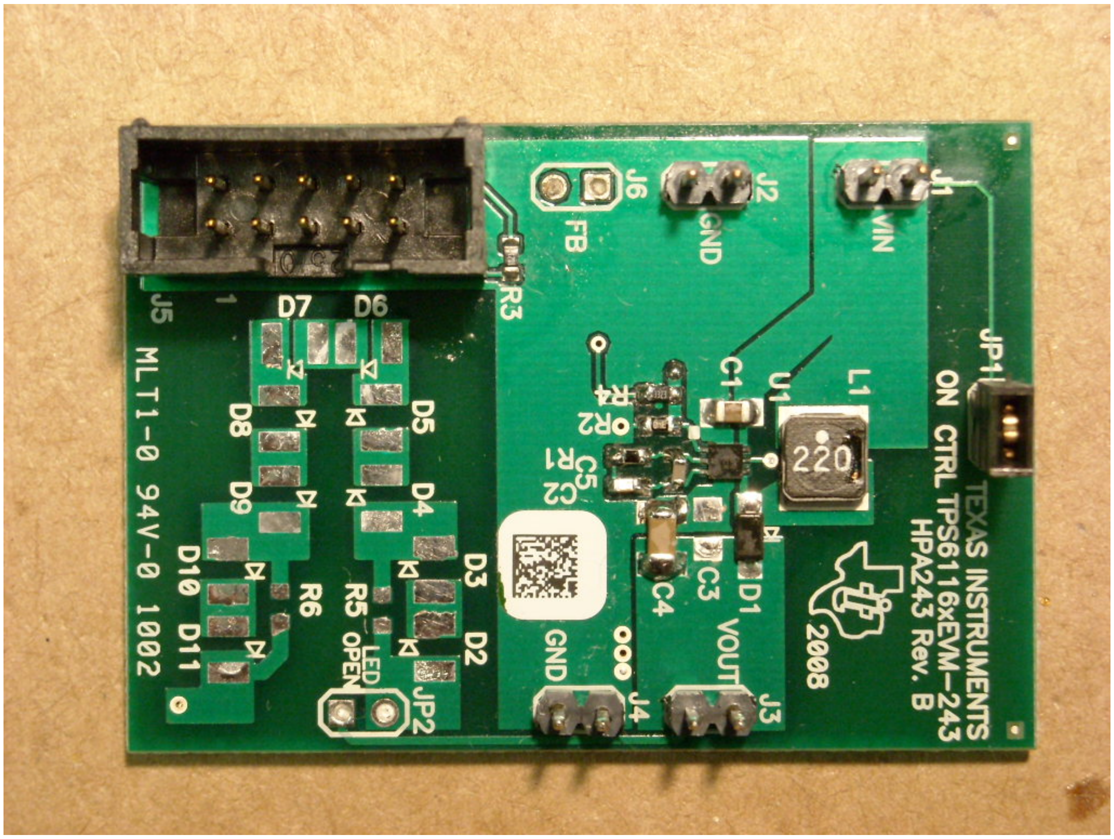
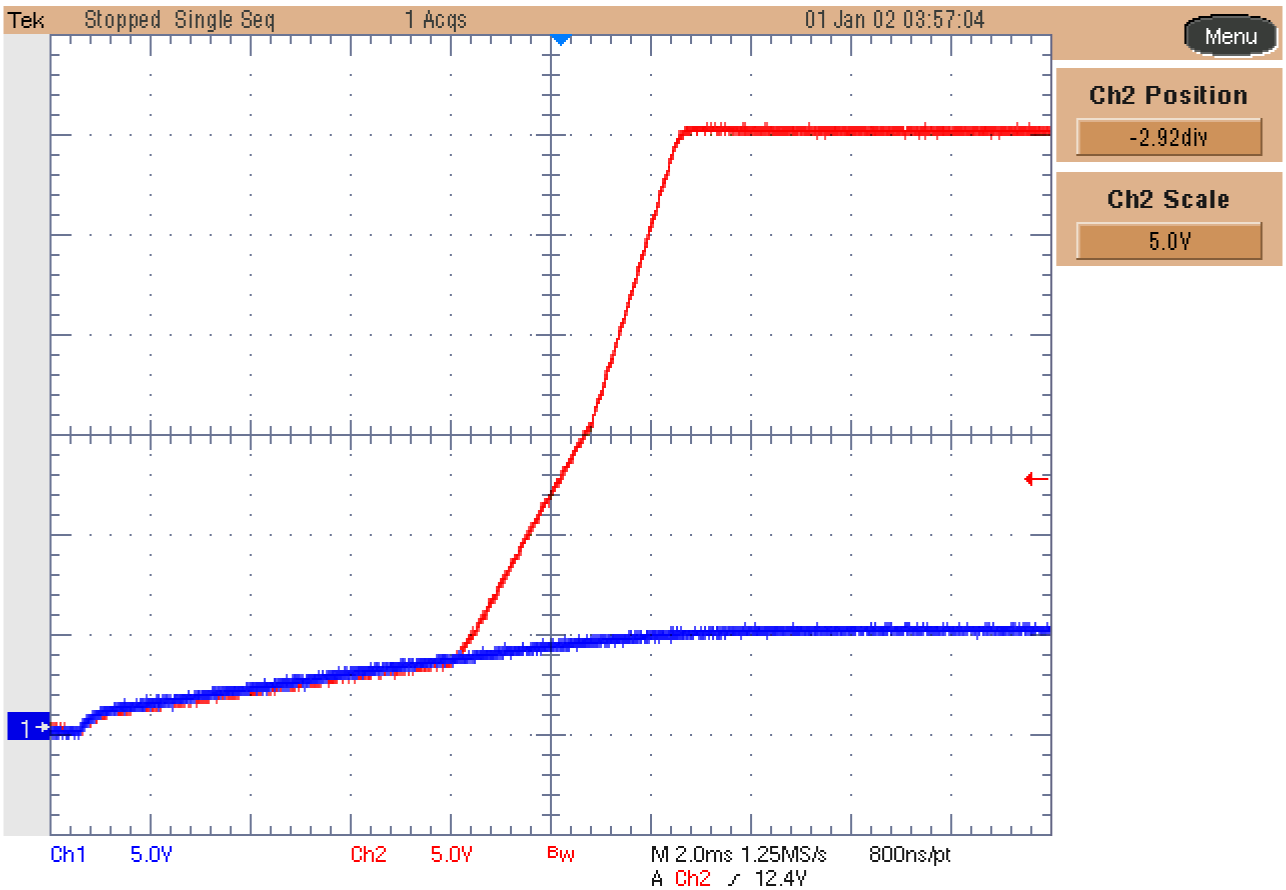
1. PHOTO OF THE PROTOTYPE



