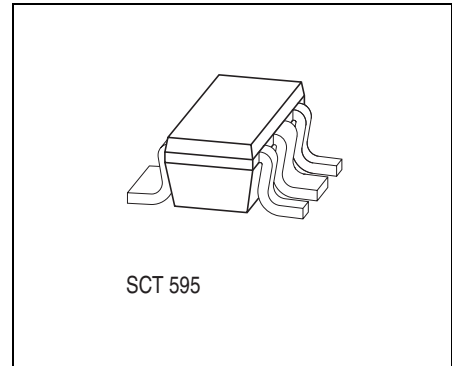


### Features

- 15 mA current capability
- Low quiescent current consumption
- Power fail output
- Wide operation range: up to 45 V
- Wide temperature range: -40 °C to 150 °C
- Output protected against short circuit
- Overtemperature protection
- Very small SMD-Package P-SCT-595-5



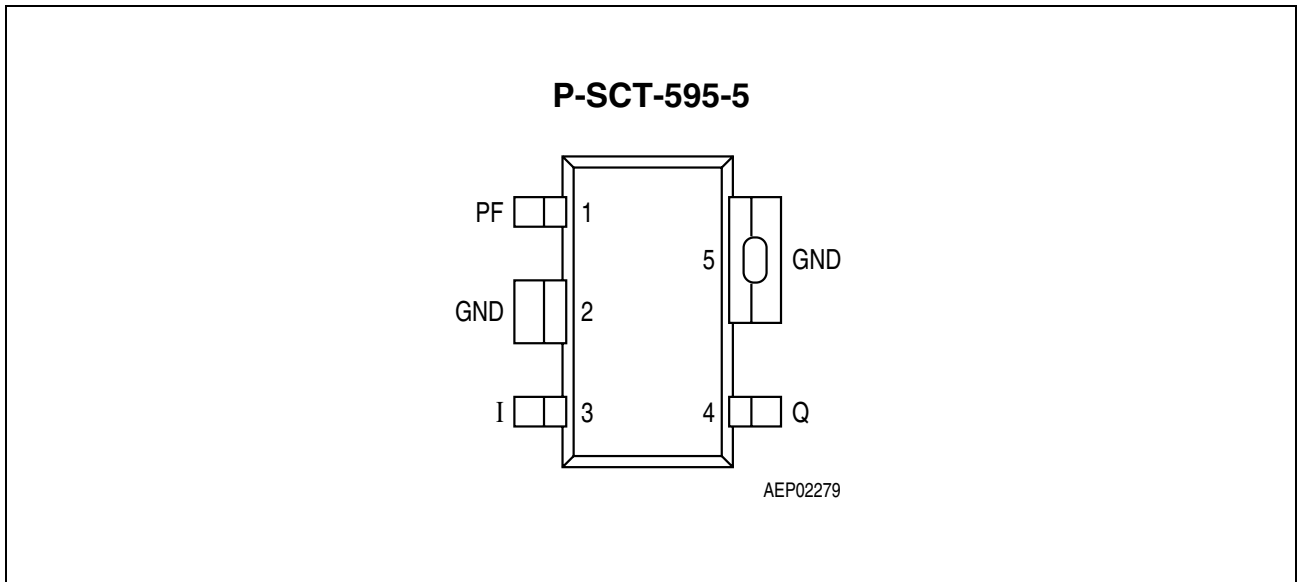
### Functional Description

The **TLE 4285 G** is a 5-V fixed voltage regulator in a very small SMD package P-SCT-595-5. The maximum input voltage is 45 V. The output is able to drive an output current of more than 15 mA while it regulates the output voltage within a 4% accuracy.

The Power Fail Output (open collector) is switched to low in case of under-voltage at the output pin. To reduce external components the Power Fail Output has an internal pull-up resistor of 50 k $\Omega$  which is connected to the output Q.

The device incorporates a temperature protection that disables the circuit at overtemperature.

