

TEST RECORD NO. 334

SAMPLES:

The manufacturer furnished representative samples of new Models INR18650-35++, ICP112828A++ and PGF365287H++ noted below for the investigation. These samples were fully charged and in the "as received" condition unless otherwise stated.

Model	Cell Chemistry	Cell Shape	Nominal Voltage Rating, V dc	Capacity, mAh	Maximum Charging Current, mA	Maximum Charging Voltage, V dc
INR18650-35++	Li-Ion	Cylindrical	3.60	3480	3400	12.00
ICP112828A++	Li-Ion	Prismatic	3.80	1000	1000	4.50
PGF365287H++	Li-Ion	Pouch	3.80	2300	2300	4.60

This test program was conducted at SAMSUNG SDI CO LTD's facility, Cheonan-Si, Chungcheongnam-Do, Korea under the CTDP program. The manufacturer provided samples of their Lithium-ion battery cells, for UL 1642 Component Recognition investigations.

GENERAL:

Due to the similarity (cell chemistry, electrolyte, anode, cathode) of these new cells to previously recognized cells for this manufacturer, the tests noted below were not considered necessary.

Tests were considered covered as follows:

Test	File Reference	Report Date	Test Record No.
Shock	MH21015	2000-06-20	6
Vibration	MH21015	2000-06-20	6
Temperature Cycling	MH21015	2000-06-20	6
Altitude Simulation	MH21015	2000-06-20	1

Test result relates only to the items tested.

For original data, see Test Record Supplement T334, Datasheet 1, Pages 1 - 37 for model INR18650-35++, Datasheet 2 and Pages 1 - 37 for model ICP112828A++ and Datasheet 3 and Pages 1 - 37 for model PGF365287H++.

The following tests were conducted.

Test	UL 1642, Section	Model	Complied, Y, N Or N/A	Comments
SHORT CIRCUIT TEST: (At Room Temperature)	10	INR18650-35++, ICP112828A++, PGF365287H++	Y	N/A
SHORT CIRCUIT TEST: (At 55°C)	10	INR18650-35++, ICP112828A++, PGF365287H++	Y	N/A
ABNORMAL CHARGING	11	INR18650-35++,	Y	Vmax=12.0V, Without PTC, 3xIc= 10200mA
		ICP112828A++		Vmax=4.5V, Without PTC, 3xIc= 3000mA
		PGF365287H++		Vmax=4.6V, Without PTC, 3xIc= 6900mA
CRUSH TEST:	13	INR18650-35++, ICP112828A++, PGF365287H++	Y	N/A
IMPACT TEST:	14	INR18650-35++, ICP112828A++, PGF365287H++	Y	N/A
HEATING TEST:	17	INR18650-35++, ICP112828A++, PGF365287H++	Y	N/A
PROJECTILE TEST:	20	INR18650-35++, ICP112828A++, PGF365287H++	Y	N/A

The test methods and results of the above tests have been reviewed and found in accordance with the requirements in the Standard for Lithium Batteries, UL 1642, Fifth Edition, revised July 30, 2013.

Test Record Summary:

The results of this investigation, including construction review and testing, indicate that the products evaluated comply with the applicable requirements in UL Standard for Safety for Lithium Batteries, UL 1642, 5th edition, dated March 13, 2012 (Revised July 30, 2013) and therefore, such products are judged eligible to bear UL's Mark as described on the Conclusion Page of this Report. Any information and documentation involving UL Mark services are provided on behalf of Underwriters Laboratories Inc. (UL) or any other authorized licensee of UL.

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