2. Startup

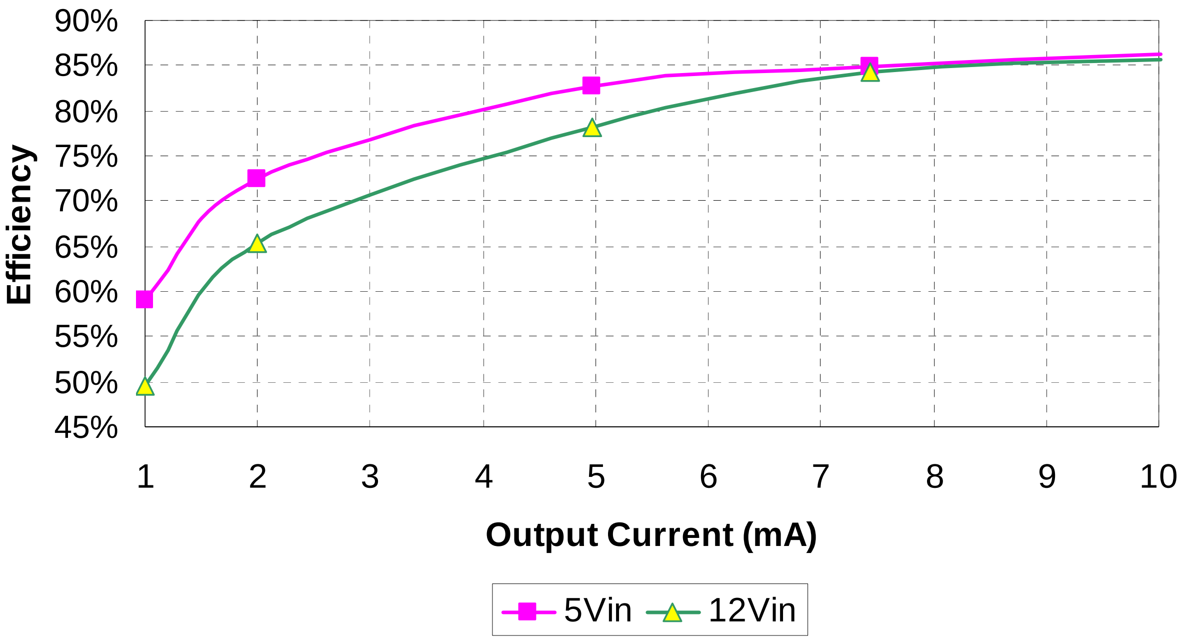
The output voltage at startup is shown in the image below. The input voltage was set to 5V. The load was set to 10mA. There was no difference when the converter was unloaded.

