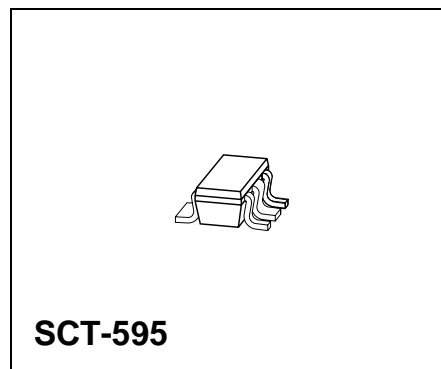


### Features

- Wide operation range: 6.2 V to 42 V
- Wide temperature range: – 40 °C to 150 °C
- Low quiescent current consumption: 50  $\mu$ A
- Output protected against short circuit
- Over-temperature protection
- Inhibit input
- Very low current consumption in stand-by (Inhibit) mode
- Very small SMD-Package SCT-595



Type	Ordering Code	Package
TLE 4286 G	Q67006-A9304	SCT-595 (SMD)

### Functional Description

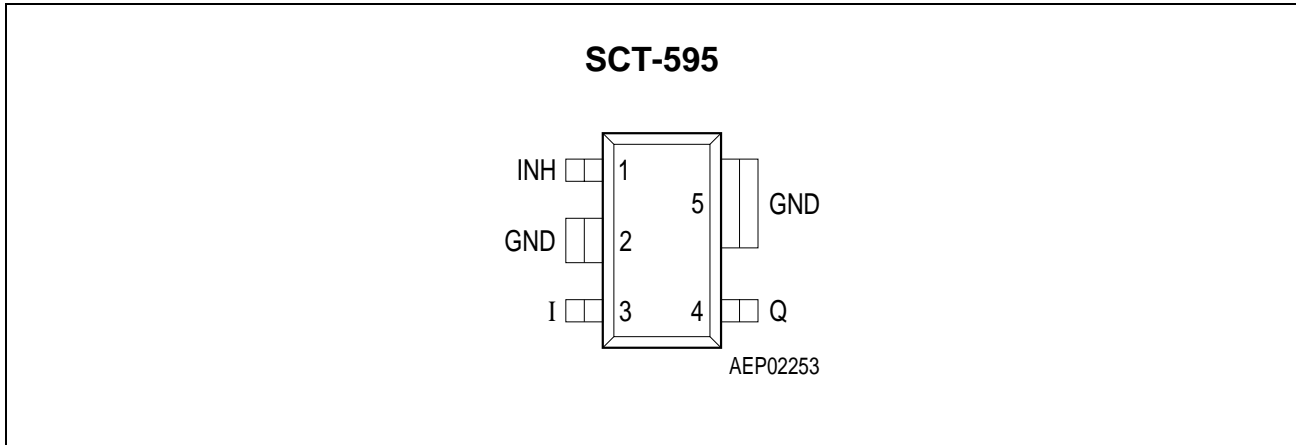
The **TLE 4286 G** is a 5-V low-drop fixed voltage regulator in the very small SMD package SCT-595. The maximum input voltage is 42 V. The output is able to drive a load of more than 10 mA while it regulates the output voltage within a 4% accuracy.

The device can be switched in stand-by mode via an inhibit input which causes the current consumption to drop below 1  $\mu$ A.

A temperature protection that disables the circuit at over temperature is incorporated.

**Pin Configuration**

(top view)



**Figure 1**

**Pin Definitions and Functions**

Pin No.	Symbol	Function
1	INH	<b>Inhibit input</b> ; H for active ( $V_Q = 5\text{ V}$ ) and L for stand-by
2	GND	<b>Ground</b> ; internally connected to pin 5
3	I	<b>Input voltage</b>
4	Q	<b>Output voltage</b> ; must be blocked by a capacitor $C_Q \geq 1\ \mu\text{F}$ , $\text{ESR} \leq 10\ \Omega$ to GND
5	GND	<b>Ground</b> ; internally connected to pin 2

