Charge Pump Capacitor Selection Guide for 3V RS-232 Products

Introduction

This Application note provides instructions for selecting the proper Charge Pump capacitor values (C1 - C4) for a given input voltage. This Application note applies to all 3V RS-232 transceivers unless stated within their respective data sheet. Any type of capacitor can be used and can be polarized or nonpolarized. If polarized capacitors are to be used, refer to the respective data sheet for correct orientation. By selecting the proper charge pump capacitor values, the designer can be assured of error free communications by reducing the amount of ripple voltage present on the driver outputs. The following chart illustrates the proper capacitor value for a given input voltage. If the designer wishes to reduce the driver output ripple further, the selected charge pump capacitor value can be doubled, for example; increase 0.1µF capacitors at 3.0V operation to 0.22µF. Increasing the charge pump capacitors two fold can also lower the input current drain by approximately 1 to 2mA depending on device being used.

Minimum Required Charge Pump Capacitor Value	
Input Voltage V_{CC}	Charge pump capacitor value for SP32XX
3.0V to 3.6V	C1 - C4 = 0.1µF
4.5V to 5.5V	C1 = 0.047, C2-C4 = 0.33µF

This application note applies to the following devices with part numbers having a suffix of "E", "EH","EB" or "EU".

SP3203 SP3220
SP3222 SP3223
SP3232 SP3238
SP3239 SP3243
SP3249

For further assistance:

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WWW Support page: http://www.sipex.com/content.aspx?p=support
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