Ch1: Input Voltage (5 V/div, msec/div), Ch2: Output Voltage (5 V/div, 20MHz BWL)



3. Efficiency

The efficiency data is shown in the tables and graph below. The measurements were taken at 5V and 12V input voltage. The load was a resistor, set to the values shown in the tables. The tables show that the output voltage doesn't change vs. input voltage and load variation.



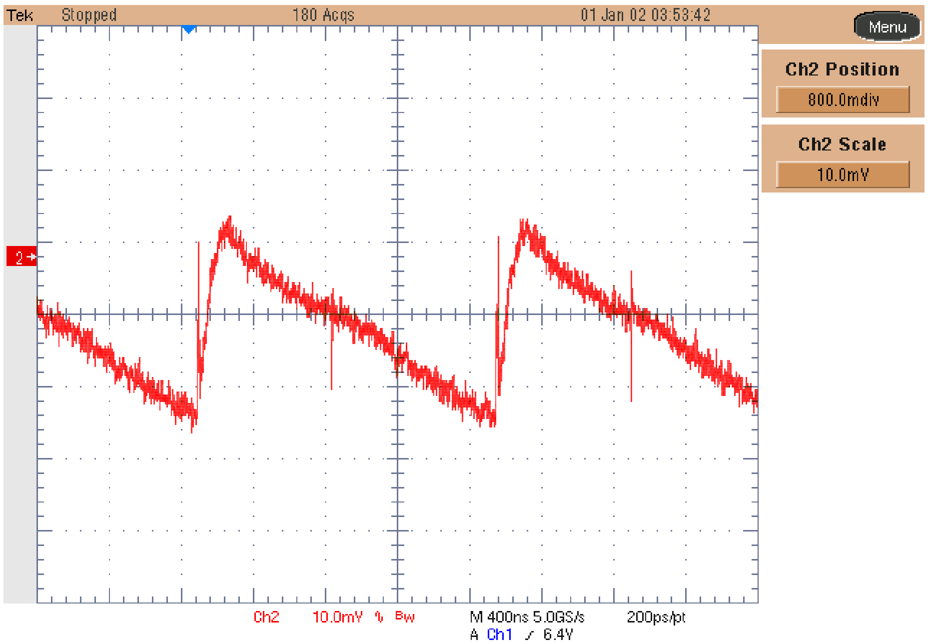
Vin (V)	Iin (mA)	Vout (V)	Iout (mA)	Rload (Kohm)	Pout (mW)	Pin (mW)	Ploss (mW)	Effic. (%)
5.033	3.23	29.89	0.0	1000	0.0	16.3	16.26	0.0%
5.025	10.03	29.89	1.00	30.0	29.8	50.4	20.62	59.1%
5.017	16.38	29.89	1.99	15.0	59.6	82.2	22.62	72.5%
5.027	35.72	29.89	4.97	6.02	148.4	179.6	31.16	82.6%
5.006	52.3	29.89	7.44	4.02	222.2	261.8	39.57	84.9%
5.015	69.1	29.89	10.01	2.986	299.2	346.5	47.34	86.3%

Vin (V)	Iin (mA)	Vout (V)	Iout (mA)	Rload (Kohm)	Pout (mW)	Pin (mW)	Ploss (mW)	Effic. (%)
12.02	1.92	29.89	0.0	1000	0.0	23.1	23.08	0.0%
12.01	5.01	29.89	1.00	30.0	29.8	60.2	30.39	49.5%
12.01	7.60	29.89	1.99	15.0	59.6	91.3	31.72	65.3%
12.00	15.81	29.89	4.97	6.02	148.4	189.7	41.31	78.2%
12.01	21.97	29.89	7.44	4.02	222.2	263.9	41.62	84.2%
12.01	29.08	29.89	10.01	2.986	299.2	349.3	50.05	85.7%

4. Output Ripple Voltage

The output ripple voltage waveform measured at the terminal jumpers J3 and J4 is shown in the plot below. The input was set to 5V and the outputs to 10mA. The bandwidth limit has been set to 150MHz.

