High Voltage Full Bridge Drive ICs   SLA2403M

Features

- One Package Full Bridge Driver Consisted of High Voltage IC and Power MOS FETs (4 pieces)
- High Voltage Driver which accepts direct connection to the input signal line
- External components such as high voltage diodes and capacitors are not required

Absolute Maximum Ratings

Parameter	Symbol	Ratings	Unit	Conditions
Power source voltage *	V_M	500	V	
Input voltage	V_{IN}	15	V	
Output voltage	V_O	500	V	
Output current	I_O	7	A	Tc=25°C
	$I_{O (peak)}$	15	A	$P_W \leqq 250\mu s$
Power dissipation	P_D	5 (Ta=25°C)	W	Without heatsink
		40 (Tc=25°C)	W	With infinite heatsink
Storage temperature	Tstg	−40 to +125	°C	
Operation temperature	Topr	−40 to +125	°C	
Junction temperature	Tj	150	°C	

* Power GND (D terminal) to -HV (-HV terminal) voltage.

Electrical Characteristics

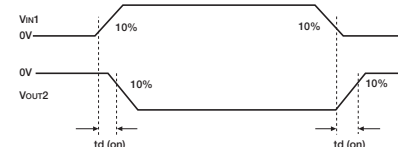| Parameter	Symbol	Ratings min	Ratings typ	Ratings max	Unit	Conditions
Power MOS FET output breakdown voltage	BV_{OUT}	500			V	$I_O=100\mu A$
Power MOS FET output leakage voltage	$I_{OUT (off)}$			100	μA	$V_O=500V$
High-side Power MOS FET output on-state voltage	$V_{OUT (on)}$	0.18	0.26	0.34	V	$I_O=0.4A, V_{IN}=10V$
Lowside Power MOS FET output on-state voltage	$V_{OUT (on)}$	0.18	0.26	0.34	V	$I_O=0.4A, V_{GL}=10V$
Quiescent circuit current	$I_{CC}1$			3.0	mA	$V_{CC}=6$ to 15V
	$I_{CC}2$			4.0	mA	$V_{CC}=10V, V_M=400V$
Operating circuit current	$I_{CC}3$			4.0	mA	$V_{CC}=10V, V_M=400V$
Input voltage (High level)	V_{IH}	$0.8V_{CC}$			V	$V_{CC}=6$ to 15V
Input voltage (Low level)	V_{IL}			$0.2V_{CC}$	V	$V_{CC}=6$ to 15V
Delay time *	$t_{d (on)}$		2.0		μs	$V_{CC}=10A, V_{IN}=10V,$
	$t_{d (off)}$		3.0		μs	$V_M=85V, I_O=0.41A$
Operating voltage	V_{CC}	6		15	V	−40 to +125°C

* About delay time

Signal input waveform vs output waveform
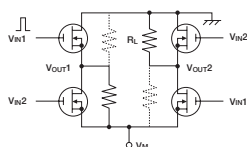
① Highside switch turn-on, turn-off

② Lowside switch turn-on, turn-off
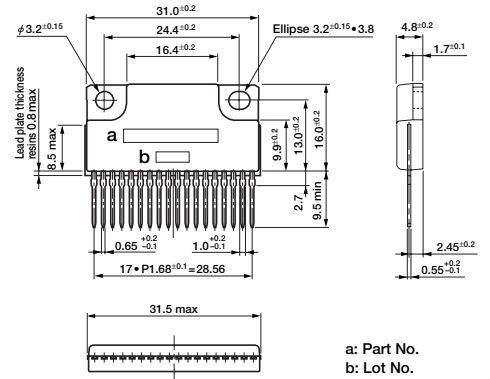

* Δt: Δt=td (on) − td (off)

Measurement Circuit

Conditions
$V_{CC}=10V$, $V_{IN}=10V$ (pulse)
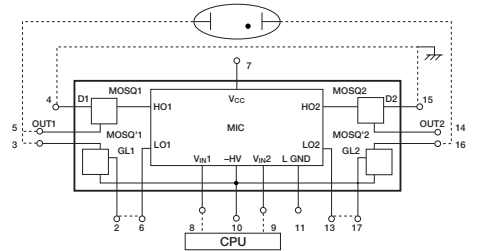$V_M=85V$
$I_O=0.41A$ ($R_L=207\Omega$)

* When pulse signal is inputted to V_{IN1}, R_L on solid line is ON and dotted line R_L is off.
On the contrary, when pulse signal is inputted to V_{IN2}, R_L on dotted line is ON and dotted line R_L is off.
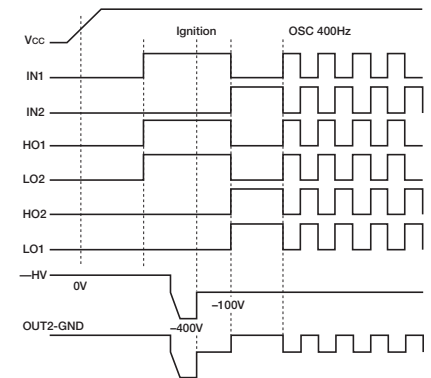
External Dimensions (unit: mm)
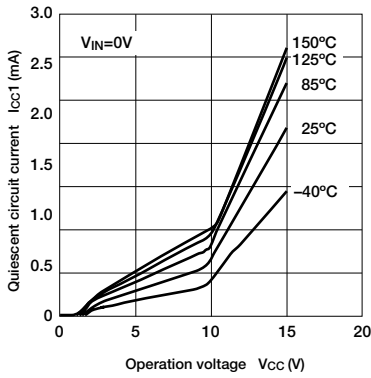

a: Part No.
b: Lot No.

