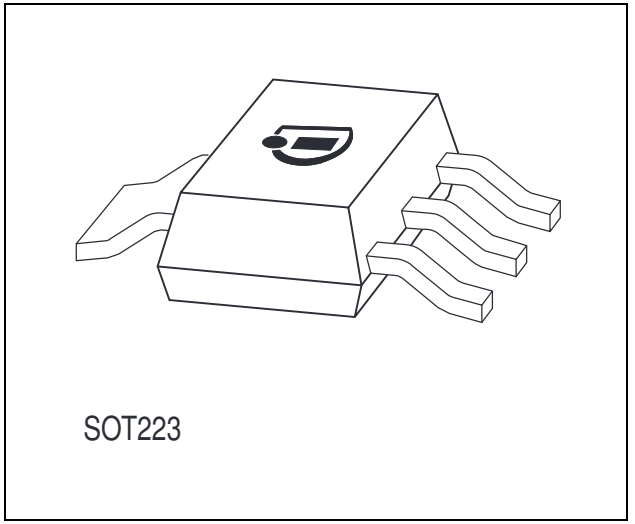
5 V/10 V Low Drop Voltage Regulator

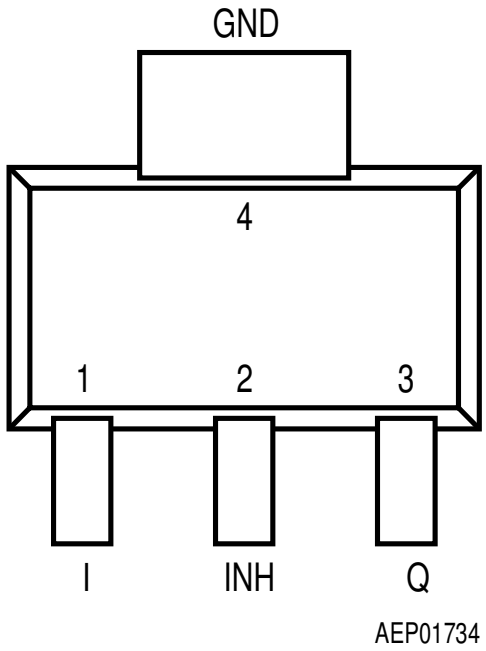
TLE 4266

Features

- Output voltage 5 V or 10 V
- Output voltage tolerance ≤ ±2%
- 120 mA current capability
- Very low current consumption
- Low-drop voltage
- Overtemperature protection
- Reverse polarity proof
- Wide temperature range
- Suitable for use in automotive electronics
- Inhibit
- Green Product (RoHS compliant)
- AEC Qualified



SOT223


GND
4
1
2
3
I
INH
Q
AEP01734

Circuit Description

The device includes a precise reference voltage, which is very accurate due to resistor adjustment. A control amplifier compares the divided output voltage to this reference voltage and drives the base of the PNP series transistor through 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 protection circuitry for:

- Overload
- Overtemperature
- Reverse polarity

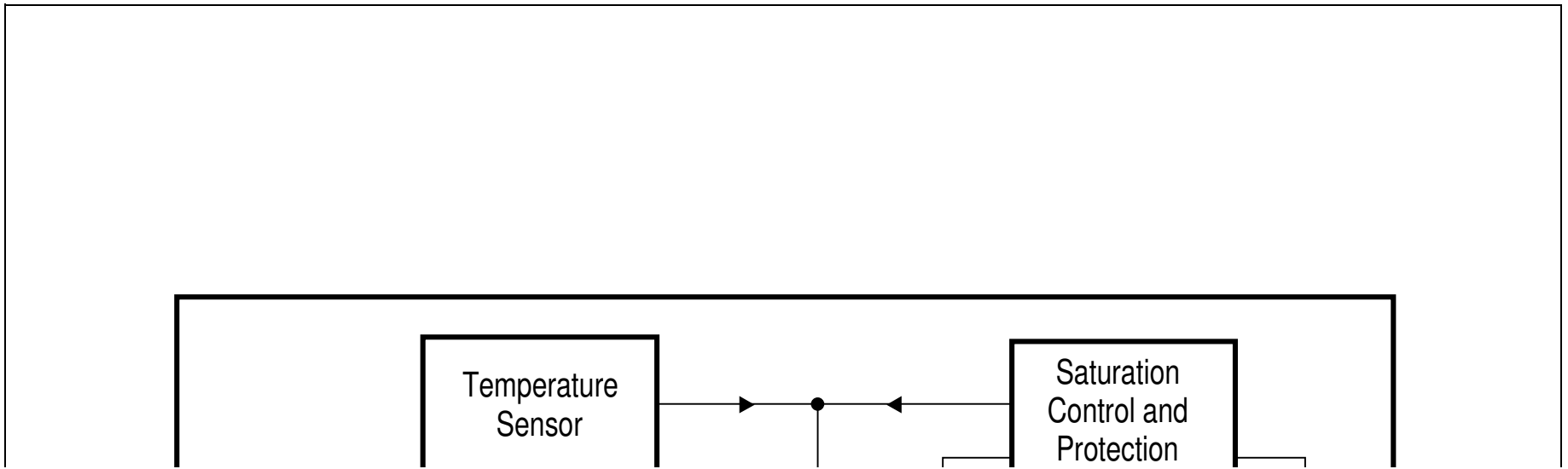


Table 2 Absolute Maximum Ratings (TLE 4266 G, TLE 4266 GSV10)

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_{INH}	-42	45	V	–
Output					
Voltage	V_Q	-1	32	V	–
Current	I_Q	–	–	–	internally limited
GND					
Current	I_{GND}	50	–	mA	–
Temperature					

Table 3 Characteristics (TLE 4266 G)

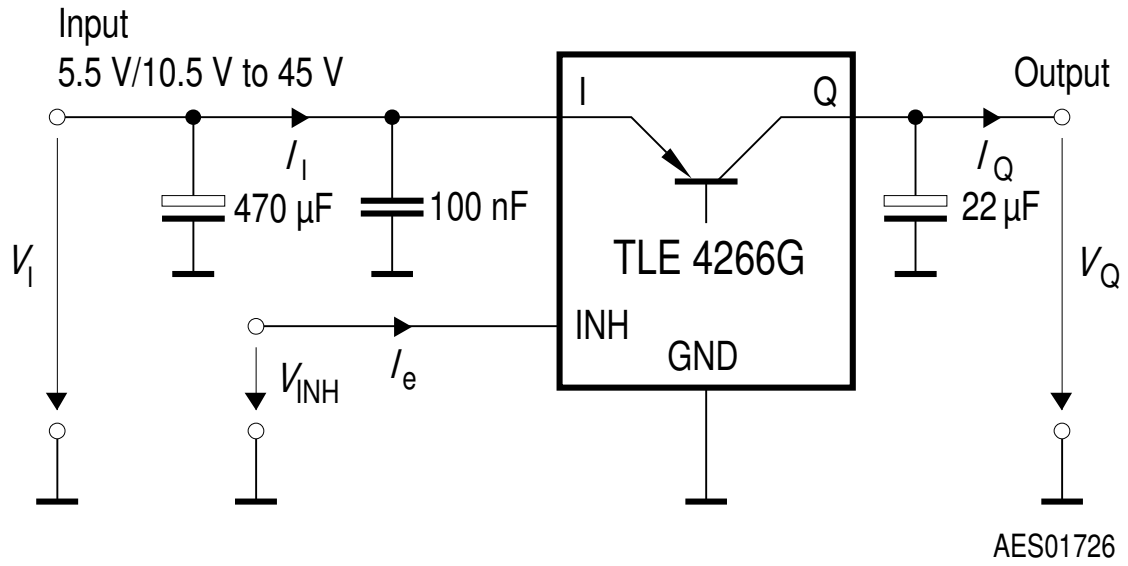
V_I = 13.5 V; -40 °C ≤ T_j ≤ 125 °C

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	–	–	10	µA	V_{INH} = 0 V; T_j ≤ 100 °C
Current consumption $I_q = I_i - I_Q$	I_q	–	–	400	µA	I_Q = 1 mA Inhibit ON
Current consumption $I_q = I_i - I_Q$	I_q	–	10	15	mA	I_Q = 100 mA Inhibit ON
Drop voltage	V_{DR}	–	0.25	0.5	V	I_Q = 100 mA[1)]
Load regulation	$\Delta V_{Q,lo}$	–	–	40	mV	I_Q = 5 to 100 mA V_i = 6 V