Type	Ordering Code	Package
TLE 4285 G	Q67006-A9328	P-SCT-595-5



**Figure 1** Pin Configuration (top view)

**Table 1** Pin Definitions and Functions

Pin No.	Symbol	Function
1	PF	<b>Power Fail</b> ; L for under-voltage; internally connected to Q via 50 kΩ pull-up resistor
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

### Functional Block Diagram

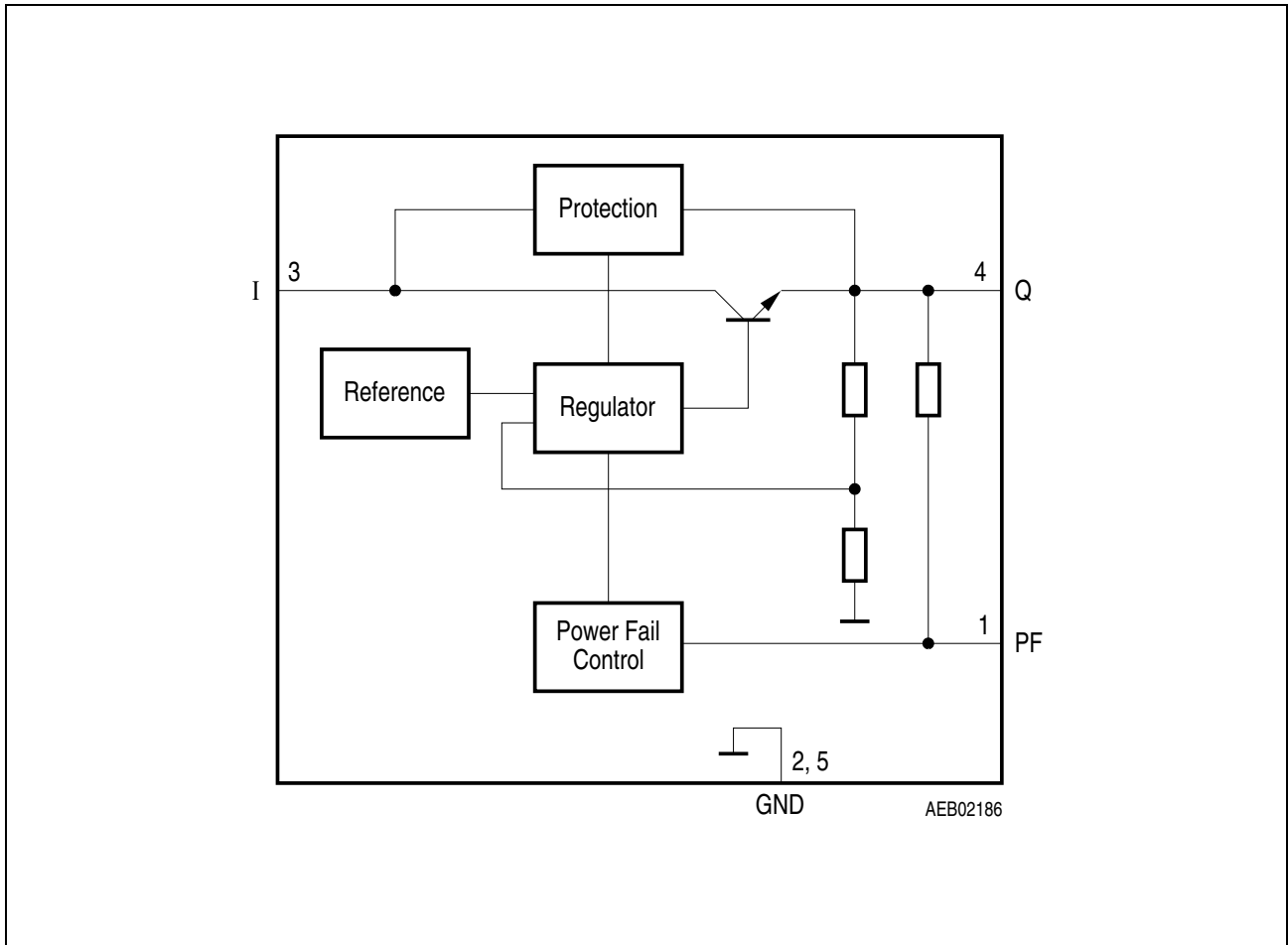


Figure 2 Block Diagram

**Table 2 Absolute Maximum Ratings**
 $-40\text{ °C} < T_j < 150\text{ °C}$ 

Parameter	Symbol	Limit Values		Unit	Remarks
		Min.	Max.		
<b>Input</b>					
Voltage	$V_I$	-0.3	45	V	–
Current	$I_I$	-20	*	mA	* internally limited
<b>Output</b>					
Voltage	$V_Q$	-0.3	16	V	–
Current	$I_Q$	-20	*	mA	* internally limited
<b>Power Fail</b>					
