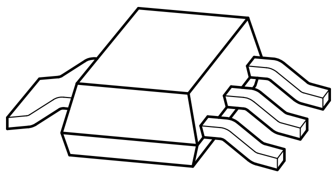
SIEMENS

5-V Low-Drop Voltage Regulator **TLE 4266**

Bipolar IC

Features

- Output voltage tolerance ≤ ± 2 %
- Very low current consumption
- Low-drop voltage
- Overtemperature protection
- Reverse polarity proof
- Wide temperature range
- Suitable for use in automotive electronics
- Inhibit



P-SOT223-4-2

	Type	Ordering Code	Package
▼	TLE 4266 G	Q67006-A9152	P-SOT223-4-2

▼ New type

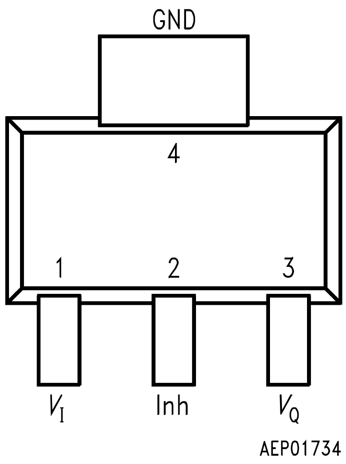
Functional Description

TLE 4266 G is a 5 V low-drop voltage regulator in a P-SOT223-4-2 SMD package. The IC regulates an input voltage V_i in the range of 5.5 V < V_i < 45 V to V_{Qrated} = 5 V. The maximum output current is more than 120 mA. The IC can be switched off via the inhibit input, which causes the current consumption to drop below 10 µA. The IC is shortcircuit-proof and incorporates temperature protection that disables the IC an overtemperature.

Dimensioning Information on External Components

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

Pin Configuration
(top view)



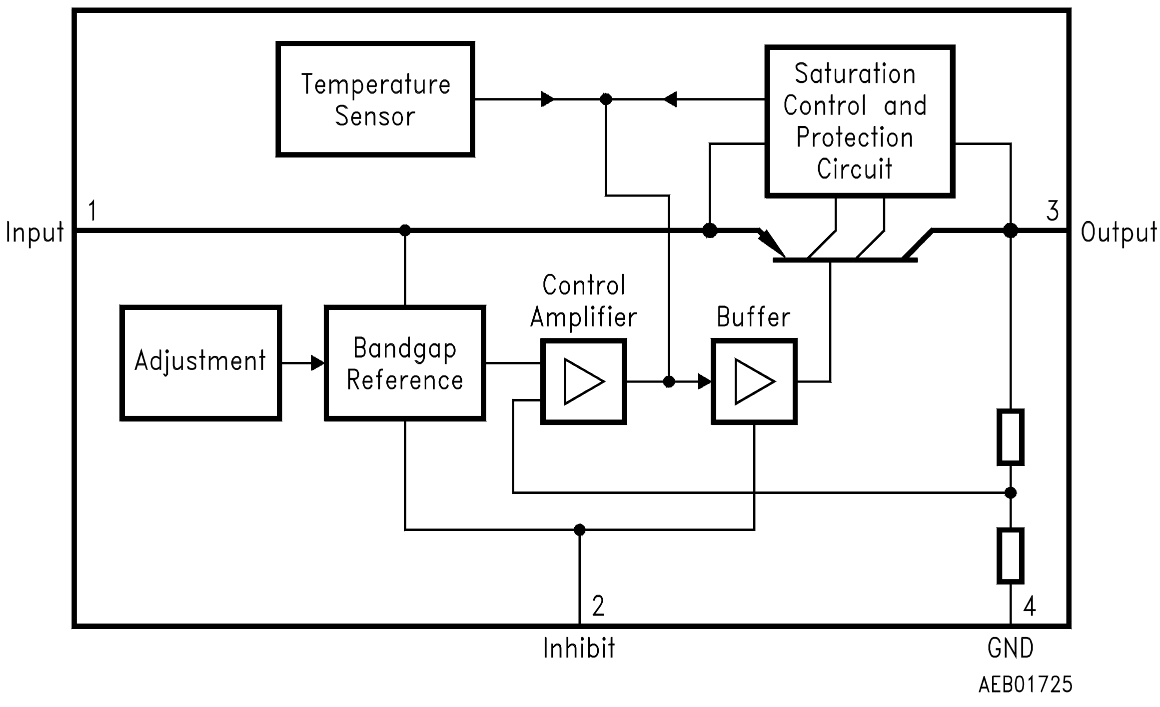
Pin Definitions and Functions

Pin	Symbol	Function
1	V_I	**Input voltage;** block to ground directly at the IC with a ceramic capacitor.
2	Inh	**Inhibit;** low-active input.
3	V_Q	**5-V output voltage;** block to ground with a ≥ 10 μF capacitor.
4	GND	**Ground**

Circuit Description

The control amplifier compares a reference voltage, which is kept highly accurate 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 as a function of the load current prevents any oversaturation of the power element. The IC also incorporates a number of internal circuits for protection against:

- Overload,
- Overtemperature,
- Reverse polarity.