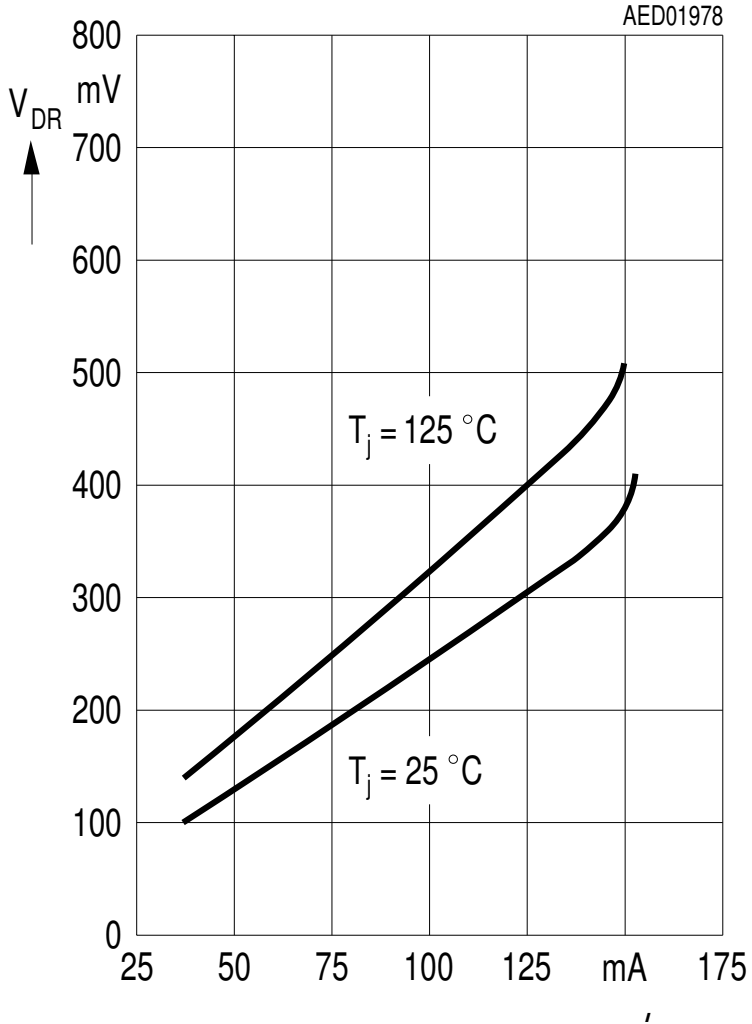
Table 4 Characteristics (TLE 4266 GSV10)