Voltage	$V_{PF}$	-0.3	45	V	–
Current	$I_{PF}$	-500	*	$\mu\text{A}$	* internally limited
<b>Temperatures</b>					
Junction temperature	$T_j$	-40	150	$^{\circ}\text{C}$	–
Storage temperature	$T_{stg}$	-50	150	$^{\circ}\text{C}$	–
<b>Thermal Resistances</b>					
Junction pin	$R_{thj-pin}$	–	30	K/W	measured to pin 5
Junction ambient	$R_{thj-a}$	–	55	K/W	1)

1) Package mounted on PCB  $40 \times 40 \times 1.5\text{ mm}^3/6\text{ cm}^2\text{ Cu}$ .

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

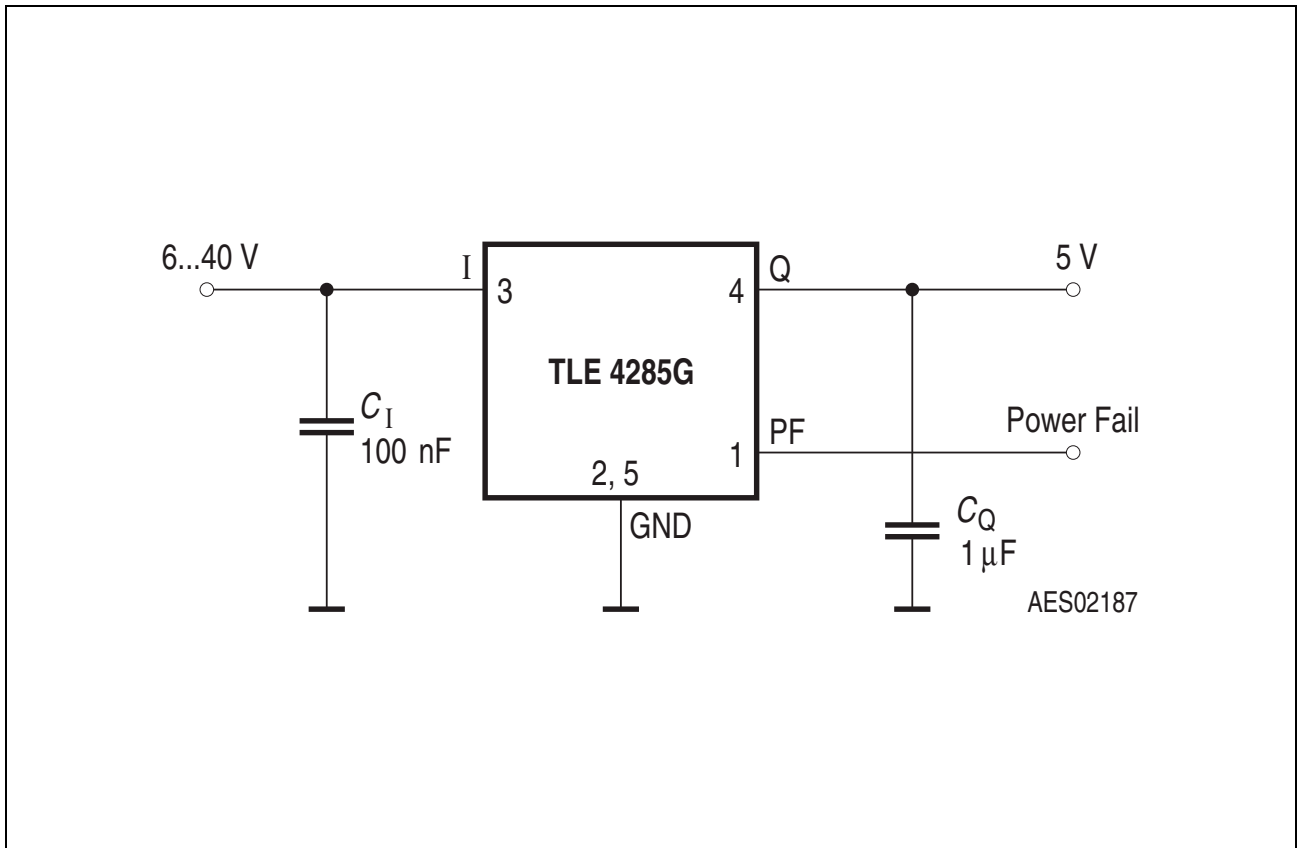
**Table 3 Operating Range**

Parameter	Symbol	Limit Values		Unit	Remarks
		Min.	Max.		
Input voltage	$V_I$	6	42	V	–
Output current	$I_Q$	15	–	mA	–
Junction temperature	$T_j$	-40	150	$^{\circ}\text{C}$	–

