1. BQ25713

In EC table, there is Apys, is it the Kpys in 9.3.6.2? In 9.3.6.2, the default value is 1uA/W, but in EC table, it's 1mA/W, is it a typo?

Electrical Characteristics (continued)

over T_J = -40°C to 125°C (unless otherwise noted)

PARAMETER		TEST CONDITIONS	MIN	TYP	MAX	UNIT
I_{PSYS}	PSYS output current		0		160	µ
A_{PSYS}	PSYS system gain	$V_{(PSYS)}$ / ($P_{(IN)}$ +$P_{(BAT)}$), REG0x31[1] = 1		1		mA/W
V_{PSYS_ACC}	PSYS gain accuracy (REG0x31[1] = 1)	Adapter only with system power = 19.5 V / 45 W, TA = -40°C to 85°C	–3%		3%	
		Battery only with system power = 11 V / 44 W, TA = –40°C to 85°C	–3%		3%	
V_{PSYS_CLAMP}	PSYS clamp voltage		3		3.3	V

That is a typo in data sheet. We have two scale for PSYS, 1uA/W and 0.25uA/W.

2. BQ24780S

In EC table, there is Apmon, is it Kpmon in 7.3.4.3?

SYSTEM POWER SENSE AMPLIFIER					
$V_{(PMON)}$	PMON output voltage		0	3.3	V
$I_{(PMON)}$	PMON output current		0	160	µA
$A_{(PMON)}$	PMON system gain	$V_{(PMON)}$/(P_{IN} + P_{BAT}, REG0x3B[9] = 1		1	µA/W
V_{PMON_ACC}	PMON Gain Accuracy (REG0x3B[9]=1)	Adapter Only with System Power = 19.5V/45W	–4%	4%	
		Adapter Only with System Power = 12V/24W	–6%	6%	
		Adapter Only with System Power = 5V/9W	–10%	10%	
		Battery Only with System Power 11V/44W	–4.5%	4.5%	
		Battery Only with System Power 7.4V/29.8W	–7%	7%	
		Battery Only with System Power 3.7V/14.4W	–10%	10%	
V_{PMON_CLAMP}	PMON clamp voltage		3%	3.3%	V

7.3.4.2 *High Accuracy Power Sense Amplifier (PMON)*

The bq24780S device monitors total available power from adapter and battery together. The ratio of PMON voltage and total power K_{PMON} can be programmed in REG0x3B[9] with default 1 µA/W. The bq24780S device allows input sense resistor 2x or 1/2x of charge sense resistor by setting REG0x3B[13:12] to 1.

$$I_{PMON} = K_{PMON} (V_{IN} \times I_{IN} - V_{BAT} \times I_{BAT}) \quad (I_{BAT} > 0 \text{ during charge; } I_{BAT} < 0 \text{ during discharge}) \qquad (1)$$

A resistor is connected on the PMON pin to converter output current to output voltage. A maximum 100-pF capacitor is recommended to connect on the output for decoupling high-frequency noise. An additional RC filter is optional, if additional filtering is desired. Note that adding filtering also adds additional response delay. The PMON output voltage is clamped to 3.3 V.

Yes, these are meant to be the same quantity. We'll update the datasheet and make both symbols "Apmon." Also, the description in EC table is wrong. It should be "Ipmon/(Pin + Pbat)" instead of "Vpmon/(Pin + Pbat)."

Note that this assumes 10 mOhm Rac and 10 mOhm Rsn sense resistors.

3. what's the response time of ACOVP of BQ24780s? 。

7.3.1.2.1 Adapter Overvoltage (ACOVP)

When the VCC pin voltage is higher than 26 V, it is considered adapter over voltage. ACOK is pulled low, and charge is disabled. ACFET/RBFET are turned off to disconnect the high voltage adapter to system during ACOVP. BATFET is turned on if turn-on conditions are valid.

When VCC voltage falls below 24 V, it is considered as adapter voltage returns back to normal voltage. ACOK is pulled high by an external pullup resistor. BATFET is turned off and ACFET and RBFET is turned on to power the system from the adapter.

The BQ24780s will begin driving the ACFET closed 100 uS (nominal) after the AC voltage crosses the 26V overvoltage threshold.