



TS4264G

150mA Ultra Low Drop Out Voltage Regulator

SOT-223



Pin assignment:

- 1. Input
- 2. Ground
- 3. Output

SOP-8



Pin assignment:

- 1. Output
- 2. N/C
- 3. Ground
- 4. N/C
- 5. N/C
- 6. N/C
- 7. N/C
- 8. Input

High Input Voltage up to 45V
Low Dropout Voltage 0.5V (max)
Low Power Consumption 40uA (typ)

General Description

TS4264G is a 5V low-drop fixed-voltage regulator in an SOT-223 and SOP-8 package. The IC regulates an input voltage in the range of $5.5V < V_{in} < 45V$ to $V_{out}(\text{rated}) = 5.0V$. 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 $\pm 2\%$
- ✧ 150mA current capability
- ✧ Ultra low drop out voltage
- ✧ Very low current consumption 40uA (typ)
- ✧ Over temperature protection
- ✧ Short-circuit proof
- ✧ Reverse polarity proof
- ✧ Wide temperature range
- ✧ Suitable for use in automotive electronics

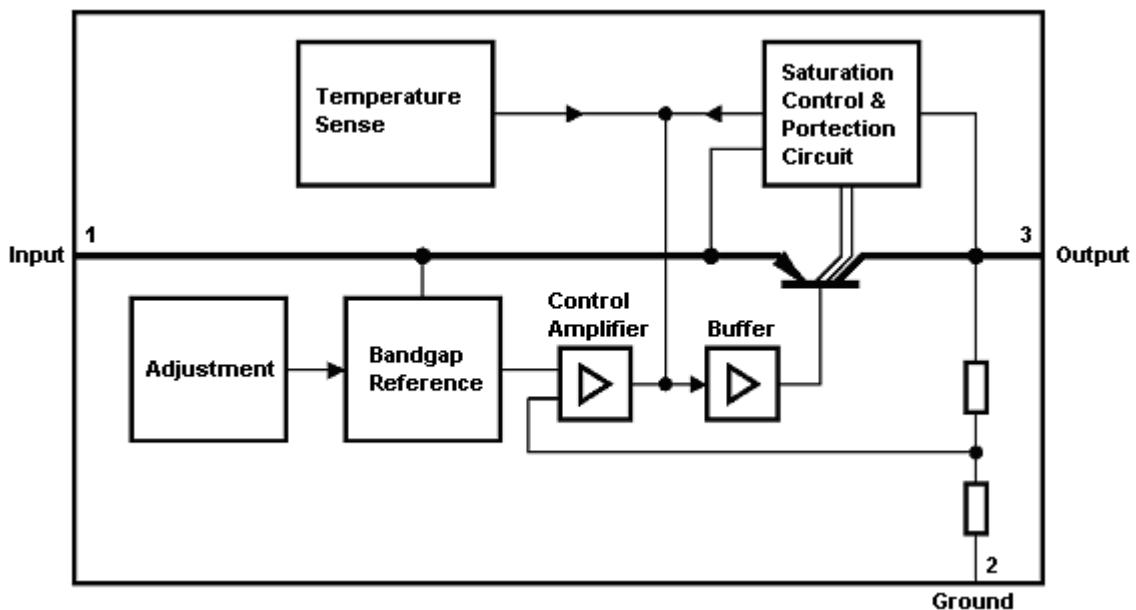
Ordering Information

Part No.	Operating Temp.	Package
TS4264GCW50	-40 ~ 150 °C	SOT-223
TS4264GCS50		SOP-8

Pin Definition and Function

Symbol	Function
Input	Block to ground directly on IC with ceramic capacitor
Ground	Ground
Output	Block to ground with 10uF capacitor, ESR < 4Ω