**Table 4 Electrical Characteristics**
 $6.2\text{ V} < V_I < 36\text{ V}$ ;  $-40\text{ }^\circ\text{C} < T_j < 150\text{ }^\circ\text{C}$ ; unless otherwise specified

Parameter	Symbol	Limit Values			Unit	Test Condition
		Min.	Typ.	Max.		
<b>Output</b>						
Output voltage	$V_Q$	4.85	5.0	5.15	V	$T_j = 25\text{ }^\circ\text{C}$ ; $1\text{ mA} < I_Q < 10\text{ mA}$
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	$I_Q = 10\text{ mA}^{1)}$
Output capacitor	$C_Q$	1	–	–	$\mu\text{F}$	$\text{ESR} \leq 10\ \Omega$ at 10 kHz
Output current	$I_Q$	15	–	70	mA	–
<b>Current Consumption</b>						
Quiescent current	$I_q$	–	100	150	$\mu\text{A}$	$I_Q < 10\text{ mA}$ ; $V_I = 13.5\text{ V}$
<b>Regulator Performance</b>						
Load regulation	$\Delta V_Q$	–	5	10	mV	$0\text{ mA} < I_Q < 10\text{ mA}$ ; $V_I = 6\text{ V}$ ; $T_j \leq 85\text{ }^\circ\text{C}$
Line regulation	$\Delta V_Q$	–	5	10	mV	$I_Q = 5\text{ mA}$ ; $T_j \leq 85\text{ }^\circ\text{C}$
Power supply ripple rejection	$PSRR$	–	60	–	dB	$f_r = 100\text{ Hz}$ ; $V_r = 0.5\text{ Vpp}$
<b>Power Fail Output</b>						
Power fail switching threshold	$\Delta V_Q$	–	$V_{Q,nom} - 50$	–	mV	$V_{PF} < 1\text{ V}$
Power fail low voltage	$V_{PF, low}$	–	0.15	0.3	V	$I_{PF} = 0.1\text{ mA}$ ; $V_Q = 4.5\text{ V}$
Power fail leakage current	$I_{PFLK}$	–	–	10	$\mu\text{A}$	$R_{ext} = 47\text{ k}\Omega$
Power fail pull-up	$R_{PF}$	30	50	70	k $\Omega$	internally connected to $V_Q$

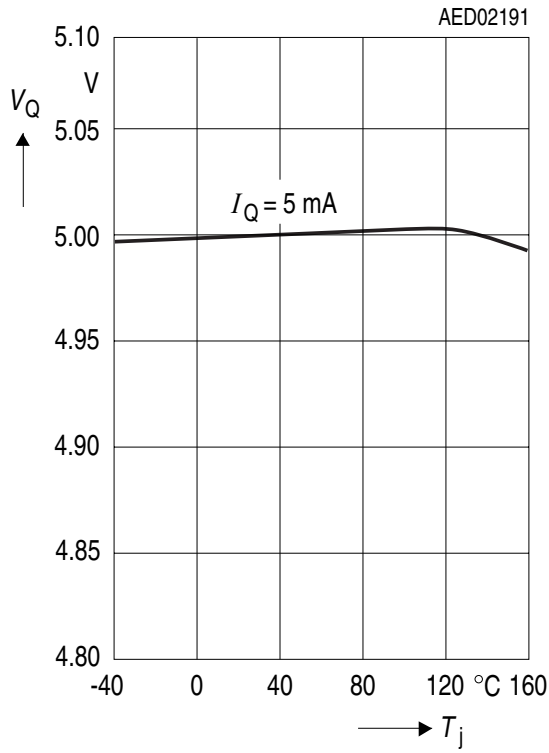
1) Measured when the output voltage  $V_Q$  has dropped 100 mV from the nominal value.