V_I = 13.5 V; -40 °C ≤ T_j ≤ 125 °C

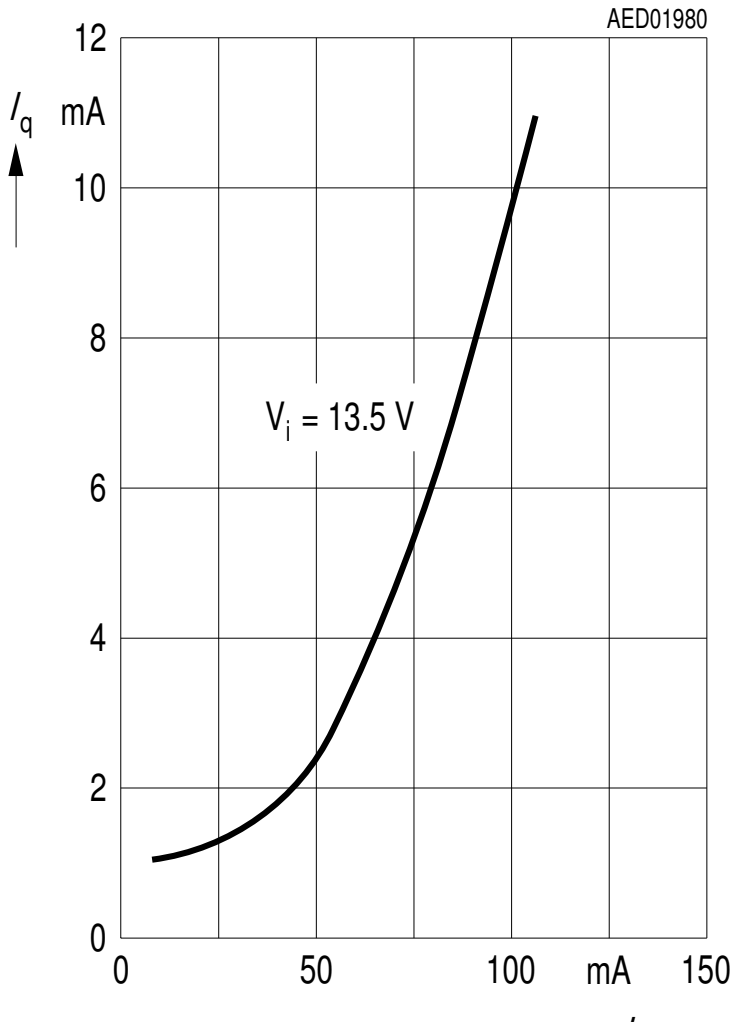
Parameter	Symbol	Limit Values			Unit	Test Condition
		Min.	Typ.	Max.		
Output voltage	V_Q	9.8	10	10.2	V	5 mA ≤ I_Q ≤ 100 mA 11 V ≤ V_I ≤ 21 V
Output voltage	V_Q	9.8	10	10.2	V	1 mA ≤ I_Q ≤ 50 mA 11 V ≤ V_I ≤ 28 V
Output-current limitation	I_Q	120	150	200	mA	–
Current consumption $I_q = I_I - I_Q$	$I_{q,off}$	–	–	10	µA	V_{INH} = 0 V; T_j ≤ 100 °C
Current consumption $I_q = I_I - I_Q$	I_q	–	350	500	µA	I_Q < 1 mA Inhibit ON
Current consumption $I_q = I_I - I_Q$	I_q	–	7	15	mA	I_Q < 100 mA Inhibit ON
Drop voltage	V_{DR}	–	0.28	0.5	V	I_Q = 100 mA[1)]


Input
5.5 V/10.5 V to 45 V
I
Q
Output
I_I
I_Q
470 µF
100 nF
22 µF
V_I
TLE 4266G
V_Q
INH
GND
V_{INH}
I_e
AES01726

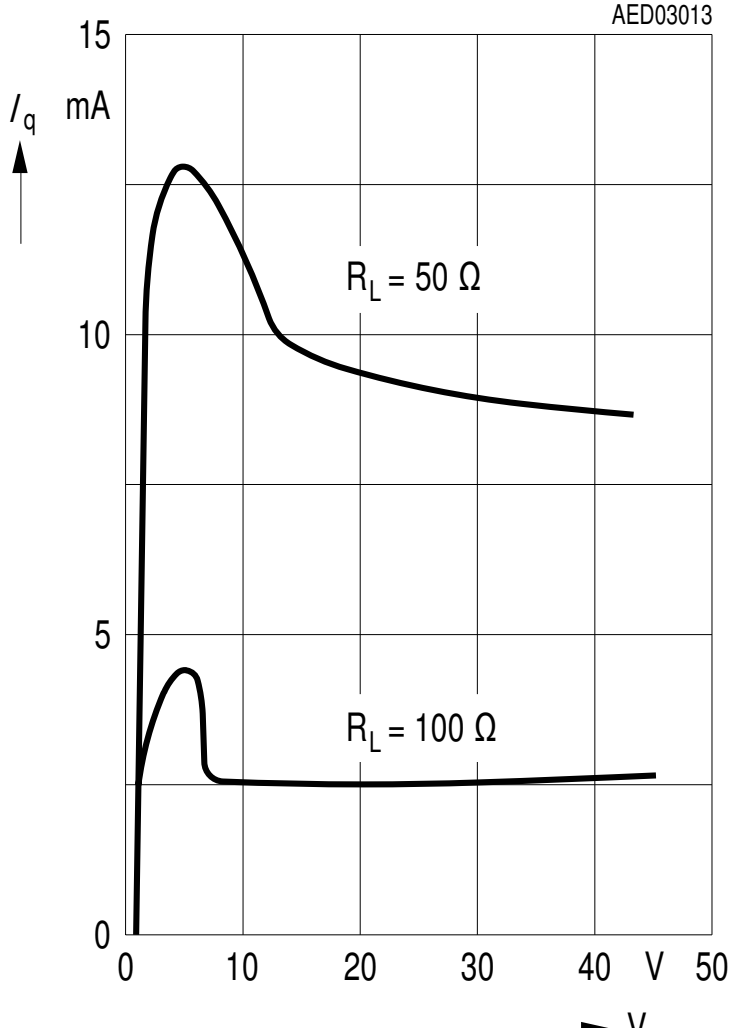
Drop Voltage V_{DR} versus Output Current I_Q (5 V, 10 V)



