

Electrical energy storage 2012

Sicherheit, Langlebigkeit und
Leistung von Panasonic Li-Ion
Batterien

Agenda

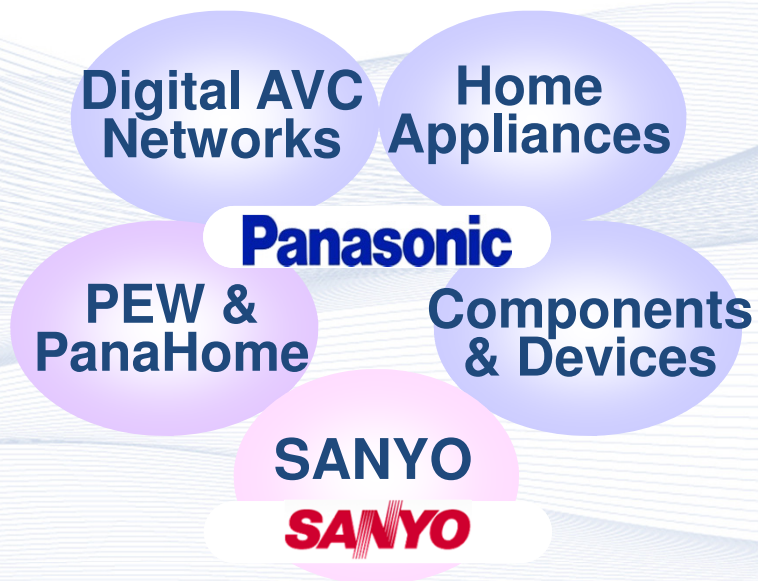
- **Panasonic and Sanyo Technical Collaboration**
- **Li-Ion Development Trend**
- **Product line up**

FY2012 Business Reorganization

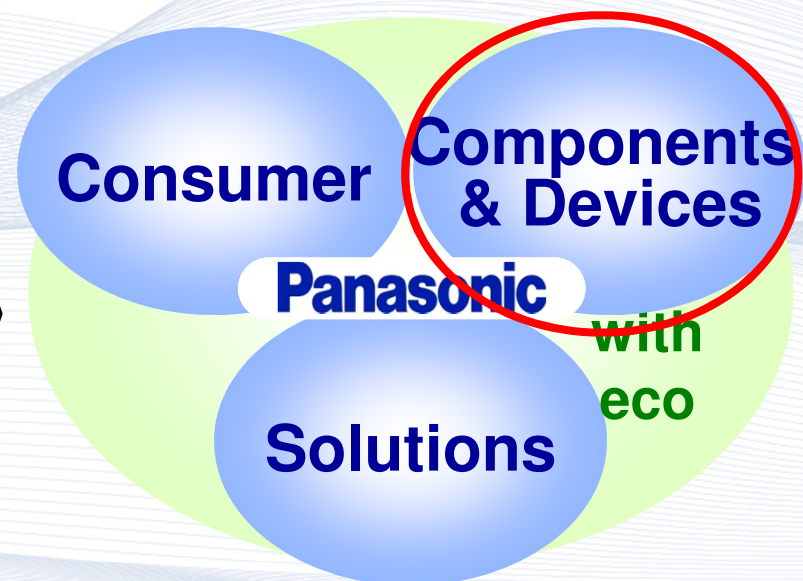
Value creation by
strengthening connection
with customers

Speedy and lean
management structure

Business growth by
shifting resources



**5 business segments
by technology platform**



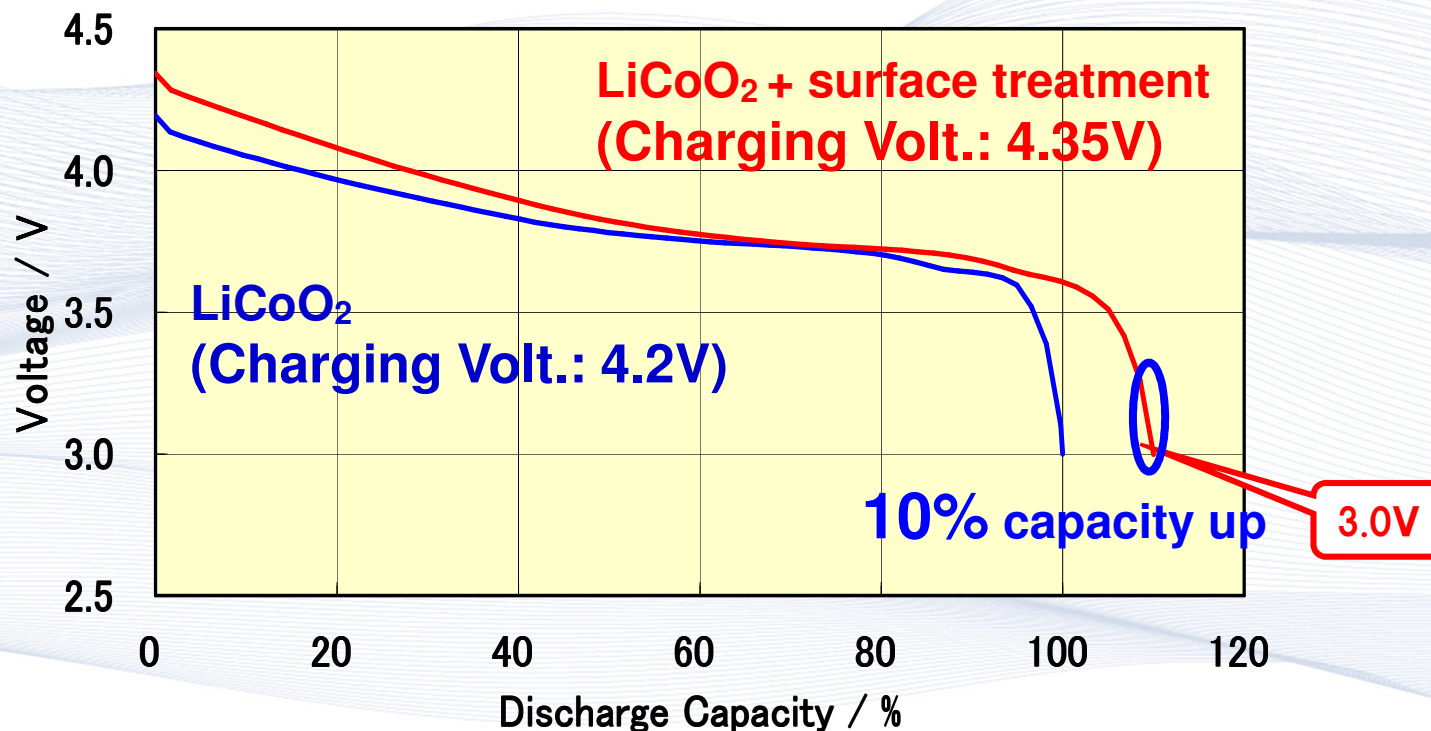
**3 business fields
by business model**

High charging voltage technologies

High Capacity Tech.

LiCoO₂ + surface treatment / Carbon

- ◎ **Discharge voltage curve vs capacity** is same as existing models.
- ◎ **Cost competitiveness** using existing production line



Nickel based New Platform

High Capacity Tech.

