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Replacing SCN68681 with XR68C681 DUART

Description

This application note describes the major difference between the Exar XR68C681 and the Philips SCN68681. Items noted herein must be carefully considered whenever replacing with the XR68C681 device. Check your design to see if it applies.

1.0 Software

The XR68C681 is software compatible to the Philips SCN68681. All registers are compatible and there is no software change requirement.

2.0 Hardware

2.1 The XR68C681 is pin-to-pin compatible to the SCN68681 in the following packages:

XR68C681CJ	=	SCN68681C1A44	; commercial temperature
XR68C681J	=	SCN68681E1A44	; industrial temperature
XR68C681CP	=	SCN68681C1N40	; commercial temperature
XR68C681P	=	SCN68681E1N40	; industrial temperature
XR68C681N	=	SCN68681E1F40	; ceramic package and industrial temperature

2.2 The XR68C681 is fabricated in low power CMOS process and the SCN68681 is made in NMOS process. The XR68C681 consumes 10 times less power than SCN68681.

Icc	XR68C681	SCN68681
Typical	6mA	n.a
Maximum	15mA	150-175mA

2.3 The oscillator circuit on X1 and X2 pins is different and depending upon application environment it may or may not be compatible, refer to figure 1 on the next page. Figure 1 shows 3 applications that will need to be considered in the review process. The oscillator circuit and connection for SCN68681 is exhibited in the second column and the circuit for XR68C681 is shown under the third column. As it is illustrated, the internal inverter for the oscillator circuit is reversed. Hence, the XR68C681 is compatible under application #1 and should work fine. However, application #2 and #3 must be carefully reviewed by the designer.

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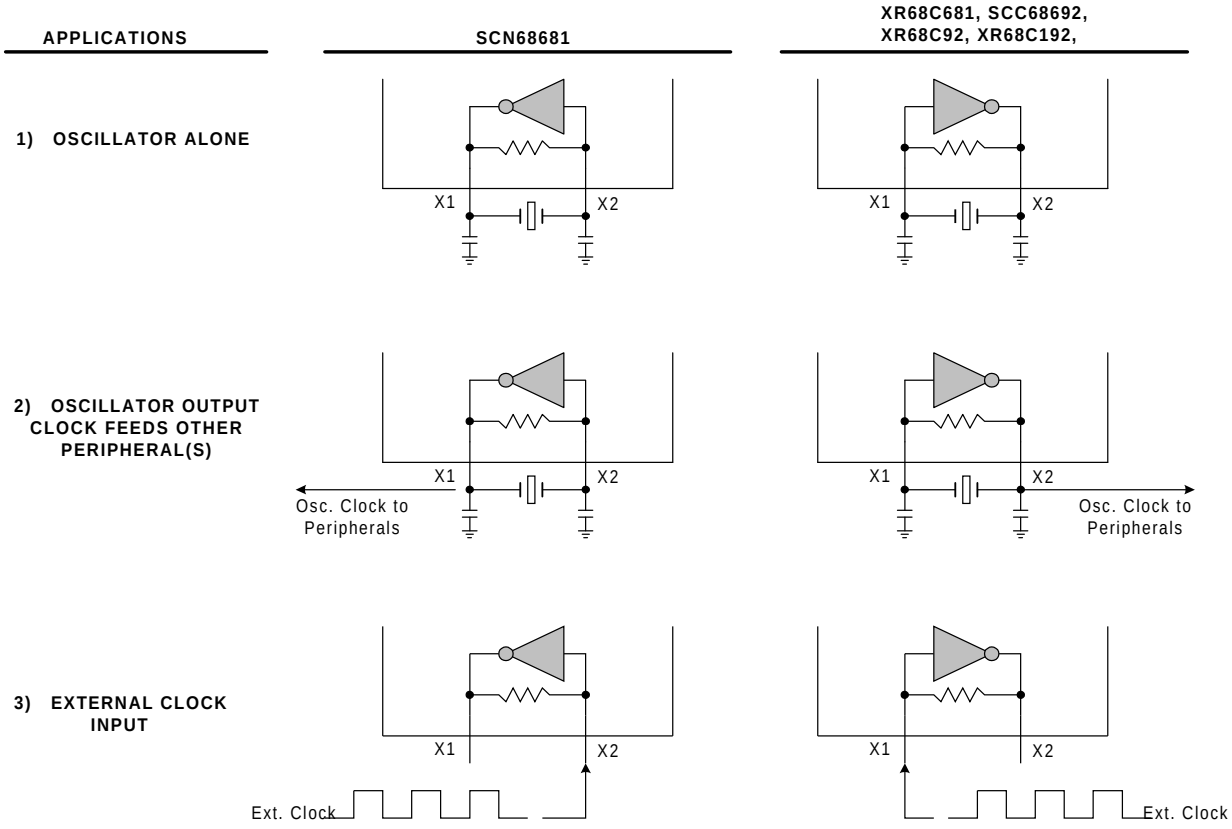

Figure 1. Oscillator Circuit Applications

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