

SLA7031M/SLA7032M/SLA7033M

2-Phase/1-2 Phase Excitation

■Absolute Maximum Ratings

(T_a=25°C)

Parameter	Symbol	Ratings			Unit
		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
Power Dissipation	P _{D1}	4.5(Without Heatsink)			W
	P _{D2}	35(T _c =25°C)			W
Channel Temperature	T _{ch}	+150			°C
Operating Ambient Temperature	T _a	-20 to+85			°C
Storage Temperature	T _{stg}	-40 to +150			°C

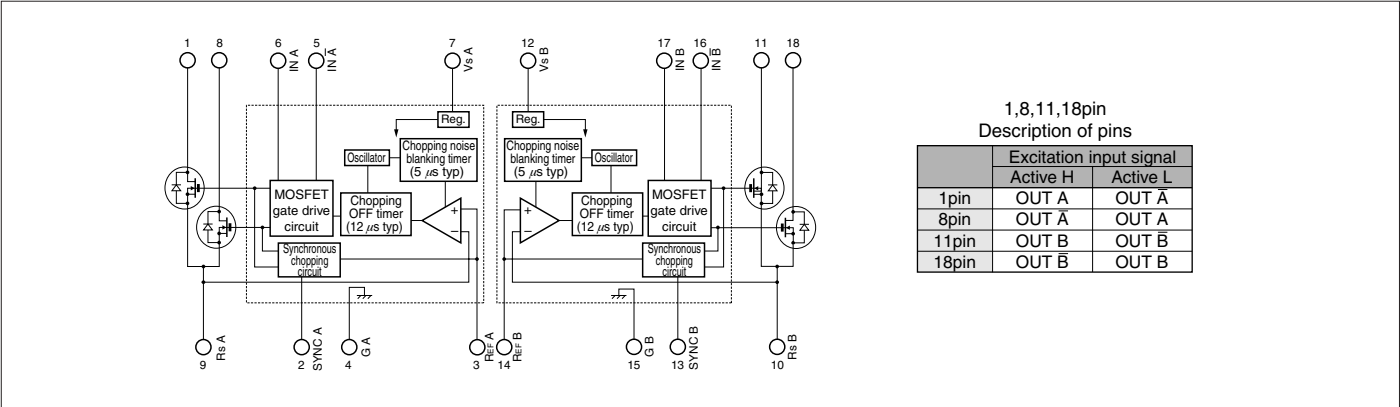
■Recommended Operating Conditions

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)

