

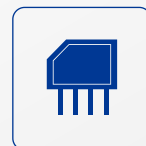
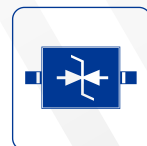
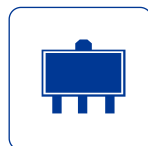
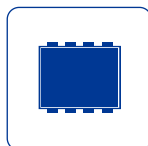
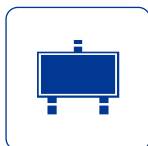
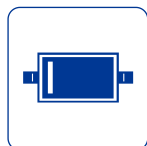
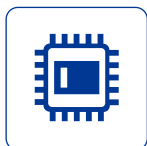
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PRODUCT SPECIFICATION

MAIN PRODUCTS



Description

The TLV704 series is a high voltage, ultralow-power, low dropout voltage regulator. The device can deliver 100mA output current with a dropout voltage of 450mV@100mA and allows an input voltage as high as 30V. The typical quiescent current is only 2.5µA.

The TLV704 is ideally suited for standby micro-control-unit systems, especially for always-on applications like E-meters, fire alarms, smoke detectors and other battery operated systems. The TLV704 retains all of the features that are common to low dropout regulators including a low dropout PMOS pass device, short circuit protection, and thermal shutdown.

Features

- Low Power Consumption: 2.5µA (Typ)
- Maximum Output Current: 150mA
- Low Dropout Voltage: 450mV@100mA ($V_{OUT}=3.3V$)
- Operating Voltage Range: 2.5~30V
- Output Voltage Accurate: $\pm 2\%$
- Good Transient Response
- Integrated Short-Circuit Protection
- Over-Temperature Protection
- Output Current Limit
- Low Temperature Coefficient
- Stable with Ceramic Capacitor
- RoHS Compliant and Lead (Pb) Free
- $-40^{\circ}C$ to $+85^{\circ}C$ Operating Temperature Range
- Fixed Output Voltage Versions: 2.5,3.0,3.3,3.6 and 5.0V
- Available in Green SOT23-5, Packages

Applications

- Portable, Battery Powered Equipment
- Smoke detector and sensor
- Audio/Video Equipmen
- Weighting Scales
- Home Automation
- Electronic fingerprint lock

Application Circuits

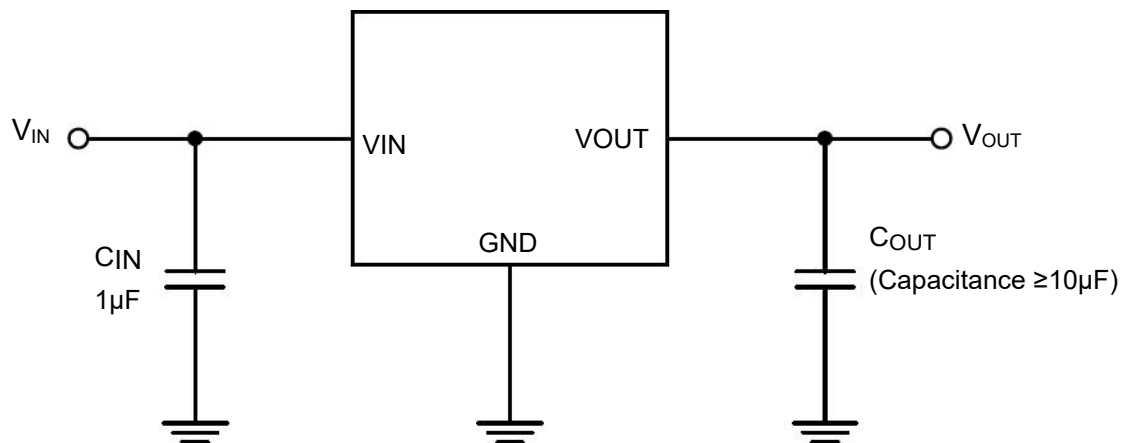
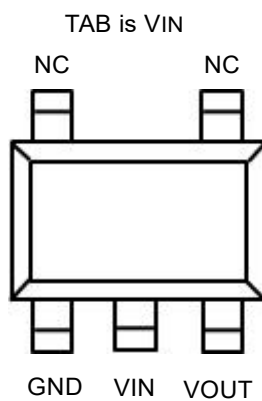


Figure 1. T L V 704 Typical Application Circuit

Pin Configuration (TOP VIEW)

SOT23-5L

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Pin Description

Pin No.	Pin Name	Pin Function
SOT23-5L		
1	GND	Ground
2	VIN	Power Input
3	VOUT	Output Voltage
4	NC	No Internal Connection.
5	NC	No Internal Connection.

Order Information

Part NO.		Description	Package	T/R Qty
TLV704		TLV704 30V, 2.5 μ A IQ, 150mA Low-Dropout Linear Voltage Regulator	SOT23-5L	3,000 PCS

Marking Information

For marking information, contact our sales representative directly

Absolute Maximum Ratings

Item		Symbol	Rating	Unit
Supply Input Voltage		V _{IN}	-0.3 ~ 30	V
Regulated Output Voltage		V _{OUT}	-0.3 ~ 6.0	V
Output Current		I _{OUT}	Internally limited	mA
Power Dissipation P _D @T _A =+25°C	SOT23-5L	P _D	500	mW
Thermal Resistance (Junction to air)	SOT23-5L	θ _{JA}	250	°C /W
Human Body Model (HBM)			±2000	V
Charged Device Mode (CDM)			±1000	V
Machine Mode (MM)			200	V
Storage Temperature Range		T _{STG}	-65 ~ +150	°C
Operating Junction Temperature		T _J	+150	°C
Lead Temperature (Soldering 10s)		T _{LEAD}	+260	°C

Note:

- 1、Stresses beyond those listed under Absolute Maximum Ratings may cause permanent damage to the device. These are stress ratings only and functional operation of the device at these conditions is not implied. Exposure to absolute-maximum-rated conditions for extended period may affect device reliability.
- 2、Ratings apply to ambient temperature at +25°C
- 3、The package thermal impedance is calculated in accordance to JESD 51-7.

