Version: 1.05

MG26P700

Datasheet

USB Voltage Position Controller with Quick Charge

Version 1.05

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1. Description

MG26P700 is a low-cost USB High Voltage Dedicated Charging Port (HVDCP) specification V1.2 Interface IC. It works smart to support Apple device by support 10W or 12W @ 5V & Samsung Device.

MG26P700 also fit for Quick Charge 5V, 9V, 12V, and 20V standard.

MG26P700 will automatically detect the input device and give the proper feedback to the Powered Device (PD) before supply the power. If the PD not supports the high charging voltage, MG26P700 will safely provide the standard 5V.

2. Features

- Support Quick Charge
  - ■ 5V, 9V, 12V and 20V
- Support Apple 10W and 12W charge mode
- Support Samsung charge mode
- Backward compatible with USB Battery charging Specification V1.2 (BC 1.2) Dedicated Charging Port (DCP)
- Typical 3uA Standby Current
- SOP 8 and SOP 10 package

2.1 Application

- Wall Adapter
- Power Bank
- Car charger
- Portable Device

3. Pin Configurations

3.1 SOP10 – MG26P700AS10

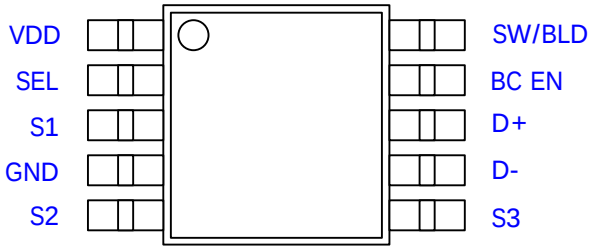

Figure 3-1 package SOP10

Pin	Name	Type	Description
1	VDD	P	Positive power pins
2	SEL	B	To set power consumption either Apple 10W or 12W.
3	S1	B	Quick Charge Voltage Select 1. Enable 9V, 12V, 20V. Check the detail in lookup table. To use with an external resistor to pull down feedback voltage for 9V output. Connect LED on this pin and control the sink current under 2mA for QC 9V indicator.
4	GND	G	Ground pin
5	S2	B	Quick Charge Voltage Select 2. Enable 9V, 12V, 20V. Check the detail in lookup table. To use with an external resistor to pull down feedback voltage for 12V output. Connect LED on this pin and control the sink current under 2mA for QC 12V indicator.
6	S3	B	Quick Charge Voltage Select 3. Enable 9V, 12V, 20V. Check the detail in lookup table. To use with an external resistor to pull down feedback voltage for 20V output. Connect LED on this pin and control the sink current under 2mA for QC 20V indicator.
7	D-	B	USB D- In.
8	D+	B	USB D+ In.
9	BC_EN	B	To drive external MOSFET to induce 200 ohm between D-/D+ line for BC1.2 protocol
10	SW/BLD	B	5V Output indicator. Optional discharge control when high voltage reduces to low voltage. When the transient time longer than 500ms, it can use this pin to driver an external MOSFET to enable discharge path to speed up the discharge time.

Note: In the “Type” field,
“B” means bi-direction.
“P” means Power, “G” means Ground.

3.2 Quick Charge Voltage select lookup table

D+	D-	Output	Description		
			S1	S2	S3
3.3V	3.3V	20V	0	0	0
0.6V	0.6V	12V	0	0	1
3.3V	0.6V	9V	0	1	1
0.6V	GND	5V (Default)	1	1	1

3.3 Apple and Samsung Device Voltage Output table

D+	D-	Mode
2.7V	2V	Apple 10W *1
2.7V	2.7V	Apple 12W
1.2V	1.2V	Samsung

*1: Only support by SOP10 package

4. Electrical Characteristics

4.1 Absolute Maximum Rating

PARAMETER	RATING	UNIT
Supply Voltage to Ground Potential	VSS-0.3 to VSS+4.0	V
Applied Input / Output Voltage	VSS-0.3 to VDD+0.3	V
Ambient Operating Temperature	-40 to +85	°C
Storage Temperature	-50 to +125	°C

Note: Exposure to conditions beyond those listed under Absolute Maximum Ratings may adversely affect the life and reliability of the device.

4.2 DC Characteristics

(VDD-VSS = 3.0 V, Ta = 25° C; unless otherwise specified)

PARAMETER	SYM.	CONDITIONS	MIN.	TYP.	MAX.	UNIT
Supply Voltage						
Operating Voltage	VDD	-	3.0	-	5.5	V
Logic Level						
Input High Voltage	V_{IH}	-	0.7 VDD	-	VDD	V
Input Low Voltage	V_{IL}	-	0	-	0.3 VDD	V
Operation current						
Op. Current	I_{OP}	-	-	2.0	5.6	mA
Stop Current	I_{STB2}	-	-	3		*u*A
I/O Character						
Input Port Pull-high Resistor		VIL = 0V	30K	50K	70K	Ω
I/O drive current	I_{OH1}	VOH = 2.4V, VDD = 3.0V	5	-	-	mA
I/O sink current	I_{OL1}	VOL = 0.4V, VDD = 3.0V	10	-	-	mA
SEL drive current	I_{OH3}	VOH = 2.6V, VDD = 3.0V	50	-	-	mA
		VOH = 4.6V, VDD = 5.0V	100			
SEL sink current	I_{OL3}	VOL = 0.4V, VDD = 3.0V	50	-	-	mA
		VOL = 0.4V, VDD = 5.0V	100			
D+/D- Maximum Input Voltage	V_{IU_MAX}	-	-	-	V_{IH}+0.3	V
Protection						
Low Voltage Reset	V_{LVR}	-	-	2.0	-	V

5. Revision History

Revision	Page	Descriptions	Date
V1.00		1. Initial release.	2015/05/15
V1.01		1. Modify Application Circuit	2015/05/26
V1.02		1. Added feedback resistor formula	2015/05/28
V1.03		1. Separate application circuit to application note 2. Add protection spec	2015/07/07
V1.04		1. Add Apple and Samsung Device D+/D- Output voltage	2015/07/22
V1.05		1. Removed SOP8 Package	2015/11/13