Block Diagram

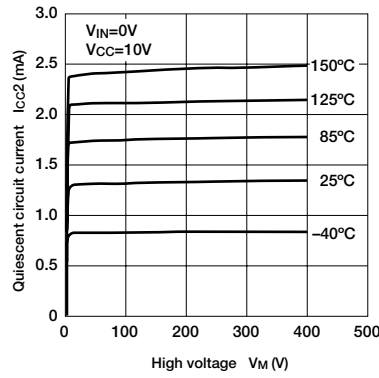* Dotted Line: Outside Connection

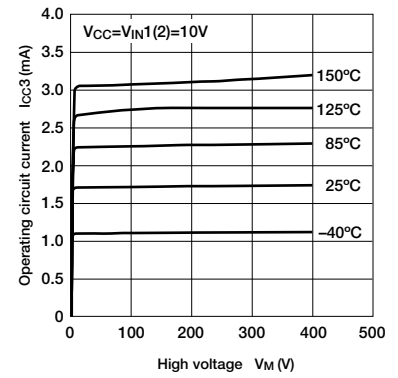## Timing Chart

Electrical Characteristics
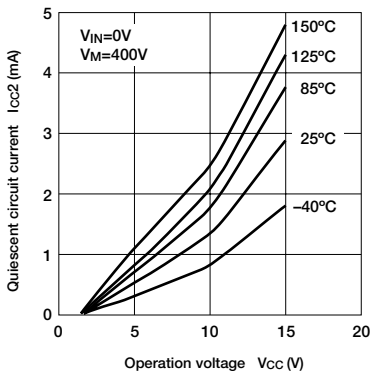
■ Quiescent circuit current

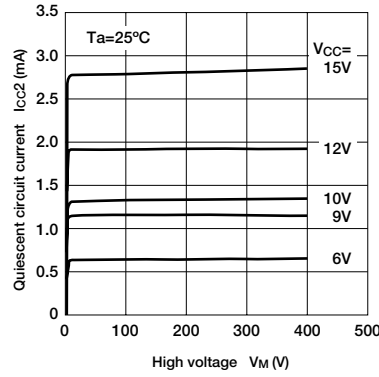■ Quiescent circuit current supplied high voltage
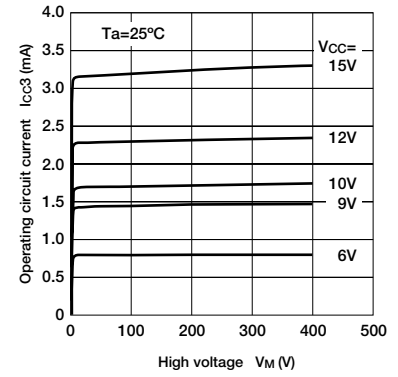
■ Operating circuit current
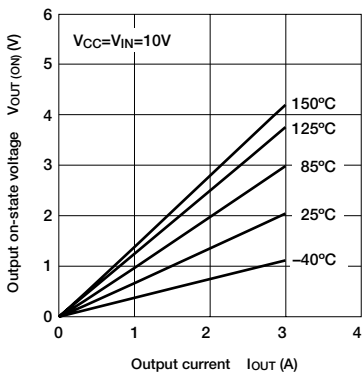
■ Quiescent circuit current supplied high voltage

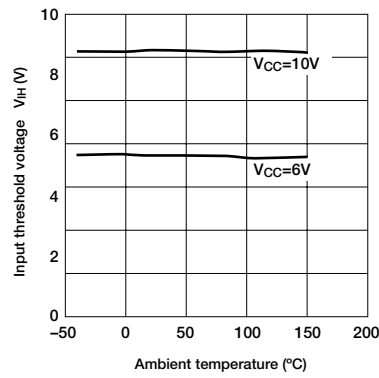■ Quiescent circuit current supplied high voltage

