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TI Fast-charge in lithium-ion batteries for portable applications
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CT INTELEC 26th Annual International Telecommunications Energy Conference
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AB Lithium-ion batteries are now very common in portable electronic devices (mobile phones, portable computers and other electronic devices). Moreover, this battery technology is considered as the best option for portable telecommunications applications. The main reason is the trend to produce smaller, thinner and lighter weight products. The possibility of fast-charge is very interesting in different applications in order to minimize charging time. However, a safe fast-charge (without negative effects on battery life) requires the application of the right current rate depending on battery state, operating conditions and so fourth. In this study, several Li-ion batteries (0.7 Ah) were testing intensively at charging rates from C/3 to 1.5 C, and 23deg C of environment temperature. Evolution of main parameters (battery voltage, current and temperature) were recorded. Then, data obtained were processed and analyzed to determine the effects of fast-charging on Li-ion batteries. In this paper, statistic data are represented through graphics to show main characteristics of charging process as a function of charging rate used. At the end, conclusions on recommended application range of fast-charging in low capacity Li-ion batteries are presented
DE Practical, Experimental/ battery charge measurement; battery chargers; secondary cells/ lithium-ion batteries; portable electronic devices; portable telecommunications applications; battery voltage; battery current; battery temperature; fast-charging process; 23 C; Li/ B8410E Secondary cells B7310C Charge measurement/ temperature 2.96E+02 K/ Li/int Li /el
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