

S1A00115B Power Management IC(PMIC)

■ DESCRIPTIONS

The S1A00115B is a PMIC (Power Management IC) that features lithium-ion battery charging control, power management, and communication functions with a charger. It allows various parameters required for CC-CV (Constant Current-Constant Voltage) charging control to be programmed into the embedded flash memory, and it also supports overcharge and overdischarge protection.

■ FEATURES

- **Lithium-ion battery charging control functions**
 - ✓ CC-CV charge method for lithium-ion battery
 - ✓ Configurable constant current through built-in flash memory
 - ✓ Overcharge voltage detection (detectable at 4.27 V/4.37 V/4.42 V for 100 ms)
 - ✓ Overcharge current detection, threshold can be set in the built-in flash memory

- **Power management functions**
 - ✓ $\times 1/3$ charge pump with 90% efficiency ($I_{out} = 2 \text{ mA}$, $f = 60.1 \text{ kHz}$)
 - ✓ Over-discharge detection (detectable at 3.2 V for 200 ms every 12-second intervals)
 - ✓ $V_{OUT-GND}$ short-circuit detection (detectable at $1/3 \times V_{BAT} \times 0.7216$ for 25 ms)
 - ✓ External control via a switch (using push-button)

- **Communication with the charger (cradle)**
 - ✓ Communication load is configurable through the built-in flash memory
 - ✓ Communication contents include:
 - Battery charging conditions (voltage, current, temperature, cycle time)
 - V_{D5} voltage
 - Charging status
 - IC number (12-bit), ID code (15-bit, Epson's control code: 4-bit + User-specific code: 11-bit)

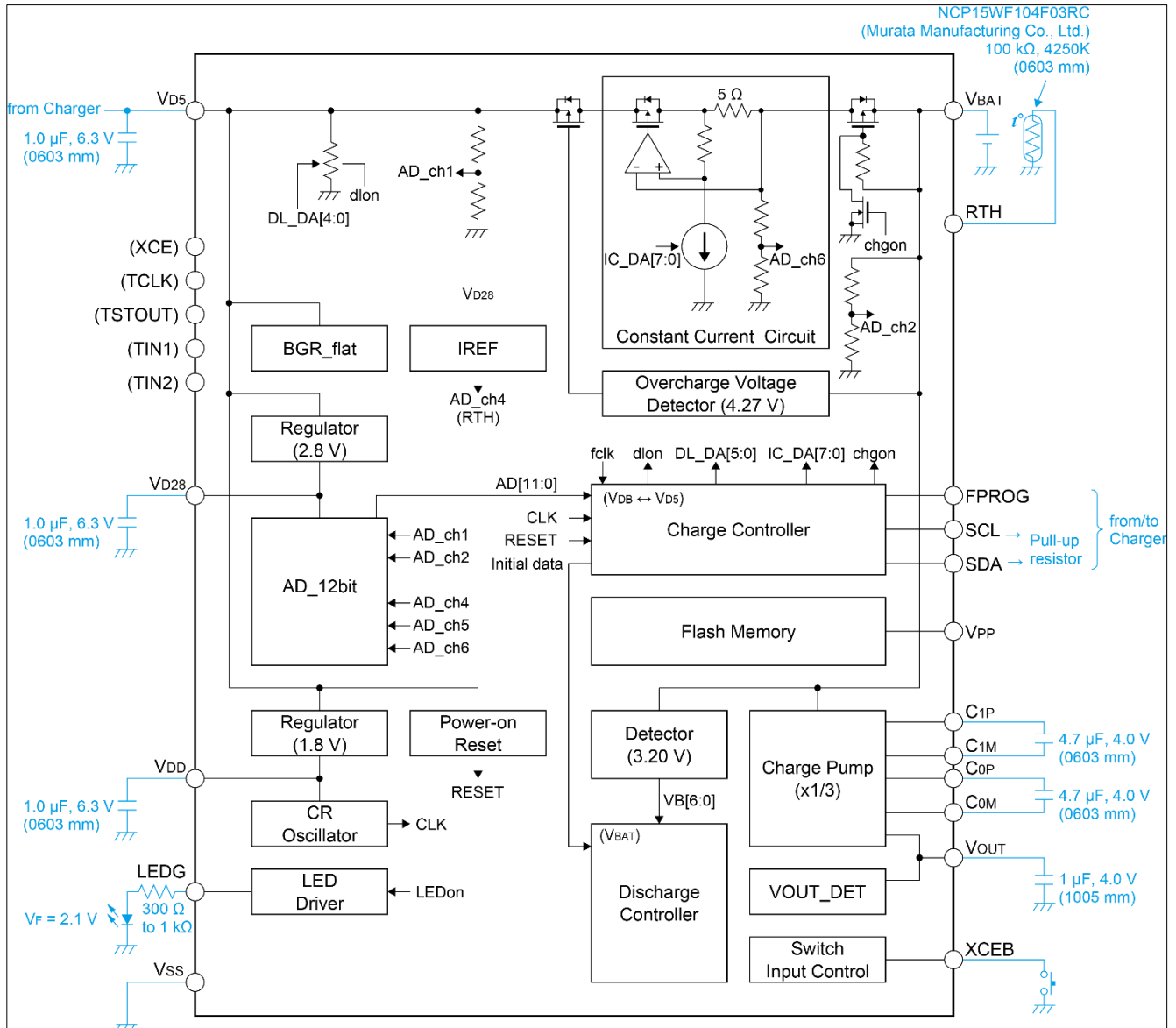
- **Built-in CR oscillator circuit**
 - ✓ Oscillation frequency: 10 MHz