■ Operating circuit current
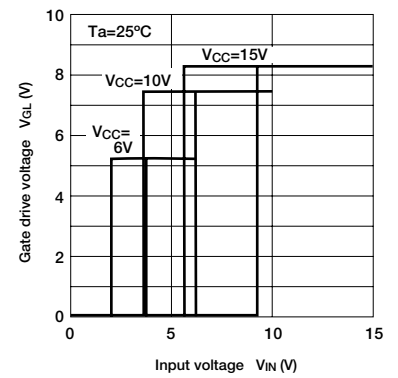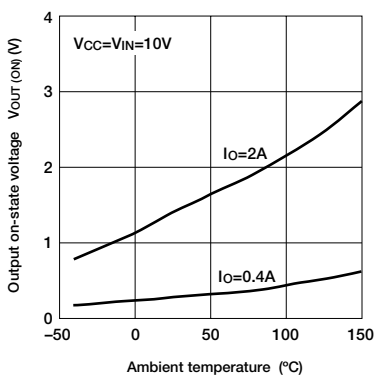
■ Output on-state voltage
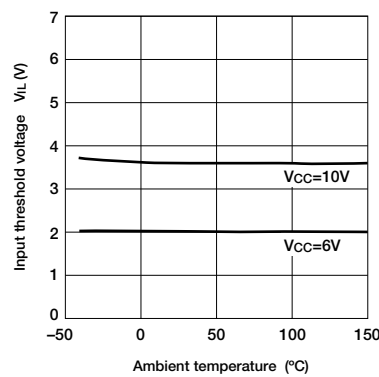
■ Input threshold voltage

■ Gate drive voltage

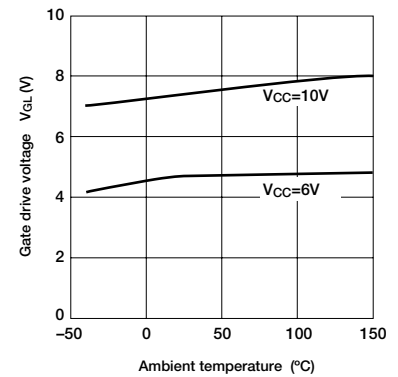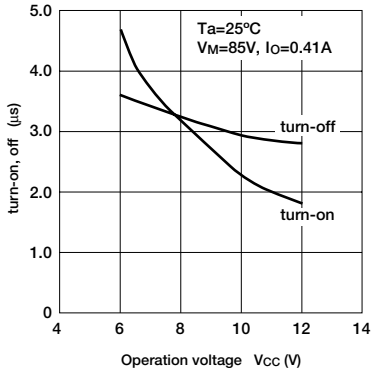■ Output on-state voltage

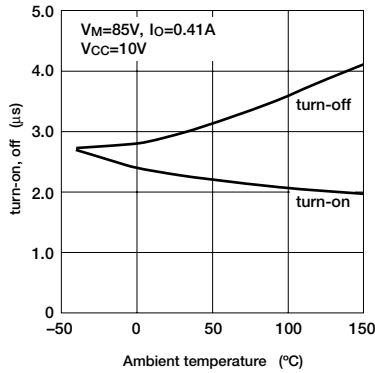■ Input threshold voltage

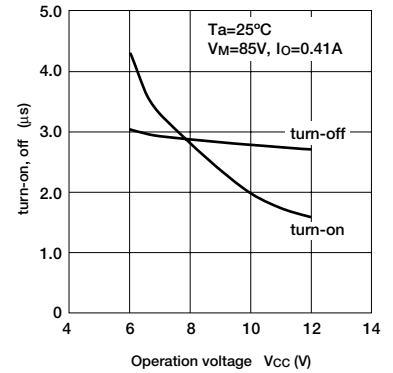■ Gate drive voltage

Electrical Characteristics

■ High side switch turn-on, off
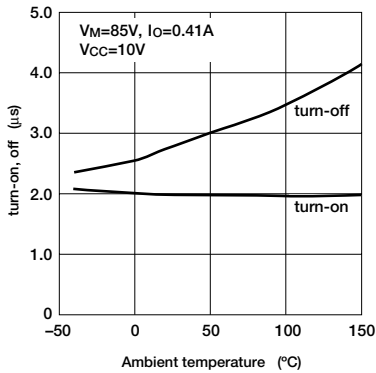

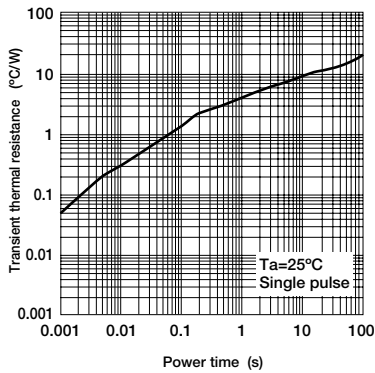■ High side switch turn-on, off

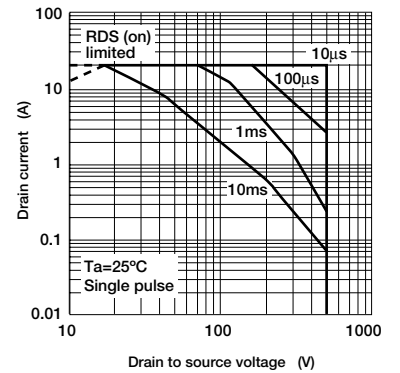■ Low side switch turn-on, off

■ Low side switch turn-on, off

■ Transient thermal resistance characteristics

■ Safe operating area (Power MOS FET)

■ Power derating curve