

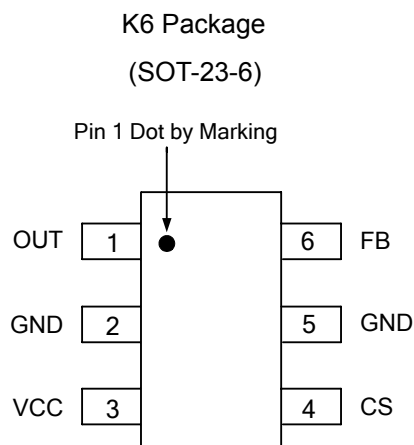
**LOW-POWER OFF-LINE PRIMARY SIDE REGULATION CONTROLLER****AP3765****Pin Configuration**

Figure 2. Pin Configuration of AP3765 (Top View)

**Pin Description**

Pin Number	Pin Name	Function
1	OUT	This pin drives the base of external power NPN switch
2, 5	GND	Ground
3	VCC	Supply voltage
4	CS	The primary current sense
6	FB	The voltage feedback from the auxiliary winding

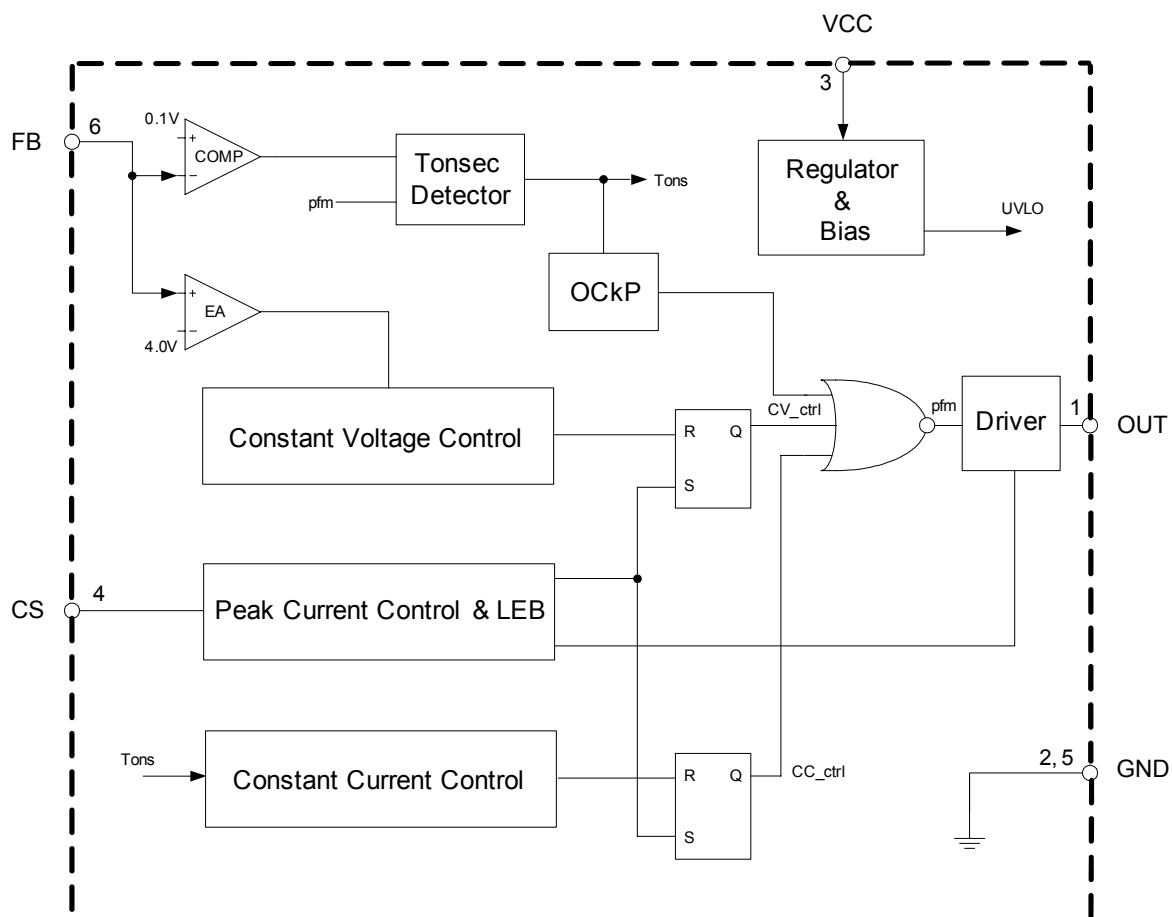
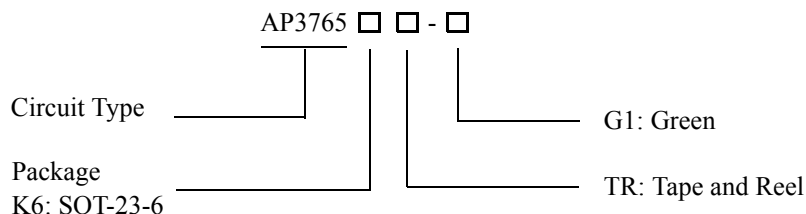
**Functional Block Diagram**