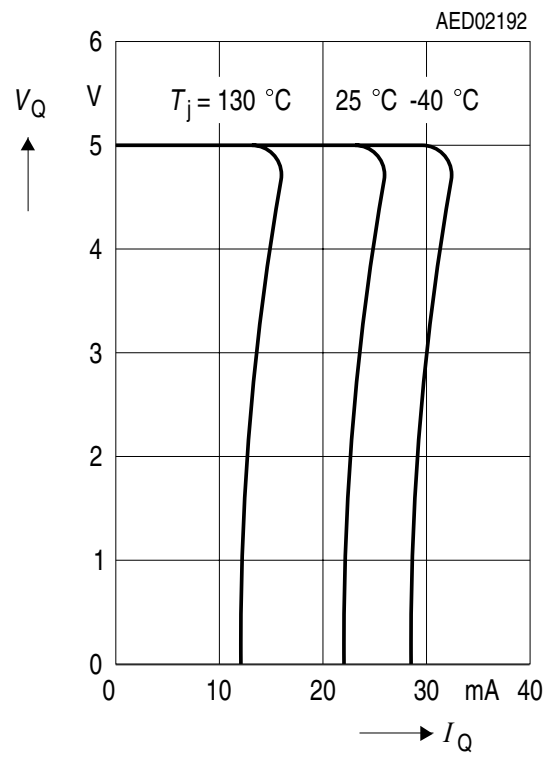
**Figure 3 Application Circuit**

**Typical Performance Characteristics**

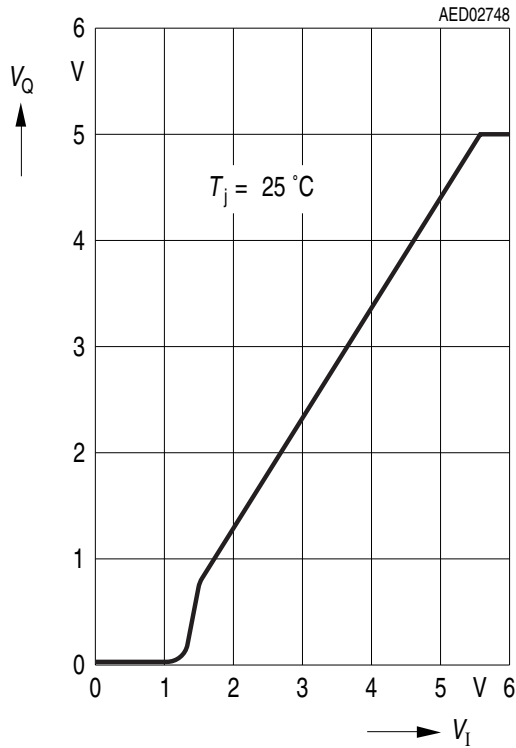
**Output Voltage  $V_Q$  versus Temperature  $T_j$**



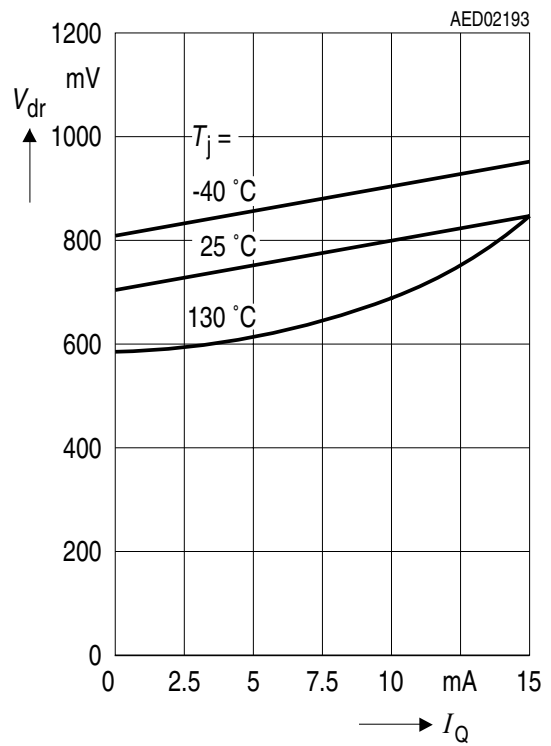
**Output Voltage  $V_Q$  versus Output Current  $I_Q$**