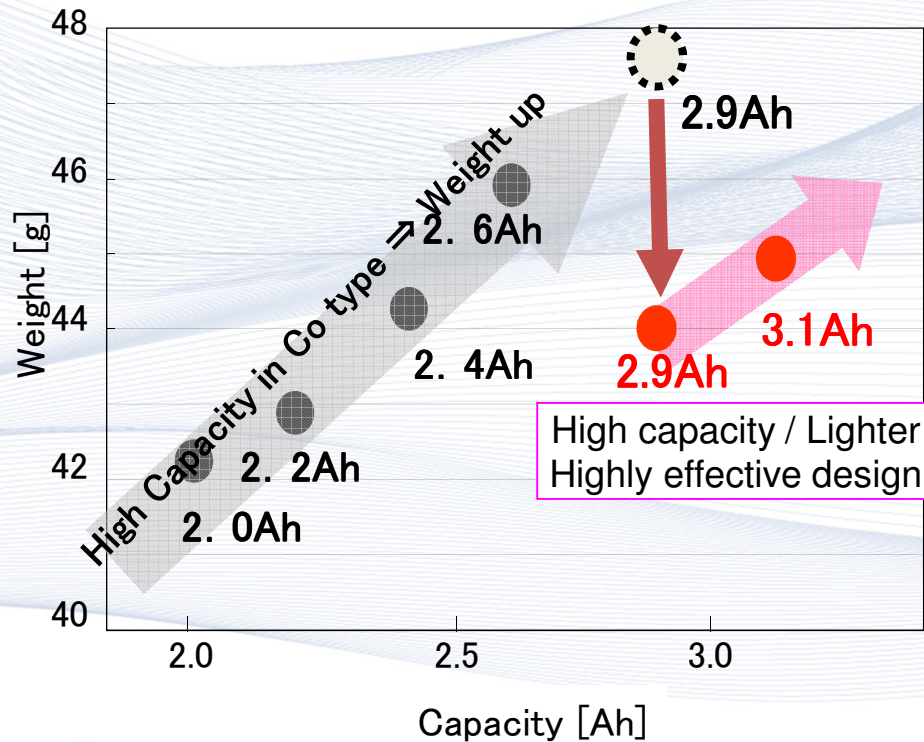


High
Capacity

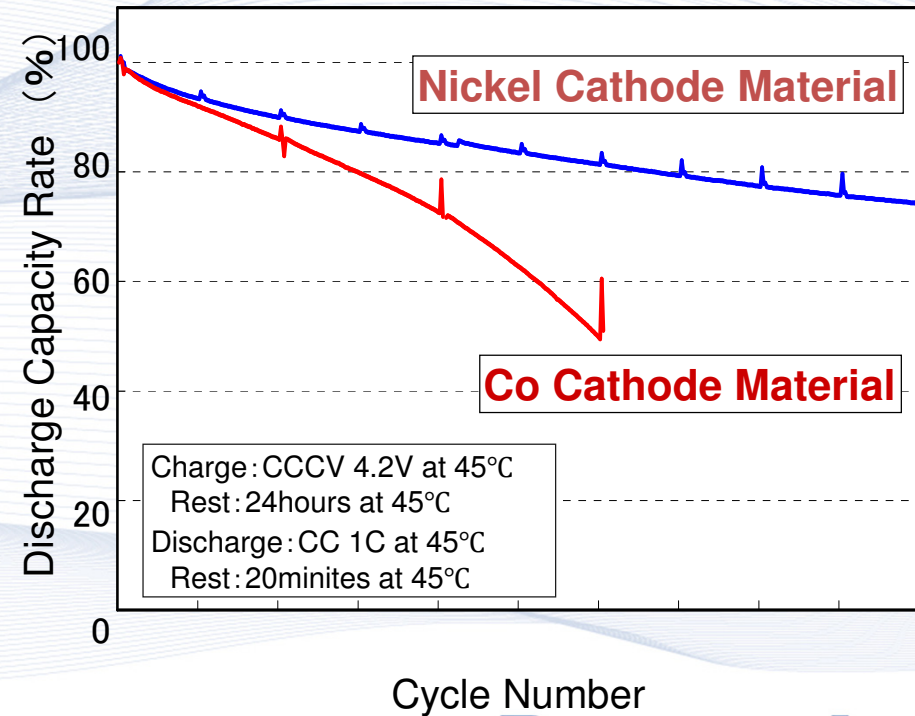
Structure
Stability

Thermal
Stability

High Capacity and Weight Saving



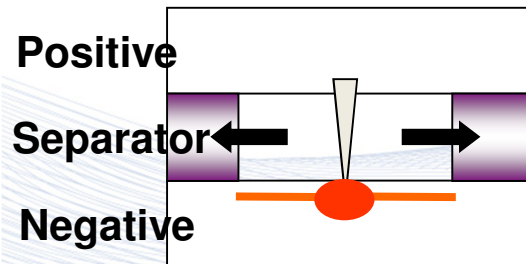
High Durability



HRL technology -Safety against internal short circuit-

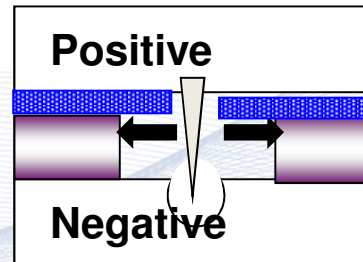
Current

Normal Separator



◆ HRL Technology

Separator with HRL



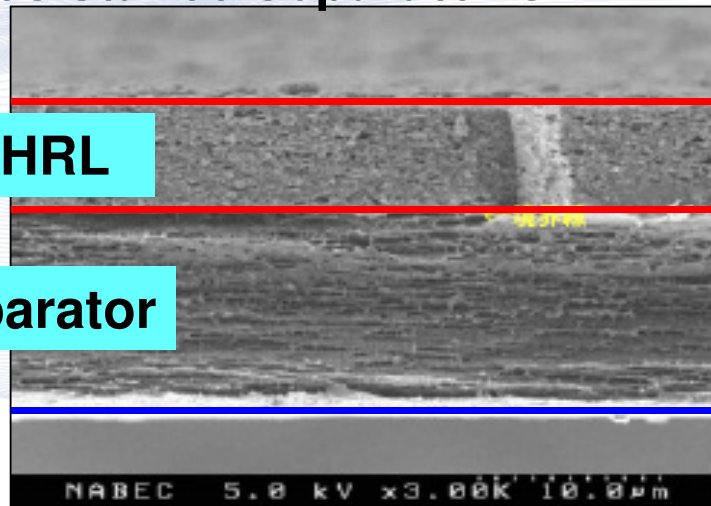
HRL

applying high heat resistance resin

