EV6411-S-00A

Windowed Watchdog Timer Evaluation Board

The Future of Analog IC Technology

DESCRIPTION

The EV6411-S-00A is an evaluation board for MP\MPQ6411, a windowed watchdog timer. It used to reset and monitor the microcontroller. In normal operation, MCU sends trigger signal to MPQ6411 in a defined time window cyclically. A missing or fault trigger signal causes the watchdog to reset the MCU.

MPQ6411 provides a reset signal (low level voltage) to MCU during power-up or under voltage.

By setting the MODE pin to high or low, the watchdog can work as long window mode or short window mode. And the window is programmable.

The EV6411-S-00A is assembled and tested with SOIC8 package.

FEATURES

- Windowed watchdog
- Power-on reset during power-up and under voltage
- Programmable short window mode or long window mode
- Watchdog disable function
- Low shutdown mode current
- SOIC8 package

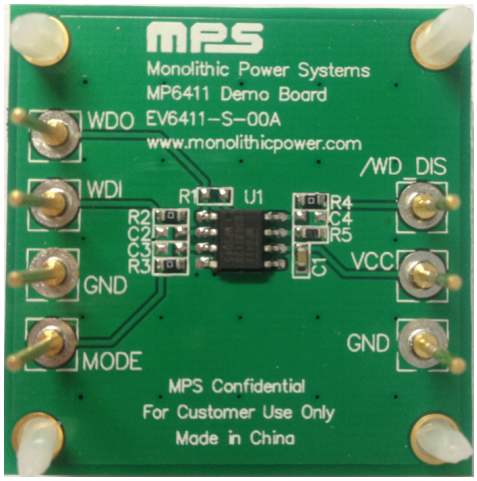
APPLICATIONS

- Automotive Systems
- Industrial Systems

ELECTRICAL SPECIFICATION

Parameter	Symbol	Value	Units
Input Voltage	V_{CC}	5.0	V

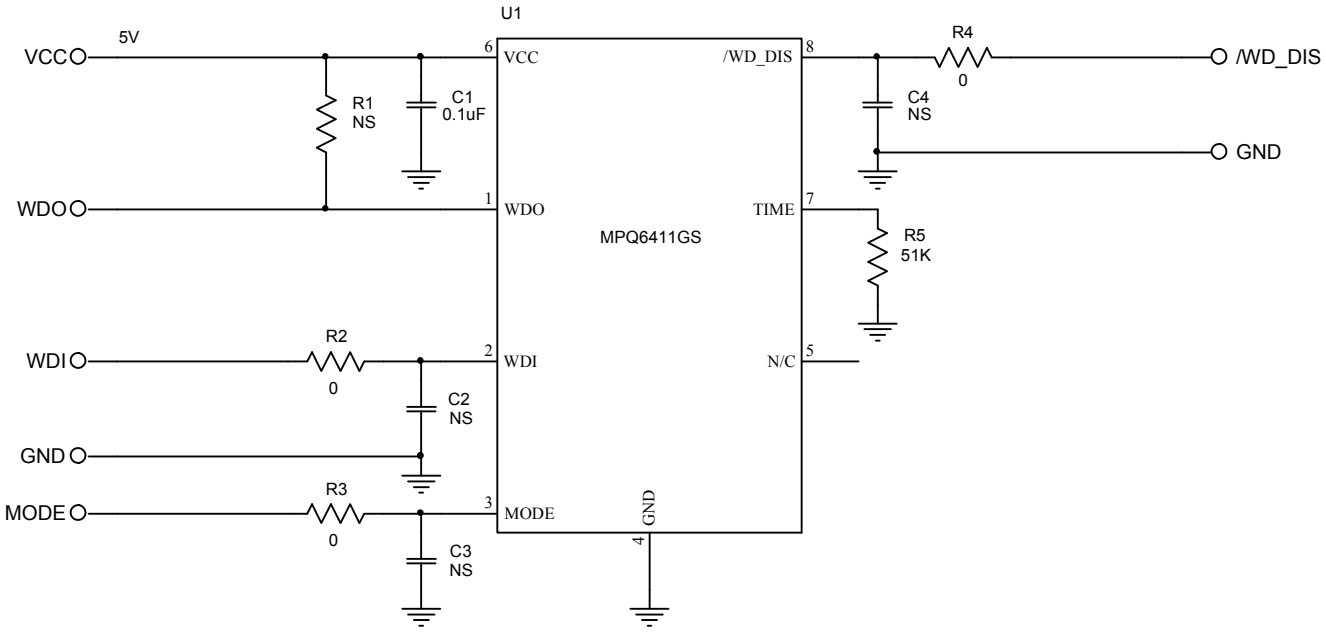