Ch2: Output ripple voltage (10 mV/div, 400 nsec/div, AC coupled, 150MHz BW limit).

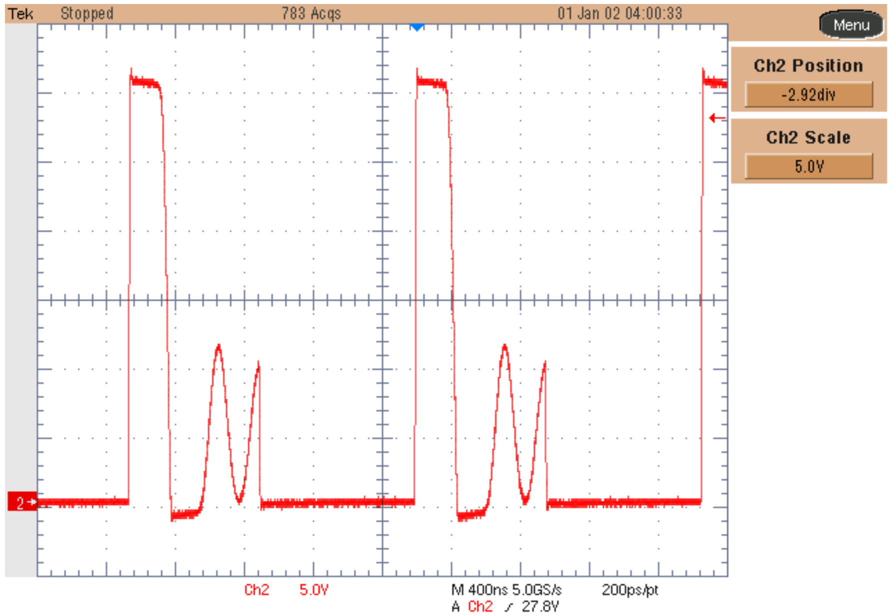


5. Switching Waveforms

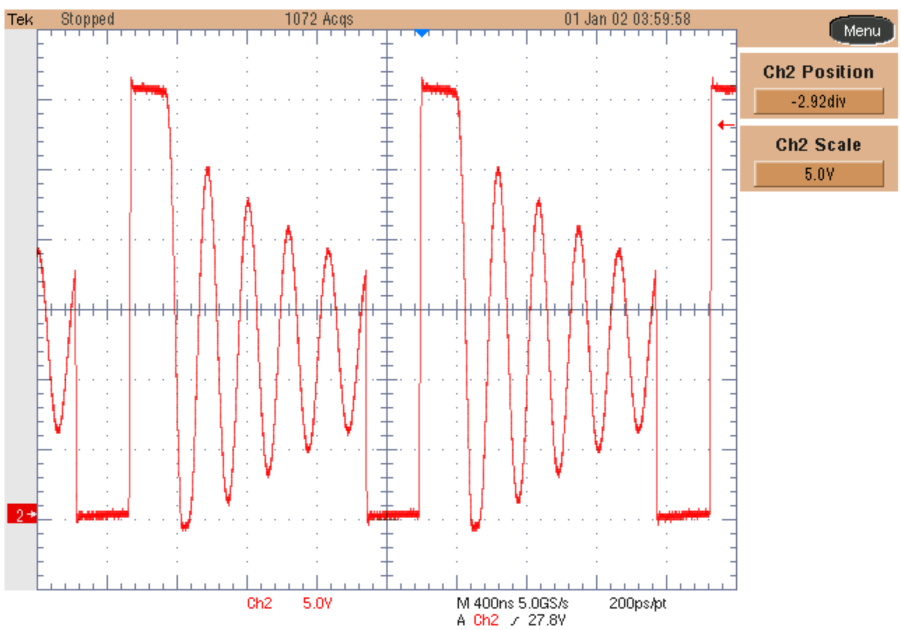
The images below show the waveforms of the SW pin of U1 at full load.