Heat resistance Separator SEM

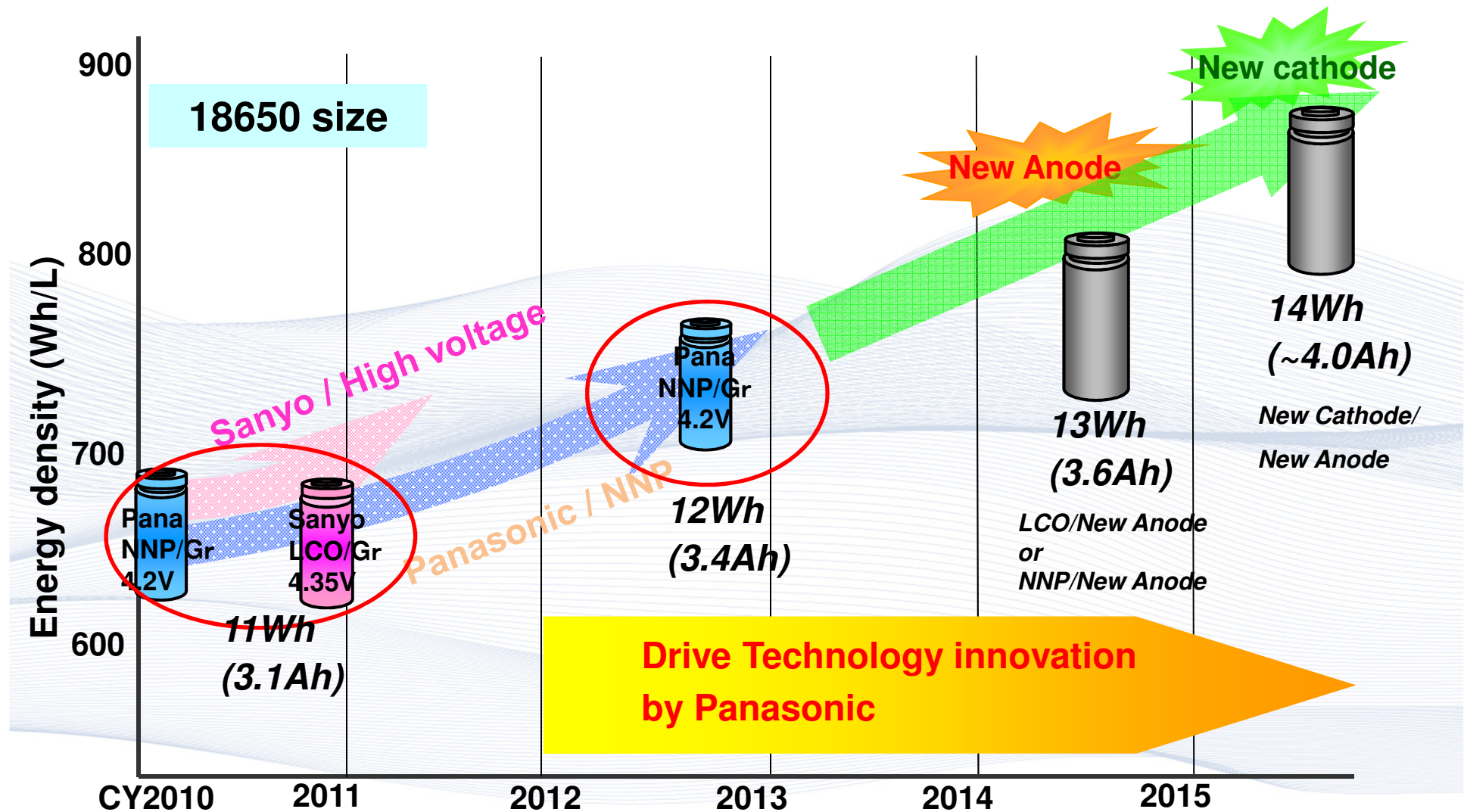
HRL

Separator

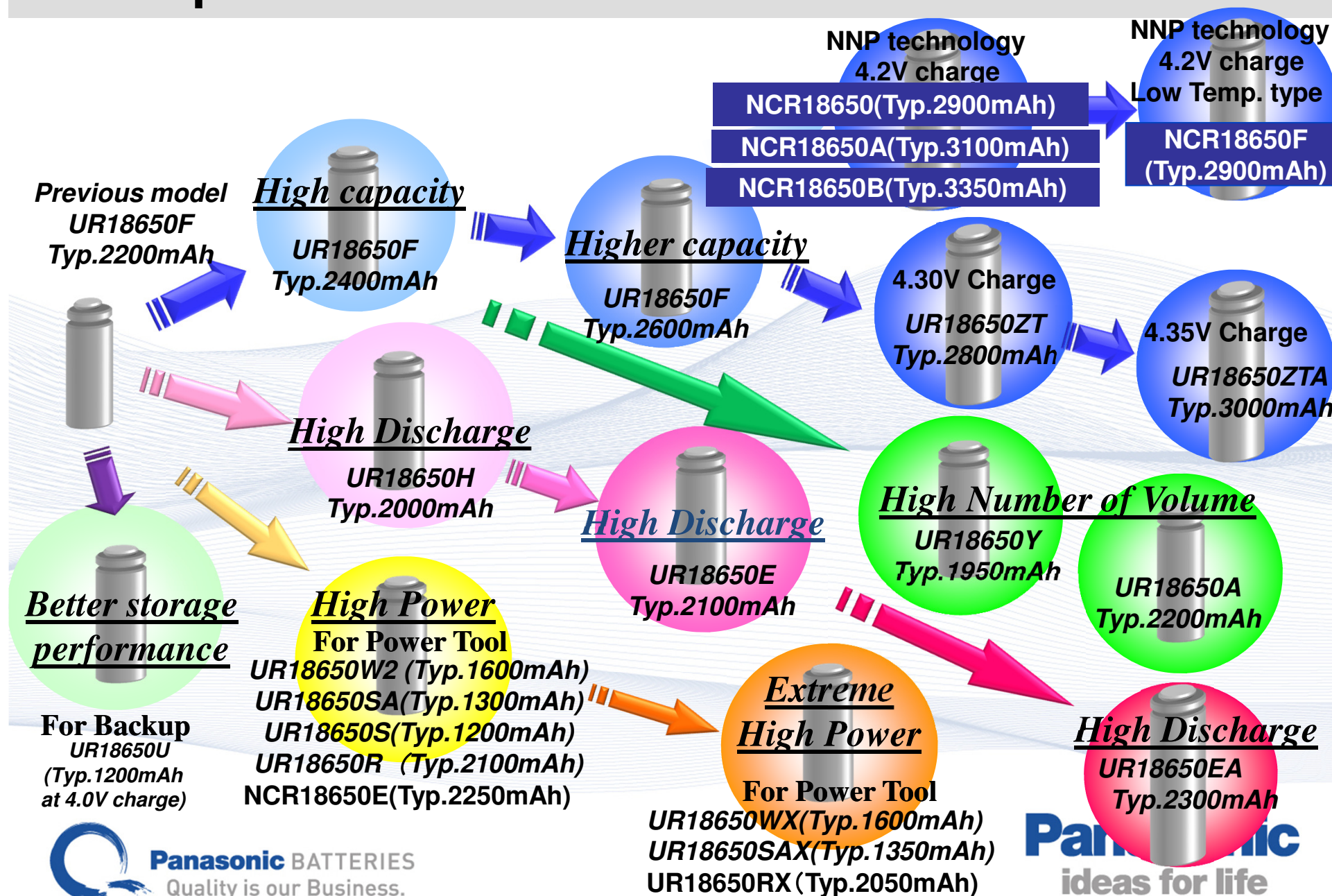


HRL technology:
To avoid expanding
short circuit area

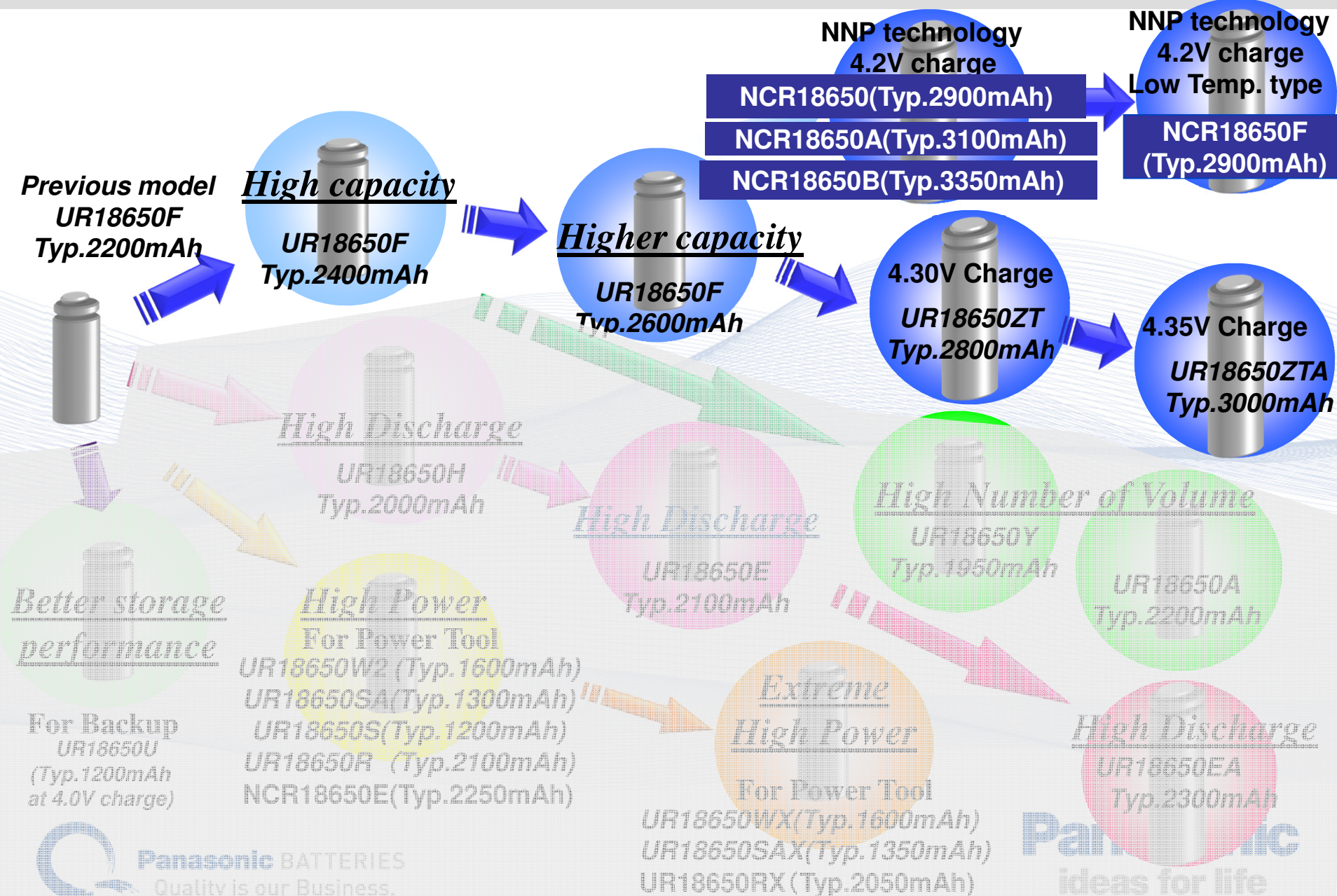
High Capacity Trend



Development trend of 18650 size Li-ion cell

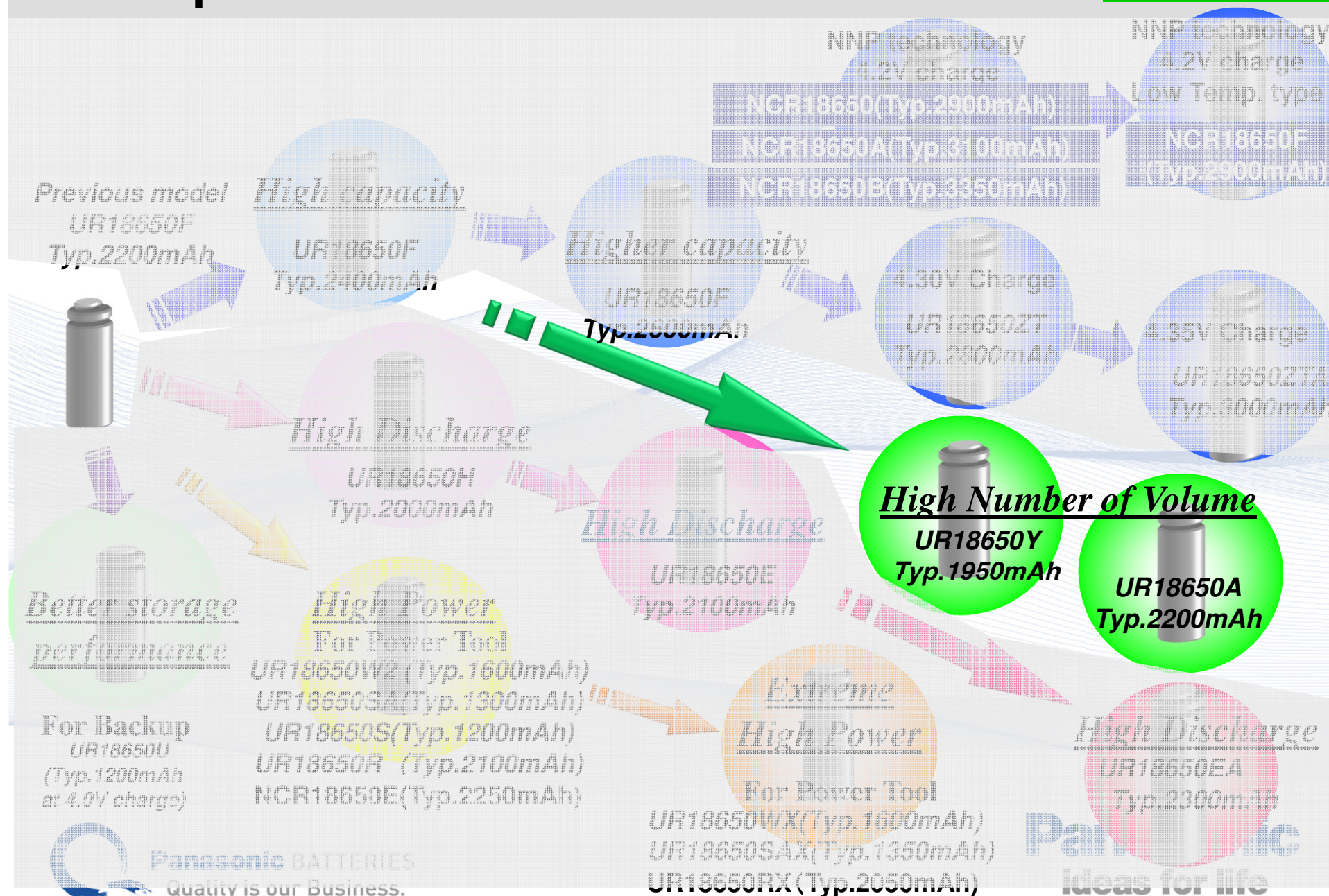


Development trend of 18650 size Li-ion cell



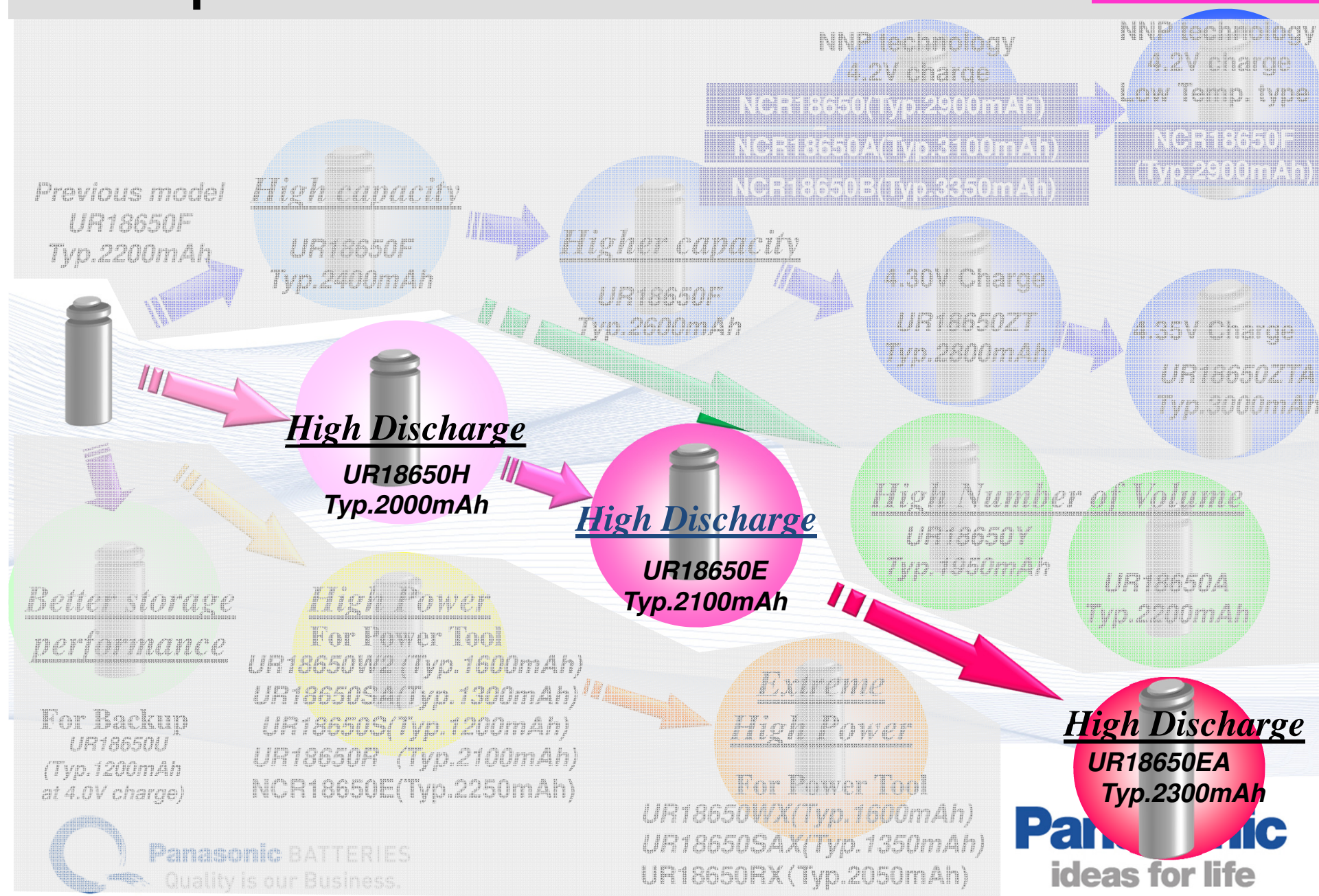
Development trend of 18650 size Li-ion cell

