

(19) (KR)  
(12) (B1)

(51) 。 Int. Cl.<sup>7</sup>  
H01M 10/48

(45)  
(11)  
(24)

2004 12 20  
10-0462661  
2004 12 10

(21) 10-2002-0038004  
(22) 2002 07 02

(65)  
(43)

10-2004-0003336  
2004 01 13

(73) 1가 57

(72) 101 507

102 402

101 1207

(74)  
:

(54) 가 2

, Ni-Cd, NiMH 2 ,

ate of Charge)

(Depth of Discharge)  
가

(SOC : St

1				
2			3.8V	
3			3.9V	
4			4.0V	
5			4.2V	
6			4.0V	180mAh
7				가
8			3.8V	가
	Rser	Rct		
9			3.9V	가
	Rser	Rct		
10			4.0V	가
	Rser	Rct		
11			4.2V	가
	Rser	Rct		
12			4.0V	180mAh
	가		Rser Rct	

2 , 가 , 2 , 가 , 3 4V , 100Wh/kg

90 , 2 , 가 , 2 , 가 , 18650 , 0.6Ah , 2Ah , 가

가 , 가 ( 1 ) ( )

US3,562,634 2 - US3,562,634 ,

가 , US4,678,998 ,

US4,743,855 ,

US5,241,275 US5,717,336 ,

264515 ,

가

(Open circuit voltage),

가

가

가

가

US 4,952,862

(Peukert paramete

r)

EP 119,547

US 3,984

,762

가

가  
2

가

가

2

가

of Charge)

(Depth of Discharge)

(SOC : State

가

Voltage)

(OCV : Open Circuit

1

,515  
rge)

5%

(DOD: Depth of discha

264

10%

50%

60%

가

2

가

2

( Formation)

50%

60%

10%

20%

가 20mV가

SOC

10kHz

1mHz

1kHz

10mHz

264,515

(generic circuit model)

J. Power Sources, 83 (1999) 61) 가

Rser(resistance of separator and current collectors)

Rct(Charge transfer resistance)

x

, y

y

18650 1 2 12 3.8V, 3.9V, 4.0V, 4.2V  
 CC(Constant current), CV(Constant voltage) 900mA 가 , 90  
 mA 10%가 1800mA 가 . 4.15V , 0.5C , 180mAh , 10%  
 BPS 1000FL { : ( ) } , 10kHz ~ 10MHz 264,515  
 2 6 generic circuit model 7 . (J. P  
 over Sources, 83 (1999) 61) **Rser** (resistance of separator and current coll  
 ectors) **Rct** (Charge transfer resistance)  
 1.0C 8 12 가 , V4.  
 0 4.2V , 50% 4.0V

(57)

1. ( )
2. ( )
- 3.
- 4.
- 5.
- 6.

