

SLA7031M/SLA7032M/SLA7033M 2-Phase/1-2 Phase Excitation

Absolute Maximum Ratings

(T_a=25°C)

Parameter	Symbol	Ratings			Units
		SLA7031M	SLA7032M	SLA7033M	
Motor Supply Voltage	V _{CC}	46			V
Control Supply Voltage	V _S	46			V
FET Drain-Source Voltage	V _{DSS}	100			V
Input Voltage	V _{IN}	-0.3 to +7			V
	V _{SYNC}	-0.3 to +7			
Reference Voltage	V _{REF}	-0.3 to +7			V
Sense Voltage	V _{RS}	-5 to +7			V
Output Current	I _O	1	1.5	3	A
	P _{D1}	4.5(Without Heatsink)			
Power Dissipation	P _{D2}	35(T _c =25°C)			
Channel Temperature	T _{ch}	+150			°C
Operating Ambient Temperature	T _a	-20 to +85			°C
Storage Temperature	T _{sig}	-40 to +150			°C

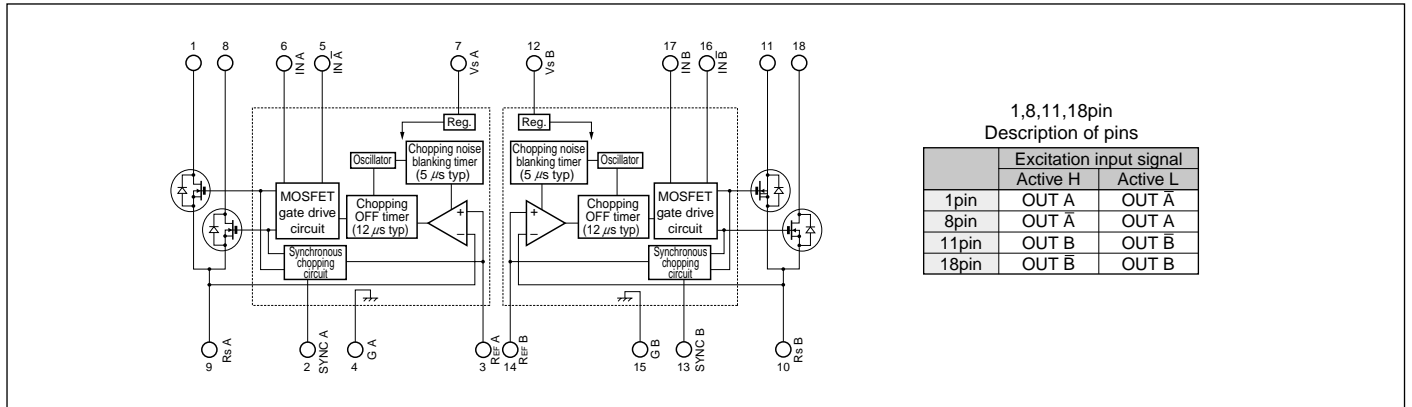
Recommended Operating Conditions

Parameter	Symbol	Ratings		Unit	Remarks
		min	max		
Motor Supply Voltage	V _M		44	V	
Control Supply Voltage	V _S	10	44	V	
REF Input Voltage	V _{REF}	0.1	1.0	V	The control current precision is degraded at 0.1V or lower.
	V _{REF(dis)}	4.0	5.5	V	Output MOS FET OFF
Case Temperature	T _C		100	°C	Temperature of 4(15)-Pin Lead(without heatsink)