Volume zone



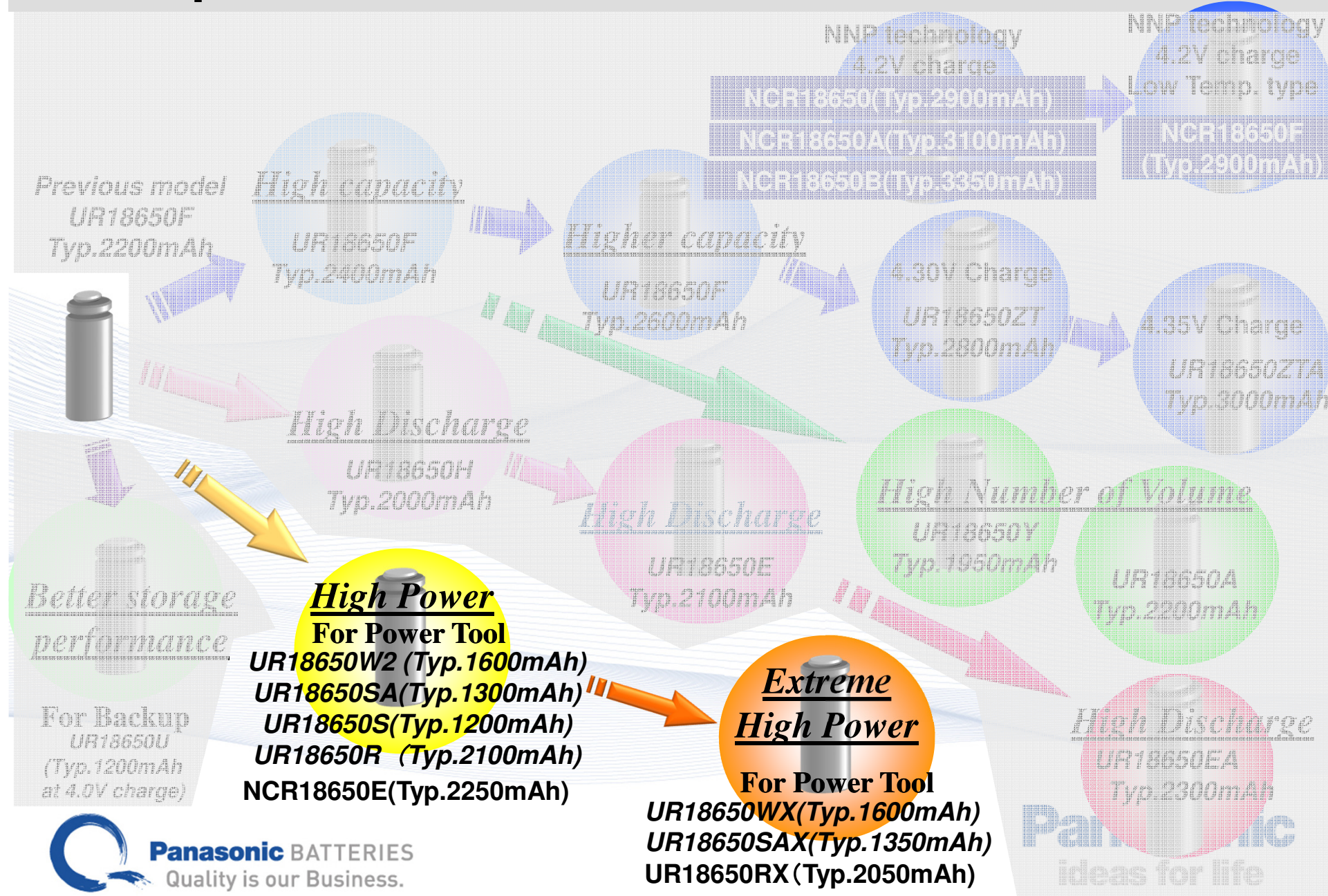
Development trend of 18650 size Li-ion cell

High Discharge



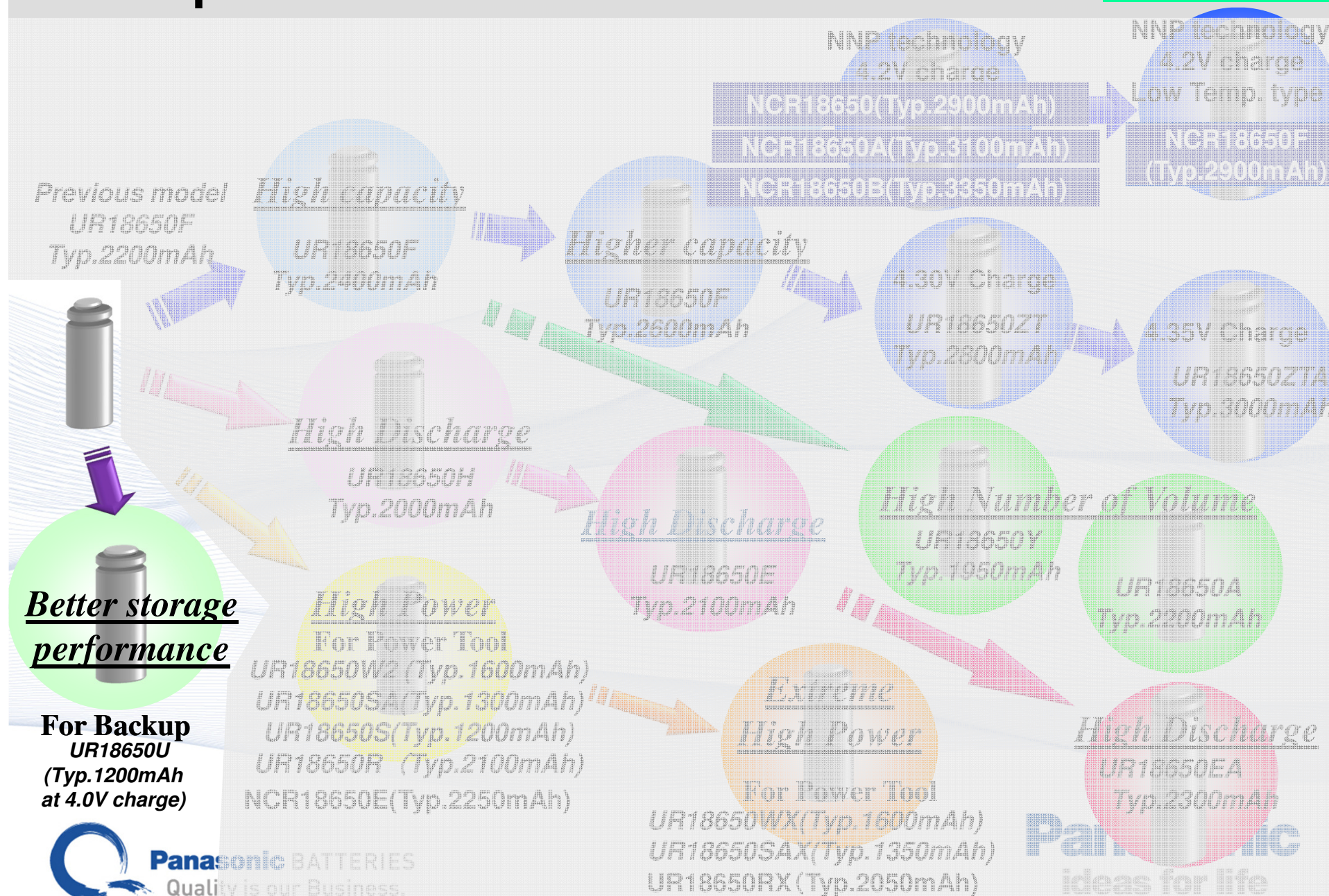
Development trend of 18650 size Li-ion cell

High Power



Development trend of 18650 size Li-ion cell

Backup



Types of Cylindrical Cells

(Types)

(Features)

(Applications)

Cylindrical Cells

High Capacity

- High capacity



Notebook PC



Automotive

High Power

- High power
- Long life
- Good low temp. performance



Power Tool



DC Cleaner

High Discharge

- High discharge & capacity
- Long life
- Good low temp. performance



Electric motorcycle



Power assisted bicycle

Standard

- Moderate performances



2 way radio



Handheld device

Volume zone

- Moderate performances
- Good cost performance



Notebook PC



2 way radio

**Backup
(Long Life)**

- Extremely long life
- High durability



Storage System



Exit Light
Emergency Light



Panasonic BATTERIES
Quality is our Business.

Panasonic
ideas for life

Li-ion product line-up (Cylindrical cell)

Model		High Capacity					
		UR18650 ZT High Voltage	UR18650 ZTA High Voltage	NCR18650	NCR18650 F Low Temp. DCHG typ.	NCR18650 A	NCR18650 B Highest Capacity
Nominal Voltage (V)		3.7	3.7	3.6	3.6	3.6	3.6
Rated Capacity (mAh)		2650	2850	2700	2700	2900	3200
Nominal Capacity (mAh)/Min.		2700	2900	2750	2750	2950	3250
Nominal Capacity (mAh)/Typ.		2800	3000	2900	2900	3070	3350
Standard Charge		4.30V 0.7It	4.35V 0.5It	4.2V 0.7It	4.2V 0.5It	4.2V 0.5It	4.2V 0.5It
Dimension s (mm) (max.)	Diameter	18.24	18.24	18.15	18.15	18.15	18.25
	Height	65.10	65.10	65.10	65.10	65.10	65.10
Weight (g) (max.)		48.0	48.0	45.5	45.5	46.5	47.5
Situation		MP	MP	MP	MP 	MP	MP

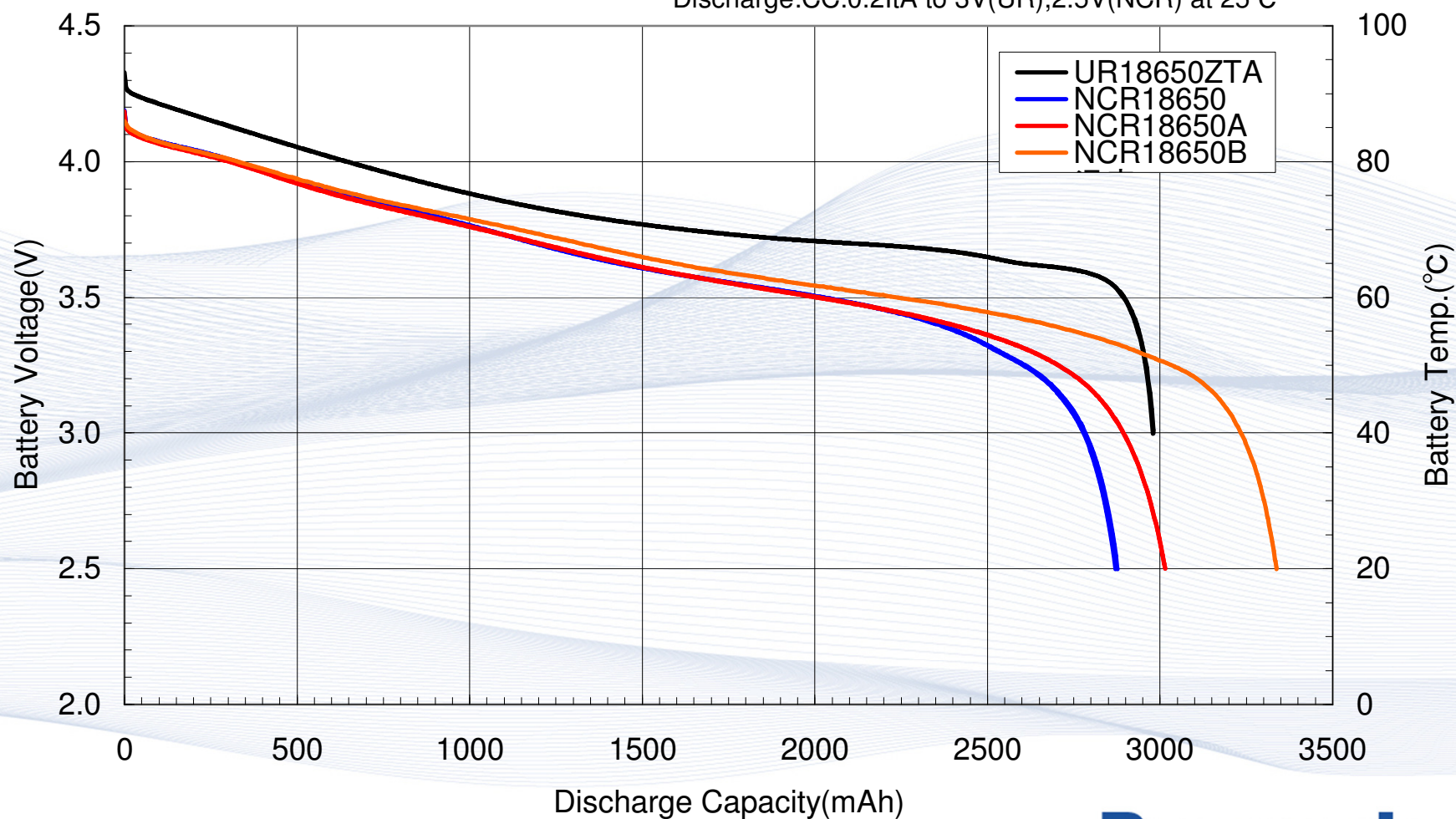
Discharge characteristics at 0.2It 25deg.C