2 2 60% ,  
 10% 2 ,  
 가 ,  
 2  
 10mHz 10kHz 2  
 가 , ,  
 2  
 가 ,  
 2

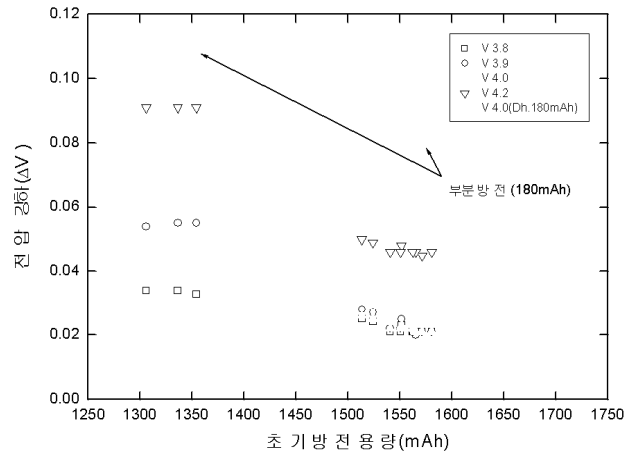
7. 1 6 , , 2  
 8. 1 6 , , 2

1.0C

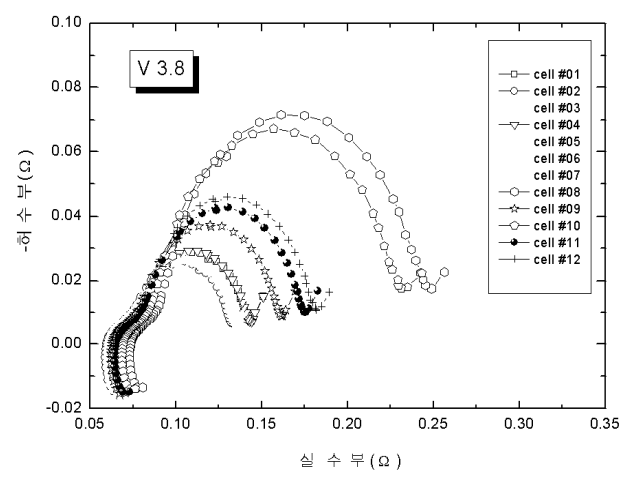
Ni-Cd, NiMH

2

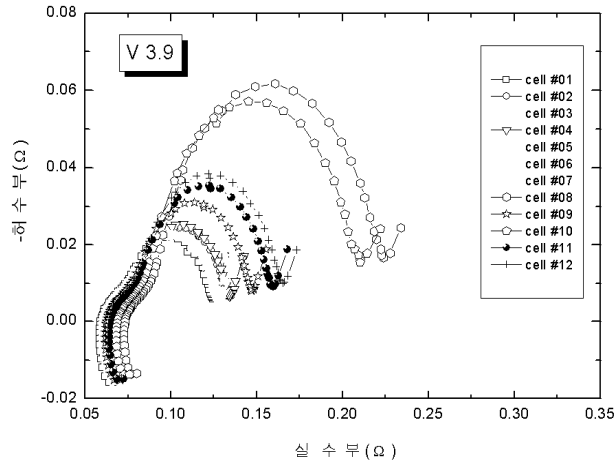
1



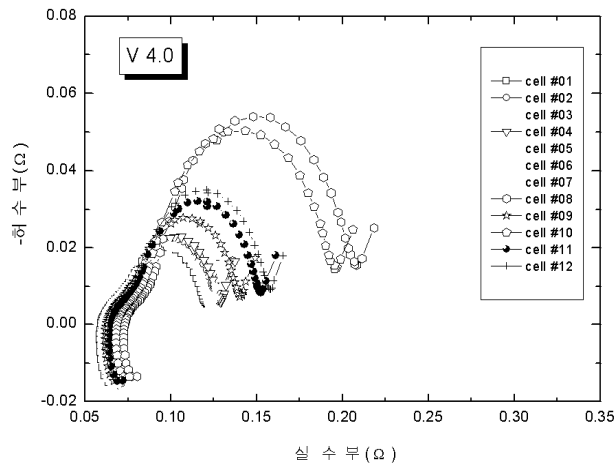
2



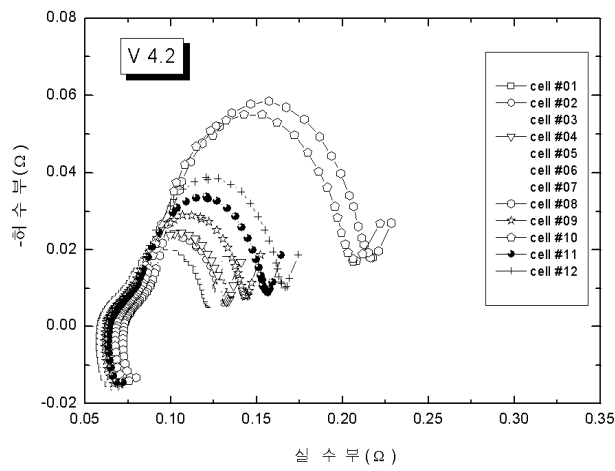
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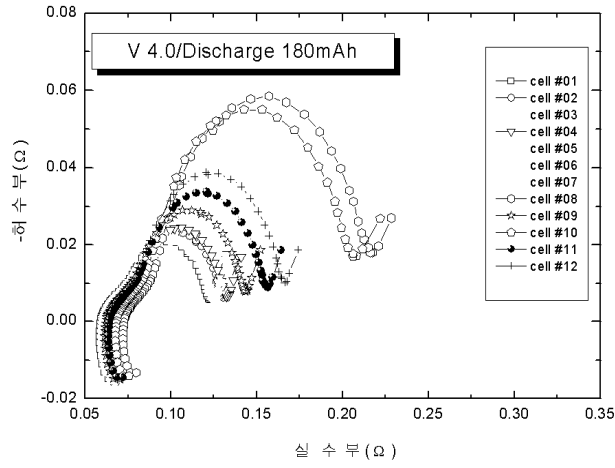
4