Recommended Operating Conditions

Item	Min	Max	Unit
Operating Ambient Temperature	-40	+85	°C
Input voltage	2.5	12	V
Output Voltage	—	5	V

Electronic Characteristics

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

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Input Voltage	V_{IN}		2.5	—	24	V
Quiescent Current	I_Q	$V_{IN}=12V$, $I_{LOAD}=0mA$	—	2.5	3.0	μA
Output Voltage	V_{OUT}	$V_{IN}=12V$, $I_{LOAD}=10mA$	$V_{OUT}\times 0.98$	—	$V_{OUT}\times 1.02$	V
Output Current	I_{OUT}	$V_{IN}=V_{OUT}+2V$	—	150	—	mA
Dropout Voltage $V_{OUT}=3.3V$	V_{DROP}	$I_{LOAD}=100mA$	—	450	—	mV
		$I_{LOAD}=150mA$	—	700	—	
Line Regulation	ΔV_{LINE}	$I_{LOAD}=1mA$ $V_{OUT}+2.0V \leq V_{IN} \leq 24V$	—	0.15	—	% / V
Load Regulation	ΔV_{LOAD}	$V_{IN}=V_{OUT}+2V$ $1mA \leq I_{LOAD} \leq 100mA$	—	—	20	mV
Short Current	I_{SHORT}	$V_{OUT}=GND$	—	80	—	mA
Thermal Shutdown Temperature	T_{SHDN}		—	160	—	$^{\circ}C$
Thermal Shutdown Hysteresis	ΔT_{SHD}		—	20	—	$^{\circ}C$

Note : All limits specified at room temperature ($T_A = 25^{\circ}C$) unless otherwise specified. All room temperature limits are 100% production tested. All limits at temperature extremes are ensured through correlation using standard Statistical Quality Control (SQC) methods. All limits are used to calculate Average Outgoing Quality Level (AOQL).

Functional Block Diagram

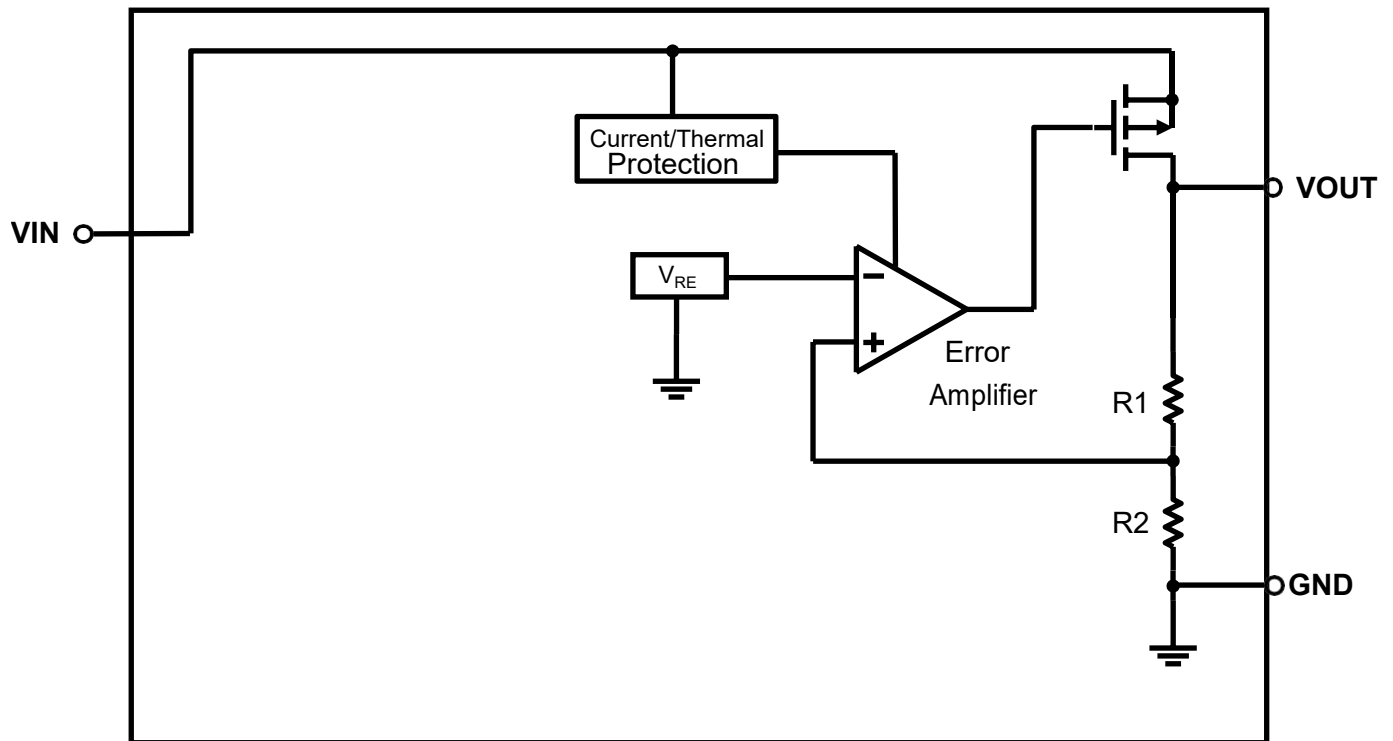


Figure 2. TLV704 Block Diagram