

SMA6843MP/SLA6848MP Support for 3-shunt

Features

- A package of 6 MOSFET units for 3-phase bridge and pre-drive (HVIC, LVIC)
- Best for driving fan motors and pumps
- High side drive of bootstrap method has been employed.
- Built-in undervoltage lock out (auto regression)
- Built-in overheat detection circuit (no stopping)
- Built-in fail signal output function (for when the overheat detection circuit and UVLO)
- Support for 3-shunt current detection

Absolute Maximum Ratings

(T_a=25°C)

Parameter	Symbol	Ratings		Unit	Conditions
		SMA6843MP	SLA6848MP		
MOSFET Output Withstand Voltage	V _{DSS}	500	500	V	V _{CC} =15V, V _{IN} =0V
Control Supply Voltage	V _{CC}	20	20	V	Between V _{CC} and COM
Control Supply Voltage (bootstrap)	V _{BS}	20	20	V	Between VB and HS (U, V, W)
Output Current (continuous)	I _O	2.5	2.5	A	
Output Current (pulse)	I _{OP}	5	5	A	PW≤100μs, duty=1%
Input Voltage	V _{IN}	-0.5 to +7	-0.5 to +7	V	
Power Dissipation	P _D	28	31	W	T _C =25°C
Thermal Resistance (Junction to Case)	θ _{JC}	4.5	4	°C/W	When all elements operating
Thermal Resistance (Junction to Ambient Air)	θ _{JA}	28	31	°C/W	When all elements operating
Operating Case Temperature	T _{OP}	-20 to +100	-20 to +100	°C	
Junction Temperature (Power part)	T _{CH}	+150	+150	°C	
Storage Temperature	T _{STG}	-40 to +150	-40 to +150	°C	