Ch2: SW node, (5V/div, 400nsec/div), no bandwidth limit

5Vin:



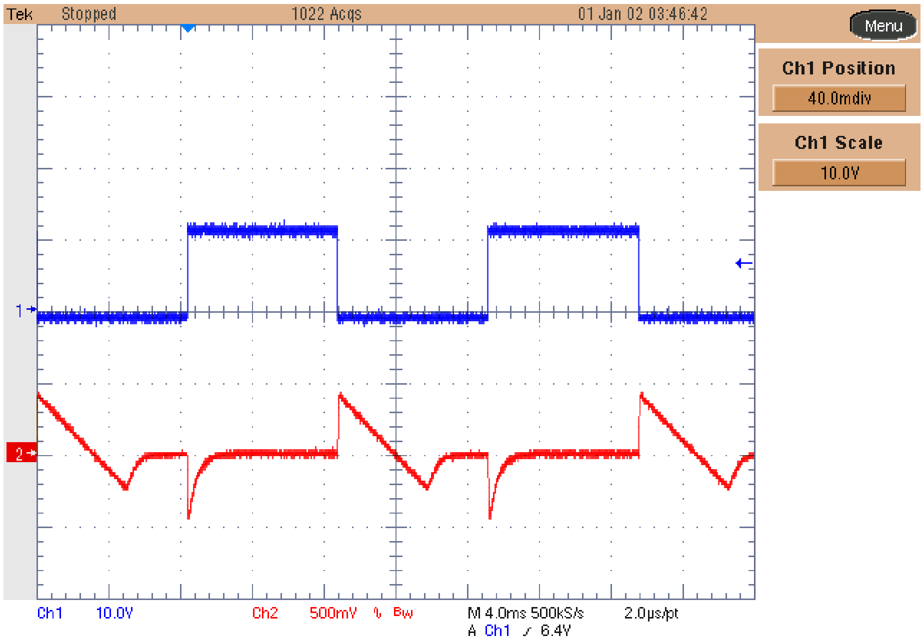
12Vin:



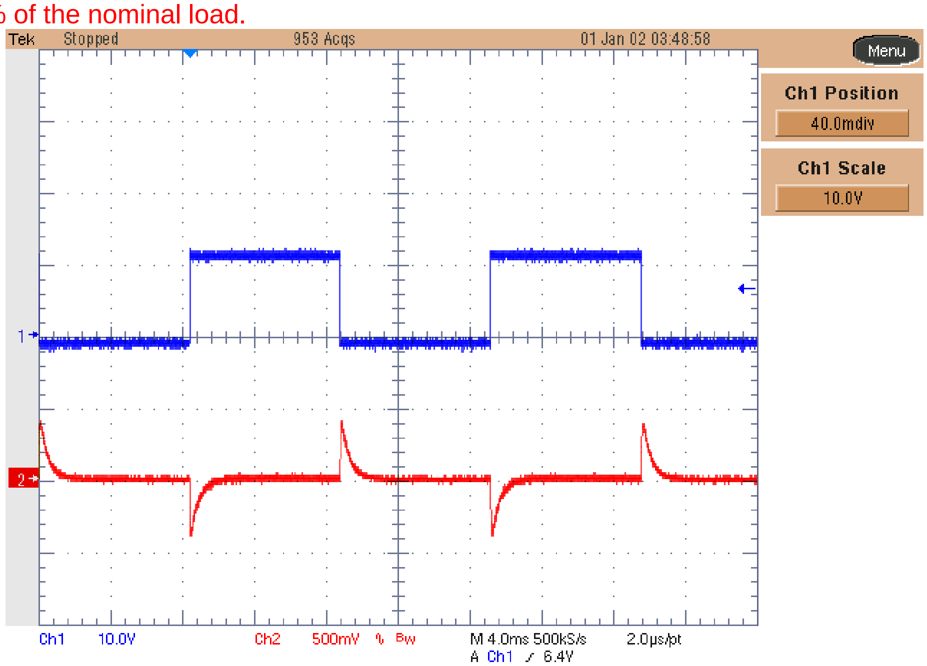
6. Transient Response

The images below show the transient response of the converter. The input voltage was set to 5V and the load switched between 0 and 10mA (top image) and 1mA to 11mA (bottom image), by means of a 3KOhm resistor in series with a MOSFET. The control signal is shown as well.
Channel 1: External Mosfet Gate Voltage (10V/div, 4msec/div)
Channel 2: Output Voltage (500mV/div, AC coupled, 20MHz BWL)

0% to 100% of the nominal load.