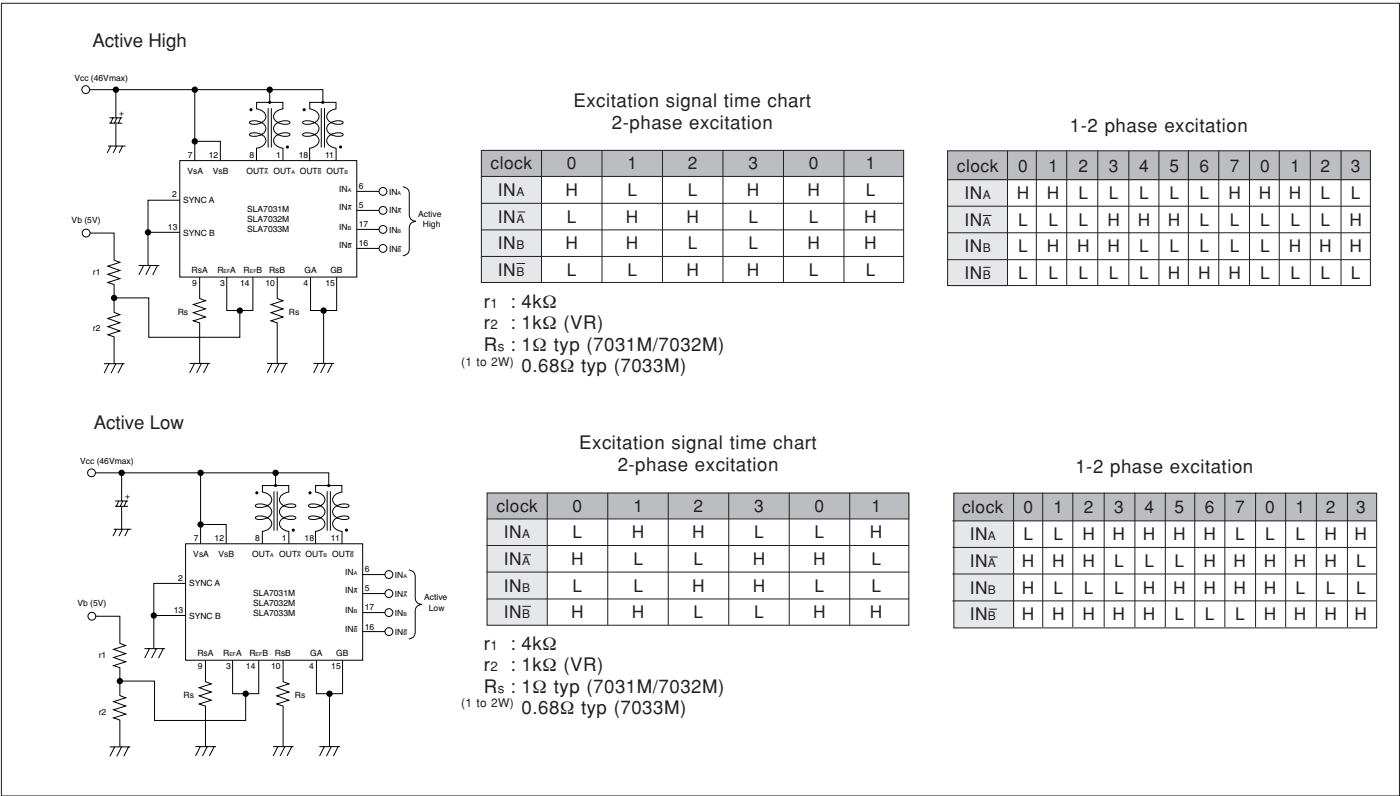
■Electrical Characteristics

Parameter		Symbol	Ratings									Unit	
			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					
DC characteristics	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
			Condition	V _{DSS} =100V			V _{DSS} =100V			V _{DSS} =100V			
		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	
			Condition	I _D =1A			I _D =1A			I _D =3A			
		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				
		V _{SYNC}			0.8			0.8			0.8		
		Condition	Asynchronous chopping mode			Asynchronous chopping mode			Asynchronous chopping mode				
	Input Current	I _{SYNC}			0.1			0.1			0.1	mA	
		Condition	V _S =44V, V _{SYNC} =5V			V _S =44V, V _{SYNC} =5V			V _S =44V, V _{SYNC} =5V				
I _{SYNC}				−0.1			−0.1			−0.1			
Condition		V _S =44V, V _{SYNC} =0V			V _S =44V, V _{SYNC} =0V			V _S =44V, V _{SYNC} =0V					
REF Terminal	Input Current	V _{REF}	0		2.0	0		2.0	0		2.0	V	
		Condition	Reference Voltage input			Reference Voltage input			Reference Voltage input				
		V _{REF}	4.0		5.5	4.0		5.5	4.0		5.5		
		Condition	Output FET OFF			Output FET OFF			Output FET OFF				
	Input Current	I _{REF}			±1			±1			±1	μA	
		Condition	No synchronous trigger			No synchronous trigger			No synchronous trigger				
	Internal Resistance	R _{REF}		40			40			40		Ω	
Condition	Resistance between GND and REF terminal at synchronous trigger												
Sense Voltage	V _{RS}		V _{REF}			V _{REF}			V _{REF}		V		
Switching Time	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				
	Condition	V _S =24V, I _D =0.8A			V _S =24V, I _D =1A			V _S =24V, I _D =1A					
Chopping OFF Time	T _{OFF}		12			12			12		μs		
	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)