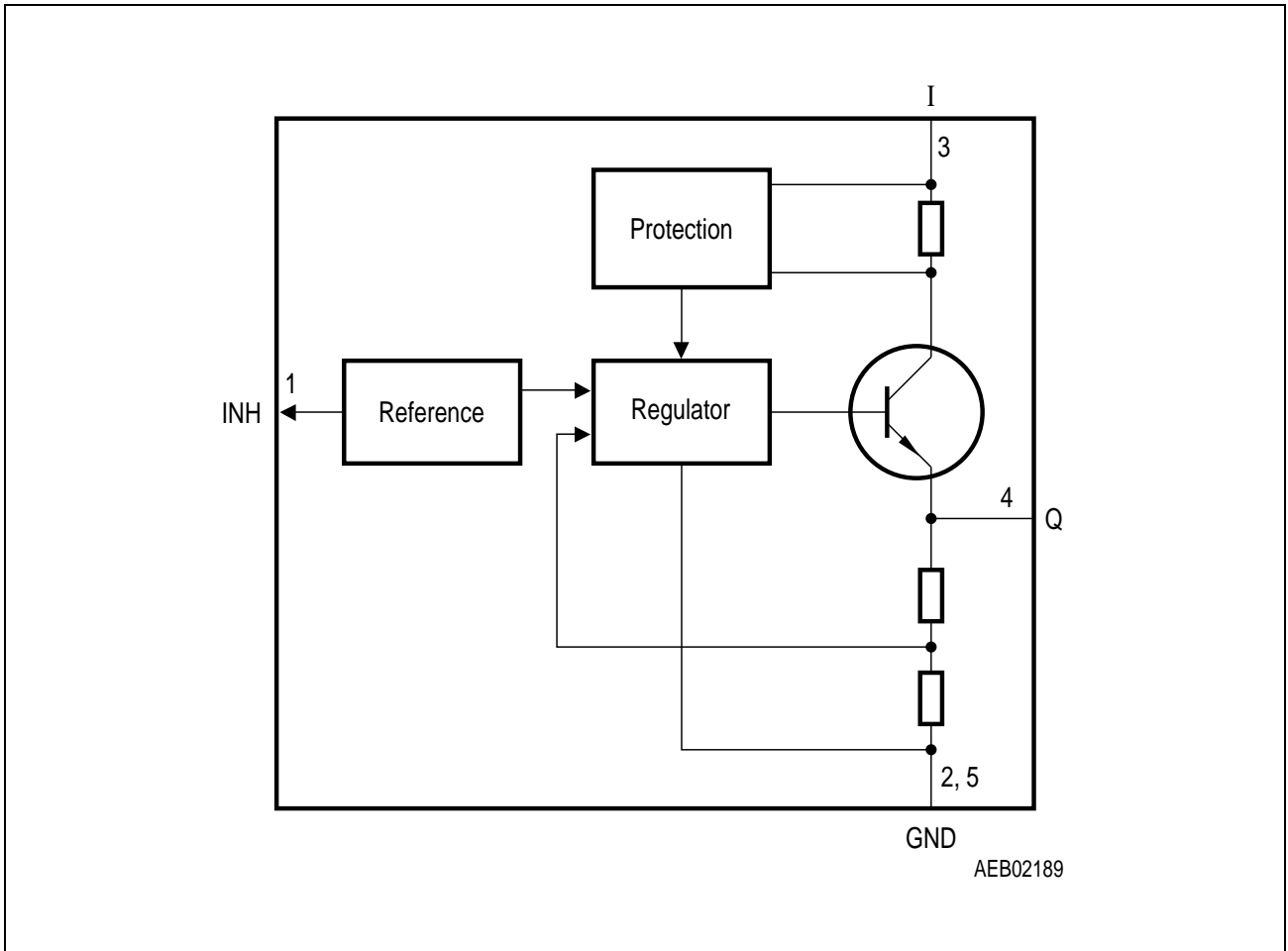


Figure 2  
Block Diagram

## Absolute Maximum Ratings

$-40\text{ °C} < T_j < 150\text{ °C}$

Parameter	Symbol	Limit Values		Unit	Remarks
		min.	max.		

### Input

Voltage	$V_I$	- 0.3	45	V	–
Current	$I_I$	- 20	*	mA	* internally limited

### Output

Voltage	$V_Q$	- 0.3	16	V	–
Current	$I_Q$	- 20	*	mA	* internally limited

### Inhibit

Voltage	$V_{INH}$	- 40	45	V	–
Current	$I_{INH}$	- 500	*	$\mu\text{A}$	* internally limited
Current	$I_{INH}$	- 5	5	mA	$-0.3\text{ V} < V_I < 45\text{ V};$ $t_p < 1\text{ ms}$

### Temperatures

Junction temperature	$T_j$	- 40	150	$^{\circ}\text{C}$	–
Storage temperature	$T_{stg}$	- 50	150	$^{\circ}\text{C}$	–

### Thermal Resistances

Junction pin	$R_{thj-pin}$	–	30	K/W	measured to pin 5
Junction ambient	$R_{thja}$	–	55	K/W	<sup>1)</sup>