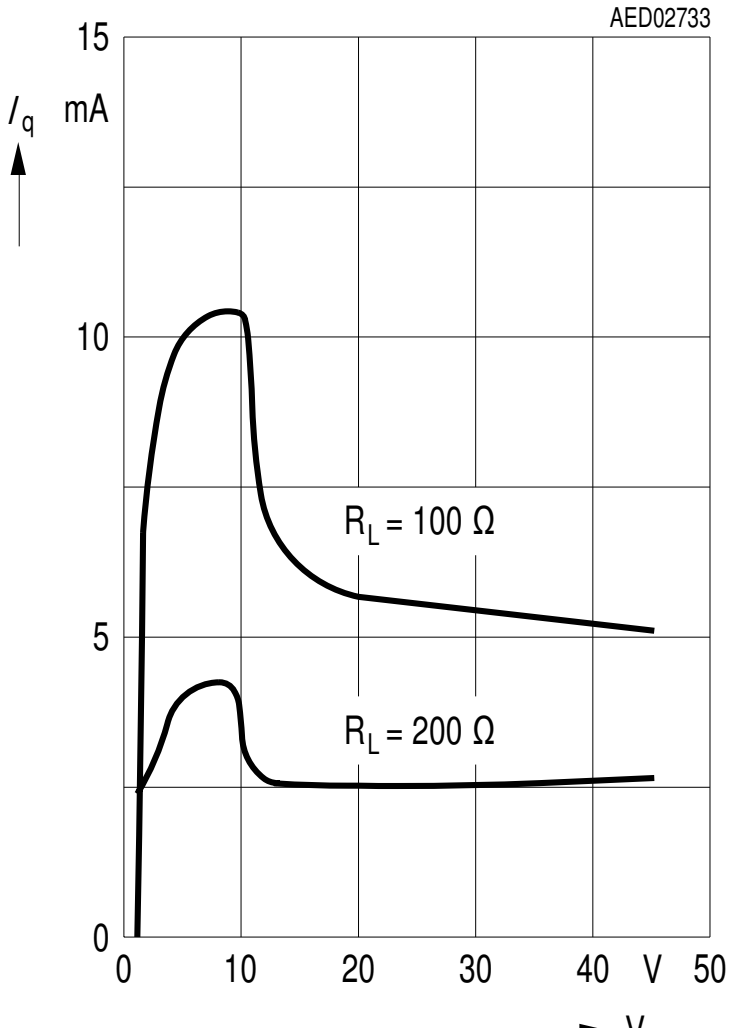
Current Consumption I_q versus Output Current I_Q (5 V)