10% to 110% of the nominal load.



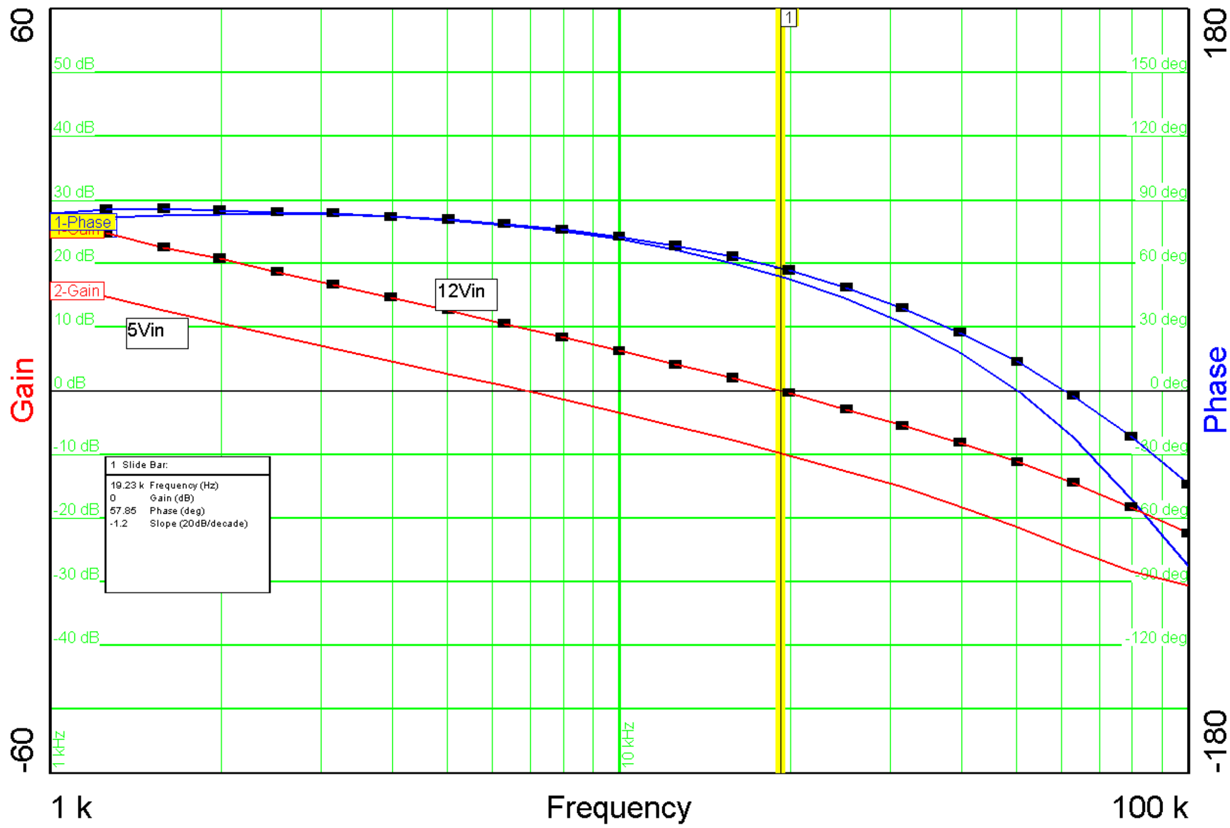
7. Loop Analysis

The graph below shows the loop measurement at 5Vin and 12Vin while the load was 10mA.

The crossover frequency and phase margin was:

@ 5Vin: Fco = 6.85 KHz, Phase margin = 77.22 deg.

@ 12Vin: Fco = 19.23 KHz, Phase margin = 57.85 deg.



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2. You have full and exclusive responsibility to assure the safety and compliance of your products with all such laws and other applicable regulatory requirements, and also to assure the safety of any activities to be conducted by you and/or your employees, affiliates, contractors or designees, using the EVM. Further, you are responsible to assure that any interfaces (electronic and/or mechanical) between the EVM and any human body are designed with suitable isolation and means to safely limit accessible leakage currents to minimize the risk of electrical shock hazard.
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