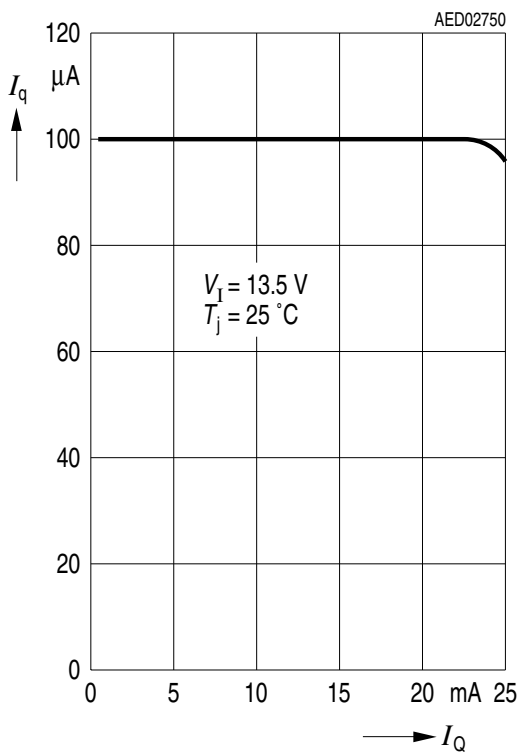
**Output Voltage  $V_Q$  versus Input Voltage  $V_I$**



