

LSK105, Li & NiMH Battery 4 Channel (6 Slots)
Priority Charge Control with LED Indication IC
Brief Specification

A.) Input Power: Type-C, 5V/3A

B.) Battery type (total 6 Slots for 4 independent control channel), which

- a.) Li Battery (18650): 2 Slots
- b.) NiMH Battery (AA, or AAA): 4 Slots (2 slots as one channel),
The same channel of 2 slots must be AA (or AAA) batteries at the same time,
AA & AAA batteries cannot be mixed.

C.) Charge control flow:

- 1.) Priority Option: by using Largest current of total power to charge 1st priority Slot,
after charge full, then charge 2nd priority Slot. And so on to charge all Slots.

-Priority Selection : Base on customer's different models (or directly select by
end user), can be set Li Battery or NiMH battery as 1st priority.
The default is Li battery.

-Priority Largest Charge Current will be base on Battery type:

- Li Battery (18650, 2500mAh): 2500mA, around 1.2 hr to charge full.
- NiMH Battery (AA, 2800mAh): 2500mA, around 1.4 hr to charge full.
- NiMH Battery (AAA, 1000mAh): 1000mA, around 1.2 hr to charge full.

-Example of Priority : Slot # 1, Slot # 2 are Li Battery,

Slot # 3 & 4, Slot # 5 & 6 are NiMH Battery.

- a.) If Priority is Li Battery: The charge sequence is following:
 - Slot # 1 charge full, then charge Slot # 2.
 - Slot # 2 charge full, then charge Slot # 3 & 4.
 - Slot # 3 & 4 charge full, then charge Slot # 5 & 6.
- b.) If Priority is NiMH Battery: The charge sequence is following:
 - Slot # 3 & 4 charge full, then charge Slot # 5 & 6.
 - Slot # 5 & 6 charge full, then charge Slot # 1.
 - Slot # 1 charge full, then charge Slot # 2.









2.) Constant Current Charge Control Method:

- a.) Li Battery:
 - Constant Voltage: 4.20V (± 30 mV) / Cell.
 - The Value of Charge current when charge full: 0.15C.
 - Battery Voltage Over charge Protection: 4.30V (± 30 mV) / Cell
 - Over Temperature of Battery (by detecting NTC at battery negative port):
 - i.) 58°C (± 3.5 °C)
 - ii.) when Over Temperature, suspending the charge flow 10 min.
then re-act charge flow..
Suspending time won't be count into the total Charge Time.
Suspending period, will charge next Priority Slot.
 - Charge Time Protection: 2.0hr (± 10 %)

b.) NiMH Battery:

- Charge Full Detection by: $-\Delta V$ & $0 \Delta V$.
- Over Battery Voltage Protection : 3.20V ($\pm 30mV$) / 2Cells.
- Full detection by Temperature (by detecting NTC at battery negative port) : $58^{\circ}C$ ($\pm 3.5^{\circ}C$).
- Charge Time Protection: 2.0hr ($\pm 10\%$)

D.) Charge Status (RGB 5-colors LED Display) summary:

Slot Status	Display Icon	Li battery Or NiMH battery
During Charge	Capacity < 25%	 Red LED: On
	25% < Capacity < 50%	 Orange LED: On
	50% < Capacity < 75%	 Yellow LED: On
	75% < Capacity < 99%	 Blue LED: On
Charge Full	Capacity \approx 100%	 Green LED: On
Waiting for Charge		 Yellow LED: Slow flash (0.5s on, 0.5s off)
Over Temperature (for Li Battery only)		 Red LED: Slow flash (0.5s on, 0.5s off), (& Charge Suspending till Temperature cool down)
Over Voltage Defects		 Red LED: Fast flash (0.2s on, 0.2s off) (& Stop Charge flow, till Unplug Battery)

E.) Pls., Contact Application Engineer for suggested application Circuit.