*Note: Maximum ratings are absolute ratings; exceeding any one of these values may cause irreversible damage to the integrated circuit.*

<sup>1)</sup> Package mounted on PCB 40 mm × 40 mm × 1.5 mm / 6 cm<sup>2</sup> Cu (thickness Cu = 35  $\mu\text{m}$ )

## Operating Range

Parameter	Symbol	Limit Values		Unit	Remarks
		min.	max.		
Input voltage	$V_I$	6.0	42	V	–
Logic input voltage (INH)	$V_{INH}$	– 0.3	40	V	–
Junction temperature	$T_j$	– 40	150	°C	–

**Electrical Characteristics**

6.2 V <  $V_I$  < 36 V;  $V_{INH} > V_{INH, ON}$ ;  $-40\text{ °C} < T_j < 150\text{ °C}$ ; unless otherwise specified

Parameter	Symbol	Limit Values			Unit	Test Condition
		min.	typ.	max.		

**Output**

Output voltage	$V_Q$	4.85	5.0	5.15	V	$T_j = 25\text{ °C}$ ; $1\text{ mA} < I_Q < 10\text{ mA}$
Output voltage	$V_Q$	4.8	5.0	5.20	V	$1\text{ mA} < I_Q < 10\text{ mA}$
Drop voltage	$V_{dr}$	0.6	0.8	1.1	V	$I_Q = 10\text{ mA}$
Output capacitor	$C_Q$	1	–	–	$\mu\text{F}$	ESR $\leq 10\ \Omega$ at 10 kHz
Output current	$I_Q$	10	–	40	mA	–

**Current Consumption**

Quiescent current	$I_q$	–	60	100	$\mu\text{A}$	$I_Q < 10\text{ mA}$ ; $V_I = 13.5\text{ V}$
Quiescent current (stand-by)	$I_q$	–	–	1	$\mu\text{A}$	$V_{INH} < V_{INH, OFF}$ ; $T_j < 85\text{ °C}$
Quiescent current (stand-by)	$I_q$	–	–	5	$\mu\text{A}$	$V_{INH} < V_{INH, OFF}$

**Regulator Performance**

Load regulation	$\Delta V_Q$	–	5	10	mV	$0\text{ mA} < I_Q < 10\text{ mA}$ ; $V_I = 6.2\text{ V}$ ; $T_j \leq 85\text{ °C}$
Line regulation	$\Delta V_Q$	–	5	10	mV	$I_Q = 5\text{ mA}$ ; $T_j \leq 85\text{ °C}$
Power supply ripple rejection	$PSRR$	–	60	–	dB	$f_r = 100\text{ Hz}$ ; $V_r = 0.5 V_{SS}$

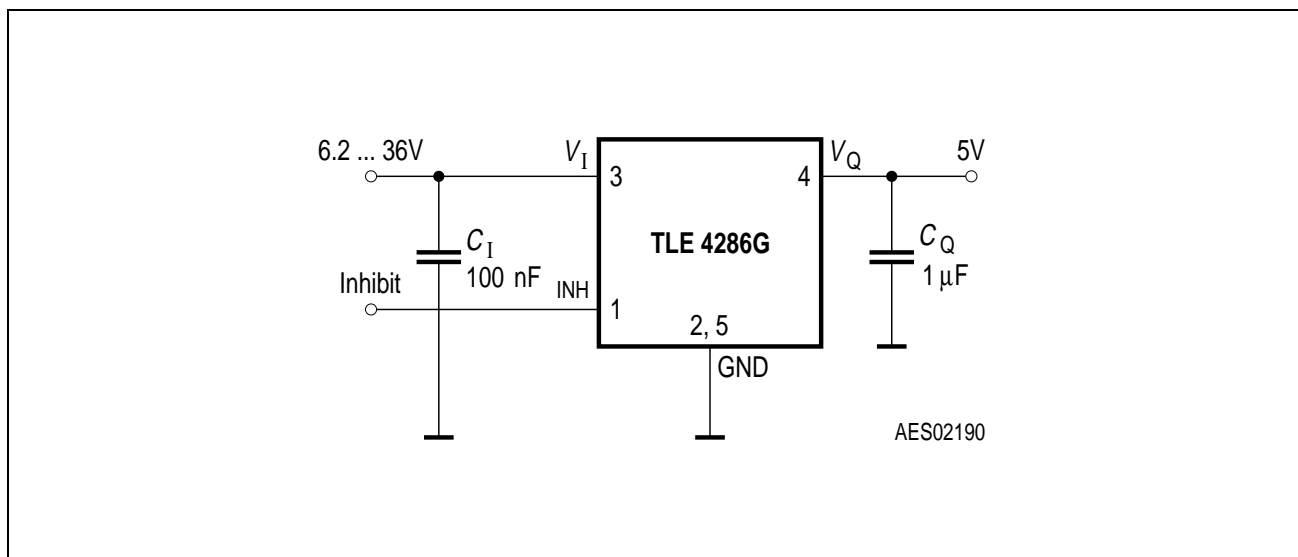
### Electrical Characteristics (cont'd)