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

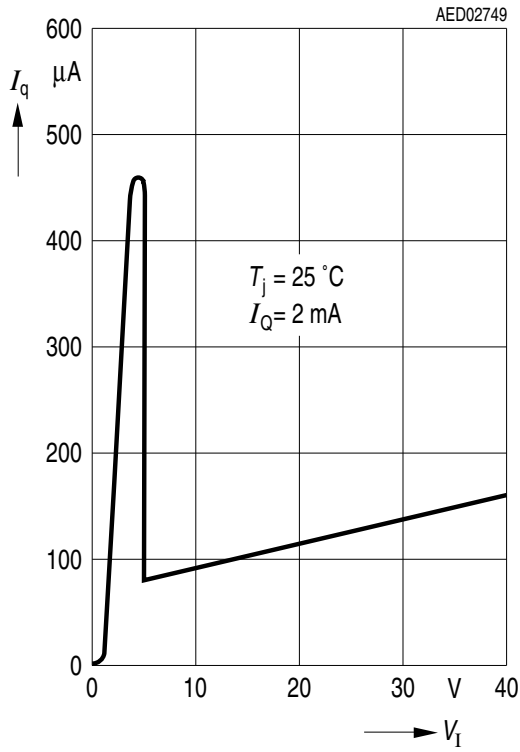


**Current Consumption  $I_q$  versus Output Current  $I_Q$**

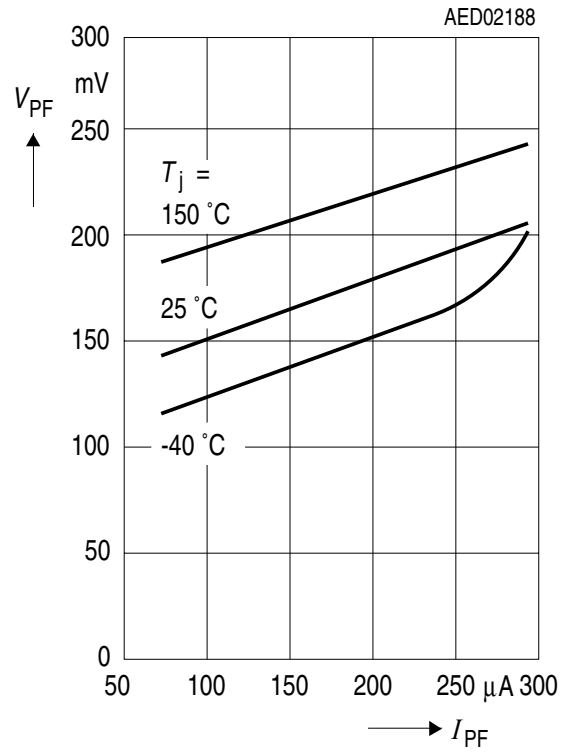




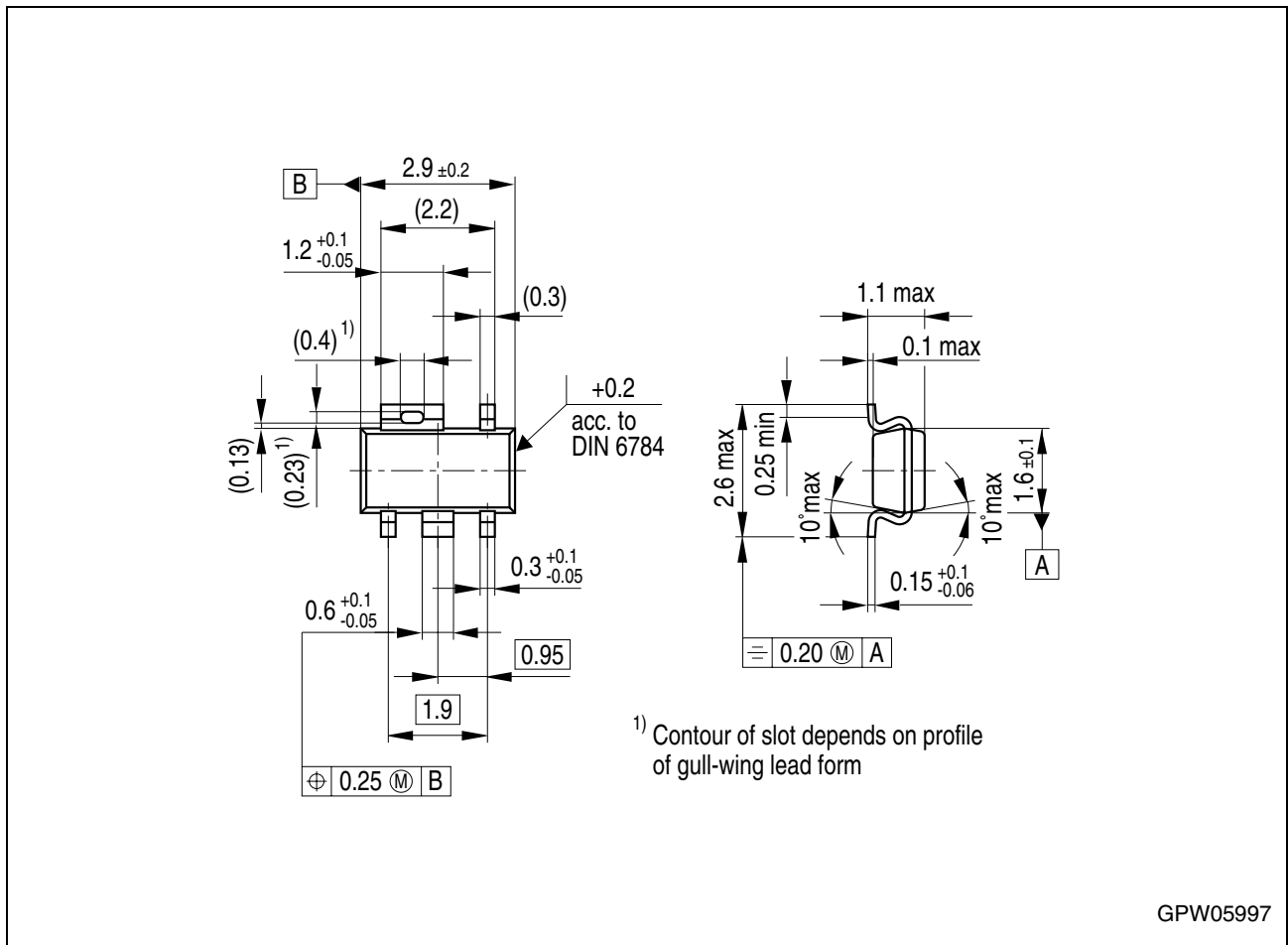
**Current Consumption  $I_q$  versus Input Voltage  $V_I$**



**Power Fail Low Voltage  $V_{PF}$  versus Power Fail Current  $I_{PF}$**



Package Outlines



GPW05997

Figure 4 P-SCT-595-5 (Plastic Small Outline)

You can find all of our packages, sorts of packing and others in our Infineon Internet Page "Products": <http://www.infineon.com/products>.

SMD = Surface Mounted Device

Dimensions in mm

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