TOSHIBA BIPOLAR LINEAR INTEGRATED CIRCUIT SILICON MONOLITHIC

TA7262P,TA7262P(LB),TA7262F

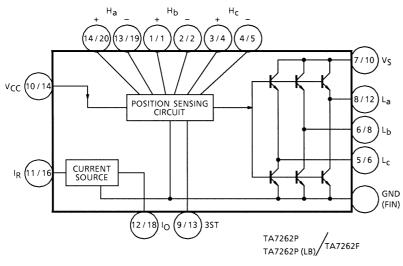
DC MOTOR DRIVER (3 PHASE Bi-DIRECTIONAL)

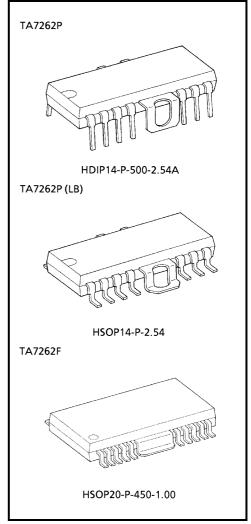
The TA7262P / P (LB) / F are 3 Phase Bi-Directional supply-voltage-control Motor Driver IC. It's designed especially for energy saving Motor Control System. It contains Power Drivers, CW / CCW control circuit position sensing amplifiers and current regulator for external connected position sensing elements.

FEATURES

- Output Current is Up to 1.5 A (AVE).
- Supply Voltage Control Motor Driver.
- Variable Current Source for Hall Sensor Including.
- Few External Parts Required.
- High Sensitivity of Position Sensing Inputs.

BLOCK DIAGRAM





Weight

HDIP14-P-500-2.54A: 3.00 g (Typ.) HSOP14-P-2.54 : 3.00 g (Typ.) HSOP20-P-450-1.00: 0.79 g (Typ.)

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PIN FUNCTION

PIN No.		CVMDOL	FUNCTION DESCRIPTION		
P TYPE	F TYPE	SYMBOL	FUNCTION DESCRIPTION		
1	1	H _b +	b-phase Hall Amp. positive input terminal		
2	2	H _b -	b-phase Hall Amp. negative input terminal		
3	4	H _c +	c-phase Hall Amp. positive input terminal		
4	5	H _c -	c-phase Hall Amp. negative input terminal		
5	6	L _c	c-phase drive output terminal		
6	8	L _b	b-phase drive output terminal		
7	10	Vs	Supply voltage terminal for motter driver		
8	12	La	a-phase drive output terminal		
9	13	3ST	Forward rotation / Reverse rotation / Stop switch terminal		
10	14	V _{CC}	Power supply input terminal for small signal		
11	16	I _R	Hall element bias current control terminal		
12	18	Io	Hall element bias negative-side connector terminal		
13	19	H _a -	a-phase Hall Amp. negative input terminal		
14	20	H _a +	a-phase Hall Amp. positive input terminal		
Fin	Fin	GND	_		

F Type: Pin (3), (7), (9), (11), (15), (17) N. C.

FUNCTION

FRS INPUT	POSITION SENSING INPUT			COIL OUTPUT			
FRS INPUT	Ha	H _b	H _c	La	L _b	L _c	
	1	0	1	Н	L	M	
	1	0	0	Н	М	L	
CW	1	1	0	М	Н	L	
CVV	0	1	0	L	Н	М	
	0	1	1	L N		Н	
	0	0	1	М	L	Н	
	1	0	1	L	Н	М	
	1	0	0	L	М	Н	
CCM	1	1	0	М	L	Н	
CCW	0	1	0	H L		М	
	0	1	1	Н	М	L	
	0	0	1	M	Н	L	
	1	0	1				
STOP	1	0	0	High Impedance			
	1	1	0				
	0	1	0				
	0	1	1				
	0	0	1				



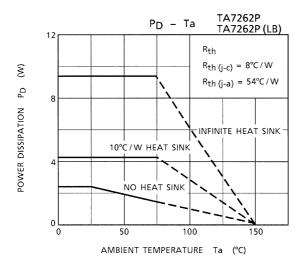
MAXIMUM RATINGS (Ta = 25°C)

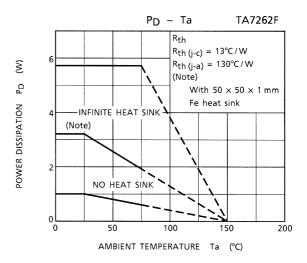
CHARAC	TERISTIC	SYMBOL	RATING	UNIT	
Supply Voltage (MOTOR)		VS	25	V	
Supply Voltage (C	ONTROL)	V _{CC}	25	V	
Output Current (M	OTOR)	Io	1.5	Α	
Output Current		I _{CS}	40	mA	
Position Sensing I	Position Sensing Input Voltage		400	mV _{p-p}	
Power Dissipation	TA7262P		2.3	W	
	TA7262P (LB)	P _D (Note)	2.3		
	TA7262F		1.0		
Operating Temperature		Topr	-30~75	°C	
Storage Temperature		T _{stg}	-55~150	°C	

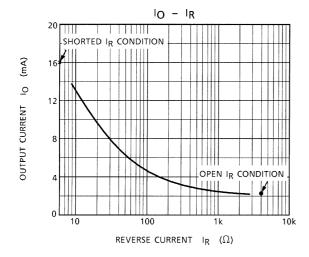
Note: No heat sink

ELECTRICAL CHARACTERISTICS (Unless otherwise specified, V_{CC} = 9 V, V_S = 12.8 V, 3ST = 5 V, V_H = ±20 mV, R_L = 6 Ω , Ta = 25°C)