EV6411-S-00A EVALUATION BOARD



(L × W × H) 3.81cm × 3.81cm ×0.5cm

Board Number	MPS IC Number
EV6411-S-00A	MPQ6411GS

EVALUATION BOARD SCHEMATIC



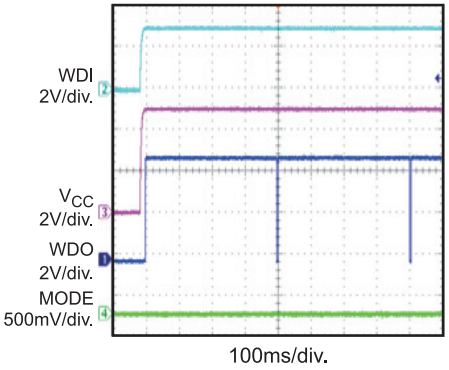
EV6411-S-00A BILL OF MATERIALS

Qty	Ref	Value	Description	Package	Manufacturer	Part Number
1	C1	0.1μF	Ceramic Cap., 16V, X7R	0603	muRata	GRM188R71C104KA01D
3	C2, C3, C4	NS				
1	R1	NS				
3	R2, R3, R4	0	Film Resistor;5%	0603	Yageo	RC0603JR-070RL
1	R5	51K	Film Resistor;1%	0603	Yageo	RC0603FR-0751KL
1	U1			SOIC8	MPS	MPQ6411GS

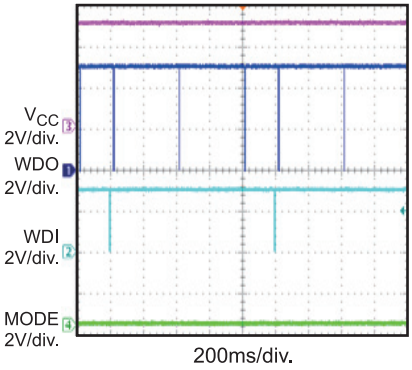
EVB TEST RESULTS

Performance waveforms are tested on the evaluation board.
V_{CC} = 5V, T_A = 25°C, unless otherwise noted.

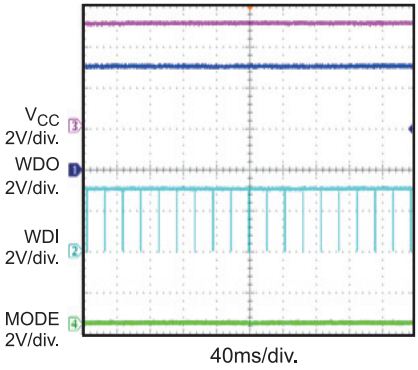
Power on Reset and No Signal
Mode=0V, WDI=3V



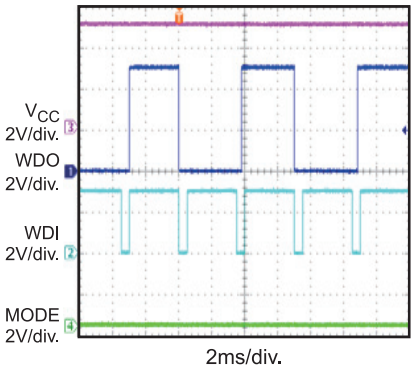
Sync&No Triggered Signal
Mode=0V, WDI_OK=500µs, WDI Period=1s



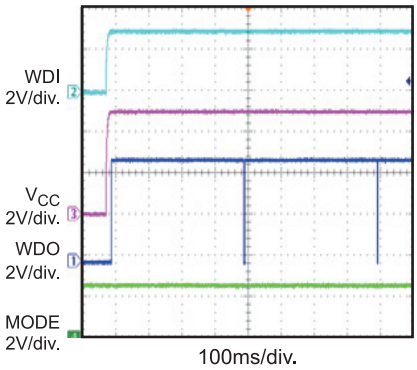
Sync&Triggered in Open Window
Mode=0V, WDI_OK=500µs, WDI Period=21ms



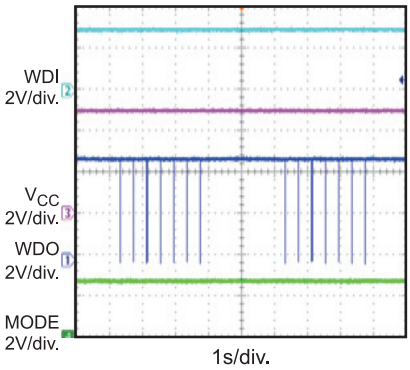
Sync&Triggered in Close Window
Mode=0V, WDI_OK=500µs, WDI Period=3.5ms



