Chipsmall Limited consists of a professional team with an average of over 10 year of expertise in the distribution of electronic components. Based in Hongkong, we have already established firm and mutual-benefit business relationships with customers from,Europe,America and south Asia,supplying obsolete and hard-to-find components to meet their specific needs.

With the principle of “Quality Parts,Customers Priority,Honest Operation,and Considerate Service”,our business mainly focus on the distribution of electronic components. Line cards we deal with include Microchip,ALPS,ROHM,Xilinx,Pulse,ON,Everlight and Freescale. Main products comprise IC,Modules,Potentiometer,IC Socket,Relay,Connector.Our parts cover such applications as commercial,industrial, and automotives areas.

We are looking forward to setting up business relationship with you and hope to provide you with the best service and solution. Let us make a better world for our industry!

Contact us

Tel: +86-755-8981 8866 Fax: +86-755-8427 6832
Email & Skype: info@chipsmall.com Web: www.chipsmall.com
Address: A1208, Overseas Decoration Building, #122 Zhenhua RD., Futian, Shenzhen, China

SPI-6631M

■Features

- Power supply voltages, V_{BB}: 13 V to 33 V
- Signal power supply configuration
- Output current Iout: 3 A (max)... repetitive current (normal-operation current)
- Built-in current recirculation diode
- Built-in UVLO, TSD and OCP protection
- Built-in dead time function that prevents through current upon phase switching
- Built-in error sense flag output
- HSOP16-pin package

■Absolute Maximum Ratings

Parameter	Symbol	Ratings	Unit	Conditions
Main Supply Voltage	V_{BB}	35	V	
MOSFET Output Breakdown Voltage	V_{DSS}	35	V	DutyCycle=100%*
Output Current	Iout	±3	A	
Input Voltage	VIN	–0.3 to 6.5	V	
S Terminal Voltage	Vsen	–2 to 2	V	
Alarm Terminal Voltage	Valarm	6.5	V	
Alarm Input Current	Ialarm	1	mA	
Power Dissipation	P_D	2.6	W	When using a Sanken evaluation board
Junction Temperature	Tj	150	°C	
Storage Temperature	Tstg	–30 to 150	°C	
Operating Ambient Temperature	Ta	–20 to 85	°C	

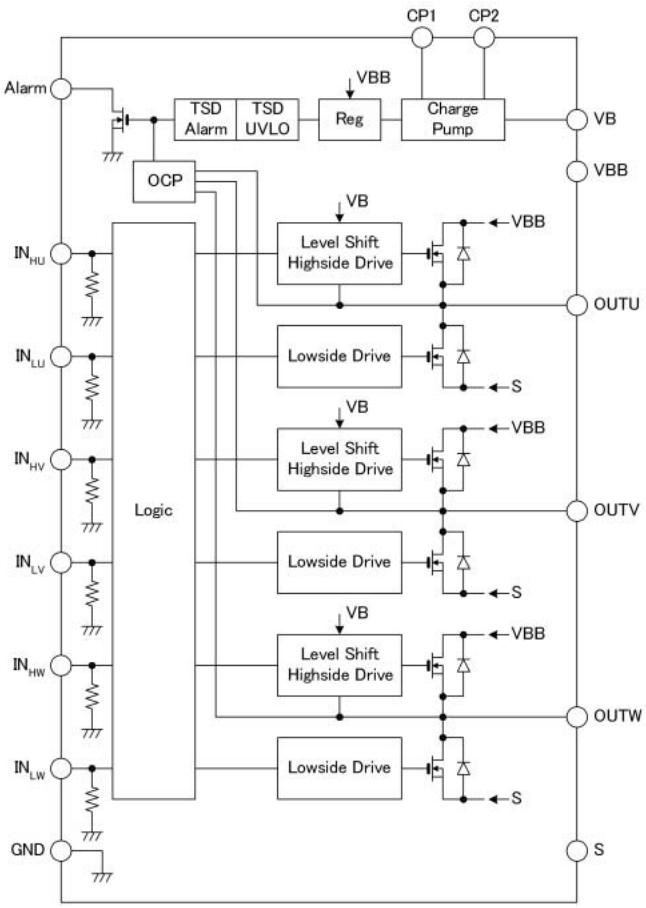
*: Output current value may be limited, depending on the duty ratio, ambient temperature, and heating conditions. Do not exceed the rated current or maximum junction temperature (Tj = 150°C).

