TS4264

150mA Ultra Low Drop Out Voltage Regulator

SOT-223



Pin assignment:
1. Input
2. Ground
3. Output

High Input Voltage up to 45V

Low Dropout Voltage 0.5V max.

General Description

TS4264 is a 5V low-drop fixed-voltage regulator in an SOT-223 package. The IC regulates an input voltage in the range of 5.5V < Vin < 45V to Vout(rated) = 5.0V. The maximum output current is more than 150mA. This IC is designed with short circuit-proof and features temperature protection that disables the circuit at over-temperature.

Features

- ✧ Fixed output voltage 5V
- ✧ Output voltage tolerance +/-2 %
- ✧ 150mA current capability
- ✧ Ultra low drop out voltage
- ✧ Very low current consumption
- ✧ Over temperature protection
- ✧ Short-circuit proof
- ✧ Reverse polarity proof
- ✧ Wide temperature range
- ✧ Suitable for use in automotive electronics

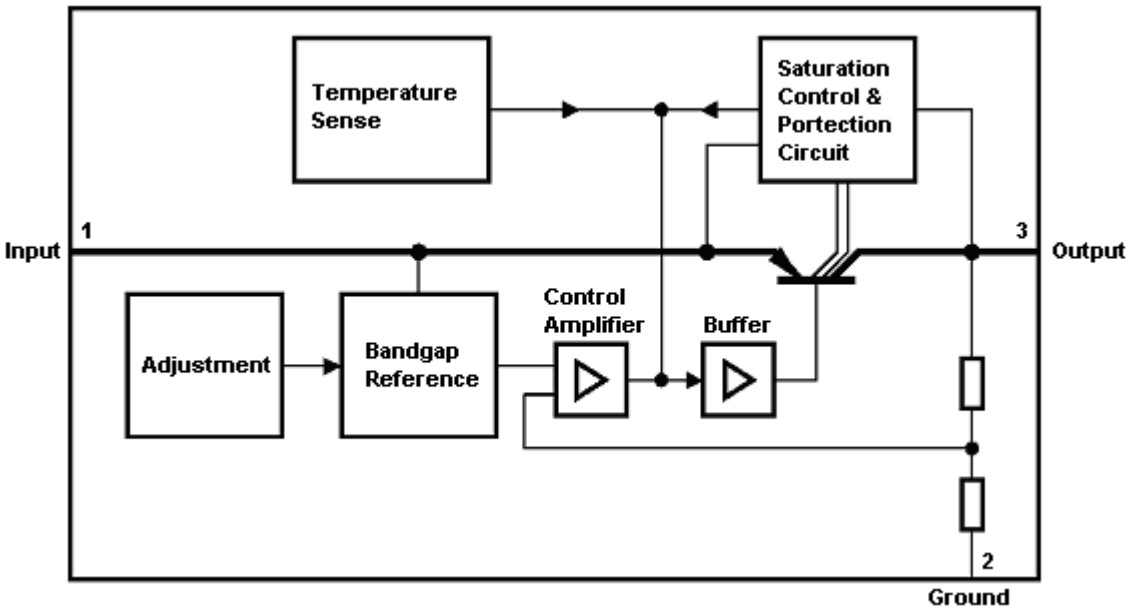
Ordering Information

Part No.	Operating Temp.	Package
TS4264CW50	-40 ~ 150 °C	SOT-223

Pin Definition and Function

Pin	Symbol	Function
1	Input	Block to ground directly on IC with ceramic capacitor
2	Ground	Ground
3	Output	Block to ground with 10uF capacitor, ESR < 10Ω

Block Diagram



Absolute Maximum Rating

Parameter	Symbol	Values	Unit
Input Supply Voltage	Vin	-42 ~ 45	V
Operating Input Voltage	Vin(opr)	5.5 ~ 45	V
Output Voltage	Vout	-1 ~ 16	V
Power Dissipation	P_D	Internally Limited	W
Ground Current	I_{GND}	50	mA
Operating Junction Temperature Range	T_J	-40 ~ +150	°C
Storage Temperature Range	T_{STG}	-50 ~ +150	°C