High Capacity

Charge :CC-CV:0.5ItA-4.35V(60mA cut) at 25°C (ZTA3)

CC-CV:0.3ItA-4.2V(60mA cut) at 25°C (Pana)

Discharge:CC:0.2ItA to 3V(UR),2.5V(NCR) at 25°C



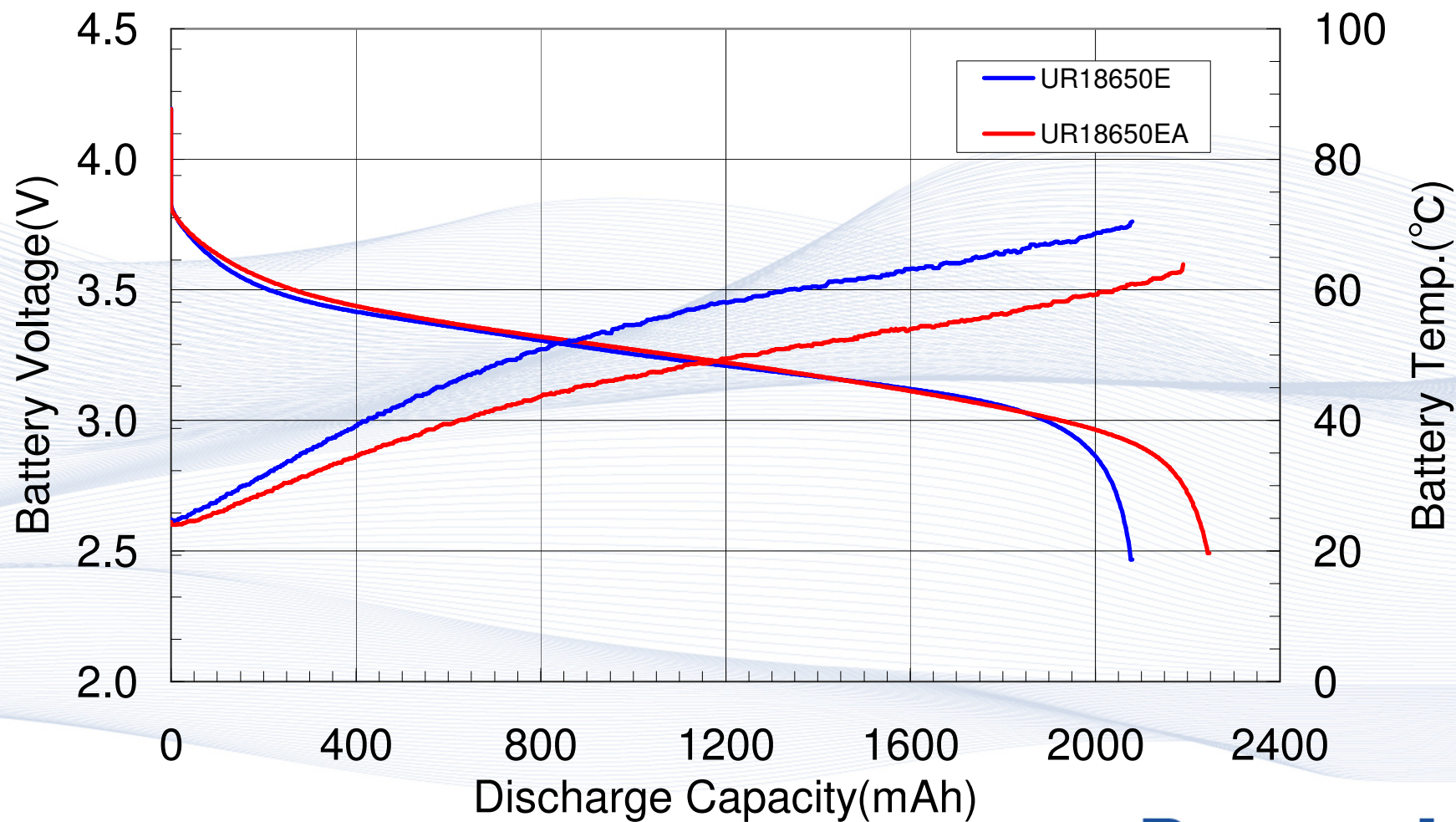
Li-ion product line-up (Cylindrical cell)

Model		High Discharge		High Power I (Middle Capacity)				
		UR18650 E	UR18650 EA	UR18650 S 15A*	UR18650 SA 18A*	UR18650 SAX 25A*	UR18650 W2 18A*	UR18650 WX 25A*
Nominal Voltage (V)		3.6	3.6	3.7	3.7	3.7	3.7	3.7
Rated Capacity (mAh)		2000	2200	1100	1250	1250	1475	1500
Nominal Capacity (mAh)/Min.		2050	2250	1100	1250	1250	1475	1500
Nominal Capacity (mAh)/Typ.		2150	2350	1200	1300	1350	1550	1600
Standard Charge		4.2V 0.7It	4.2V 0.7It	4.2V 0.7It	4.2V 0.7It	4.2V 0.7It	4.2V 0.7It	4.2V 0.7It
Dimensions (mm) (max.)	Diameter	18.10	18.24	18.10	18.10	18.10	18.10	18.10
	Height	64.80	65.10	64.80	64.80	64.80	64.80	64.80
Weight (g) (max.)		44.5	46.0	42.1	44.2	45.2	46.1	45.9
Situation		MP	MP	MP	MP	MP	MP	MP

Discharge characteristics at 10A 25deg.C

High Discharge

Charge :CC-CV:1C-4.2V (1/50C cut) at 25°C
Discharge:CC:10A(E.V.:2.5V) cut at 25°C

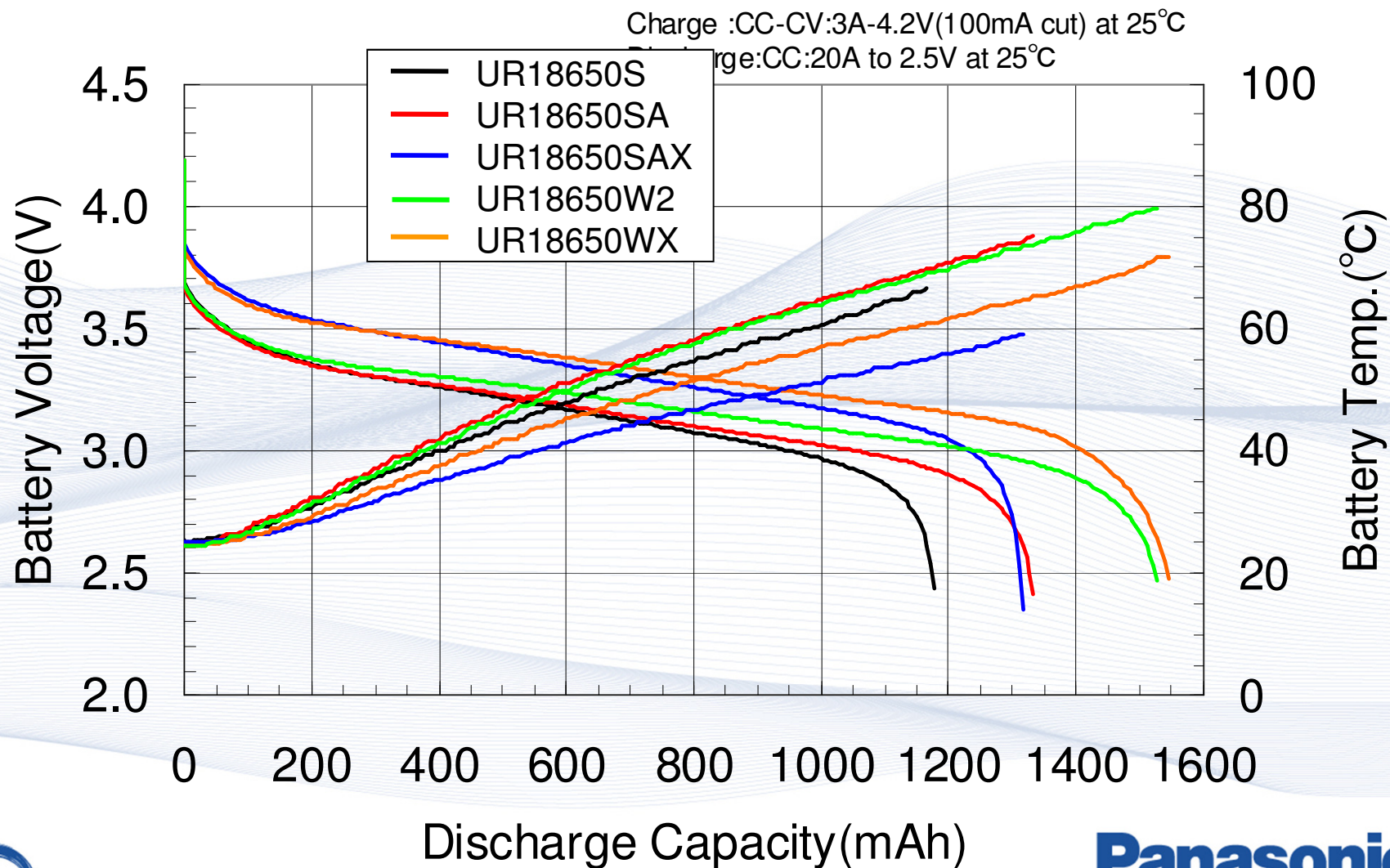


Li-ion product line-up (Cylindrical cell)

Model		High Discharge		High Power I (Middle Capacity)				
		UR18650 E	UR18650 EA	UR18650 S 15A※	UR18650 SA 18A※	UR18650 SAX 25A※	UR18650 W2 18A※	UR18650 WX 25A※
Nominal Voltage (V)		3.6	3.6	3.7	3.7	3.7	3.7	3.7
Rated Capacity (mAh)		2000	2200	1100	1250	1250	1475	1500
Nominal Capacity (mAh)/Min.		2050	2250	1100	1250	1250	1475	1500
Nominal Capacity (mAh)/Typ.		2150	2350	1200	1300	1350	1550	1600
Standard Charge		4.2V 0.7It	4.2V 0.7It	4.2V 0.7It	4.2V 0.7It	4.2V 0.7It	4.2V 0.7It	4.2V 0.7It
Dimensions (mm) (max.)	Diameter	18.10	18.24	18.10	18.10	18.10	18.10	18.10
	Height	64.80	65.10	64.80	64.80	64.80	64.80	64.80
Weight (g) (max.)		44.5	46.0	42.1	44.2	45.2	46.1	45.9
Situation		MP	MP	MP	MP	MP	MP	MP

Discharge characteristics at 20A 25deg.C

High Power I (middle Cap.)



