

### 1. APPLICABILITY

This specification is applicable to DiVolta Alkaline Battery, DA-LR20 Size D (Mercury and Cadmium Free).

### 2. GENERAL

2.1	Type designation	:	DA-LR20
2.2	Nominal voltage	:	1.5V
2.3	Shape and dimension	:	Refer to Drawing 1
2.4	Typical weight	:	137±1g
2.5	Shelf life	:	84 months
2.6	Date code	:	Unless otherwise specified, every battery will carry an expiry date code for 84 months. (e.g. a battery manufactured on January 2005 will carry an expiry code of 01-12.)
2.7	Jacket	:	Foil jacket

### 3. APPEARANCE

There shall be no dirt, scratch or deformation detrimental to practical service in appearance.

### 4. ELECTRICAL CHARACTERISTICS (1.0Ω, 0.3S, 20±2°C)

/		OCV(V)	CCV(V)	SC(A) (reference)
Initial	Min	1.57	1.30	7.0
	Normal	1.60	1.50	12.0
Storage 1 year	Min	1.55	1.20	5.5
	Normal	1.57	1.35	9.0

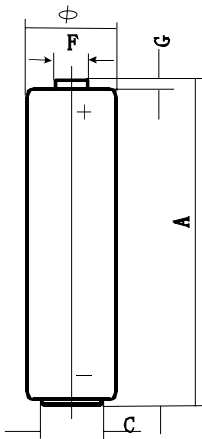
Note: storage condition: 20±5°C, RH: 45%-75%

### 5. SERVICE OUTPUT

Load	2.2Ω	2.2Ω	2.2Ω	3.9Ω	10Ω	
Test mode	24h/d	4min/h,8h/d	1h/d	1h/d	4h/d	
end voltage	0.9V	0.9V	0.8V	0.9V	0.9V	
Initial	MAD	18.0 h	20.0h	22h	38.0 h	122 h
	Normal	19.0 h	21.5h	24h	41.5 h	125h
Storage 1 year	MAD	17.0 h	18.0h	20h	36.5 h	119 h
	Normal	18.3 h	19.5h	22.5h	39.5 h	122h

Note: storage condition:  $20\pm 5^{\circ}\text{C}$ , RH: 45%-75%

### Drawing 1: Dimensions of Battery ( LR20)



/	Min (mm)	Max (mm)
Φ	33.0	34.0
A	59.6	61.0
C	26.0	27.0
F	8.0	9.0
G	2.5	3.0

### 6. ELECTROLYTE LEAKAGE

#### (1) over discharge leakage test

samples: 9pcs

test conditions:  $20\pm 2^{\circ}\text{C}$ , RH  $60\pm 15\%$ , 2.2Ω continuous discharge 48h

requirement: no visible leakage and overall height no higher 0.2mm than max height (61.5).