Thermal Performance

Parameter	Symbol	Values	Unit
Junction to Ambient	RΘja	80	°C/W
Junction to Case	RΘjc	18	

Electrical Characteristics

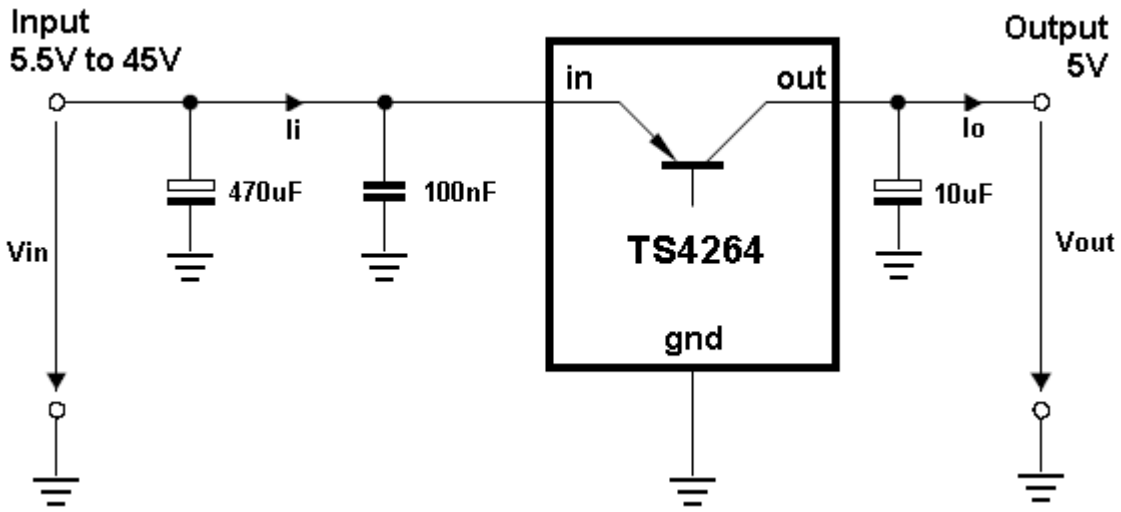
Vin = 13.5V, -40 ≤ Tj ≤ +150, unless otherwise specified.

Parameter	Conditions	Min	Typ	Max	Unit
Output Voltage	6V ≤ Vin ≤ 28V, 5mA ≤ Io ≤ 100mA	4.9	5.0	5.1	V
Output Current Limited		150	--	--	mA
Line Regulation	6V ≤ Vin ≤ 28V, Io=5mA	--	15	30	mV
Load Regulation	5mA ≤ Io ≤ 100mA, Vin= 6V	--	--	90	mV
Dropout Voltage (note 1)	Io=100mA	--	0.25	0.5	V
Current Consumption	Io= 1mA	--	--	400	uA
(Iq= Iin – Iout)	Io= 100mA	--	10	15	mA
Temperature Stability	Io=10mA	--	0.5	--	%
Power Supply Ripple Rejection	f = 100Hz, Vr= 0.5Vp-p	--	54	--	dB

Note 1: Drop voltage = Vin – Vout

(measured where Vout has dropped 100mV from the nominal value obtained at Vin= 13.5V)

Typical Application Circuit



Application Information

Dimensioning Information on External Components

The input capacitor Cin is necessary for compensating line influences. Using a resistor of approx. 1Ω in series with Cin, the oscillating of input inductivity and input capacitance can be clamped. The output capacitor Cout is necessary for the stability of the regulating circuit. Stability is guaranteed at values Cout ≥10uF and an ESR ≤ 10Ω within the operating temperature range.

