	TPS76901QDBVRQ1**	PCFQ
	1.2V		TPS76912QDBVTQ1*	TPS76912QDBVRQ1**	PCGQ
	1.5V		TPS76915QDBVTQ1*	TPS76915QDBVRQ1**	PCHQ
	1.8V		TPS76918QDBVTQ1*	TPS76918QDBVRQ1**	PCIQ
	2.5V		TPS76925QDBVTQ1*	TPS76925QDBVRQ1**	PCJQ
	2.7V		TPS76927QDBVTQ1*	TPS76927QDBVRQ1**	PCKQ
	2.8V		TPS76928QDBVTQ1*	TPS76928QDBVRQ1**	PCLQ
	3.0V		TPS76930QDBVTQ1*	TPS76930QDBVRQ1**	PCMQ
	3.3V		TPS76933QDBVTQ1*	TPS76933QDBVRQ1**	PCNQ
	5.0V		TPS76950QDBVTQ1*	TPS76950QDBVRQ1**	PCOQ

\* The DBVT indicates tape and reel of 250 parts.

\*\* The DBVR indicates tape and reel of 3000 parts.

## PRODUCT INFORMATION CENTER

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