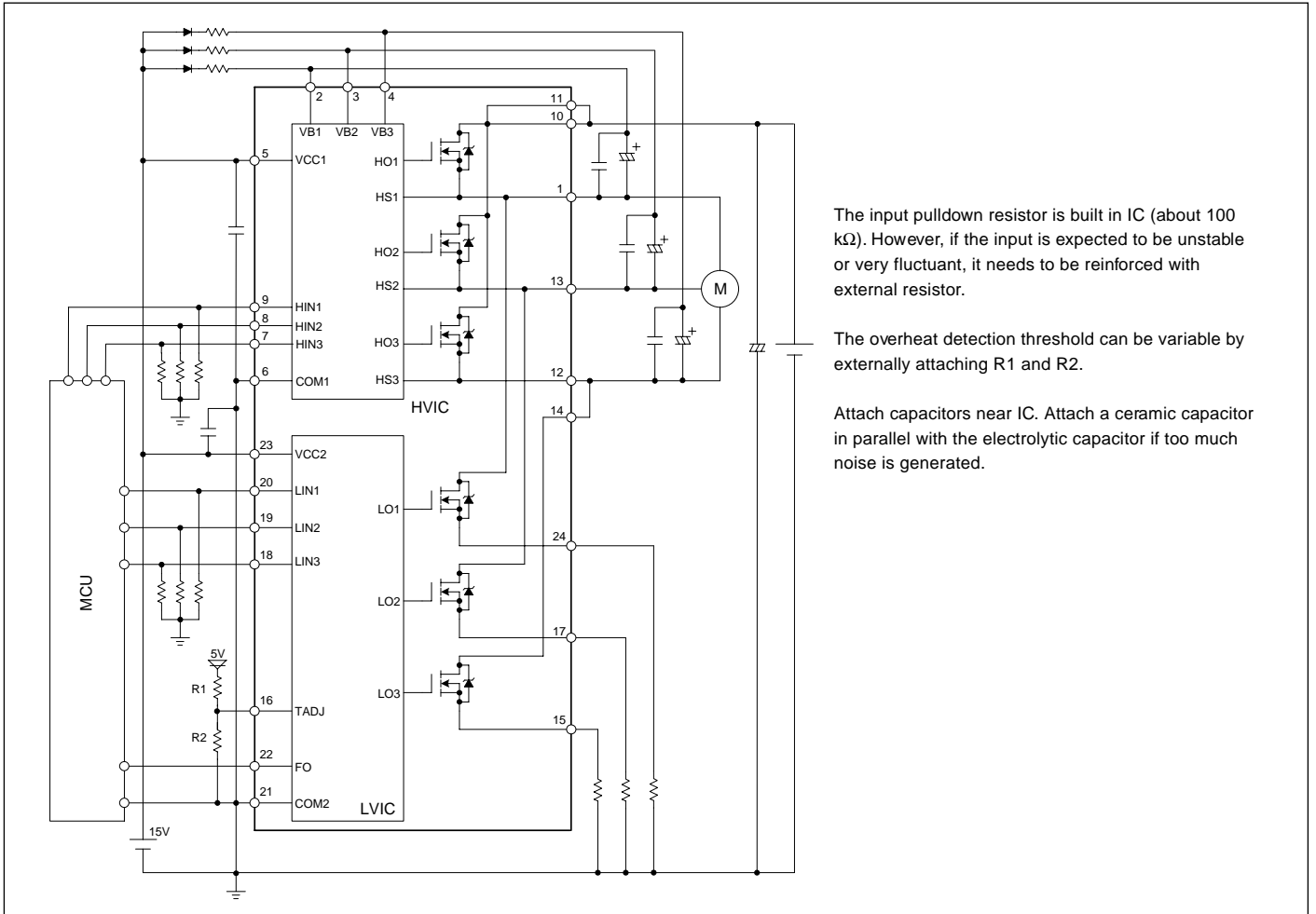
Recommended Operating Conditions

Parameter	Symbol	Ratings						Unit	Conditions
		SMA6843MP			SLA6848MP				
		min.	typ.	max.	min.	typ.	max.		
Main Supply Voltage	V _{SS}	-	280	400	-	280	400	V	Between V _{SS} and LS
Control Supply Voltage	V _{CC}	13.5	-	16.5	13.5	-	16.5	V	Between V _{CC} and COM
Input Signal Dead Time	t _{dead}	1.5	-	-	1.5	-	-	μs	
Minimum Input Pulse Width	t _w	0.5	-	-	0.5	-	-	μs	
Junction Temperature	T _J	-	-	125	-	-	125	°C	

Electrical Characteristics

Parameter	Symbol	Ratings						Unit	Conditions
		SMA6843MP			SLA6848MP				
		min.	typ.	max.	min.	typ.	max.		
Control Supply Voltage	V _{CC}	13.5	15	16.5	13.5	15	16.5	V	Between V _{CC} and COM
Control Supply Current	I _{CC}	-	4	6	-	4	6	mA	V _{CC} =15V
Input Voltage V _{IH}	V _{IH}	-	2	2.5	-	2	2.5	V	V _{CC} =15V, Output:ON
	V _{IL}	1	1.5	-	1	1.5	-	V	V _{CC} =15V, Output:OFF
Input Voltage Hysteresis Width	V _H	-	0.5	-	-	0.5	-	V	V _{CC} =15V
Input Current	I _{IH}	-	50	100	-	50	100	μA	V _{CC} =15V, V _{IN} =5V
	I _{IL}	-	-	2	-	-	2	μA	V _{CC} =15V, V _{IN} =0V
Undervoltage Lock Out (high side)	UVHL	9.0	10.0	11.0	9.0	10.0	11.0	V	Between VB and U (V, W)
	UVHH	9.5	10.5	11.5	9.5	10.5	11.5	V	
	U _{vhys}	-	0.5	-	-	0.5	-	V	
Undervoltage Lock Out (low side)	UVHL	10.0	11.0	12.0	10.0	11.0	12.0	V	Between V _{CC} and COM
	UVHH	10.5	11.5	12.5	10.5	11.5	12.5	V	
	U _{vhys}	-	0.5	-	-	0.5	-	V	
FO Pin Output Voltage	V _{FOL}	0	-	1.0	0	-	1.0	V	V _{CC} =15V
	V _{FOH}	4.0	-	5.5	4.0	-	5.5	V	
Overheat Detection Threshold	TDH	135	150	165	135	150	165	°C	V _{CC} =15V
Overheat Detection Release Threshold	TDL	105	120	135	105	120	135	°C	
MOSFET Output Withstand Voltage	V _{DSS}	500	-	-	500	-	-	V	V _{CC} =15V, I _D =100μA, V _{IN} =0V
MOSFET Output Leakage Current	I _{DSS}	-	-	100	-	-	100	μA	V _{CC} =15V, V _{IN} =0V
MOSFET DC On Resistance	R _{DS(ON)}	-	2.0	2.4	-	2.0	2.4	Ω	V _{CC} =15V, V _{IN} =0V
Diode Forward Voltage	V _{SD}	-	1.0	1.5	-	1.0	1.5	V	V _{CC} =15V, V _{IN} =0V
Diode Reverse Recovery Time	t _{rr}	-	75	-	-	75	-	ns	di/dt=100A/μs
High Side Switching Time	t _{d(on)}	-	420	-	-	420	-	ns	V _{BB} =280V, V _{CC} =15V, V _{IN} =0<=5V, I _D =2.5A
	t _r	-	60	-	-	60	-	ns	
	t _{d(off)}	-	440	-	-	440	-	ns	
	t _f	-	40	-	-	40	-	ns	
Low Side Switching Time	t _{d(on)}	-	420	-	-	420	-	ns	
	t _r	-	70	-	-	70	-	ns	
	t _{d(off)}	-	380	-	-	380	-	ns	
	t _f	-	30	-	-	30	-	ns	

■Typical Connection Diagram



■External Dimensions (ZIP24 [SMA24Pin]/ZIP24 with Fin [SLA24Pin])