CHARACTERISTIC		SYMBOL	TEST CIR- CUIT	TEST CONDITION (TA7262P, TA7262P (LB))	MIN	TYP.	MAX	UNIT	
			ICC-1	C-2 —	V _{CC} = 9 V, 3 ST GND, V _S open	_	5.7	6.5	mA
Quiescent Current		I _{CC-2}	V _{CC} = 25 V, 3 ST GND, V _S open		_	8.0	11.0		
		I _{CC-3}	Stop (3 ST = V _{CC})		_	_	4		
Saturation Voltage		V _{SAT}	_	I _O = 1 A, (total)	_	_	2.0	V	
Saturation Voltage Differential		D-V _{SAT}	_	I _O = 1 A	_	100	180	mV	
Cut-off Current	Cut-off Current Upper Lower		I _{CC-U}	_	V _S = 22 V	_	_	50	- μΑ
Cut-on Current			I _{CC-L}		V _S = 22 V	_	_	50	
Position	Input Se	ensitivity	V _H	_	_	_	20	_	mV_{p-p}
Sensing	Input O	ffset	V _{OFST}		_	_	0	5	mV
Input Voltage	Operati	ng DC Level	CMR		_	2	_	V _{CC} – 2.5	V
CW / CCW Control Operating Voltage CCW		V _{FW}		_	1.2	_	7.8		
		Stop	V _{STP}	_	_	8.6	V _C C	_	V
		CCW	V _{RV}		_	_	0	0.4	
Output Current of Current Source		I _{CS-1}		I _R open	1.5	2.2	3.0	mA	
		I _{CS-2}		I _R = 100 Ω	3.0	4.4	5.5		

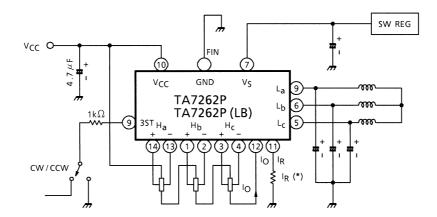






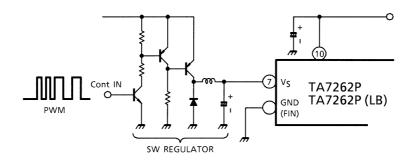


APPLICATION CIRCUIT 1

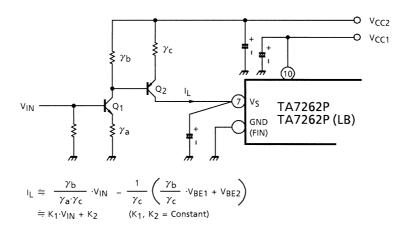


Hall sensor driving current (I_O) can be changed by I_R.
 Refer to I_R vs I_O characteristics.

APPLICATION CIRCUIT 2



APPLICATION CIRCUIT 3



 Q_2 works as a Current Regulator for Output Coil. Therefore, Collector to Emitter Voltage of Q_2 is varied in accordance with required coil current.

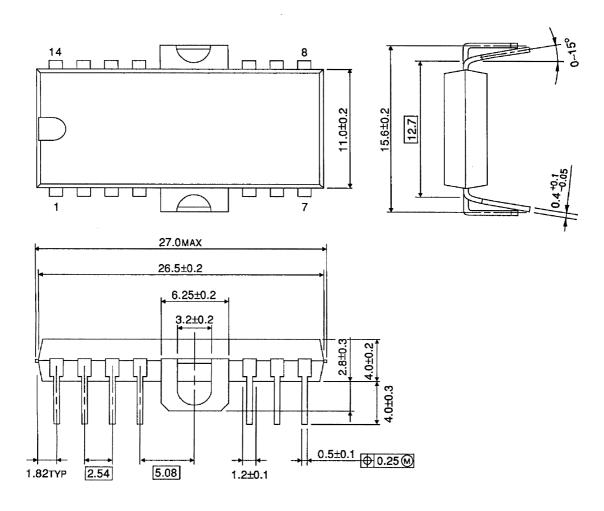
Note 1: Utmost care is necessary in the design of the output line, V_S and GND line since IC may be destroyed due to short–circuit between outputs, air contamination fault, or fault by improper grounding.

Note 2: Don't keep 3 ST terminal open.

OUTLINE DRAWING

HDIP14-P-500-2.54A

Unit: mm



Weight: 3.00 g (Typ.)

OUTLINE DRAWING

HSOP14-P-2.54 Unit: mm 6.25±0.2 11.0±0.2 17.0±0.3 0.5±0.1 0.25 M 1.82TYP 2.54 5.08 1.2±0.1 27.0MAX 26.5±0.2 3.2±0.2 4.0±0.2 5.45MAX 0.4±0.1 2.15±0.1 2.6±0.2

Weight: 3.00 g (Typ.)

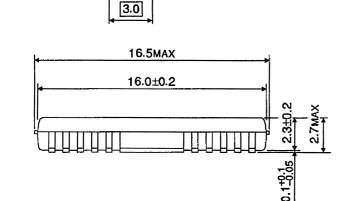
OUTLINE DRAWING

HSOP20-P-450-1.00

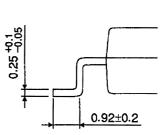
Unit: mm

10

0.5±0.1 0.2 W



1.0



Weight: 0.79 g (Typ.)

1.0TYP