criterion: 0/9

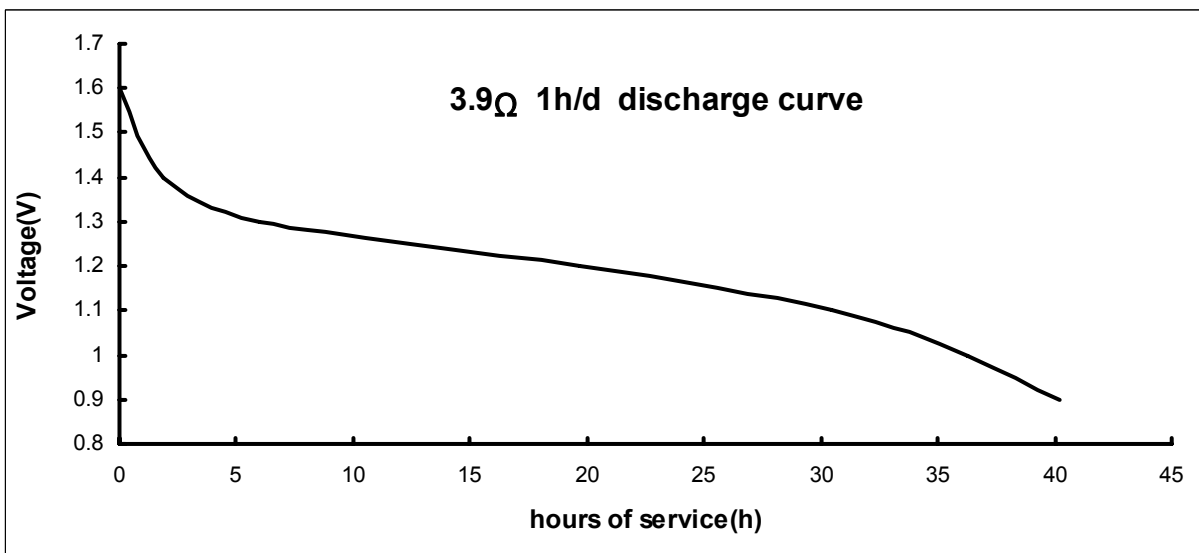
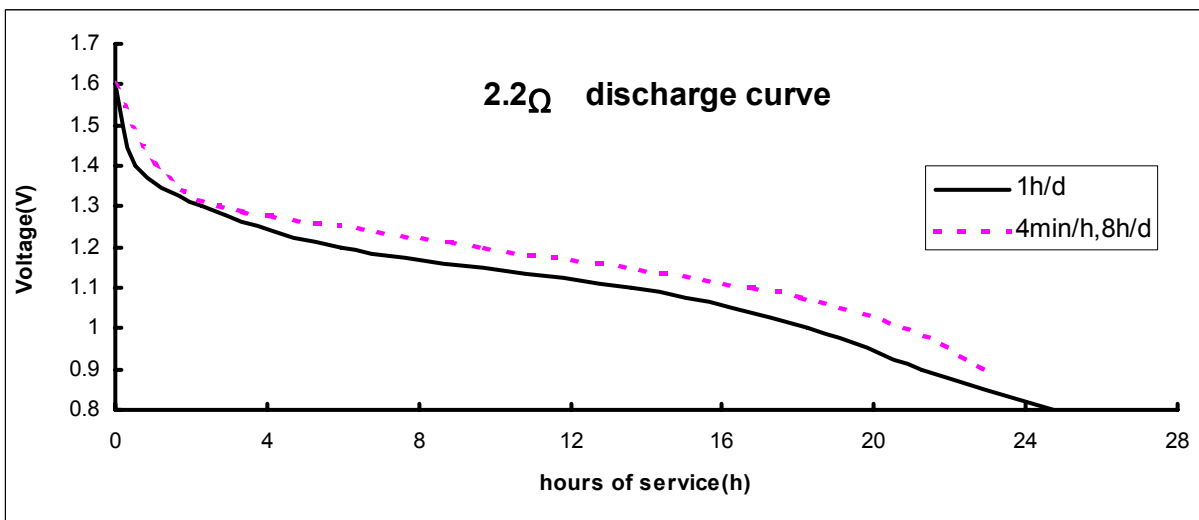
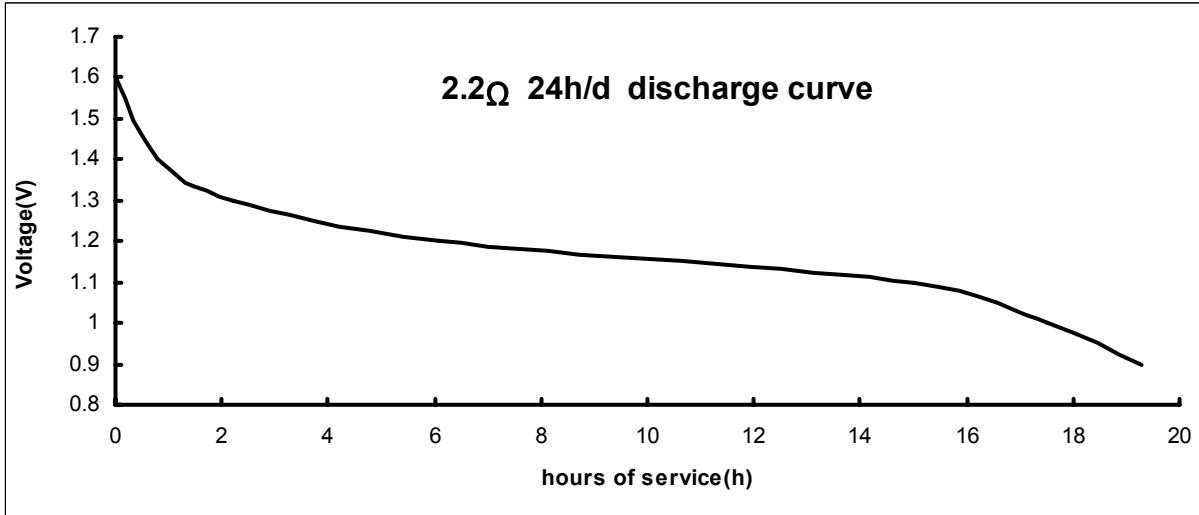
#### (2) high temperature leakage test

samples: 40pcs

test conditions: store 20 days under  $60\pm 2^{\circ}\text{C}$  & RH  $90\pm 5\%$ , then store 4~24 h

under  $20\pm 2^{\circ}\text{C}$  & RH  $60\pm 15\%$ .

requirement: no visible leakage and overall height no higher 0.2mm than max height (61.5) .



### 7. SECURITY CHARACTERISTICS

- (1) short-circuit explosion-proof characteristics  
samples: 10pcs  
test conditions: 24h short-circuit under  $20\pm 2^{\circ}\text{C}$ , RH  $60\pm 15\%$ .  
requirement: negative terminal no departure from battery body.  
criterion: 0/10
  
- (2) recharge explosion-proof characteristics  
samples: 10pcs  
test conditions:  $20\pm 2^{\circ}\text{C}$ ,  $60\pm 15\%$ , recharge 24h with 400mA current.  
requirement: negative terminal no departure from battery body  
criterion: 0/10

### **PRECAUTION & HANDLING**

- (1) Do not disassemble or short-circuit batteries.
- (2) Do not recharge batteries.
- (3) Do not dispose of batteries in fire.
- (4) Do not allow metal objects to contact the battery terminals.
- (5) Do not mix with used or other battery type (such as alkaline with carbon zinc).
- (6) Do not solder the batteries directly. If soldering or welding connection to the battery is required, consult our engineer for proper methods.
- (7) Do not over-discharge batteries. Force discharging batteries by external power source in a series may cause explosion.
- (8) To install or remove batteries, follow the equipment manufacturer's instructions.
- (9) Keep battery away from small children. If swallowed, consult a physician at once.
- (10) Remove batteries from device when it is not in use.

### **STORAGE**

- (1) Store in cool, dry place before use.
- (2) Do not keep batteries at temperature of  $55^{\circ}\text{C}$  or above.
- (3) Do not keep batteries at relative humidity of 80% or above.