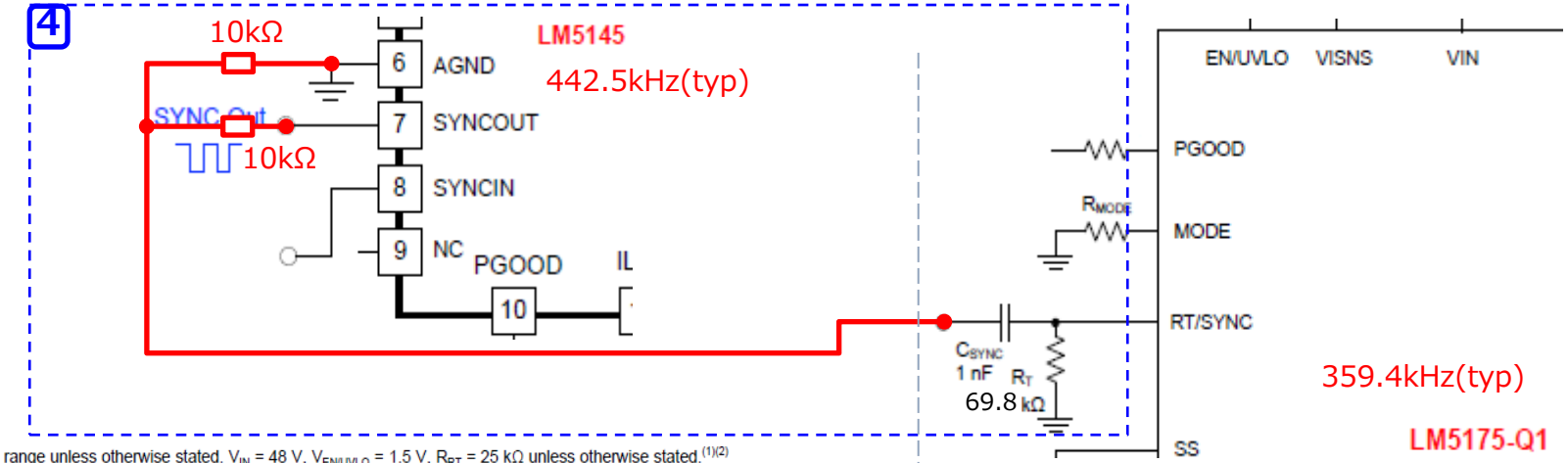
LM5145 → LM5175 Synchronous operation

1. Could you teach MAX value or Vsynco vs Isyncout characteristic data desired?
2. Could you teach Pulse width or duty min / max data desired?
3. About the maximum applied voltage recommended value (Is it max 3.3 V?)
4. Is there a problem with the connection method?



range unless otherwise stated. V_{IN} = 48 V, $V_{EN/UVLO}$ = 1.5 V, R_{RT} = 25 kΩ unless otherwise stated.(1)(2)

PARAMETER		TEST CONDITIONS	MIN	TYP	MAX	UNIT
SYNCHRONIZATION INPUT AND OUTPUT						
F_{SYNC}	SYNCIN external clock frequency range	% of nominal frequency set by R_{RT}	–20%		+50%	
$V_{SYNC-IH}$	Minimum SYNCIN input logic high		2			V
$V_{SYNC-IL}$	Maximum SYNCIN input logic low				0.8	V
R_{SYNCIN}	SYNCIN input resistance	V_{SYNCIN} = 3 V		20		kΩ
$T_{SYNCI-PW}$	SYNCIN input minimum pulsewidth	Minimum high state or low state duration	50			ns
$V_{SYNCO-OH}$	SYNCOUT high state output voltage	$I_{SYNCOUT}$ = –1 mA (sourcing)	3			V
$V_{SYNCO-OL}$	SYNCOUT low state output voltage	$I_{SYNCOUT}$ = 1 mA (sinking)			0.4	V
$T_{SYNCOUT}$	Delay from HO rising to SYNCOUT leading edge	V_{SYNCIN} = 0 V, T_S = 1/F_{SW}, F_{SW} set by R_{RT}		T_S/2 – 140		ns

1

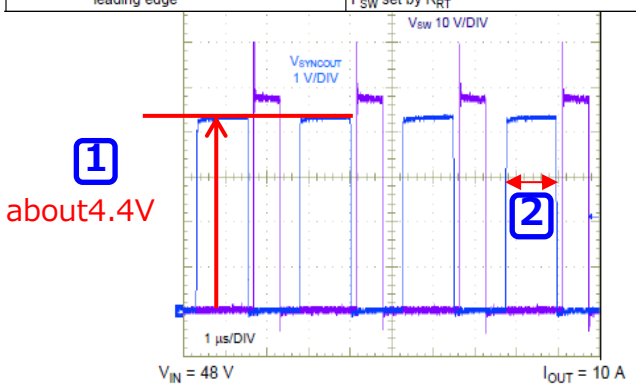


Figure 61. SYNCOUT and SW Node Voltages

7.1 Absolute Maximum Ratings(1)

	MIN	MAX	UNIT
VIN, EN/UVLO, VISNS, VOSNS, ISNS(+), ISNS(–)	–0.3	60	V
BIAS	–0.3	40	
FB, SS, DITH, SLOPE, COMP	–0.3	3.6	
RT/SYNC	-0.3	6	
SW1, SW2	–1	60	
SW1, SW2 (20 ns transient)	–3.0	65	

3

PARAMETER		TEST CONDITION	MIN	TYP	MAX	UNIT
SYNC						
V_{SYNC}	Sync input high threshold		2.1			V
	Sync input low threshold				1.2	
PW_{SYNC}	Sync input pulse width		75		500	ns

3

Feature Description (continued)

The RT/SYNC pin can also be used for synchronizing the internal oscillator to an external clock signal. The external synchronization pulse is ac coupled using a capacitor to the RT/SYNC pin. The voltage at the RT/SYNC pin must not exceed 3.3 V peak. The external synchronization pulse frequency should be higher than the internally set oscillator frequency and the pulse width should be between 75 ns and 500 ns.

3