■Electrical Characteristics

(Ta=25°C, V_{BB}=24V, unless otherwise specified)

Parameter	Symbol	Ratings			Unit	Conditions
		min.	typ.	max.		
Main Supply Voltage	V_{BB}	13	–	33	V	In operation
Main Supply Current	I_{BB}	–	–	23	mA	
Maximum Clock Pulse Width	t_w	–	–	3	μs	
Input Voltage	V_{IL}	–	–	0.8	V	
	V_{IH}	2.0	–	–	V	
Input Current	I_{IL}	–	±8	–	μA	$V_{IN(0)}$, V_{IN}=0.8V
	I_{IH}	–	±20	–	μA	$V_{IN(1)}$, V_{IN}=2.0V
Crossover Dead Time	T_{delay}	100	500	1200	ns	
VB Terminal Breakdown Voltage	V_B	–	V_{BB}+5	–	V	Breakdown voltage between VB and GND
VB-OUT Breakdown Voltage	V_{B-OUT}	–	5	–	V	
VB Terminal Current	I_B	–	–	3	mA	VB-OUT=5V
Output Leakage Current	I_{DSS}	–	–	800	μA	V_{OUT}=V_{BB}=35V
		–800	–	–	μA	V_{OUT}=0V
MOSFET ON Resistance	$R_{DS(ON)}$	–	0.4	0.7	Ω	I_{OUT}=-1A, Between VBB and OUT I_{OUT}=1A, Between OUT and S
MOSFET Diode Forward Voltage	V_{SD}	–	–	2.2	V	I_{SD}=1A
Overcurrent Sense Current	I_{OCP}	7	–	–	A	Short between Out and Out
Overcurrent Protection Blank Time	tblank	0.7	1.2	4	μs	
Overcurrent Protection Delay Time	tocp	0.5	1	2.2	ms	
Thermal Protection Operation Temperature	T_J	–	170	–	°C	
Thermal Protection Hysteresis	ΔT_J	–	15	–	°C	
Low Voltage Protection Operation Voltage	UVLO	4.0	4.5	5.0	V	V_{BB} voltage
Low Voltage Protection Hysteresis	ΔUVLO	0.4	0.45	0.5	V	
Alarm Output Voltage	V_{Alarm}	–	–	0.5	V	I=1mA

■Internal Block Diagram

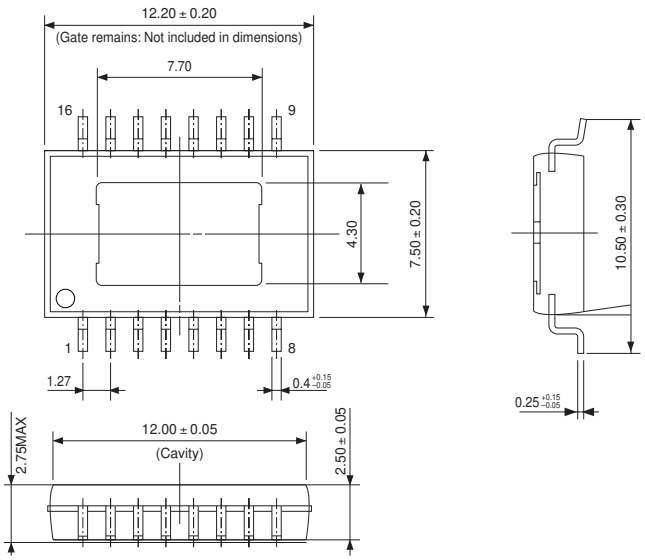


■Pin Assignment

Pin No.	Symbol	Function
1	CP2	Capacitor terminal for charge pump 2
2	CP1	Capacitor terminal for charge pump 1
3	OUTU	DMOSFET phase U output
4	S	Sense terminal (lower arm source output)
5	OUTV	DMOSFET phase V output
6	OUTW	DMOSFET phase W output
7	Alarm	Alarm output
8	GND	Ground
9	IN_{LW}	Phase W lower arm input
10	IN_{HW}	Phase W upper arm input
11	IN_{LV}	Phase V lower arm input
12	IN_{HV}	Phase V upper arm input
13	VBB	Driver supply terminal
14	IN_{LU}	Phase U lower arm input
15	IN_{HU}	Phase U upper arm input
16	VB	Capacitor terminal for charging up charge pump

■External Dimensions (HSOP16)

(Unit : mm)



Product Mass : Approx.0.56g