Circuit Description

The control amplifier compares a reference voltage, which is kept highly precise by resistance adjustment, to a voltage that is proportional to the output voltage and drives the base of the series transistor via a buffer. Saturation control, working as a function of load current, prevents any over-saturation of the power element. The IC is additionally protected against overload, over temperature and reverse polarity

Electrical Characteristics Curve

Figure 1: dropout voltage vs output current

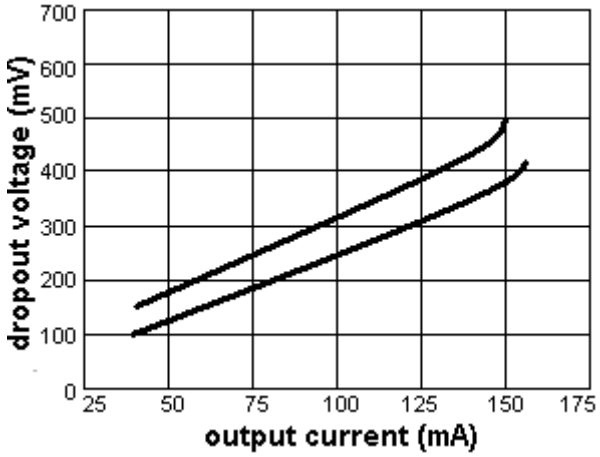


Figure 2: output current vs input voltage

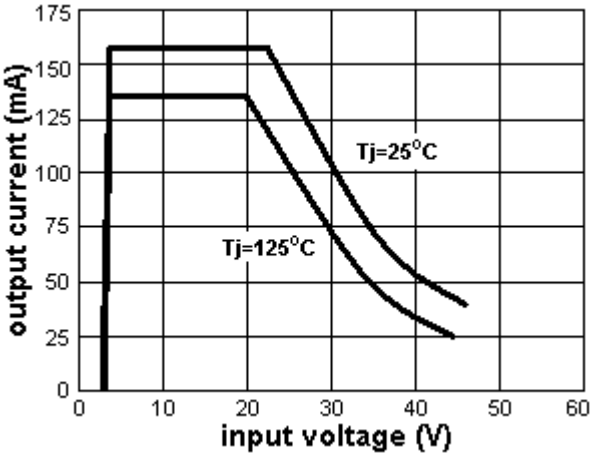


Figure 3: consumption vs output current