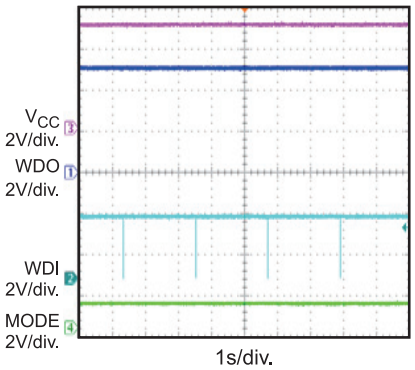
Power on Reset and No Signal
Mode=3V, WDI=3V, WDI Period=5s



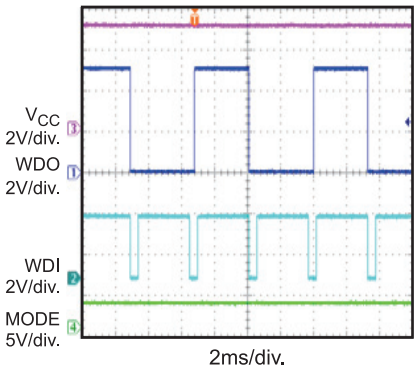
Sync&No Triggered Signal
Mode=3V, WDI_OK=500µs, WDI Period=5s



Sync&Triggered in Open Window
Mode=3V, WDI_OK=500µs, WDI Period=2.2s



Sync&Triggered in Close Window
Mode=3V, WDI_OK=500µs, WDI Period=3.6ms

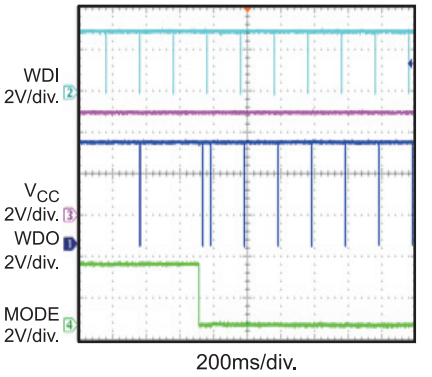


EVB TEST RESULTS *(continued)*

Performance waveforms are tested on the evaluation board.
V_{CC} = 5V, T_A = 25°C, unless otherwise noted.

