

TOSHIBA BIPOLAR LINEAR INTEGRATED CIRCUIT SILICON MONOLITHIC

TA7259P, TA7259P(LB), TA7259F

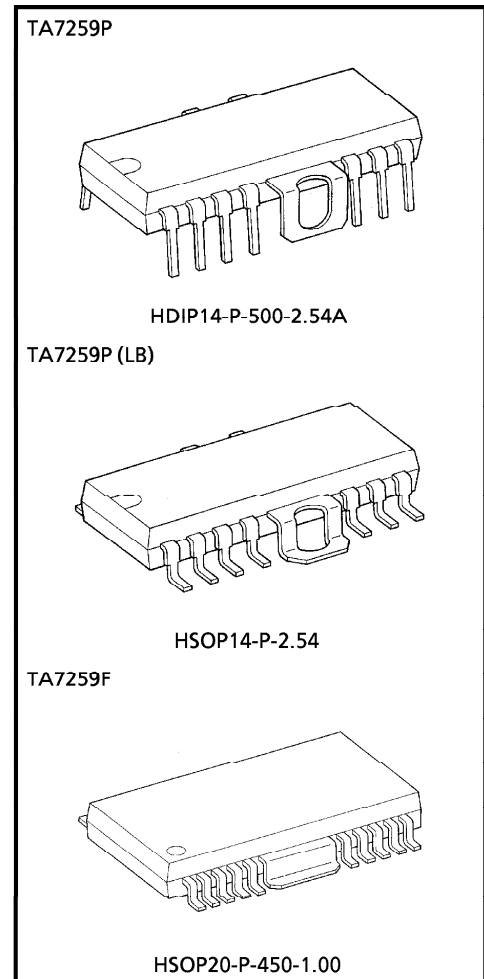
DC MOTOR DRIVER IC

The TA7259P is a 3-phase Bi-directional motor driver IC. It designed for use VTR tape deck, floppy disk and record player motor drivers.

It contains output power drivers, position sensing circuits, control amplifier and CW/CCW control circuit.

FEATURES

- 3-phase Bi-directional driver and output current up to $\pm 1.2A$.
- Few external parts required.
- Wide operating supply voltage range : $V_{CC}(\text{opr.})$
MIN. = 7V
- Forward and reverse rotation is controlled simply by means of a CW/CCW control signal fed into FRS.
- High sensitivity of position sensing amplifier.
($V_H = 10\text{mV}$ (Typ.)), recommend to use TOSHIBA Ga-As hall sensor "THS" series.
- Surge protect diode connected for all input terminals.
(Position sensing, control, CW/CCW control inputs.)
- DIP-14F power package.

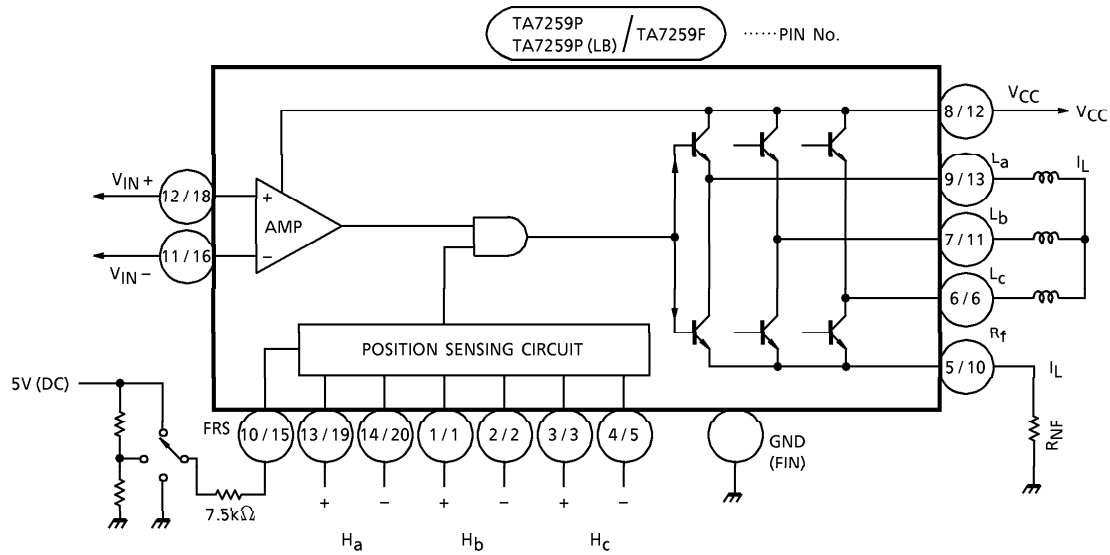


Weight
 HDIP14-P-500-2.54A : 3.00g (Typ.)
 HSOP14-P-2.54 : 3.00g (Typ.)
 HSOP20-P-450-1.00 : 0.79g (Typ.)