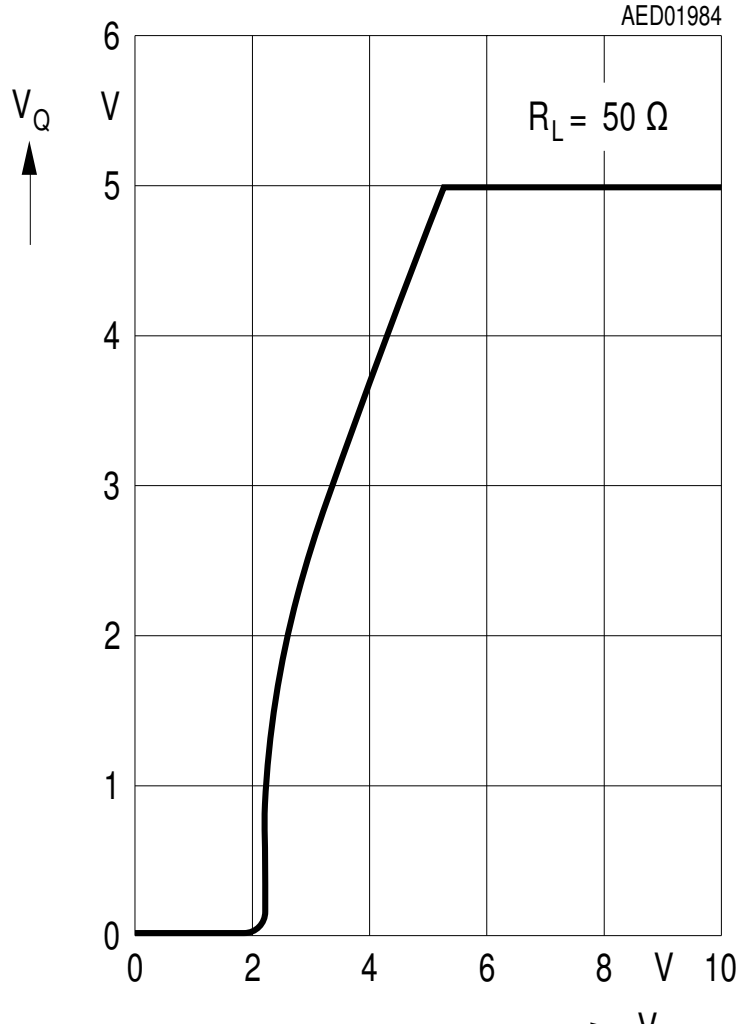
Current Consumption I_q versus Input Voltage V_I (5 V version)



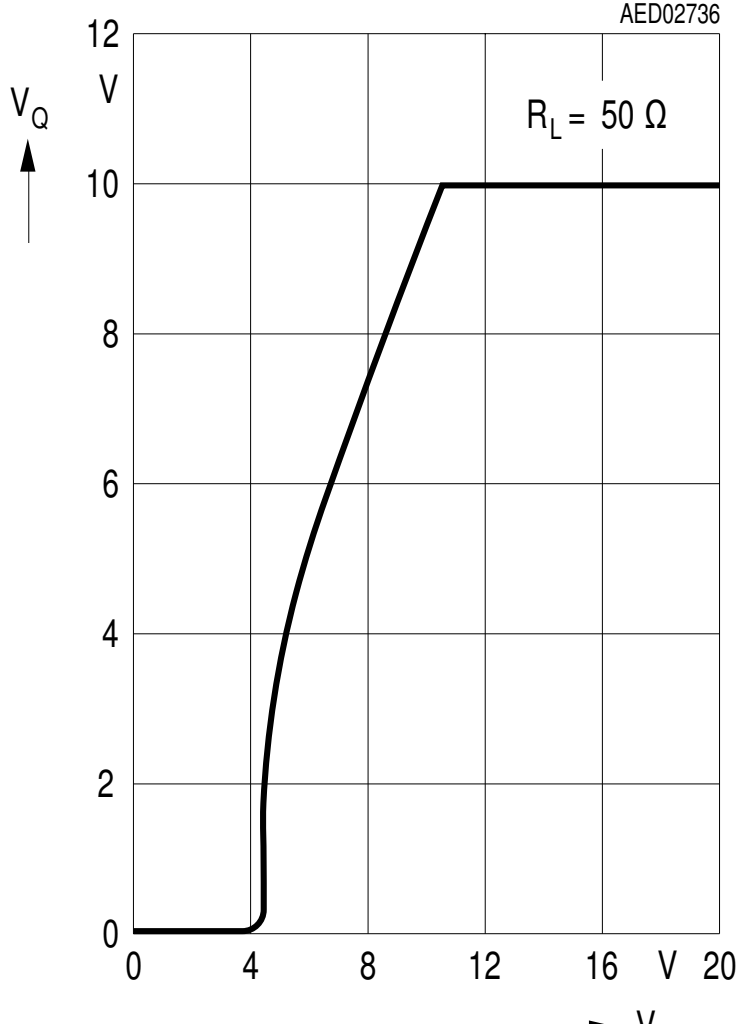
Current Consumption I_q versus Input Voltage V_I (10 V version)