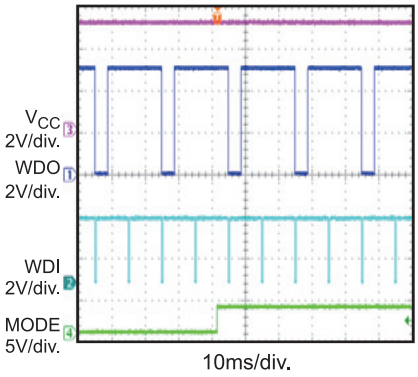
Long Close Mode to Short Close Mode

WDI_OK=500µs, WDI Period=200ms



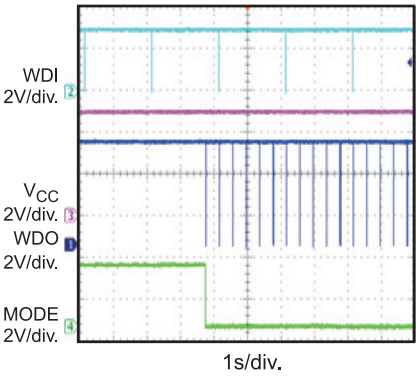
Short Close Mode to Long Close Mode

WDI_OK=500µs, WDI Period=10ms



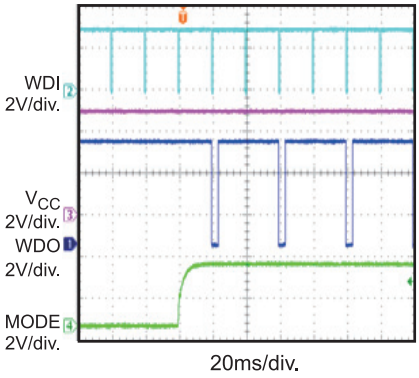
Long Open Mode to Short Close Mode

WDI_OK=500µs, WDI Period=2s



Long Open Mode to Short Close Mode

WDI_OK=500µs, WDI Period=20ms



PRINTED CIRCUIT BOARD LAYOUT

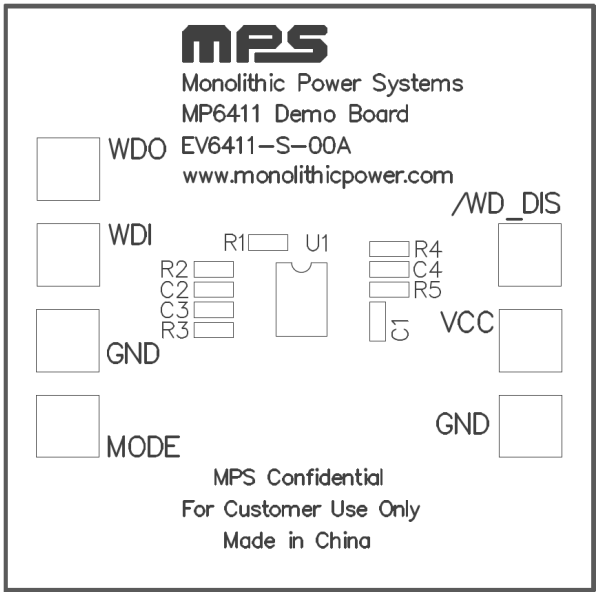


Figure 1: Top Silkscreen Layer

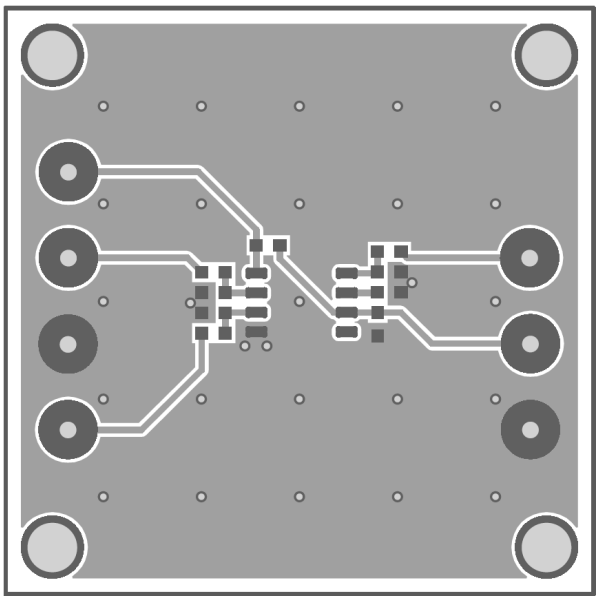


Figure 2: Top Layer

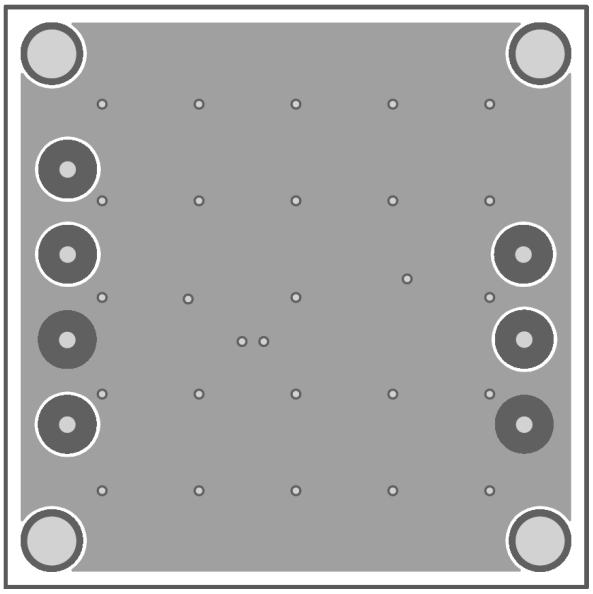


Figure 3: Bottom Layer

QUICK START GUIDE

1. Set the VCC to 5V (±10%).
2. Drive the /WD-DIS pin higher than 3.2V to enable the watchdog function, set the pin lower than 0.8V to disable the watchdog. Float this pin to turn on the watchdog.
3. Connect the WDI and WDO pin to MCU to receive the trigger signal and output reset signal respectively.
4. Use R5 to set the time-out. For R5=51kΩ, the period of timer T can be determined by:

$$T(\mu s) = 15.75 * R_5(k\Omega) + 73.5$$

5. To choose the window mode, apply a digital input to the MODE pin, Drive MODE higher than 3.2V to go to long window mode, drive MODE less than 0.8V to work as the short window mode. Float this pin to make the watchdog work as the long window mode.