Block Diagram





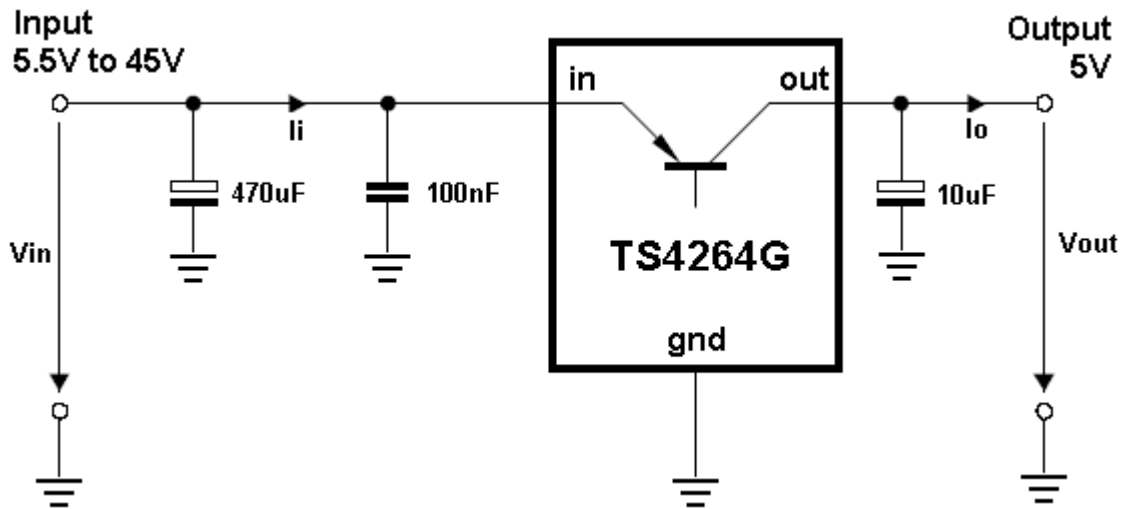
Absolute Maximum Rating			
Parameter	Symbol	Values	Unit
Input Supply Voltage	V _{in}	-42 ~ 45	V
Operating Input Voltage	V _{in(opr)}	5.5 ~ 45	V
Output Voltage	V _{out}	-1 ~ 32	V
Power Dissipation	P _D	Internally Limited	W
Ground Current	I _{GND}	50	mA
Operating Junction Temperature Range	T _J	-40 ~ +150	°C
Storage Temperature Range	T _{STG}	-50 ~ +150	°C

Thermal Performance			
Parameter	Symbol	Values	Unit
Junction to Ambient	R _{θja}	81	°C/W
Junction to Case	R _{θjc}	17	

Electrical Characteristics					
V _{in} = 13.5V, -40 ≤ T _j ≤ +150, unless otherwise specified.					
Parameter	Conditions	Min	Typ	Max	Unit
Output Voltage	6V ≤ V _{in} ≤ 21V, 5mA ≤ I _o ≤ 100mA	4.85	5.0	5.15	V
Output Voltage	6V ≤ V _{in} ≤ 16V, 5mA ≤ I _o ≤ 50mA	4.90	5.0	5.10	V
Output Current Limited		150	--	--	mA
Line Regulation	6V ≤ V _{in} ≤ 28V, I _o =1mA	--	15	30	mV
Load Regulation	1mA ≤ I _o ≤ 100mA, V _{in} = 13.5V	--	50	90	mV
Dropout Voltage (note 1)	I _o =100mA	--	0.25	0.5	V
Current Consumption (I _q = I _{in} – I _{out})	I _o = 100uA	--	40	70	uA
	I _o = 50mA	--	1.7	4	mA
Temperature Stability	I _o =10mA	--	0.5	--	%
Power Supply Ripple Rejection	f = 100Hz, V _r = 0.5Vp-p	--	68	--	dB

Note 1: Drop voltage = V_{in} – V_{out}
(measured where V_{out} has dropped 100mV from the nominal value obtained at V_{in}= 13.5V)

Typical Application Circuit



Application Information

Dimensioning Information on External Components

The input capacitor C_{in} is necessary for compensating line influences. Using a resistor of approx. 1Ω in series with C_{in} , the oscillating of input inductivity and input capacitance can be clamped. The output capacitor C_{out} is necessary for the stability of the regulating circuit. Stability is guaranteed at values $C_{out} \geq 10\mu F$ and an $ESR \leq 4\Omega$ 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