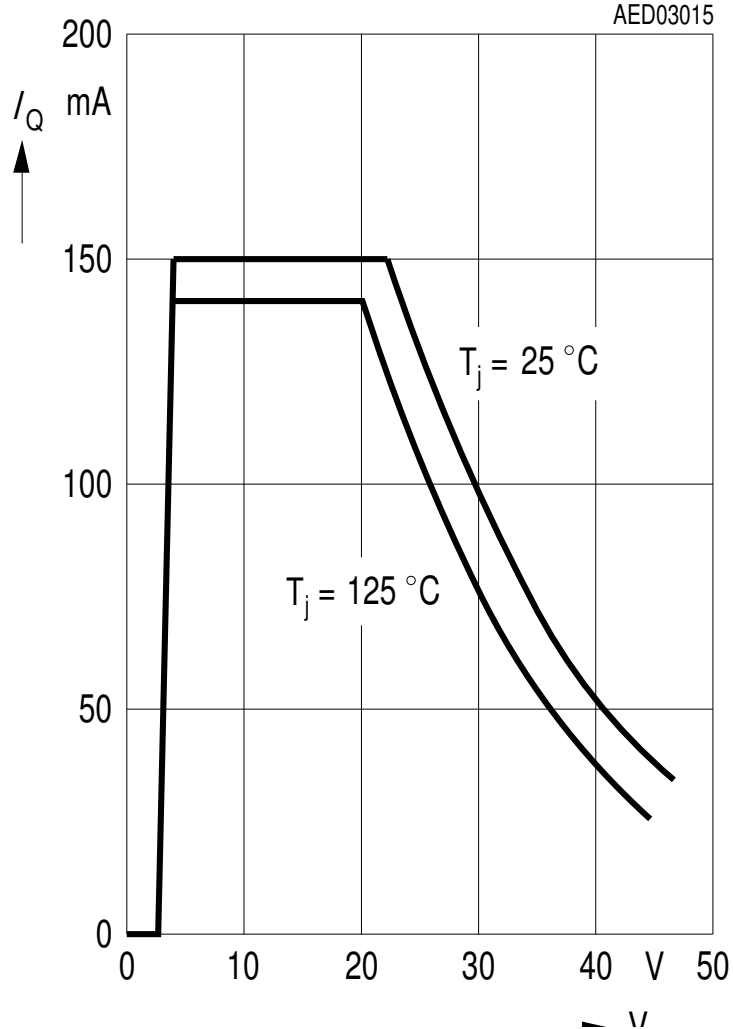
Output Voltage V_Q versus Input Voltage V_I (5 V version)



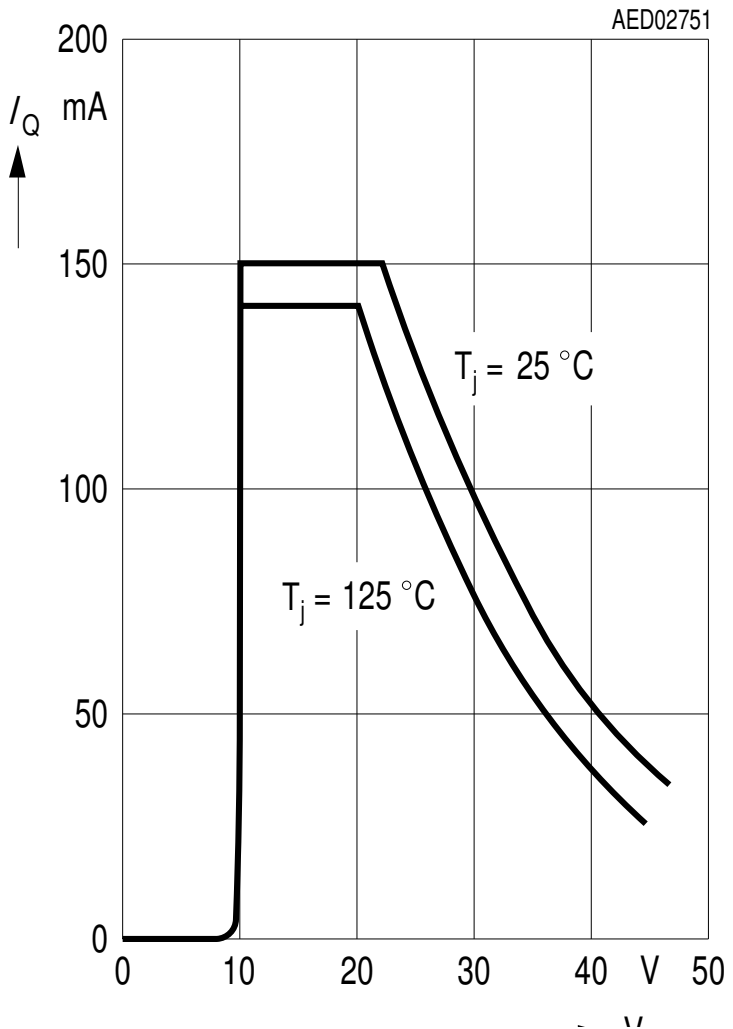
Output Voltage V_Q versus Input Voltage V_I (10 V version)