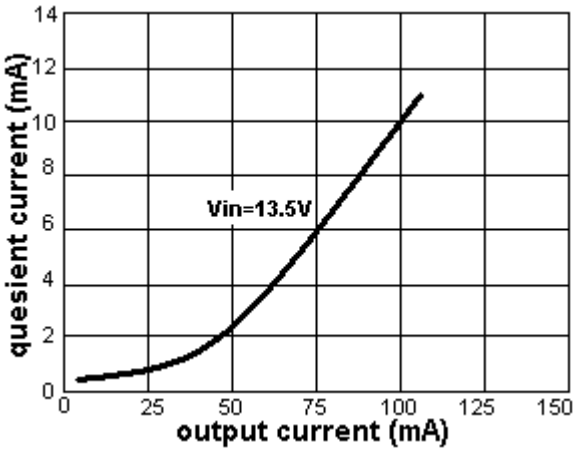


Figure 4: consumption vs output current

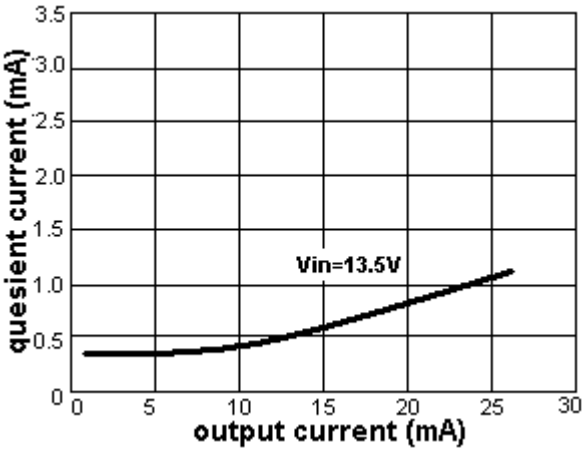


Figure 5: consumption vs input voltage

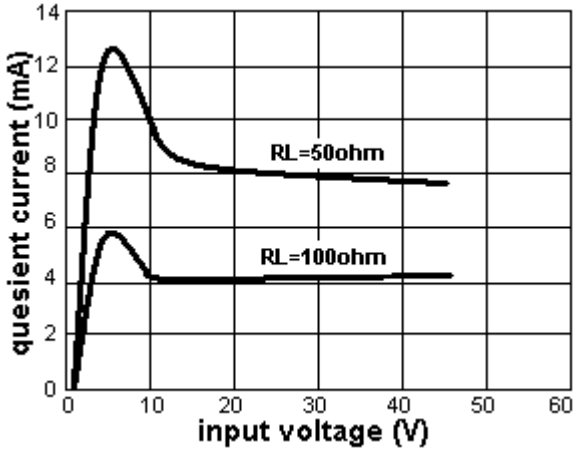
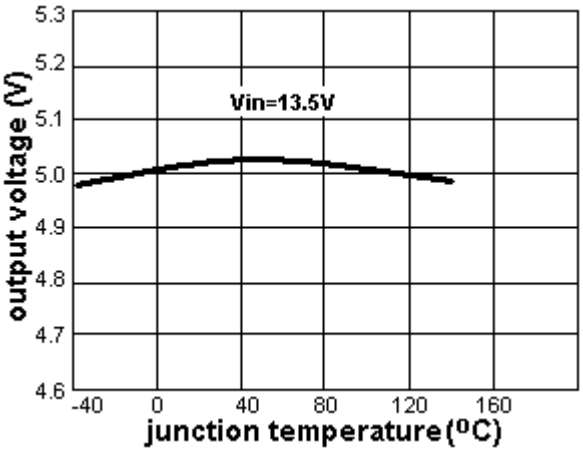
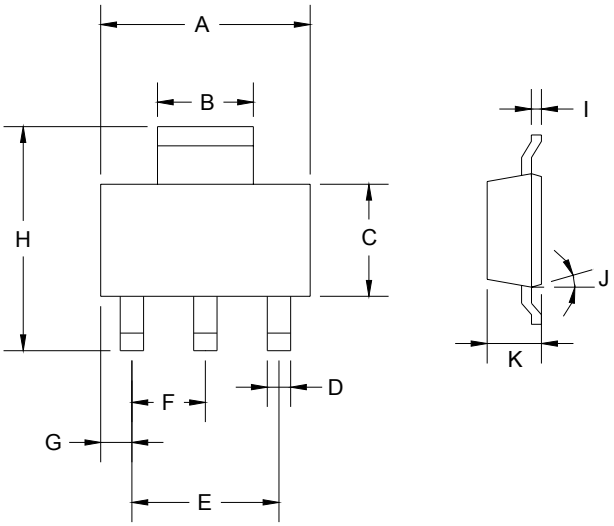


Figure 6: output voltage vs temp.



SOT-223 Mechanical Drawing



SOT-223 DIMENSION				
DIM	MILLIMETERS		INCHES	
	MIN	MAX	MIN	MAX
A	6.350	6.850	0.250	0.270
B	2.900	3.100	0.114	0.122
C	3.450	3.750	0.136	0.148
D	0.595	0.635	0.023	0.025
E	4.550	4.650	0.179	0.183
F	2.250	2.350	0.088	0.093
G	0.835	1.035	0.032	0.041
H	6.700	7.300	0.263	0.287
I	0.250	0.355	0.010	0.014
J	10°	16°	10°	16°
K	1.550	1.800	0.061	0.071