Li-ion product line-up (Cylindrical cell)

Model	High Power II (High Capacity)			Back Up
	UR18650 R 15A※	UR18650 RX 20A※	NCR18650 E 15A※	UR18650 U
Nominal Voltage (V)	3.6	3.6	3.6	3.6
Rated Capacity (mAh)	2000	1950	2100	1100
Nominal Capacity (mAh)/Min.	2000	1950	2150	1100
Nominal Capacity (mAh)/Typ.	2100	2050	2250	1200
Standard Charge	4.2V 0.7It	4.2V 0.7It	4.2V 0.7It	4.0V 0.7It
Dimensions (mm) (max.)	Diameter	18.24	18.24	18.15
	Height	65.10	65.10	65.10
Weight (g) (max.)	45.1	45.2	44.0	41.5
Situation	MP	MP	MP	MP



Power Tool



DC Cleaner

High Cap
&
Extreme High Power



Storage System

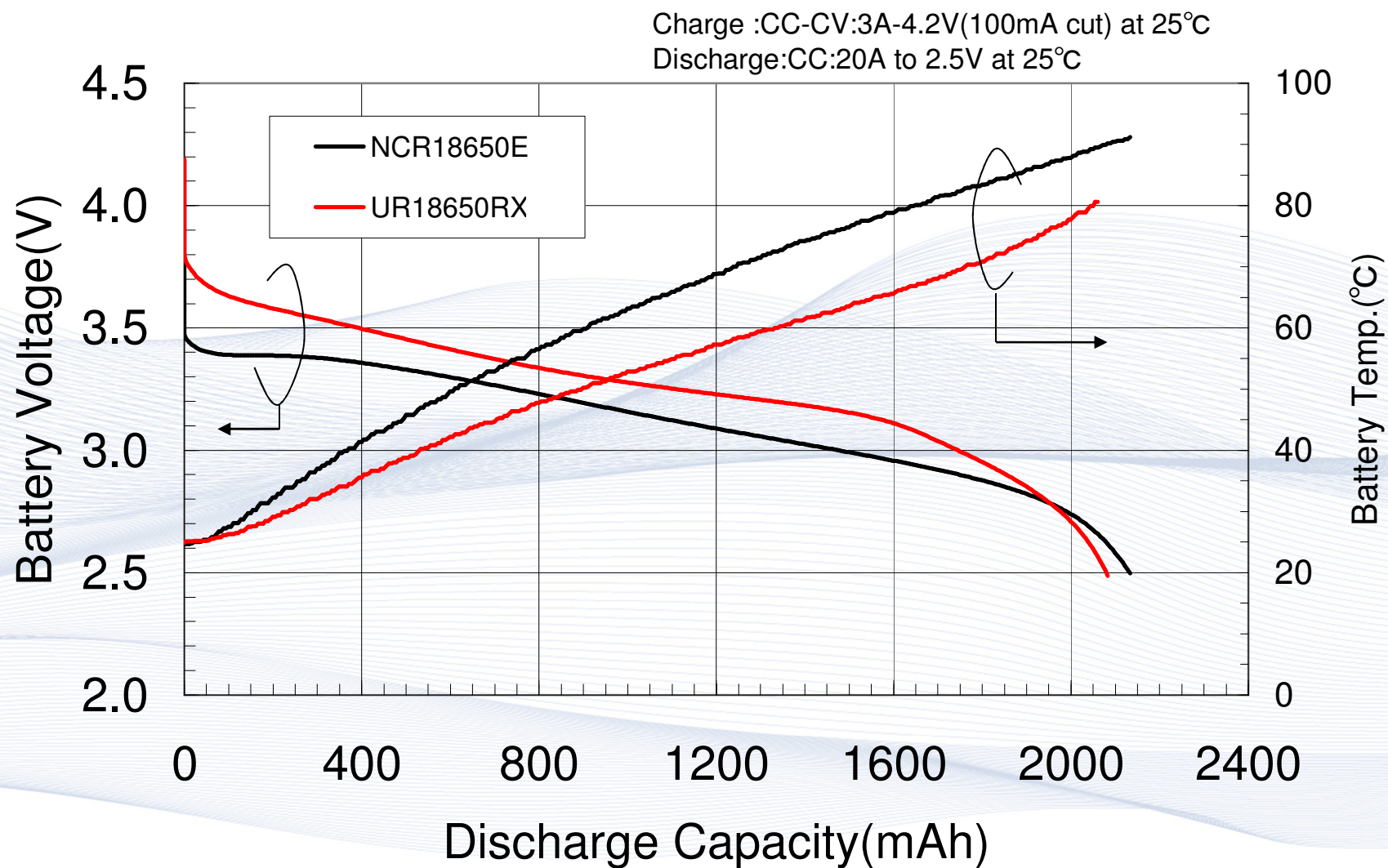


Exit Light
Emergency Light

ideas for life

Discharge characteristics at 20A 25deg.C

High Power (High Cap.)



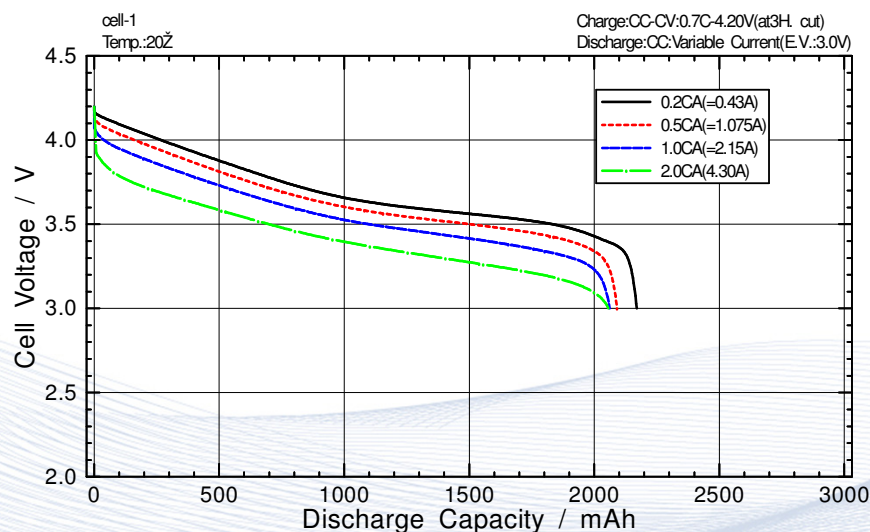
Li-ion product line-up (Cylindrical cell)

Model		Standard		Volume zone	
		UR18650 F	UR18650 ZY	UR18650 A	UR18650 Y
Nominal Voltage (V)		3.7	3.7	3.6	3.7
Rated Capacity (mAh)		2300	2450	2100	1850
Nominal Capacity (mAh)/Min.		2300	2500	2150	1900
Nominal Capacity (mAh)/Typ.		2400	2600	2250	2000
Standard Charge		4.2V 0.7It	4.2V 0.7It	4.2V 0.7It	4.2V 0.7It
Dimensions (mm) (max.) * Bare cell	Diameter	18.10	18.24	18.10	18.10
	Height	64.80	64.80	64.80	64.80
Weight (g) (max.)		44.5	47.0	43.0	43.3
Situation		MP	MP	MP	MP

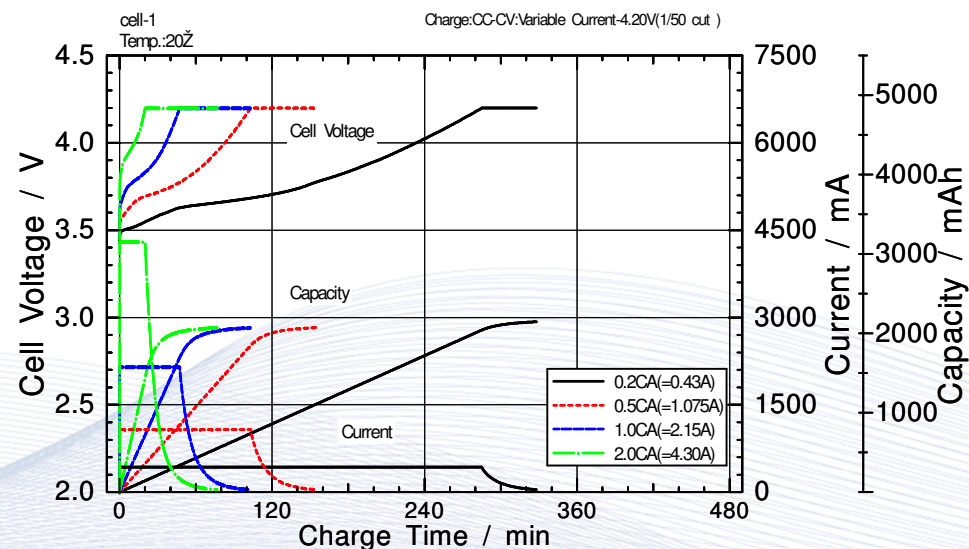
UR18650A Standard data

Volume Zone

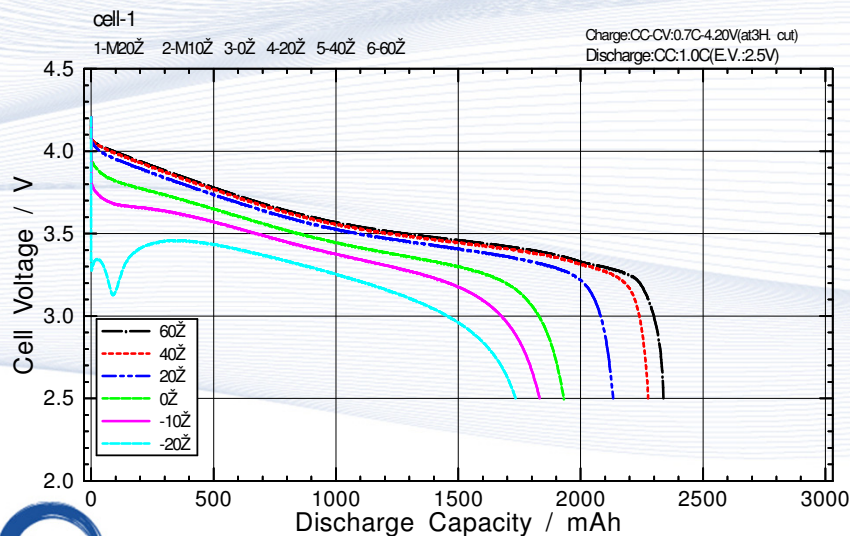
Discharge Rate Characteristics for UR18650AY



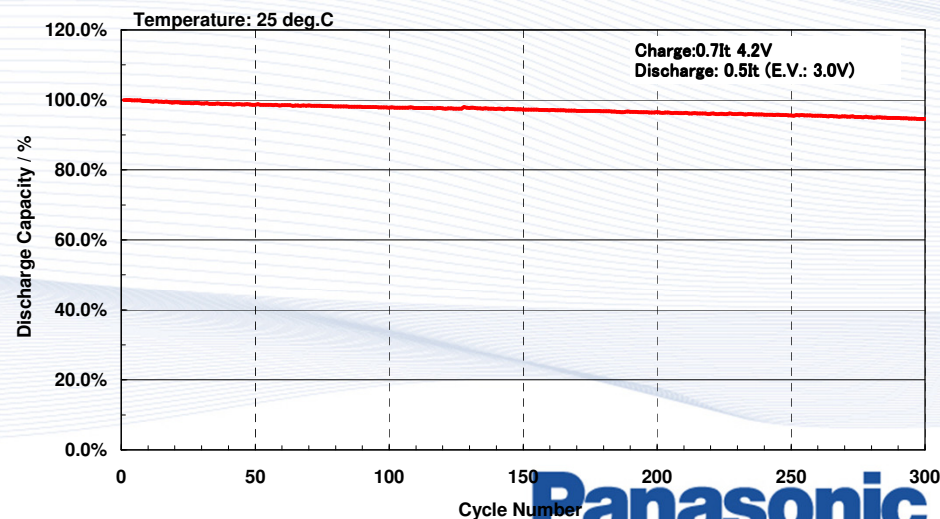
Charge Rate Characteristics for UR18650AY