Figure 3. Functional Block Diagram of AP3765

**LOW-POWER OFF-LINE PRIMARY SIDE REGULATION CONTROLLER      AP3765****Ordering Information**

Package	Temperature Range	Part Number	Marking ID	Packing Type
SOT-23-6	-40 to 85°C	AP3765K6TR-G1	GBB	Tape & Reel

BCD Semiconductor's products, as designated with "G1" suffix in the part number, are RoHS compliant and Green.

**Absolute Maximum Ratings (Note 1)**

Parameter	Value	Unit
Supply Voltage VCC	-0.3 to 36	V
Voltage at CS, OUT to GND	-0.3 to 7	V
FB Input	-40 to 10	V
Output Current at OUT	Internally limited	A
Operating Junction Temperature	150	°C
Storage Temperature	-65 to 150	°C
Lead Temperature (Soldering, 10s)	300	°C
Thermal Resistance Junction-to-Ambient	250	°C/W
ESD (Machine Model)	200	V
ESD (Human Body Model)	2000	V

Note 1: Stresses greater than those listed under "Absolute Maximum Ratings" may cause permanent damage to the device. These are stress ratings only, and functional operation of the device at these or any other conditions beyond those indicated under "Recommended Operating Conditions" is not implied. Exposure to "Absolute Maximum Ratings" for extended periods may affect device reliability.



# LOW-POWER OFF-LINE PRIMARY SIDE REGULATION CONTROLLER AP3765

## Electrical Characteristics

( $V_{CC}=15V$ ,  $T_A=25^{\circ}C$ , unless otherwise specified.)

Parameter	Symbol	Conditions	Min	Typ	Max	Unit
UVLO SECTION						
Start-up Threshold	V <sub>TH(ST)</sub>		16	18.5	21	V
Minimal Operating Voltage	V <sub>OPR(min)</sub>		7.2	9	10.2	V
STANDBY CURRENT SECTION						
Start-up Current	I <sub>ST</sub>	V <sub>CC</sub> = V <sub>TH(ST)</sub> -0.5V, Before start-up			0.6	μA
Operating Current	I <sub>CC(OPR)</sub>	Static		200	320	μA
DRIVE OUTPUT SECTION						
OUT Maximum Current	Sink	I <sub>OUT</sub>		50		mA
	Source			24	30	
CURRENT SENSE SECTION						
Current Sense Threshold	V <sub>CS</sub>		455	510	545	mV
Pre-Current Sense	V <sub>CS(PRE)</sub>		365	410	455	mV
Leading Edge Blanking				750		ns
FEEDBACK INPUT SECTION						
Feedback Pin Input Leakage Current	I <sub>FB</sub>	V <sub>FB</sub> =4V	2.0	2.5	3.1	μA
Feedback Threshold	V <sub>FB</sub>		3.89	3.95	4.01	V
Over Voltage Protection	V <sub>FB(OVP)</sub>		6.4	8	9.6	V