Block Diagram

Absolute Maximum Ratings

T_j = – 40 to 150 °C

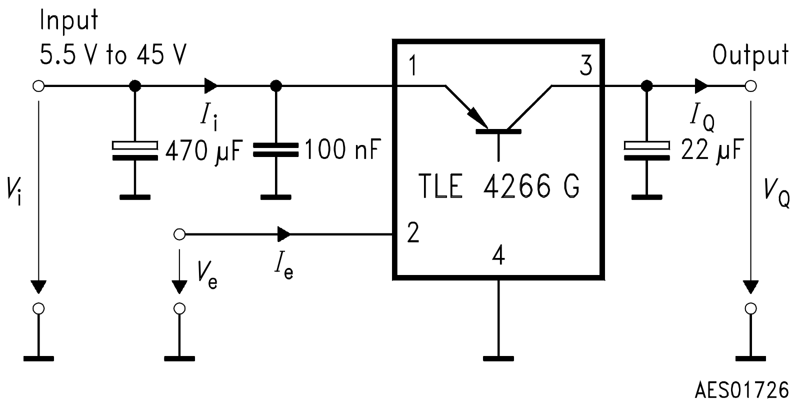
Parameter	Symbol	Limit Values		Unit	Notes
		min.	max.		
Input					
Voltage	V_i	– 42	45	V	
Current	I_i				internally limited
Inhibit					
Voltage	V_e	– 42	45	V	
Output					
Voltage	V_Q	– 1	16	V	
Current	I_Q				internally limited
GND					
Current	I_M	50		mA	
Temperature					
Junction temperature	T_j		150	°C	
Storage temperature	T_S	– 50	150	°C	

Operating Range					
Input voltage	V_i	5.5	45	V	
Junction temperature	T_j	– 40	150	°C	
Thermal Resistance					
Junction ambient	R_{thjA}		100	K/W	soldered
Junction case	R_{thjC}		25	K/W	

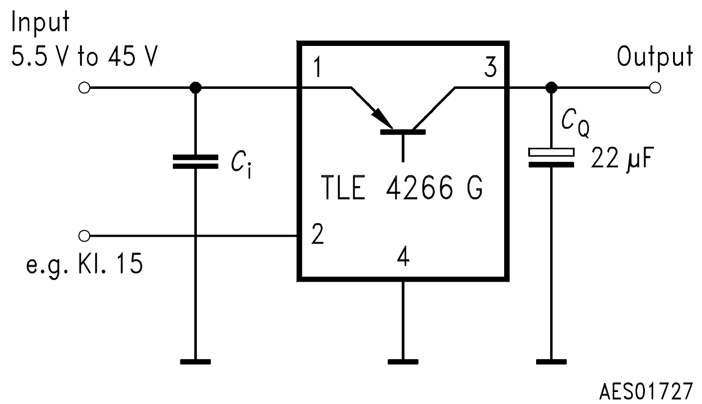
Characteristics
V_I = 13.5 V; – 40 °C ≤ T_j ≤ 125 °C

Parameter	Symbol	Limit Values			Unit	Test Condition
		min.	typ.	max.		
Output voltage	V_Q	4.9	5	5.1	V	5 mA ≤ I_Q ≤ 100 mA 6 V ≤ V_i ≤ 28 V
Output-current limitation	I_Q	120	150		mA	
Current consumption $I_q = I_i - I_Q$	I_q		0	10	µA	V_e = 0 V; T_j ≤ 100 °C
Current consumption $I_q = I_i - I_Q$	I_q			400	µA	I_Q = 1 mA
Current consumption $I_q = I_i - I_Q$	I_q		10	15	mA	I_Q = 100 mA
Drop voltage	V_{Dr}		0.25	0.5	V	I_Q = 100 mA[1)]
Load regulation	ΔV_Q			40	mV	I_Q = 5 to 100 mA V_i = 6 V
Supply-voltage regulation	ΔV_Q		15	30	mV	V_I = 6 V to 28 V I_Q = 5 mA
Supply-voltage rejection	SVR		54		dB	f_r = 100 Hz V_r = 0.5 V_{SS}
Inhibit						
Inhibit on voltage	$V_{e,\,on}$			3.5	V	
Inhibit off voltage	$V_{e,\,off}$	0.8			V	
Inhibit current	I_e	5	15	25	µA	V_e = 5 V

1) Drop voltage = $V_i - V_Q$ (measured when the output voltage V_Q has dropped 100 mV from the nominal value obtained at V_i = 13.5 V).