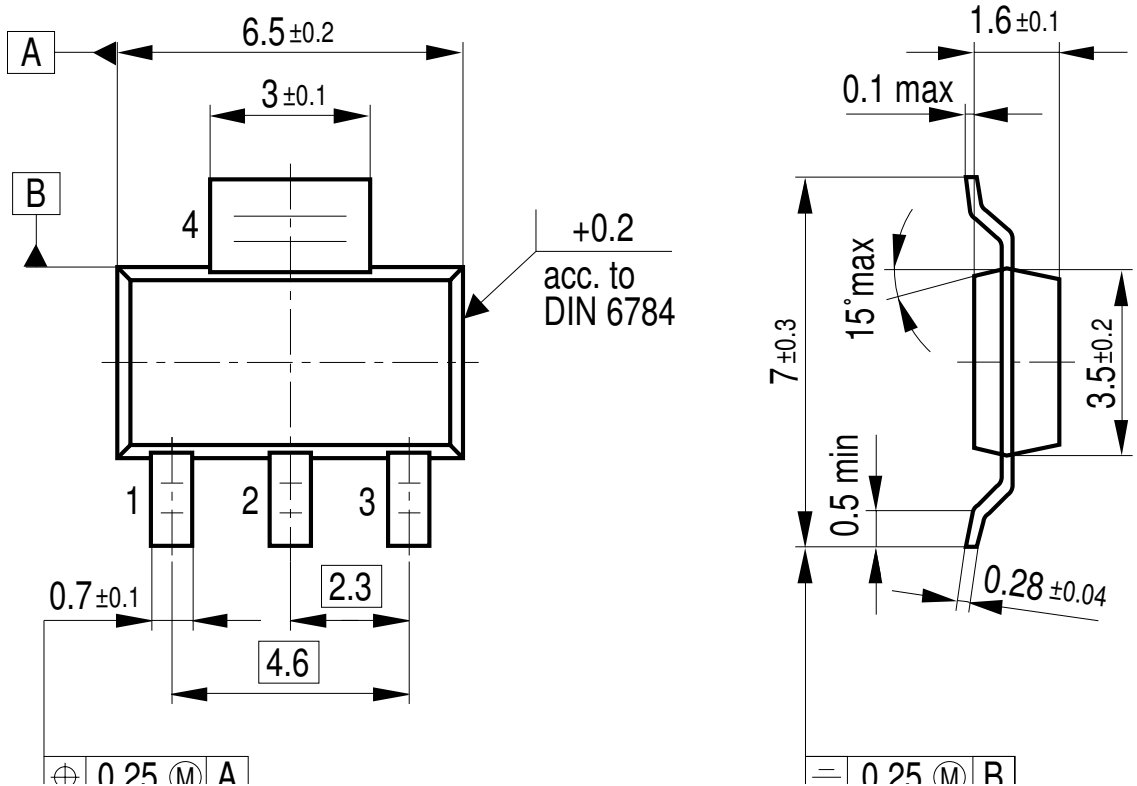
Output Current I_Q versus Input Voltage V_I (5 V-version)



Output Current I_Q versus Input Voltage V_I (10 V version)



Package Outlines



Revision History

Version	Date	Changes
Rev. 2.5	2008-03-10	Simplified package name to PG-SOT223-4. No modification of released product.
Rev. 2.4	2007-03-20	Initial version of RoHS-compliant derivate of TLE 4266 Page 1: AEC certified statement added Page 1 and Page 12: RoHS compliance statement and Green product feature added Page 1 and Page 12: Package changed to RoHS compliant version Legal Disclaimer updated