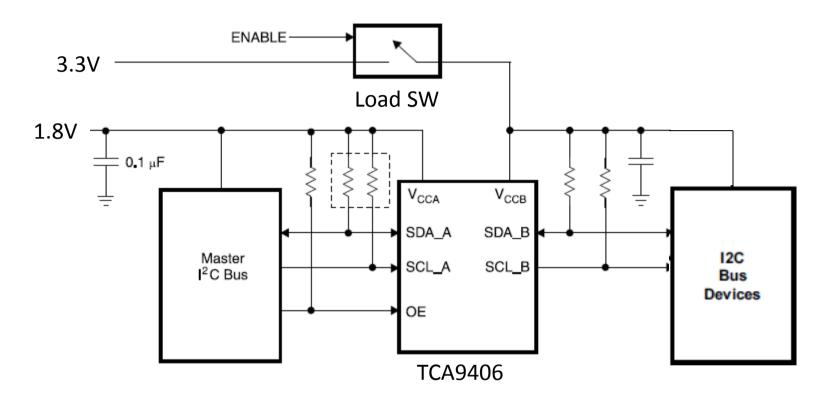# [Q1] Can TCA9406 support the following circuit ?

ENABLE	VCCA	VCCB
OFF	1.8V	0V
ON	1.8V	3.3V

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[Q2]

[Q2] The previous circuit violates Note (3) of RECOMMENDED OPERATING CONDITIONS,
but I think that it is equivalent to the following FEATURES,
is there a problem ?

RECOMMENDED OPERATING CONDITIONS [1] [2]

			V_{CCA}	V_{CCB}	MIN	MAX	UNIT
V_{CCA}	Supply voltage[3]				1.65	3.6	V
V_{CCB}	Supply voltage				2.3	5.5	V
V_{IH}	High-level input voltage	A-port I/Os	1.65 V to 1.95 V	2.3 V to 5.5 V	$V_{CCI} - 0.2$	V_{CCI}	V
			2.3 V to 3.6 V		$V_{CCI} - 0.4$	V_{CCI}	
		B-port I/Os	1.65 V to 3.6 V	2.3 V to 5.5 V	$V_{CCI} - 0.4$	V_{CCI}	
		OE input			$V_{CCA} \times 0.65$	5.5	
V_{IL} [4]	Low-level input voltage	A-port I/Os	1.65 V to 3.6 V	2.3 V to 5.5 V	0	0.15	V
		B-port I/Os			0	0.15	
		OE input			0	$V_{CCA} \times 0.35$	
$\Delta t/\Delta v$	Input transition rise or fall rate	A-port I/Os, push-pull driving	1.65 V to 3.6 V	2.3 V to 5.5 V		10	ns/V
		B-port I/Os, push-pull driving				10	
		Control input				10	
T_A	Operating free-air temperature				-40	85	°C

(1) V_{CCI} is the supply voltage associated with the input port.
(2) V_{CCO} is the supply voltage associated with the output port.
(3) V_{CCA} must be less than or equal to V_{CCB}, and V_{CCA} must not exceed 3.6 V.
(4) The maximum V_{IL} value is provided to ensure that a valid V_{OL} is maintained. The V_{OL} value is V_{IL} plus the voltage drop across the pass-gate transistor.

(3) V_{CCA} must be less than or equal to V_{CCB}, and V_{CCA} must not exceed 3.6 V.

FEATURES

- **2-Bit Bidirectional Translator for SDA and SCL Lines in Mixed-Mode I²C Applications**
- **5.5-V Tolerant OE Input**
- **Level Translation Range**
  - 1.8 V to 2.5 V/3.3 V/5 V
  - 2.5 V to 2.5 V/3.3 V/5 V
  - 3.3 V to 3.3 V/5 V
- **Internal 10-kΩ Pullup Resistor on Each Port and Option to Add External Pullup Resistor if Required**
- **Provides Bidirectional Voltage Translation With No Direction Pin**
- **I_{off} Support Partial Power Down (V_{CC}= 0 V) With 2 mA**

How should I think ?