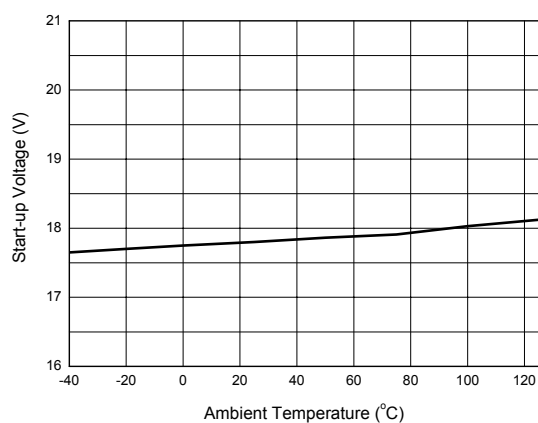
**Typical Performance Characteristics**

Figure 4. Start-up Voltage vs. Ambient Temperature

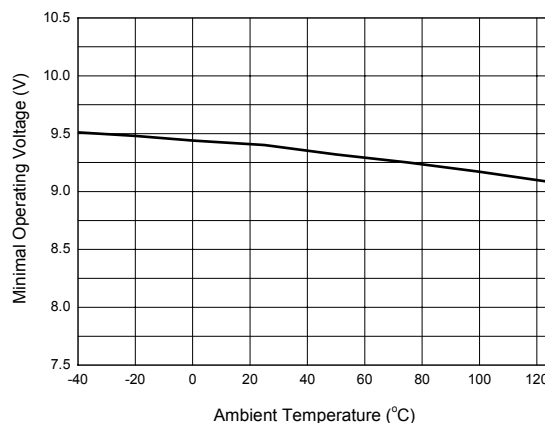


Figure 5. Minimal Operating Voltage vs. Ambient Temperature

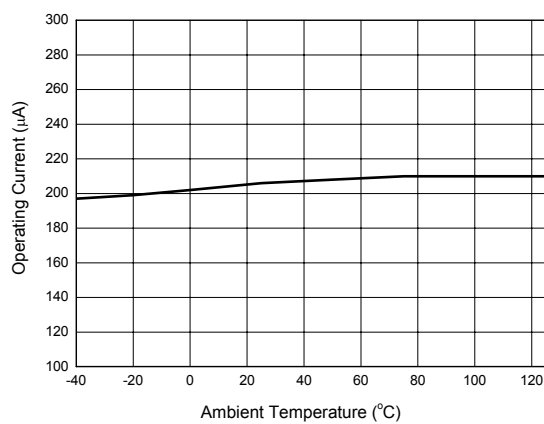
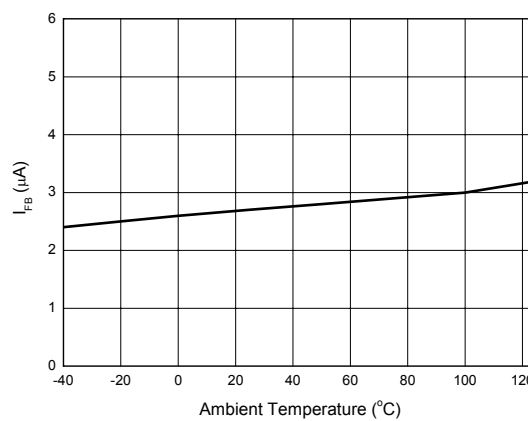
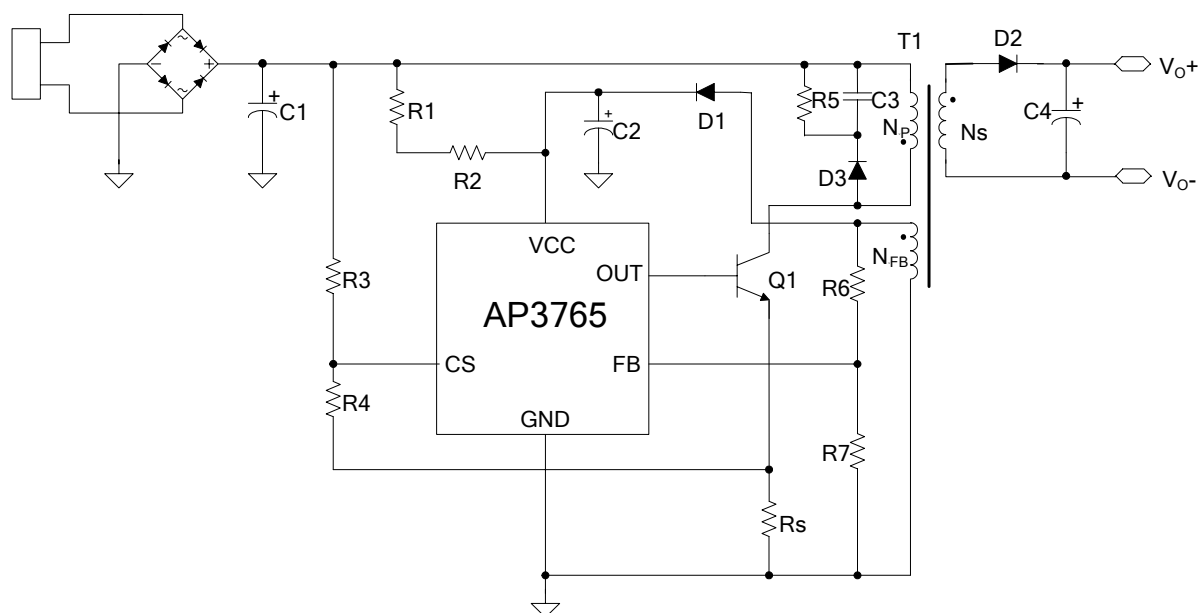


Figure 6. Operating Current vs. Ambient Temperature

Figure 7.  $I_{FB}$  vs. Ambient Temperature

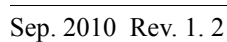
## Typical Application





## Mechanical Dimensions

Unit: mm(inch)



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