

BQ2419x/BQ2429x Top FAQs

1. STAT blinks when BAT not connected

The device does not have battery detection function. When battery is not connected and charging is enabled by default, the device tries to regulate VBAT to charging voltage (VREG, 4.208V default) then terminate charging. After certain time, VBAT will drop below the recharge threshold and the device charges VBAT to charging voltage (VREG) again. So the charger status indicates between charging in progress and charging complete, so STAT pin blinks. Higher VSYS ripple is also related to the behavior. If charging is disabled with /CE pin or by register bit, the device does not charge and STAT pin should not blink, VSYS is 150 mV above the minimum system voltage (VSYSMIN, 3.5V default) as well. Please refer to <https://e2e.ti.com/support/power-management/f/196/t/791416> for the details.

2. 100mA IINLIM when SYS<2.2V

If the charger is powered up without the battery, VSYS will start from 0V and may stuck in 100mA IINDPM if SYS tries to pull too much current during the start-up. Referring to the d/s, the IINDPM is set to 100mA if VSYS is less than 2.2V.

I _{IN_START}	Input current limit during system start up	VSYS < 2.2 V	100	mA
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Do not apply more than 100mA load at VSYS when VSYS<2.2V.

3. DPM (Dynamic Power Management) and maximum duty cycle reducing ICHG

When input source is over-loaded, either the current exceeds the input current limit (IINLIM or IDPM_LIM) or the voltage falls below the input voltage limit (VINDPM). The device then reduces the charge current until the input current falls below the input current limit and the input voltage rises above the input voltage limit.

The charger is basically a step-down DC-DC (buck) converter. It requires the input voltage to be higher than the output voltage with some headroom for normal operations. The maximum duty cycle spec is one of the factors determines the maximum output voltage at a fixed input voltage. Users should avoid maximum duty cycle operations in their applications by setting VINDPM and IINDPM thresholds correctly. Please refer to [Extract maximum power from the supply when charging a battery](http://www.ti.com/lit/an/slyt569/slyt569.pdf) (<http://www.ti.com/lit/an/slyt569/slyt569.pdf>) for the details.

4. PMID dip during VBUS removal to OTG transient

Due to the OTG boost mode's startup delay, PMID may dip for a short period after VBUS is removed. Please refer to <https://e2e.ti.com/support/power-management/f/196/t/805621> for the details.

5. BQ2429x Maximum VBUS rating

BQ2429x is designed for 5V applications. It is not recommended if VBUS is greater than 6.2V. Otherwise, the input voltage OVP will be triggered.

VBUS/BAT POWER UP					
PARAMETER	TEST CONDITIONS	MIN	TYP	MAX	UNIT
V _{VBUS_OP}	VBUS operating voltage	3.9		6.2	V
V _{ACOV}	VBUS over-voltage rising threshold	6.2	6.4	6.6	V

Absolute Maximum Ratings

	MIN	MAX	UNIT
VBUS (converter not switching)	-2	15 ⁽²⁾	V
PMID (converter not switching)	-0.3	15 ⁽²⁾	V
SW	-2	7 8 (Peak for 20ns duration)	V
BAT, SYS (converter not switching)	-0.3	6	V