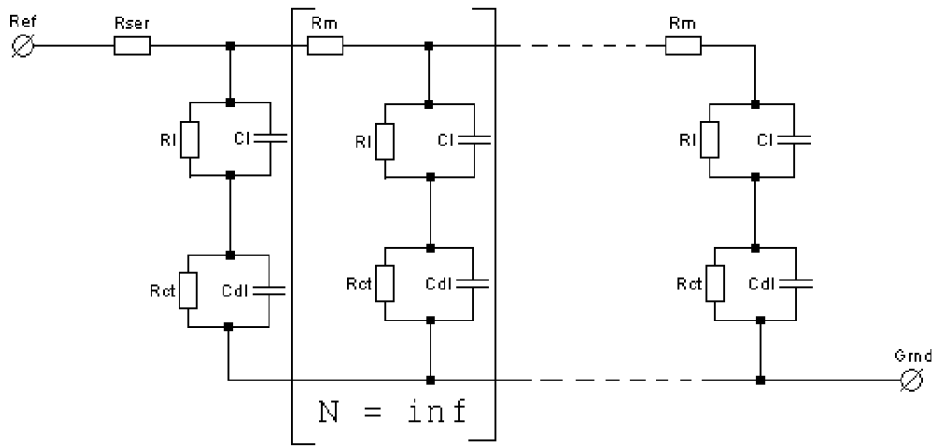
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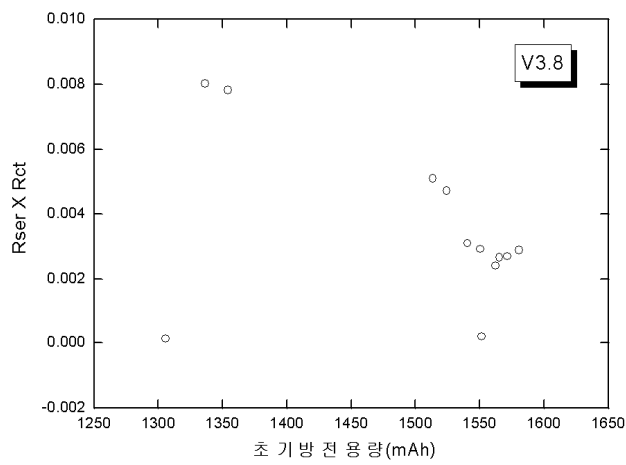
6



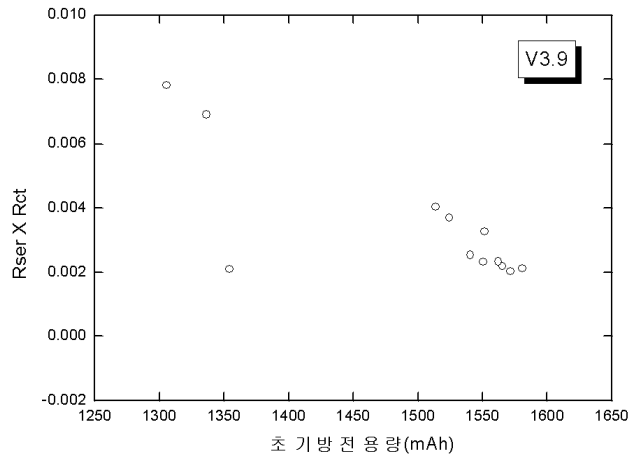
7



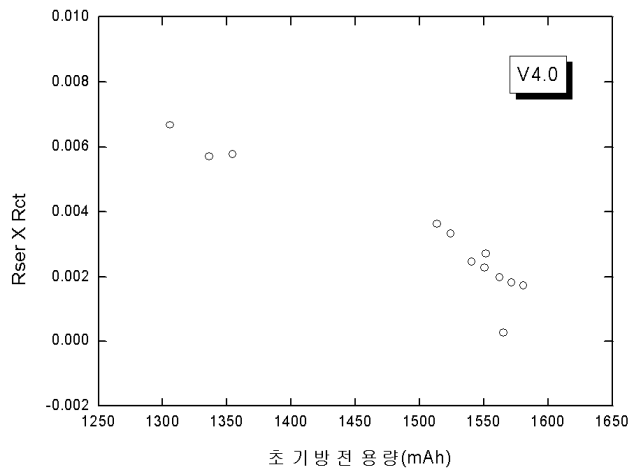
8



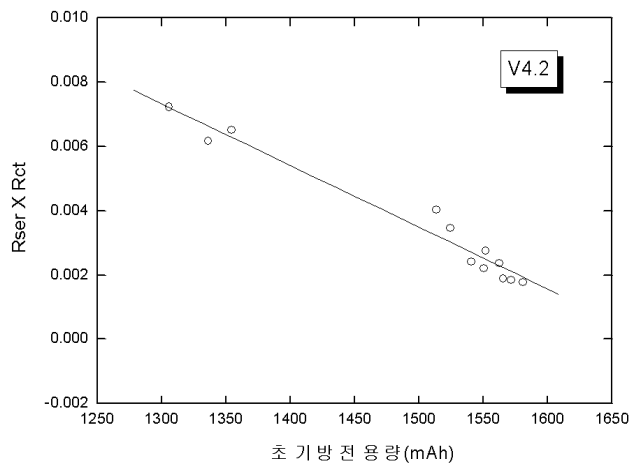
9



10



11





12