$6.2\text{ V} < V_I < 36\text{ V}$ ;  $V_{INH} > V_{INH, ON}$ ;  $-40\text{ }^\circ\text{C} < T_j < 150\text{ }^\circ\text{C}$ ; unless otherwise specified

Parameter	Symbol	Limit Values			Unit	Test Condition
		min.	typ.	max.		

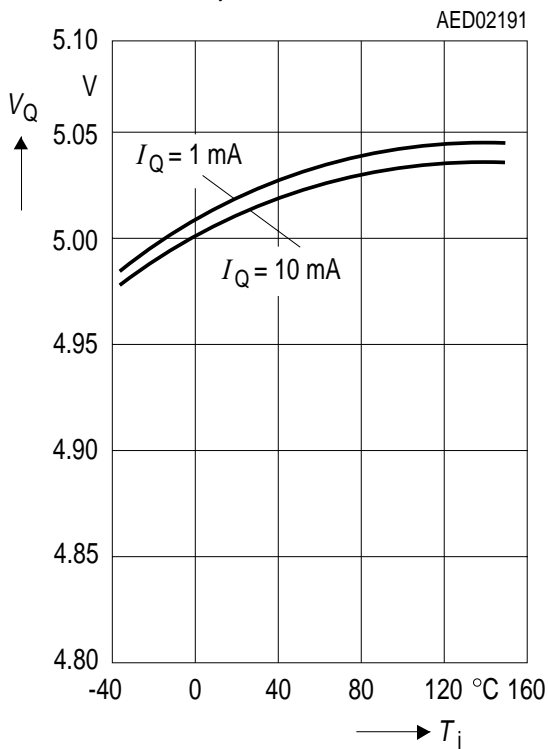
### Logic Inhibit Input

Inhibit ON-threshold	$V_{INH, ON}$	–	–	3.5	V	$V_Q \geq 4.8\text{ V}$
Inhibit OFF-threshold	$V_{INH, OFF}$	0.3	–	–	V	$V_Q \leq 0.8\text{ V}$
H-input current	$I_{INH, ON}$	–	10	15	$\mu\text{A}$	$V_{INH} = 5\text{ V}$
L-input current	$I_{INH, OFF}$	– 2	0	2	$\mu\text{A}$	$V_{INH} = 0\text{ V}$