Discharge Temperature Characteristics for UR18650AY



Cycle Characteristics for UR18650A



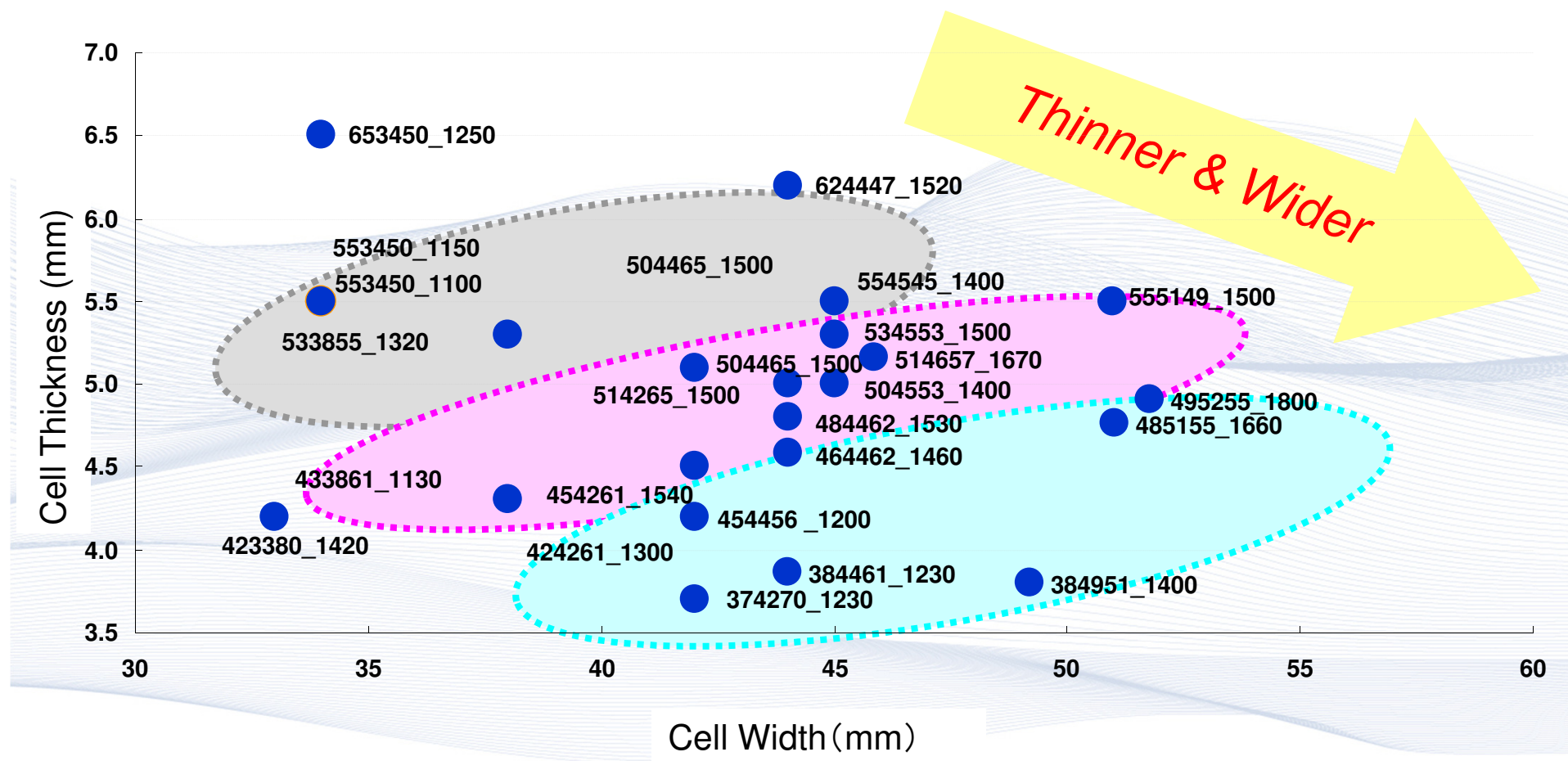
Lithium ion

RECHARGEABLE LITHIUM-ION BATTERY

Prismatic Type

— ***Model Line Up*** —

Development Trend of Prismatic Cells



Prismatic Type

Model		UF752836F	UF653039SU	UF463048F	UF553048F	UF583136R	UF703141FU
Can Shape		Square	Round	Square	Square	Round	Square
Nominal Voltage (V)		3.7	3.7	3.7	3.7	3.7	3.7
Rated Capacity (mAh) at 20°C		850	920	720	900	700	1050
Nominal Capacity (mAh)/Min. at 25°C		850	920	720	900	700	1050
Nominal Capacity (mAh)/Typ. at 25°C		890	960	750	930	740	1090
Standard Charge		0.5~1.0CA-4.20V Constant Current-Constant Voltage (3~5hrs.)					
Dimensions (mm) (max.) (without Tube)	Thickness	7.50	6.40	4.45	5.40	5.60	7.05
	Width	27.95	29.95	29.65	29.65	31.15	30.50
	Height	35.80	38.75	47.80	47.80	36.30	40.70
Weight (g) (max.)		17.3	17.5	15.0	17.9	14.2	20.9
Volumetric Energy Density (Wh/l) (min.)		419	458	422	435	409	444
Gravimetric Energy Density (Wh/kg) (min.)		182	195	178	186	182	186

Discharge : 0.2C(CC) (E.V.=2.75V)

Prismatic Type

Model		UF503436F	UF553436F	UF553436G	UF653436S	UF653436SU	UF463443F	UF463443G
Can Shape		Square	Square	Square	Round	Round	Square	Square
Nominal Voltage (V)		3.7	3.7	3.7	3.7	3.7	3.7	3.7
Rated Capacity (mAh) at 20°C		670	770	800	880	900	770	800
Nominal Capacity (mAh)/Min. at 25°C		670	770	800	880	900	770	800
Nominal Capacity (mAh)/Typ. at 25°C		700	800	830	920	930	800	830
Standard Charge		0.5~1.0CA-4.20V Constant Current-Constant Voltage (3~5hrs.)						
Dimensions (mm) (max.) (without Tube)	Thickness	4.90	5.40	5.50	6.30	6.30	4.45	4.55
	Width	33.95	33.85	33.85	33.85	33.85	33.85	33.85
	Height	35.80	35.80	35.60	35.70	35.70	42.80	42.60
Weight (g) (max.)		13.8	15.2	15.6	17.6	17.8	15.5	15.8
Volumetric Energy Density (Wh/l) (min.)		416	435	447	428	437	442	451
Gravimetric Energy Density (Wh/kg) (min.)		180	187	190	185	187	184	187

Discharge : 0.2C(CC) (E.V.=2.75V)

Prismatic Type

Model		UF463443GU	UF553443F	UF553443Z	UF553443ZQ	UF553443ZU	UF603443S	UF463446S
Can Shape		Square	Square	Round	Round	Round	Round	Round
Nominal Voltage (V)		3.7	3.7	3.7	3.7	3.7	3.7	3.7
Rated Capacity (mAh) at 20°C		820	880	930	960	1000	1030	840
Nominal Capacity (mAh)/Min. at 25°C		820	880	930	960	1000	1030	840
Nominal Capacity (mAh)/Typ. at 25°C		850	920	970	1000	1040	1080	870
Standard Charge		0.5~1.0CA-4.20V Constant Current-Constant Voltage (3~5hrs.)						
Dimensions (mm) (max.) (without Tube)	Thickness	4.55	5.40	5.40	5.55	5.55	5.90	4.45
	Width	33.85	33.85	33.86	33.86	33.80	33.80	33.86
	Height	42.60	42.90	42.80	42.80	42.80	42.75	45.80
Weight (g) (max.)		16.0	17.9	18.5	18.5	18.7	20.5	17.2
Volumetric Energy Density (Wh/l) (min.)		462	415	440	442	461	447	450
Gravimetric Energy Density (Wh/kg) (min.)		190	182	186	192	198	186	181

Discharge : 0.2C(CC) (E.V.=2.75V)

Prismatic Type

Model		UF553446Z	UF463450F	UF463450FL	UF553450Z	UF553450Z	UF653450R	UF653450S
Can Shape		Round	Square	Square	Round	Round	Round	Round
Nominal Voltage (V)		3.7	3.7	3.7	3.7	3.7	3.7	3.7
Rated Capacity (mAh) at 20°C		1030	920	700	1100	1150	1100	1250
Nominal Capacity (mAh)/Min. at 25°C		1030	920	700	1100	1150	1100	1250
Nominal Capacity (mAh)/Typ. at 25°C		1080	960	730	1150	1200	1150	1300
Standard Charge		0.5~1.0CA-4.20V Constant Current-Constant Voltage (3~5hrs.)						
Dimensions (mm) (max.) (without Tube)	Thickness	5.35	4.45	4.50	5.40	5.55	6.35	6.35
	Width	33.86	33.85	33.85	33.85	33.85	33.85	33.85
	Height	45.80	49.60	49.60	49.80	49.80	49.60	49.80
Weight (g) (max.)		20.4	18.5	17.2	21.8	22.3	24.0	25.1
Volumetric Energy Density (Wh/l) (min.)		459	456	343	447	455	382	432
Gravimetric Energy Density (Wh/kg) (min.)		187	184	151	187	191	170	184

Discharge : 0.2C(CC) (E.V.=2.75V)

Prismatic Type

Model		UF703450F	UF103450P	UF103450P	UF593536F	UF383543F	UF383551F	UF383551FU
Can Shape		Square	Round	Round	Square	Square	Square	Square
Nominal Voltage (V)		3.7	3.7	3.7	3.7	3.7	3.7	3.7
Rated Capacity (mAh) at 20°C		1430	1800	1880	880	650	790	820
Nominal Capacity (mAh)/Min. at 25°C		1430	1800	1880	880	650	790	820
Nominal Capacity (mAh)/Typ. at 25°C		1480	1900	2000	920	680	830	850
Standard Charge		0.5~1.0CA-4.20V Constant Current-Constant Voltage (3~5hrs.)						
Dimensions (mm) (max.) (without Tube)	Thickness	7.00	10.50	10.50	5.74	3.80	3.80	3.85
	Width	33.85	33.80	33.80	34.45	34.95	34.95	34.95
	Height	49.80	48.80	48.80	35.95	42.55	50.55	50.55
Weight (g) (max.)		28.1	38.0	38.5	16.9	13.6	16.3	16.3
Volumetric Energy Density (Wh/l) (min.)		448	385	402	458	426	435	446
Gravimetric Energy Density (Wh/kg) (min.)		188	175	181	193	177	179	186

Discharge : 0.2C(CC) (E.V.=2.75V)

Prismatic Type

Model		UF533640S	UF423643F	UF463651S	UF613756F	UF493856S	UF433861F	UF503861F
Can Shape		Round	Square	Round	Square	Round	Square	Square
Nominal Voltage (V)		3.7	3.7	3.7	3.7	3.7	3.7	3.7
Rated Capacity (mAh) at 20°C		900	700	1020	1400	1240	1130	1380
Nominal Capacity (mAh)/Min. at 25°C		900	700	1020	1400	1240	1130	1380
Nominal Capacity (mAh)/Typ. at 25°C		950	730	1060	1450	1290	1170	1420
Standard Charge		0.5~1.0CA-4.20V Constant Current-Constant Voltage (3~5hrs.)						
Dimensions (mm) (max.) (without Tube)	Thickness	5.20	4.10	4.50	5.80	4.77	4.30	4.95
	Width	35.90	35.95	35.90	36.65	37.85	37.85	37.85
	Height	39.80	42.40	51.00	55.40	55.55	60.80	60.80
Weight (g) (max.)		17.6	14.8	20.2	28.6	24.6	23.4	27.7
Volumetric Energy Density (Wh/l) (min.)		448	414	458	440	457	423	448
Gravimetric Energy Density (Wh/kg) (min.)		189	175	187	181	187	179	184