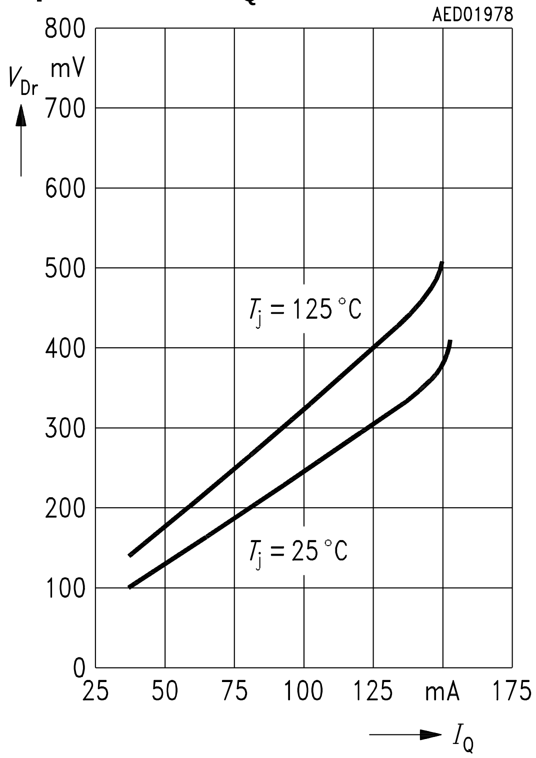


Measuring Circuit

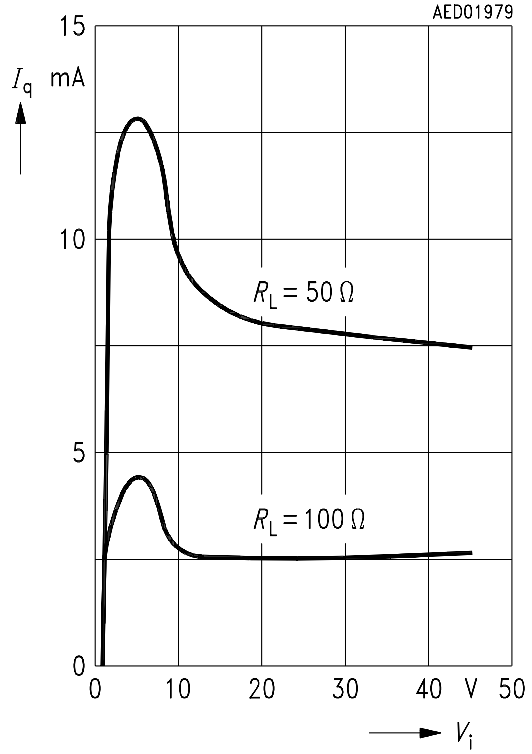


Application Circuit

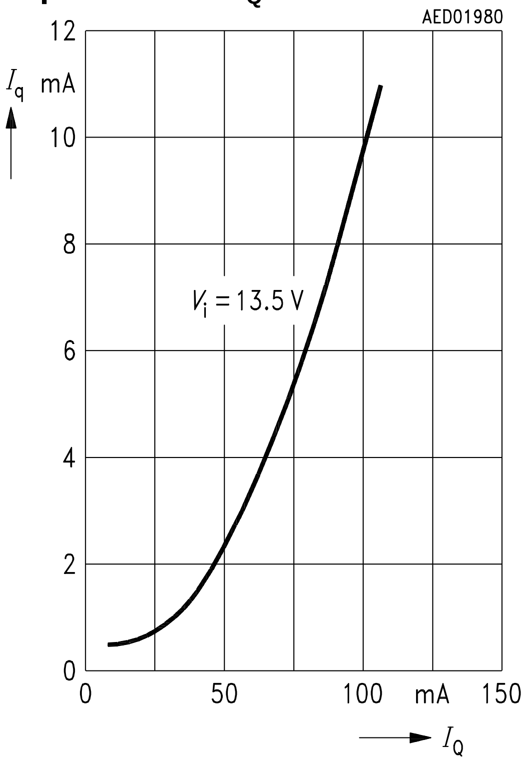
Drop Voltage V_{Dr} versus Output Current I_Q



