

BQ2589x/BQ25898x 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/p/683898/2519754#2519754> for the details.

2. 200mA IINLIM when SYS<2.2V

If the charger is powered up without the battery, VSYS will start from 0V and may stuck in 200mA IINDPM if SYS tries to pull too much current during the start-up. Referring to the d/s, the IINDPM is set to 200mA if VSYS is less than 2.2V.

$I_{IN(START)}$	Input current regulation during system start up	$V_{SYS} = 2.2V, IINLIM(REG00[5:0]) > 200mA$	200	mA
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Do not apply more than 200mA 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/p/712374/2626902#2626902> for the details.

5. ADC reading limitation when Only BAT is present

In battery only mode, the ADC is only functional if the battery voltage is higher than the MINSYS register setting (REG03[1:3]). Otherwise, the ADC readings are not valid. For the maximum ADC operating range with BAT only, user may set the MINSYS voltage to its lowest setting (i.e. 3.0V) so that the ADC functions down to VBAT=3.0V.