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GM3.0 Customization Parameter Design Guide_V1.1

01/24/2017

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Revision History

Revision	Data (mm/dd/yyyy)	Author	Note
V1.0	10/09/2016	Mitch Lu	1st version for customer
V1.1	01/24/2017	Zhangshuai	Delete page 6/Modify T0~T4

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Outline

- Compare GM2.0 and GM3.0 customized items
- GM3.0 customization parameter design guide

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Compare GM2.0 and GM3.0 Key Customized Items

	GM2.0	GM3.0
Battery parameter (ZCV/Rbat/mAH)	Fixed temp (50/25/0/-10)	4 temp. customization
Gauge 0%	Tool calculate (Fixed)	Alg calculated
PSEUDO1	Tool calculate Fixed and only one	Alg calculated
PSEUDO100	Customized (only one)	Customized (T0~T4)
SHUTDOWN_1_TIME	Customized	Customized
KEEP_100_PERCENT	NA	Customized
EMBEDDED_SEL	GM2.1	Customized

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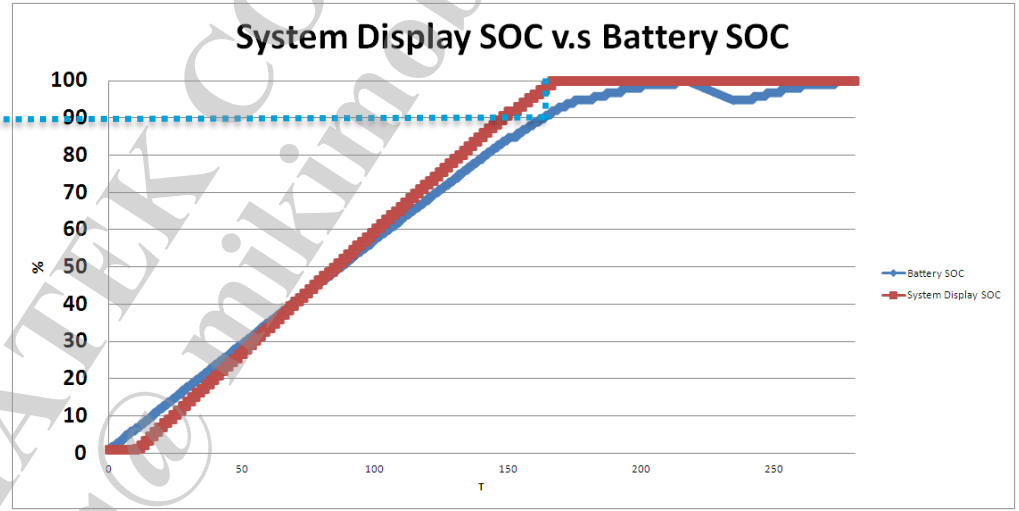
g_FG_PSEUDO100_T0~T4

- g_FG_PSEUDO100_T0~T4
  - UISOC shows 100% before battery full and real SOC is **g_FG_PSEUDO100**
  - If **g_FG_PSEUDO100_T0~T4** is lower, the UISOC linearity will be better but with more gap to real SOC.

Full SOC
- System 100%



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DIFFERENCE_FULLOCV_ITH

- DIFFERENCE_FULLOCV_ITH
  - Charger block may send charging complete signal due to charger timeout. **DIFFERENCE_FULLOCV_ITH** parameter is designed to prevent fuel gauge from miss detection of charger complete.
  - If charging current is less than **DIFFERENCE_FULLOCV_ITH** when charging complete signal is received, it means battery is truly full and GM3.0 will reset both D0 and Coulomb counter.
  - Setting 50mA over charging full termination current is suggested.
  - For example, if charger termination current is 100mA, set **DIFFERENCE_FULLOCV_ITH** to 150mA.

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Q_MAX_SYS_VOLTAGE

- **Q_MAX_SYS_VOLTAGE**
  - Battery usable capacity
  - Based on system off voltage
    - With VBAT < 3.4V shutdown condition, set **Q_MAX_SYS_VOLTAGE** = 3.4V
    - Without VBAT < 3.4V shutdown condition, set **Q_MAX_SYS_VOLTAGE** = 3.2V