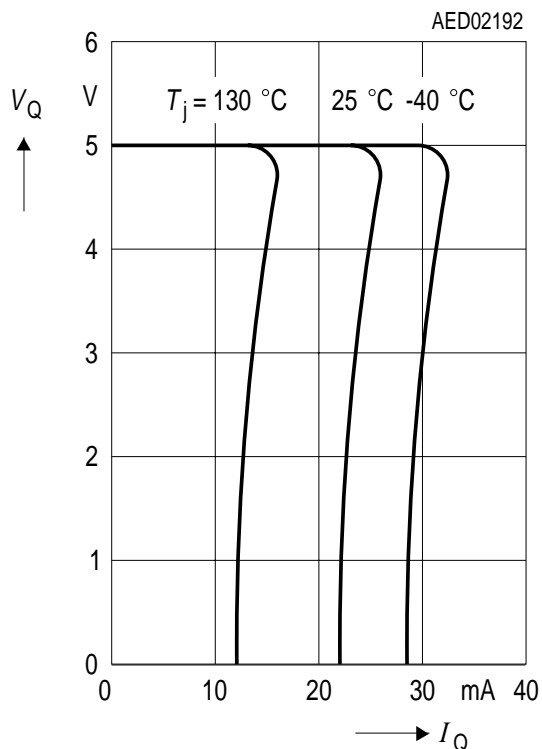


**Figure 3**  
**Application Circuit**

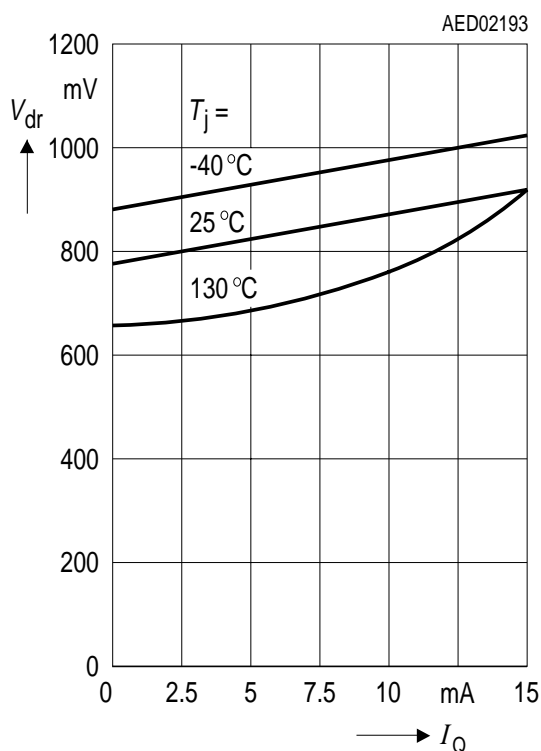
Output Voltage  $V_Q$  versus Temperature  $T_j$



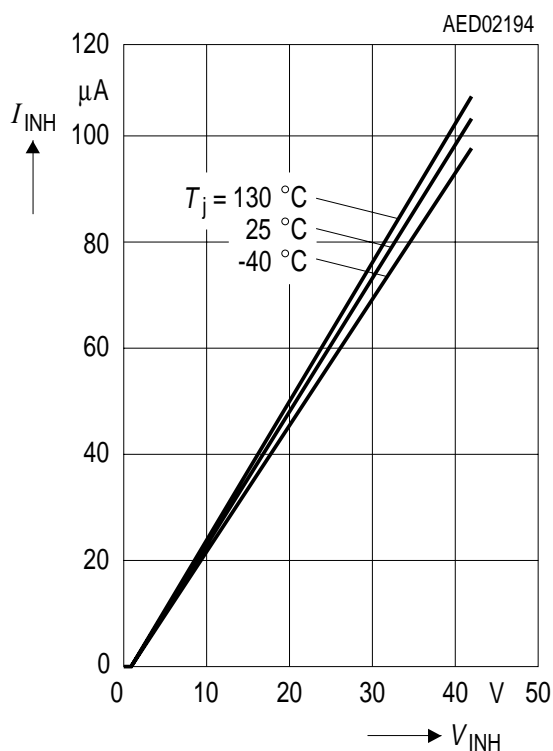
Output Voltage  $V_Q$  versus Output Current  $I_Q$



Drop Voltage  $V_{dr}$  versus Output Current  $I_Q$



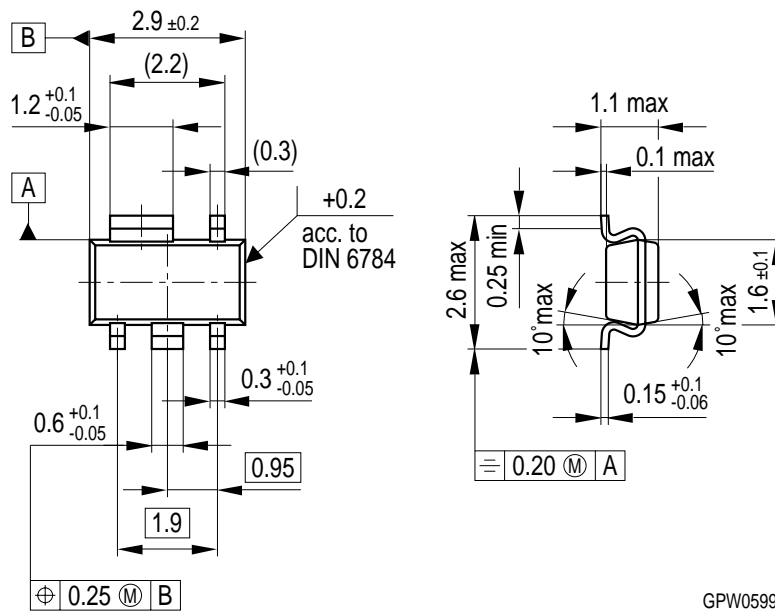
Inhibit Voltage  $V_{INH}$  versus Inhibit Current  $I_{INH}$





Package Outlines

**SCT-595**  
(Plastic Dual Small Outline)



GPW05997

**Sorts of Packing**

Package outlines for tubes, trays etc. are contained in our Data Book "Package Information".

SMD = Surface Mounted Device

Dimensions in mm