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BLOCK DIAGRAM



PIN FUNCTION

PIN No.		SYMBOL	FUNCTION DESCRIPTION
P TYPE	F TYPE		
1	1	H _b +	b-phase Hall Amp. positive input terminal
2	2	H _b -	b-phase Hall Amp. negative input terminal
3	3	H _c +	c-phase Hall Amp. positive input terminal
4	5	H _c -	c-phase Hall Amp. negative input terminal
5	10	R _F	Output current detection terminal
6	6	L _c	c-phase drive output terminal
7	11	L _b	b-phase drive output terminal
8	12	V _{CC}	Power supply input terminal
9	13	L _a	a-phase drive output terminal
10	15	FRS	Forward / Reverse / Stop switch terminal
11	16	V _{IN} -	Control Amp, negative input terminal
12	18	V _{IN} +	Control Amp, positive input terminal
13	19	H _a +	a-phase Hall Amp. positive input terminal
14	20	H _a -	a-phase Hall Amp. negative input terminal
Fin	Fin	GND	GND Terminal

FUNCTION

FRS (10 PIN)	POSITION SENSING INPUT			COIL OUTPUT		
	H _a	H _b	H _c	L _a	H _b	L _c
L	1	0	1	H	L	M
	1	0	0	H	M	L
	1	1	0	M	H	L
	0	1	0	L	H	M
	0	1	1	L	M	H
	0	0	1	M	L	H
H	1	0	1	L	H	M
	1	0	0	L	M	H
	1	1	0	M	L	H
	0	1	0	H	L	M
	0	1	1	H	M	L
	0	0	1	M	H	L
M	1	0	1	High Impedance		
	1	0	0			
	1	1	0			
	0	1	0			
	0	1	1			
	0	0	1			

MAXIMUM RATINGS (Ta = 25°C)

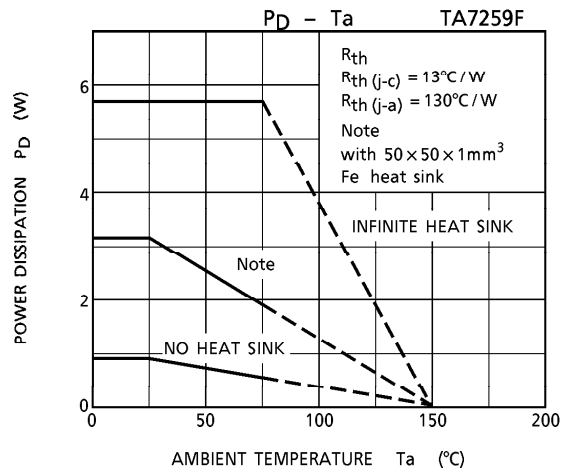
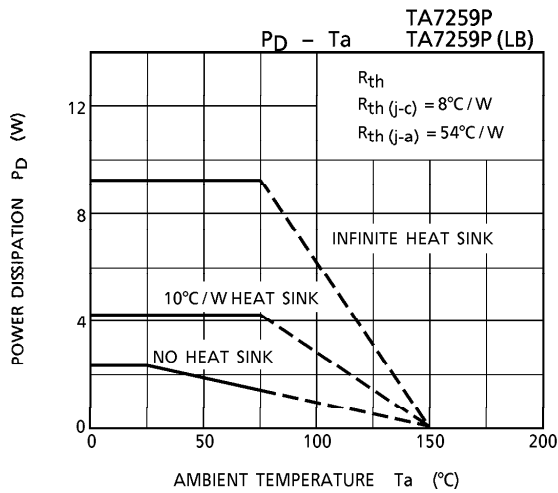
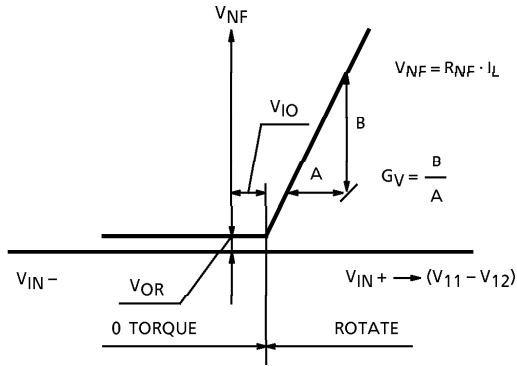
CHARACTERISTIC		SYMBOL	RATING	UNIT
Supply Voltage		V _{CC}	26	V
Output Current		I _O	1.2	A
Power Dissipation (Note)	TA7259P	P _D	2.3	W
	TA7259P (LB)		2.3	
	TA7259F		1.0	
Operating Temperature		T _{opr}	-30~75	°C
Storage Temperature		T _{stg}	-55~150	°C