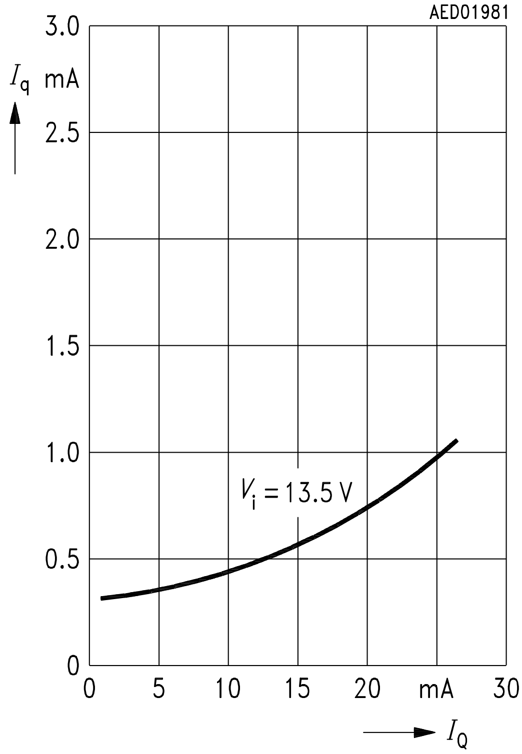
Current Consumption I_q versus Input Voltage V_i



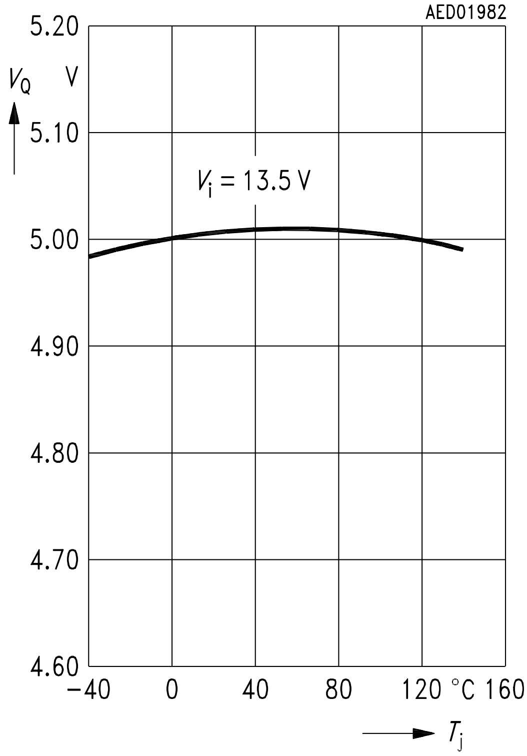
Current Consumption I_q versus Output Current I_Q



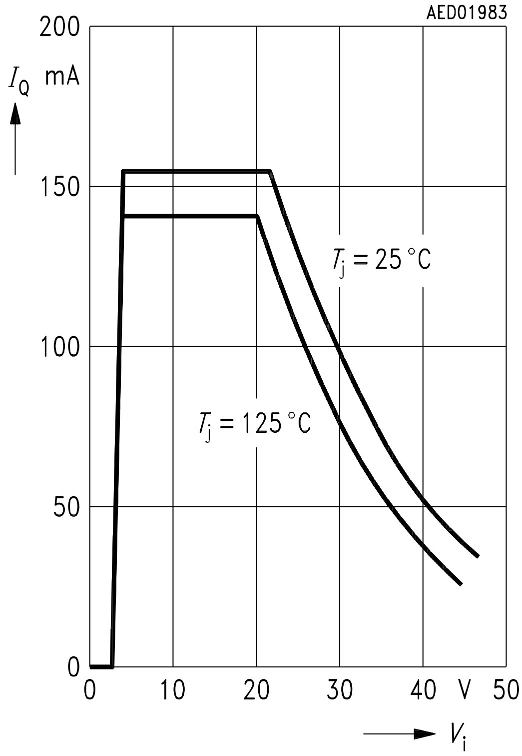
Current Consumption I_q versus Output Current I_Q