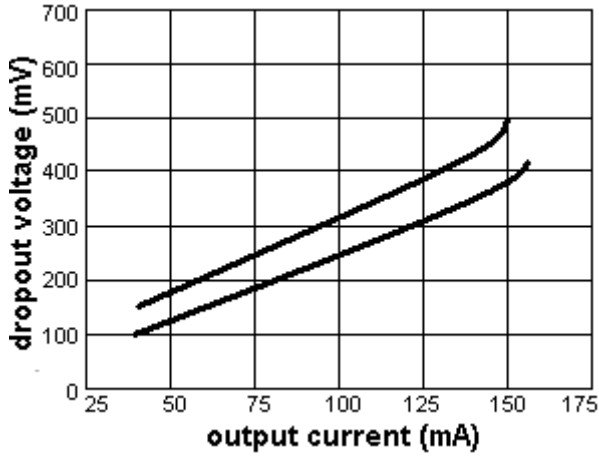


Figure 2: output current vs input voltage

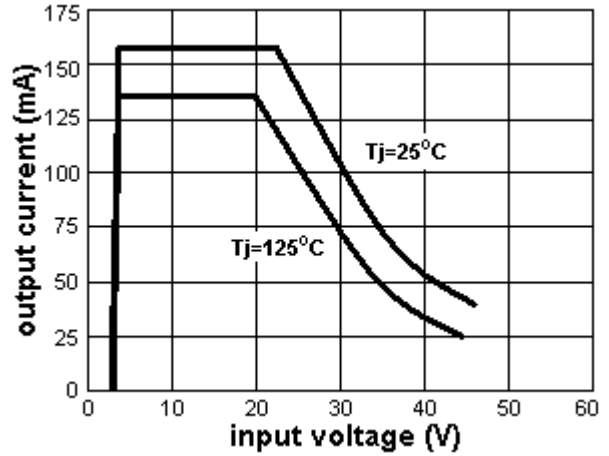


Figure 3: consumption vs output current

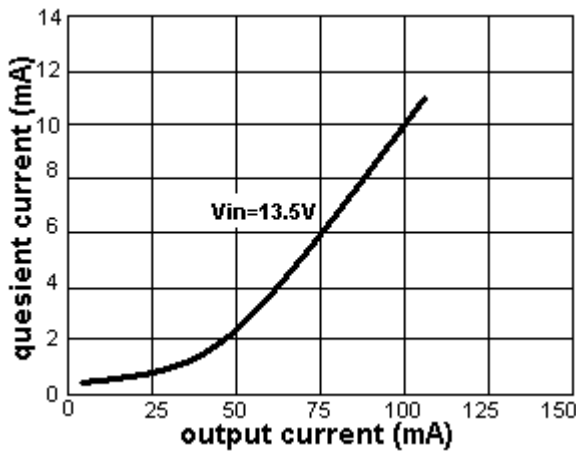


Figure 4: consumption vs output current

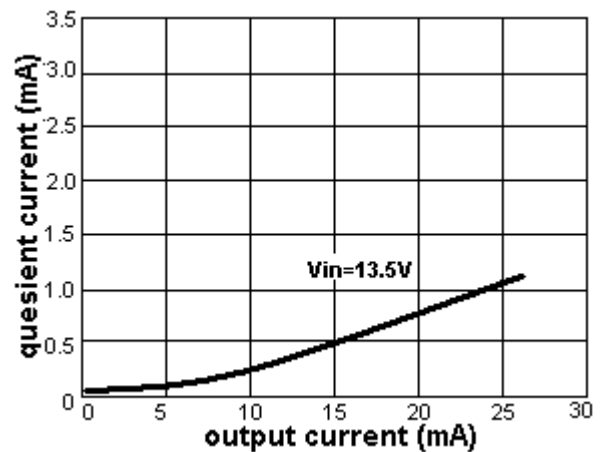


Figure 5: consumption vs input voltage

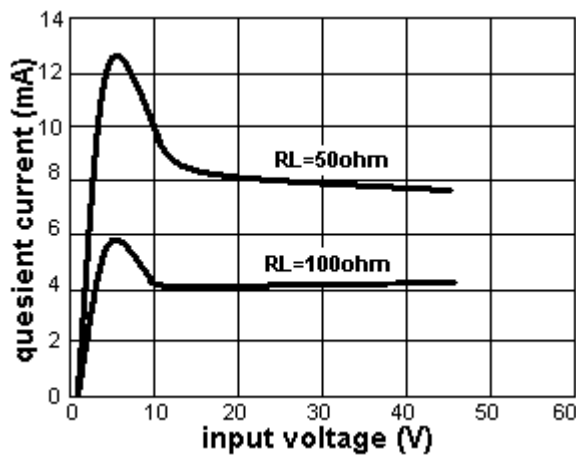
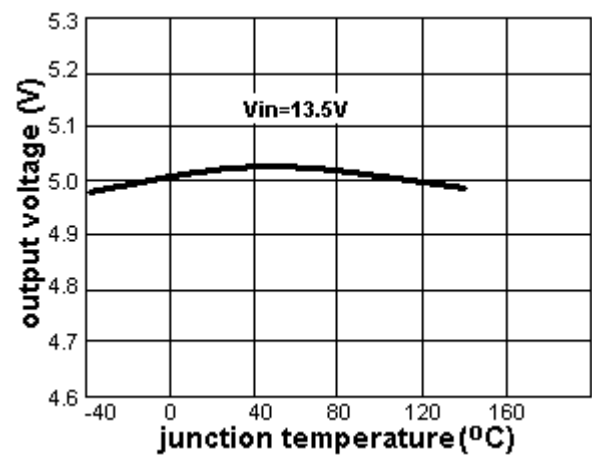
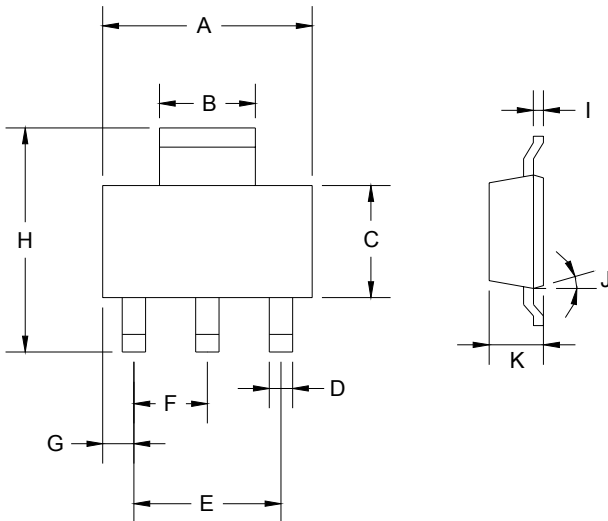