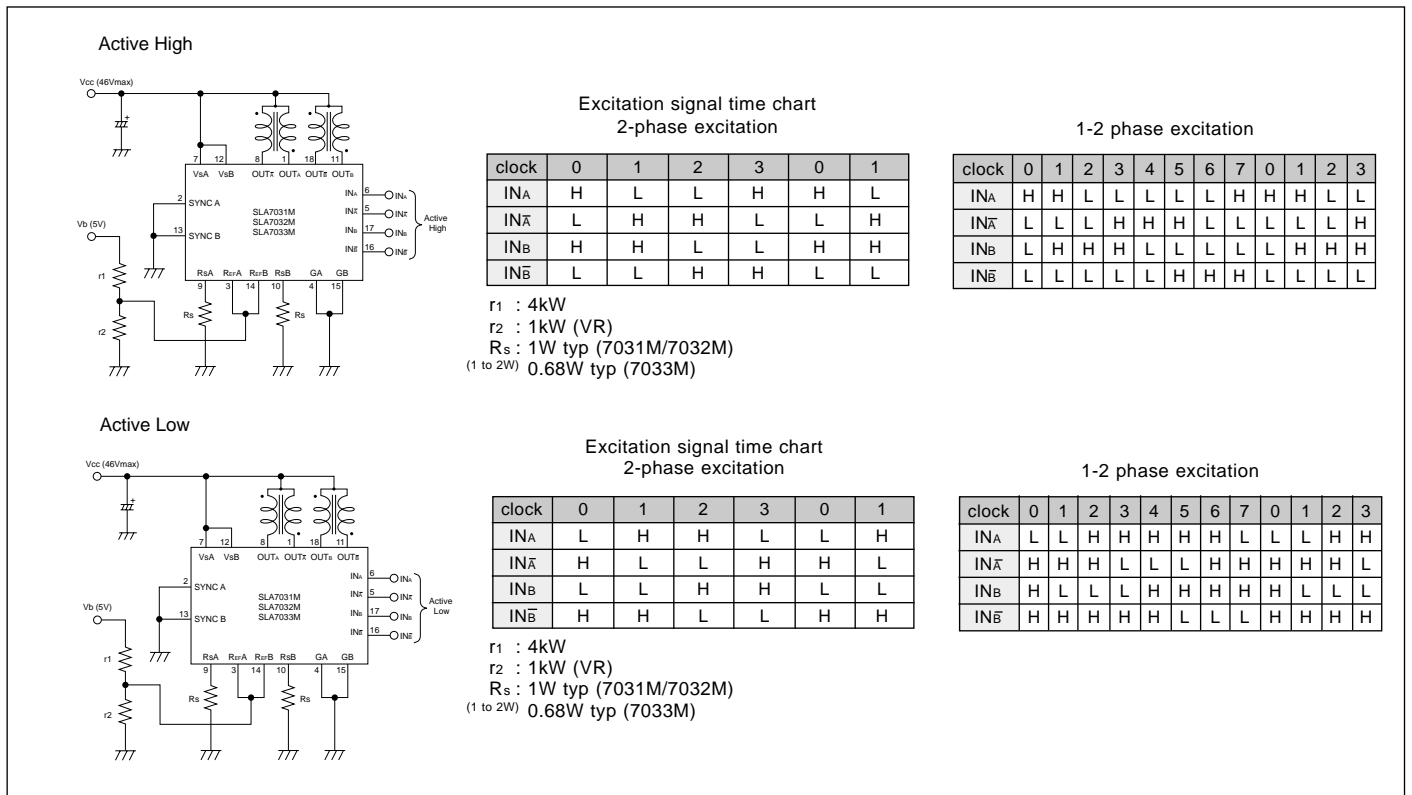
Electrical Characteristics

Parameter	Symbol	Ratings									Units	
		SLA7031M			SLA7032M			SLA7033M				
		min	typ	max	min	typ	max	min	typ	max		
Control Supply Current	I _S		10	15		10	15		10	15	mA	
	Condition	V _S =44V			V _S =44V			V _S =44V				
Control Supply Voltage	V _S	10	24	44	10	24	44	10	24	44	V	
FET Drain-Source Voltage	V _{DSS}	100			100			100			V	
	Condition	V _S =44V, I _{DSS} =250μA			V _S =44V, I _{DSS} =250μA			V _S =44V, I _{DSS} =250μA				
FET ON Voltage	V _{DS}			0.85			0.6			0.85	V	
	Condition	I _D =1A, V _S =10V			I _D =1A, V _S =14V			I _D =3A, V _S =14V				
FET Diode Forward Voltage	V _{SD}			1.2			1.1			2.3	V	
	Condition	I _{SD} =1A			I _{SD} =1A			I _{SD} =3A				
FET Drain Leakage Current	I _{DSS}			250			250			250	μA	
	Condition	V _{DSS} =100V, V _S =44V			V _{DSS} =100V, V _S =44V			V _{DSS} =100V, V _S =44V				
IN Terminal	Input Voltage (Active High)	V _{IH}	2.0		2.0			2.0			V	
		Condition	I _D =1A			I _D =1A			I _D =3A			
		V _{IL}			0.8			0.8				0.8
	Input Voltage (Active Low)	V _{IH}	2.0			2.0			2.0			V
		Condition	V _{DSS} =100V			V _{DSS} =100V			V _{DSS} =100V			
		V _{IL}			0.8			0.8			0.8	
Input Current	I _I			±1			±1			±1	μA	
	Condition	V _S =44V, V _I =0 or 5V			V _S =44V, V _I =0 or 5V			V _S =44V, V _I =0 or 5V				
SYNC Terminal	Input Voltage	V _{SYNC}	4.0		4.0			4.0			V	
		Condition	Synchronous chopping mode			Synchronous chopping mode			Synchronous chopping mode			
	Input Current	V _{SYNC}			0.8			0.8			0.8	mA
		Condition	Asynchronous chopping mode			Asynchronous chopping mode			Asynchronous chopping mode			
REF Terminal	Input Current	I _{SYNC}			0.1			0.1			mA	
		Condition	V _S =44V, V _{SYNC} =5V			V _S =44V, V _{SYNC} =5V			V _S =44V, V _{SYNC} =5V			
	Input Current	I _{SYNC}			-0.1			-0.1			-0.1	μA
		Condition	V _S =44V, V _{SYNC} =0V			V _S =44V, V _{SYNC} =0V			V _S =44V, V _{SYNC} =0V			
		V _{REF}	0		2.0	0		2.0	0		2.0	
		Condition	Reference Voltage input			Reference Voltage input			Reference Voltage input			
Internal Resistance	V _{REF}	4.0		5.5	4.0		5.5	4.0		5.5	V	
	Condition	Output FET OFF			Output FET OFF			Output FET OFF				
Sense Voltage	I _{REF}			±1			±1			±1	μA	
	Condition	No synchronous trigger			No synchronous trigger			No synchronous trigger				
Switching Time	R _{REF}		40			40			40		Ω	
	Condition	Resistance between GND and REF terminal at synchronous trigger			Resistance between GND and REF terminal at synchronous trigger			Resistance between GND and REF terminal at synchronous trigger				
Chopping OFF Time	V _{RS}		V _{REF}			V _{REF}			V _{REF}		V	
	T _r		0.5			0.5			0.5	μs		
	T _{sig}		0.7			0.7			0.7			
	T _f		0.1			0.1			0.1			
Chopping OFF Time	Condition	V _S =24V, I _D =0.8A			V _S =24V, I _D =1A			V _S =24V, I _D =1A				
	T _{OFF}		12			12			12			
Condition	V _S =24V			V _S =24V			V _S =24V					

Internal Block Diagram



Typical Connection Diagram (Recommended component values)



External Dimensions (ZIP18 with Fin [SLA18Pin])

(Unit : mm)