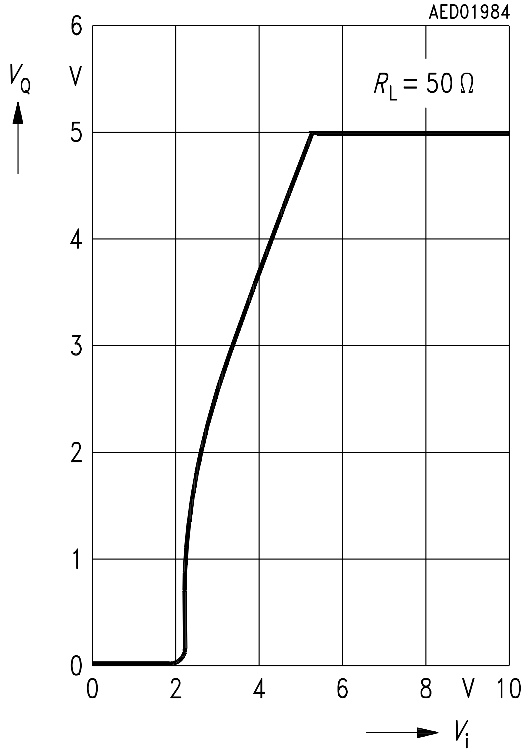
Output Voltage V_Q versus Temperature T_j



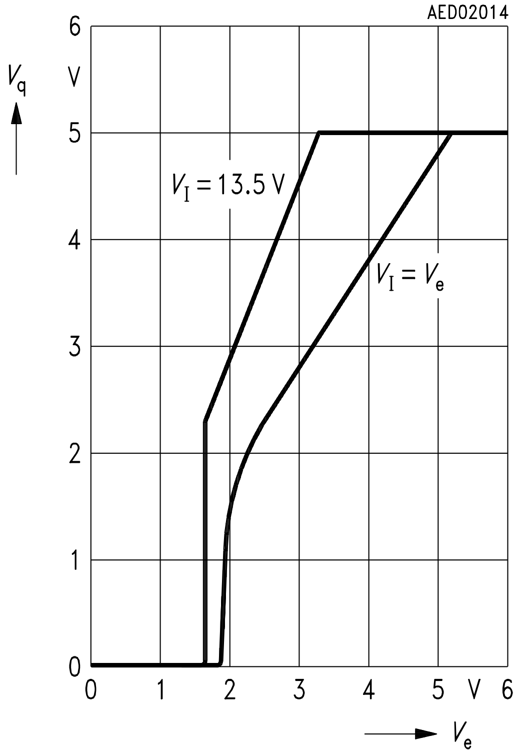
Output Current I_Q versus Input Voltage V_i



Output Voltage V_Q versus Input Voltage V_i

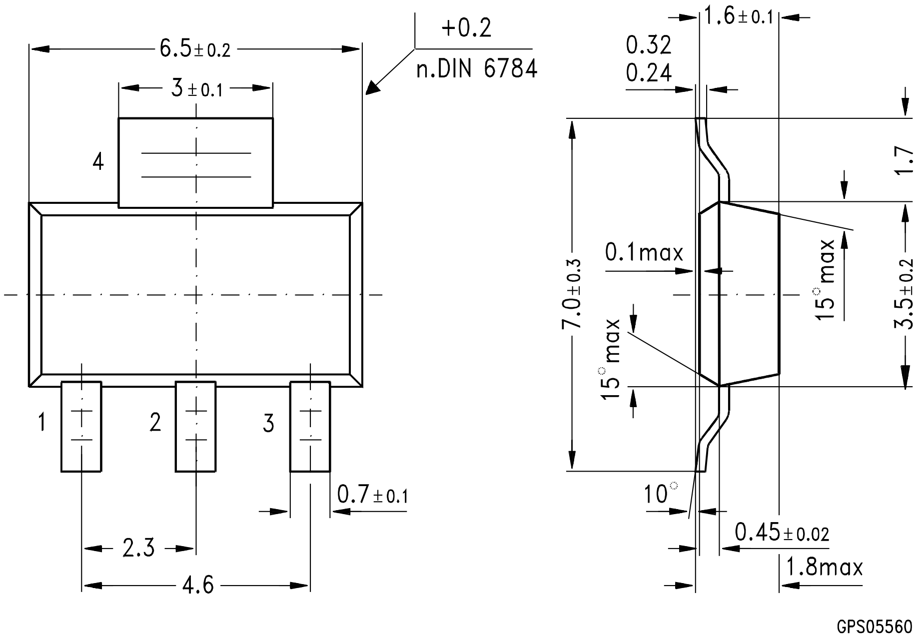


Output Voltage V_Q versus Inhibit Voltage V_e



Package Outlines

P-SOT223-4-2 (SMD)
(Plastic Small Outline Transistor)



Weight approx. 0.15 g

GPS05560

Sorts of Packing
Package outlines for tubes, trays etc. are contained in our Data Book “Package Information”

SMD = Surface Mounted Device

Dimensions in mm