Figure 6: output voltage vs temp.

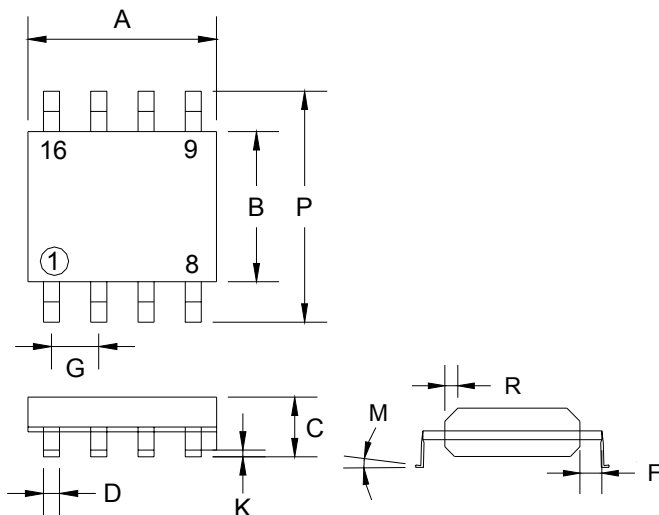


SOT-223 Mechanical Drawing



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

SOP-8 Mechanical Drawing



SOP-8 DIMENSION				
DIM	MILLIMETERS		INCHES	
	MIN	MAX	MIN	MAX
A	4.80	5.00	0.189	0.196
B	3.80	4.00	0.150	0.157
C	1.35	1.75	0.054	0.068
D	0.35	0.49	0.014	0.019
F	0.40	1.25	0.016	0.049
G	1.27 (typ)		0.05 (typ)	
K	0.10	0.25	0.004	0.009
M	0°	7°	0°	7°
P	5.80	6.20	0.229	0.244
R	0.25	0.50	0.010	0.019