- **Operating current**
 - ✓ During charge: Max. 3 mA
 - ✓ DCDC ON:
 - Max. 70 μA (60.1 kHz)
 - Max. 80 μA (70.5 kHz)
 - Max. 90 μA (81 kHz)
 - Max. 104 μA (92.3 kHz)
 - ✓ DCDC OFF: Max. 0.4 μA ($T_a = 25^\circ\text{C}$)
 - ✓ Shutdown: Max. 0.06 μA ($T_a = 25^\circ\text{C}$)

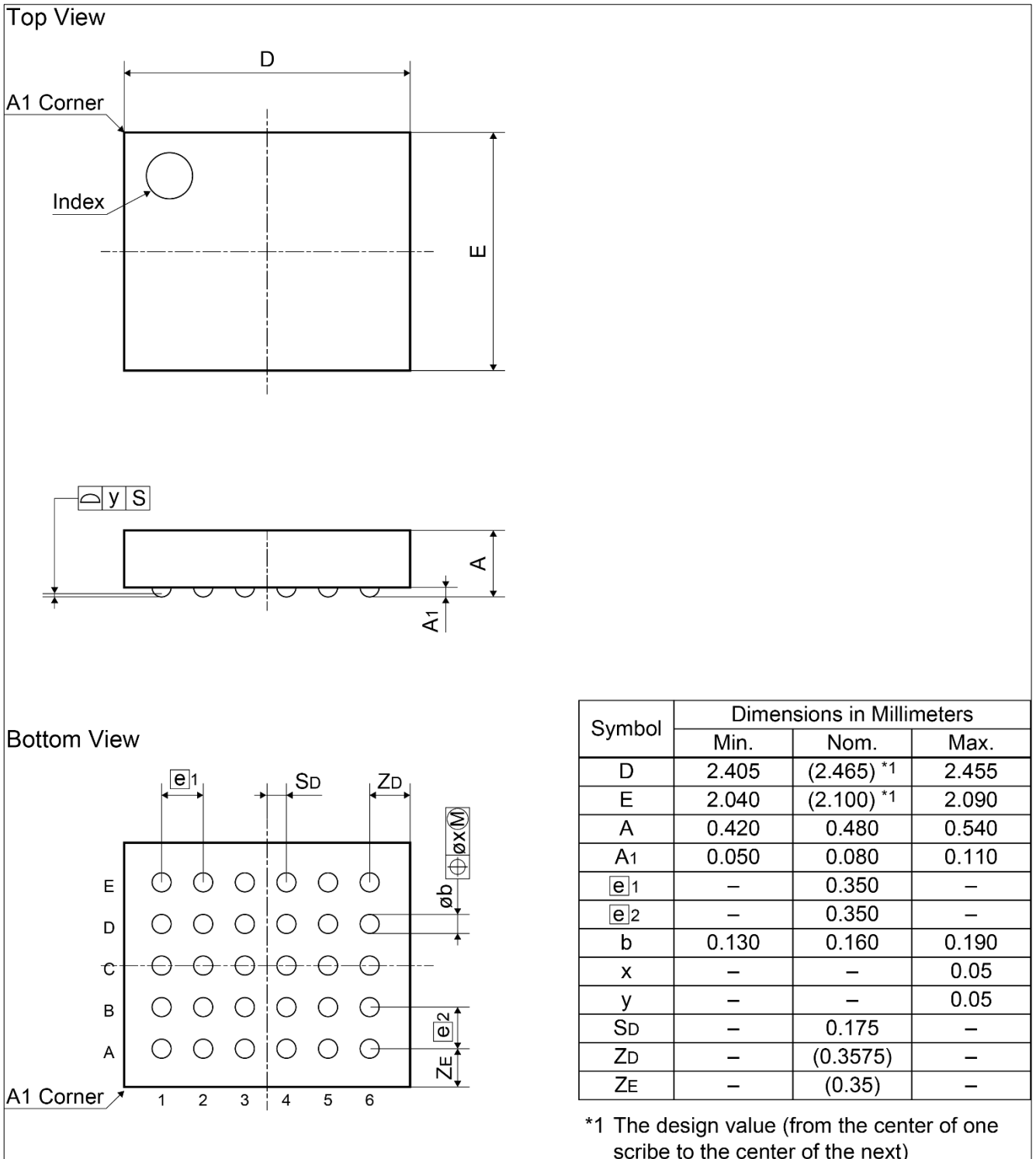
- **Shipment package**
 - ✓ WCSP package (2.465 mm \times 2.100 mm)

S1A00115B

■ BLOCK DIAGRAM



■ PACKAGE OUTLINE



S1A00115B

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