bq24050 - Battery Charger

- Temperature sense - Pin 9 / TS

- Connect NTC (10kΩ @ 25 deg) from battery pack
- Connect 10kΩ when temp. sensing is not needed
- Pull high/host: disable temp. monitoring, timers & termination
- Pull low: disable IC
- Connect 250kΩ to prevent TTD when battery pack with NTC is removed

Charge current - Pin 2 / ISET

- \( I_{LOAD} = K_{ISET} / R_{ISET} \)
- \( K_{ISET} = 350..520..680 \quad R_{ISET} = 10..25 \text{ mA} \)
- \( K_{ISET} = 480..520..800 \quad R_{ISET} = 15..20 \text{ mA} \)
- \( R_{ISET} = 34..810 \text{ ohm} \quad 15\Omega \)
- \( R_{ISET} = 10..710 \text{ ohm} \quad 50\Omega \)
- \( R_{ISET} = 5..364 \text{ ohm} \quad 100\Omega \)
- \( R_{ISET} = 3..574 \text{ ohm} \quad 150\Omega \)
- \( R_{ISET} = 2..674 \text{ ohm} \quad 200\Omega \)

Pre-charge current/Current termination threshold - Pin 4 / PRETERM

- Setting termination level: \( R_{TERMIN} = R_{TERMIN} + \% \times ISET \)
- \( R_{TERMIN} = 200 \) ohm
- Pre-charge current = 2x Termination current level
- \( R_{PRETERM} = 1.00 \% \times ISET \)
- \( R_{PRETERM} = 2.00 \% \times ISET \)
- \( R_{PRETERM} = 4.00 \% \times ISET \)

Charging indicator - Pin 8 / CHGS

- YELLOW = Charging (low)
- GREEN: No charging or charging complete (high)

Input current limit - Pin 7 / ISET2

- Sets the input current limit when a charging adapter is detected during startup (D+ and D- shorted)
- Pull low: ISET max.
- Pull high: 100mA max.
- Pull low: 500mA max.
- When a USB host is detected, the current limit is set to 100mA.
- To change the current limit from 100mA on an USB host, the state of pin ISET2 has to be changed after startup.
- When the change was detected, the control of the current limit is given back to pin ISET2 (ISET/100mA/500mA).

bq29707 - Battery Protection

- Overcharge detection: 4.280V
- Overcharge release voltage: 4.280V
- Over-discharge detection voltage: 2.80V
- Over-discharge release voltage: 2.80V
- Discharge overcurrent detection voltage: 0.09V
- Sense resistance: 0.09V/0.5A = 180 ohm
- Sense resistor: 120 ohm
- Current limit: 500/542/584 mA

Battery

- VARTA CR1254: 50mAH, 4.20V, 50mA charge current
- VARTA CR1654: 100mAH, 4.20V, 100mA charge current

Notes

- Built on PMP5722 Rev.F
- REWORK NECESSARY FOR REV.H
- Add connection VBAT between battery and Pin 4 (VBAT) of U4 (bq27410)
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Mailing Address: Texas Instruments, Post Office Box 655303, Dallas, Texas 75265
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