

SLA7611M Star Connection/Delta Connection

Absolute Maximum Ratings

(T_a=25°C)

Parameter	Symbol	Ratings	Unit	Remarks
Main Supply Voltage	V _{BB}	36	V	
Logic Supply Voltage	V _{CC}	7	V	
Output Current	I _{O (Ave)}	3	A	
	I _{O (Peak)}	6	A	tw < 1ms
Logic Input Voltage	V _{IN}	-0.3 to V _{CC} +0.3	V	
REF Input Voltage	V _{REF}	-0.3 to V _{CC} +0.3	V	
PFD Input Voltage	V _{PFD}	-0.3 to V _{CC} +0.3	V	
Sense Voltage	V _{RS}	-2 to 2	V	
Power Dissipation	P _D	4	W	Without heatsink
Junction Temperature	T _J	150	°C	
Operating Ambient Temperature	T _a	-20 to 85	°C	
Storage Temperature	T _{Stg}	-30 to 150	°C	

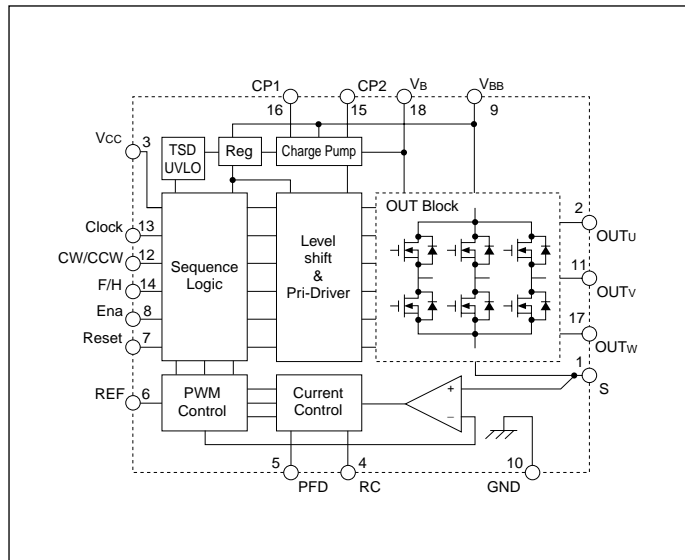
Recommended Operating Conditions

Parameter	Symbol	Ratings	Unit	Remarks
Main Supply Voltage	V _{BB}	10 to 30	V	
Logic Supply Voltage	V _{CC}	3 to 5.5	V	The VCC surge voltage should be 0.5V or lower.
REF Input Voltage	V _{REF}	0.2 to V _{CC}	V	The control current precision is degraded at 0.2V or lower.
Case Temperature	T _C	110max	°C	Temperature at Pin-10 Lead (without heatsink)

Electrical Characteristics (T_a = 25°C, V_{BB} = 24V, V_{CC} = 5V, unless otherwise specified)

Parameter	Symbol	Ratings			Unit	Remarks
		min	typ	max		
Main Supply Current	I _{BB}			20	mA	
Logic Supply Current	I _{CC}			10	mA	
Charge Pump Voltage	V _{CP}		V _{BB} +5		V	
Output Withstand Voltage	V _O	36			V	
Output MOS FET ON Resistance (total of the upper and lower values)	R _{DS(on)}			0.8	Ω	I _{DS} =3A
Output MOS FET Diode Forward Voltage	V _{SD}			1.5	V	I _{SD} =3A
Logic Input Voltage	V _{IL}			V _{CC} ×0.25	V	
	V _{IH}	V _{CC} ×0.75			V	
Logic Input Current	I _{IL}		±1		μA	Excluding E _{rs}
	I _{IH}		±1		μA	
Maximum Clock Frequency	F _{clock}			100	kHz	
PFD Input Current	I _{PFD}		±10		μA	
RC Terminal Inflow Current	I _{RC}		200		μA	
PFD Input Voltage	V _{PFDs}	1.7		V _{CC}	V	Slow Decay
	V _{PFDm}	0.7		1.3	V	Mixed Decay
	V _{PFDf}			0.3	V	Fast Decay
Sense Voltage	V _{RS}		V _{REF} ×0.2		V	Steady-state
REF Input Voltage	V _{REF}	0		V _{CC}	V	
REF Input Current	I _{REF}		±10		μA	
PWM OFF Time	T _{OFF}		1.1×R _x ×C _t		μs	
Thermal Protection Circuit Activation Temperature	T _J		150		°C	
Hysteresis of Thermal Protection Circuit Activation Temperature	ΔT _J		10		°C	
Switching Time	T _{ONC}		2.5		μs	Clock→Out
	T _{OFFC}		2		μs	Clock→Out

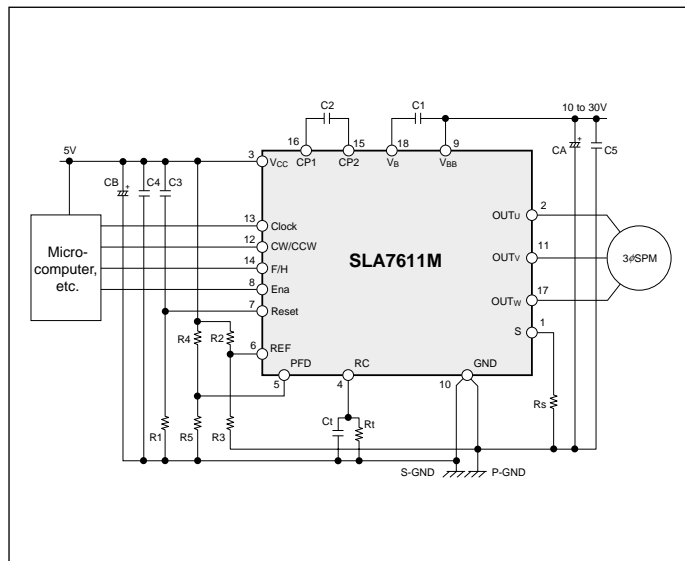
Internal Block Diagram



Pin Assignment (Function Table)

Pin No.	Symbol	Function
1	Sense	Current sense
2	Out U	Phase U output
3	Vcc	Logic supply
4	RC	PWM OFF time setting
5	PFD	Mixed Decay ratio setting
6	REF	Control current setting
7	Reset	Internal logic reset
8	Ena	Output Enable/Disable control
9	Vbb	Main supply (motor supply)
10	GND	Device GND
11	Out V	Phase V output
12	CW/CCW	Forward/reverse control
13	Clock	Step Clock
14	Full/Half	Full/half step control
15	CP2	Charge pump capacitor 2
16	CP1	Charge pump capacitor 1
17	Out W	Phase W output
18	Vs	Boost charge pump

Typical Connection Diagram



External Dimensions (ZIP18 with Fin [SLA18Pin])

(Unit : mm)

