TPS40322EVM-074 Output ripple voltage Question

Table 1. TPS40322EVM-074 Electrical Performance Specifications

PARAMETER	TEST CONDITIONS	MIN	TYP	MAX	UNITS
Input Characteristics					
V_{IN}, Voltage range		4.5		15.0	V
Maximum input current	$V_{IN} = V_{IN(min)}$, $I_{OUT} = I_{OUT(max)}$		9.5		A
No load input current	$V_{IN(min)} \le V_{IN} \le V_{IN(max)}$, $I_{OUT} = I_{OUT(min)}$		57		mA
Output Characteristics					
V_{OUT}, Output voltage	$I_{OUT(min)} \le I_{OUT} \le I_{OUT(max)}$		1.2		V
I_{OUT}, Output load current	$V_{OUT(min)} \le V_{OUT} \le V_{OUT(max)}$	0		30	A
Output voltage regulation	Line regulation: $V_{IN(min)} \le V_{IN} \le V_{IN(max)}$, $I_{OUT} = I_{OUT(max)}$			0.5	%
	Load regulation: $I_{OUT(min)} \le I_{OUT} \le I_{OUT(max)}$			0.5	%
Output voltage ripple	$I_{OUT} = I_{OUT(max)}$			24	mV_{pp}
Output over current	$V_{IN(min)} \le V_{IN} \le V_{IN(max)}$		32		A
Systems Characteristics					
Switching frequency	per phase		500		kHz
Peak efficiency	V_{IN} = 4.5 V, I_{OUT} = 7 A		92%		
Full load efficiency	V_{IN} = 8 V , $I_{OUT} = I_{OUT(max)}$		88%		
Operating temperature			25		ºC

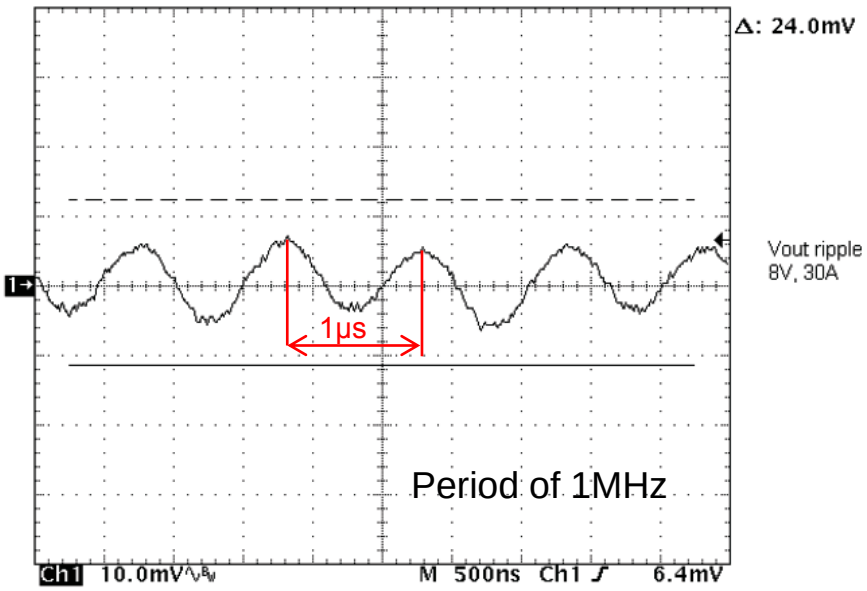

Figure 9. Output Ripple, V_{IN} = 8 V, I_{OUT} = 30 A

The switching frequency of the TPS40322EVM is 500 kHz, but the output ripple voltage has a period of 1 MHz.

Why does the output ripple voltage have a period of 1 MHz?

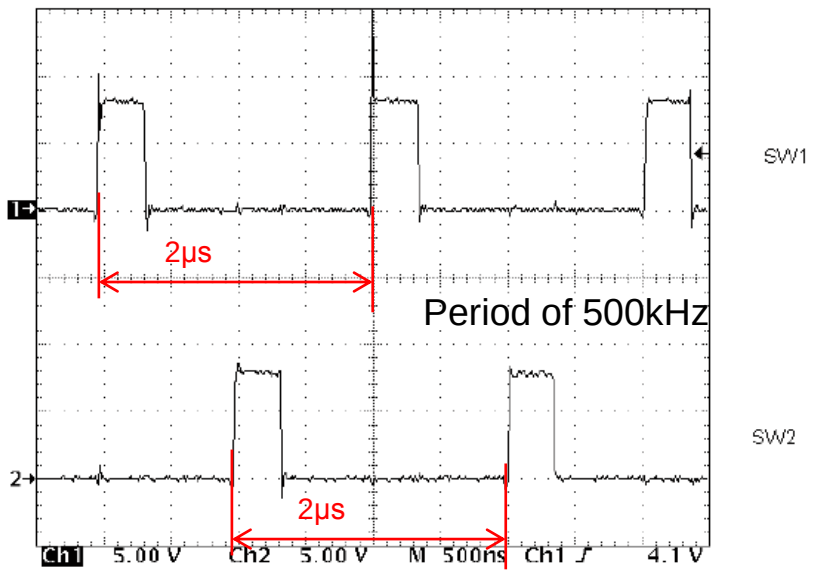

Figure 11. Switch Nodes,
(Ch1 = SW1, Ch2 = SW2, V_{IN} = 8 V, I_{OUT} = 30 A)