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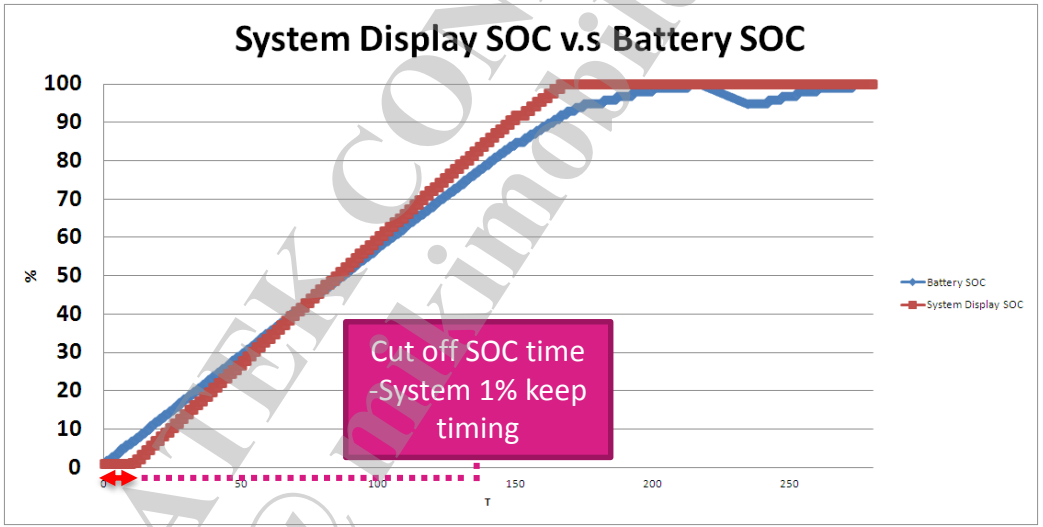
SHUTDOWN_1_TIME

- **SHUTDOWN_1_TIME**
  - UI_SOC 1% maximum time period



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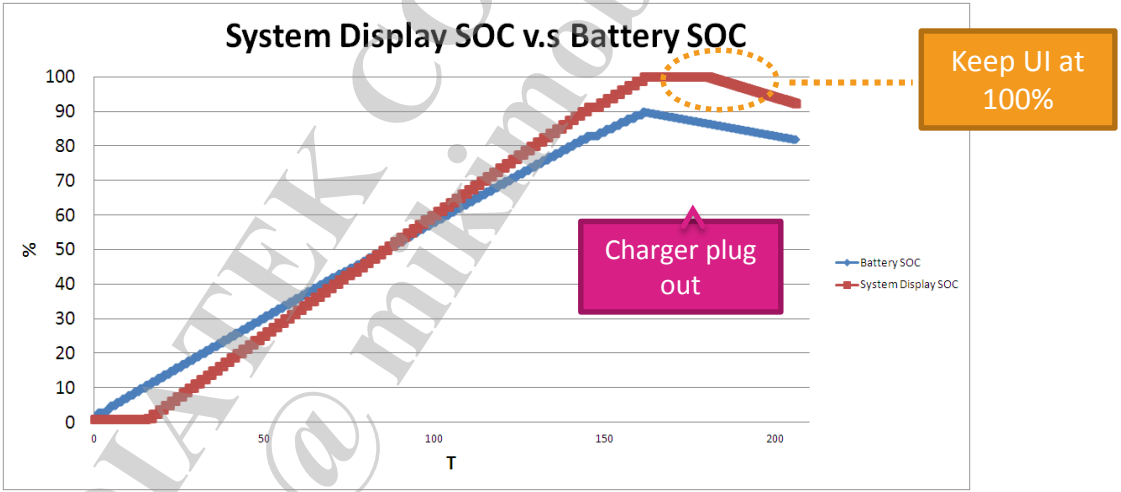
KEEP_100_PERCENT

- **KEEP_100_PERCENT**
  - Charger plug-out after charging is full
  - SOC% to keep UI_SOC at 100%
  - For example, set **KEEP_100_PERCENT**=2, i.e. UI_SOC will keep at 100% until real SOC 2% is discharged



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R_FG_VALUE

- **R_FG_VALUE**
  - Sense resistor value
  - For example, set **R_FG_VALUE** = 10 for 10mohm sense resistor.

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FG_METER_RESISTANCE

- **FG_METER_RESISTANCE**
  - PCB resistance compensation between BAT GND and system GND
  - Unit: 0.1mohm
  - Default **FG_METER_RESISTANCE =** 50 is suggested.

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TEMPERATURE_T0 ~ T4

- **TEMPERATURE_T0~T4**
  - Battery ZCV table temperature
  - T0~T4 from high temperature to low temperature
  - 50/25/10/0/-10 are suggested.

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EMBEDDED_SEL

- **EMBEDDED_SEL**
  - Embedded battery selection
    - Embedded_Sel = 0, removable battery phone model
    - Embedded_Sel = 1, embedded phone model

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PMIC_SHUTDOWN_CURRENT

- **PMIC_SHUTDOWN_CURRENT**
  - Battery leakage current when phone is off
  - Unit: 0.01mA
  - Example: Battery leakage current at phone off = 0.2mA, set **PMIC_SHUTDOWN_CURRENT** = 20

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CAR_TUNE_VALUE

- **CAR_TUNE_VALUE**
  - Tuning for PCB or sense resistor SMT tolerance
  - Follow **CAR_TUNE_VALUE** SOP

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