Discharge : 0.2C(CC) (E.V.=2.75V)

Prismatic Type

Model	UF553939S	UF634042F	UF514050F	UF404251S	UF424261F	UF464445F	UF564447F
Can Shape	Round	Square	Square	Round	Square	Square	Square
Nominal Voltage (V)	3.7	3.7	3.7	3.7	3.7	3.7	3.7
Rated Capacity (mAh) at 20°C	1010	1230	1220	1020	1300	1020	1370
Nominal Capacity (mAh)/Min. at 25°C	1010	1230	1220	1020	1300	1020	1370
Nominal Capacity (mAh)/Typ. at 25°C	1050	1270	1260	1060	1350	1060	1420
Standard Charge	0.5C~1.0CA-4.20V Constant Current-Constant Voltage (3~5hrs.)						
Dimensions (mm) (max.) (without Tube)	Thickness	5.52	6.20	5.00	3.90	4.20	5.55
	Width	38.90	39.85	39.80	41.90	41.85	43.90
	Height	38.40	41.70	49.50	50.80	60.80	44.30
Weight (g) (max.)	19.4	24.6	23.7	20.3	26.2	20.9	27.0
Volumetric Energy Density (Wh/l) (min.)	453	442	458	455	450	439	446
Gravimetric Energy Density (Wh/kg) (min.)	193	185	190	186	184	181	188

Discharge : 0.2C(CC) (E.V.=2.75V)

Prismatic Type

Model		UF624447F	UF454456F	UF464459F	UF384461S	UF384461SU	UF464462F	UF484462S
Can Shape		Square	Square	Square	Round	Round	Square	Round
Nominal Voltage (V)		3.7	3.7	3.7	3.7	3.7	3.7	3.7
Rated Capacity (mAh) at 20°C		1520	1240	1390	1180	1230	1460	1530
Nominal Capacity (mAh)/Min. at 25°C		1520	1240	1390	1180	1230	1460	1530
Nominal Capacity (mAh)/Typ. at 25°C		1580	1290	1450	1230	1280	1520	1590
Standard Charge		0.5~1.0CA-4.20V Constant Current-Constant Voltage (3~5hrs.)						
Dimensions (mm) (max.) (without Tube)	Thickness	6.15	4.27	4.50	3.75	3.80	4.50	4.70
	Width	43.90	43.85	43.60	43.55	43.55	43.60	43.90
	Height	46.60	55.65	58.70	60.70	60.70	61.40	61.70
Weight (g) (max.)		29.9	25.4	27.9	24.2	24.6	29.1	30.3
Volumetric Energy Density (Wh/l) (min.)		447	440	447	440	453	448	445
Gravimetric Energy Density (Wh/kg) (min.)		188	181	184	180	185	186	187

Discharge : 0.2C(CC) (E.V.=2.75V)

Prismatic Type

Model		UF534462S	UF504547F	UF504553F	UF504553FU	UF534553F	UF644553F	UF514657F
Can Shape		Round	Square	Square	Square	Square	Square	Square
Nominal Voltage (V)		3.7	3.7	3.7	3.7	3.7	3.7	3.7
Rated Capacity (mAh)		1800	1240	1400	1460	1520	1900	1670
Nominal Capacity (mAh)/Min.		1800	1240	1400	1460	1520	1900	1670
Nominal Capacity (mAh)/Typ.		1860	1290	1450	1510	1580	1960	1730
Standard Charge		0.5~1.0CA-4.20V Constant Current-Constant Voltage (3~5hrs.)						
Dimensions (mm) (max.) (without Tube)	Thickness	5.30	5.00	5.00	5.00	5.25	6.40	5.05
	Width	43.90	44.90	44.90	44.90	44.85	44.85	46.10
	Height	61.70	46.60	52.60	52.60	52.50	52.50	56.50
Weight (g) (max.)		34.7	25.0	28.1	28.6	29.9	36.6	31.4
Volumetric Energy Density (Wh/l) (min.)		464	439	439	457	455	467	470
Gravimetric Energy Density (Wh/kg) (min.)		192	184	184	189	188	192	197

Discharge : 0.2C(CC) (E.V.=2.75V)

Prismatic Type

Model		UF384961S	UF494961S	UF515148S	UF485155S
Can Shape		Round	Round	Round	Round
Nominal Voltage (V)		3.7	3.7	3.7	3.7
Rated Capacity (mAh) at 20°C		1400	1800	1520	1660
Nominal Capacity (mAh)/Min. at 25°C		1400	1800	1520	1660
Nominal Capacity (mAh)/Typ. at 25°C		1450	1860	1570	1710
Standard Charge		0.5~1.0CA-4.20V Constant Current-Constant Voltage (3~5hrs.)			
Dimensions (mm) (max.) (without Tube)	Thickness	3.80	4.90	5.05	4.80
	Width	48.80	48.80	50.90	50.90
	Height	61.00	61.00	47.50	55.00
Weight (g) (max.)		27.5	34.9	29.1	31.9
Volumetric Energy Density (Wh/l) (min.)		458	457	461	457
Gravimetric Energy Density (Wh/kg) (min.)		188	191	193	193

Discharge : 0.2C(CC) (E.V.=2.75V)

Prismatic Type

NCA System (1) (NCA: Ni Cathode Material)

Model		NCA752836	NCA622944	NCA603134	NCA473136	NCA463436A	NCA843436
Can Shape		Square	Square	Round	Square	Square	Square
Nominal Voltage (V)		3.6	3.6	3.6	3.6	3.6	3.6
Rated Capacity (mAh) at 20°C		895	1020	700	620	680	1250
Nominal Capacity (mAh)/Min. at 25°C		920	1040	710	630	695	1275
Nominal Capacity (mAh)/Typ. at 25°C		955	1080	730	650	720	1300
Standard Charge		0.5~0.7CA-4.20V Constant Current-Constant Voltage (3~5hrs.)					
Dimensions (mm) (max.) (without Tube)	Thickness	7.75	6.22	6.06	4.70	4.60	8.70
	Width	27.90	28.70	31.10	30.90	34.30	33.90
	Height	35.95	44.70	34.45	35.45	35.50	36.00
Weight (g) (max.)		16.5	18.0	13.7	11.7	12.4	23.4
Volumetric Energy Density (Wh/l) (min.)		414	460	388	434	437	424
Gravimetric Energy Density (Wh/kg) (min.)		195	204	185	191	197	192

Discharge : 0.2C(CC) (E.V.=2.75V)

Prismatic Type

NCA System (2) (NCA: Ni Cathode Material)

Co System

Model		NCA673440	NCA543444	NCA523450	NCA573536	NCA573544	CGA103450A
Can Shape		Round	Round	Round	Square	Square	Round
Nominal Voltage (V)		3.6	3.6	3.6	3.6	3.6	3.7
Rated Capacity (mAh) at 20°C		1200	1010	1080	940	1130	1850
Nominal Capacity (mAh)/Min. at 25°C		1220	1030	1100	960	1150	1850
Nominal Capacity (mAh)/Typ. at 25°C		1265	1065	1150	1000	1190	1950
Standard Charge		0.5~0.7CA-4.20V Constant Current-Constant Voltage (3~5hrs.)					
Dimensions (mm) (max.) (without Tube)	Thickness	6.75	5.40	5.30	5.90	5.8	10.60
	Width	33.80	33.80	33.76	34.60	34.6	33.79
	Height	40.35	44.25	49.55	35.80	44	48.80
Weight (g) (max.)		20.3	17.9	19.7	16.4	19.9	42.0
Volumetric Energy Density (Wh/l) (min.)		469	450	439	463	461	392
Gravimetric Energy Density (Wh/kg) (min.)		213	204	197	207	204	163

Prismatic Type

HV System (1) (HV: High Voltage Charge)

Model		UF653445ST	UF464462FT	UF484462ST	UF484462SX	UF534553FT	UF514657FX *	UF515148ST
Can Shape		Round	Square	Round	Round	Square	Square	Round
Nominal Voltage (V)		3.8	3.8	3.8	3.8	3.8	3.8	3.8
Rated Capacity (mAh) at 20°C		1220	1520	1660	1700	1620	1800	1600
Nominal Capacity (mAh)/Min. at 25°C		1220	1520	1660	1700	1620	1800	1600
Nominal Capacity (mAh)/Typ. at 25°C		1260	1580	1710	1760	1680	1850	1660
Standard Charge		0.5~1.0CA-4.35V Constant Current-Constant Voltage (3~5hrs.)						
Dimensions (mm) (max.) (without Tube)	Thickness	6.30	4.40	4.70	4.70	5.25	5.05	5.05
	Width	33.80	43.60	43.90	43.90	44.85	46.10	50.90
	Height	44.50	61.40	61.70	61.70	52.50	56.50	47.50
Weight (g) (max.)		22.3	28.4	30.0	30.5	29.3	31.2	28.7
Volumetric Energy Density (Wh/l) (min.)		489	490	496	507	498	520	498
Gravimetric Energy Density (Wh/kg) (min.)		208	203	210	212	210	219	212

Prismatic Type

HV System (2) (HV: High Voltage Charge)

Model		UF515148SX	UF555148SX	UF485155SX	UF515155SX	UF555155SX	UF405158SX
Can Shape		Round	Round	Round	Round	Round	Round
Nominal Voltage (V)		3.8	3.8	3.8	3.8	3.8	3.8
Rated Capacity (mAh) at 20°C		1650	1810	1830	1980	2080	1540
Nominal Capacity (mAh)/Min. at 25°C		1650	1810	1830	1980	2080	1540
Nominal Capacity (mAh)/Typ. At 25°C		1710	1870	1890	2040	2140	1590
Standard Charge		0.5CA~1.0CA-4.35V Constant Current-Constant Voltage(3~5hrs.)					
Dimensions (mm) (max.) (without Tube)	Thickness	5.05	5.45	4.80	5.05	5.45	3.95
	Width	50.90	50.90	50.90	50.90	50.90	50.40
	Height	47.50	47.50	55.00	55.00	55.00	58.00
Weight (g) (max.)		28.7	31.2	32.0	33.6	36.5	27.9
Volumetric Energy Density (Wh/l) (min.)		514	522	518	532	518	507
Gravimetric Energy Density (Wh/kg) (min.)		218	220	217	224	217	210

Discharge : 0.2C(CC) (E.V.=3.00V)

Prismatic Type

HV System [3] (HV: High Voltage Charge)

Model		UF465161ST	UF515161SX	UF495252ST	UF495255ST
Can Shape		Round	Round	Round	Round
Nominal Voltage (V)		3.8	3.8	3.8	3.8
Rated Capacity (mAh) at 20°C		1800	2100	1660	1800
Nominal Capacity (mAh)/Min. at 25°C		1800	2100	1660	1800
Nominal Capacity (mAh)/Typ. At 25°C		1870	2160	1720	1870
Standard Charge		0.5CA~1.0CA-4.35V Constant Current- Constant Voltage(3~5hrs.)			
Dimensions (mm) (max.) (without Tube)	Thickness	4.60	5.05	4.90	4.90
	Width	50.40	50.40	51.90	51.90
	Height	61.00	60.60	51.50	55.00
Weight (g) (max.)		32.7	37.5	30.3	32.3
Volumetric Energy Density (Wh/l) (min.)		484	517	482	489
Gravimetric Energy Density (Wh/kg) (min.)		209	213	208	212



Discharge : 0.2C(CC) (E.V.=3.00V)

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Questions?