(Note) No heat sink.

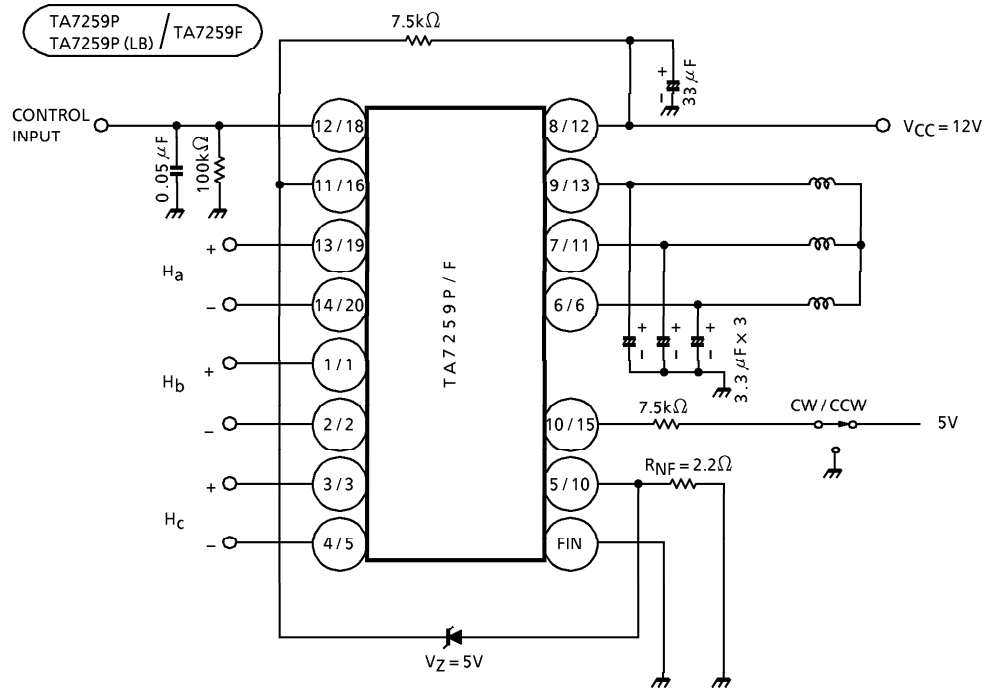
ELECTRICAL CHARACTERISTICS (Unless otherwise specified, $V_{CC} = 12V$, $T_a = 25^\circ C$)

CHARACTERISTIC		SYMBOL	TEST CIR-CUIT	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
Quiescent Current		I_{CC1}	—	FRS open	2	4	7	mA
		I_{CC2}		FRS = 5V	2	5	9	
		I_{CC3}		$V_{CC} = 22V$, FRS = GND	2	5	9	
Input Offset Voltage		V_{IO}	—	—	—	40	—	mV
Residual Output Voltage		V_{OR}	—	$V_{IN-} = V_{IN+} = 7V$	—	0	10	mV
Voltage Gain		G_V	—	$R_{NF} = 2.2\Omega$	—	15.0	—	—
Saturation Voltage	Upper	V_{SAT1}	—	$I_L = 400mA$	—	1.0	1.5	V
	Lower	V_{SAT2}	—		—	0.4	1.0	
Cut-off Current	Upper	I_{OC1}	—	$V_C = 20V$	—	—	20	μA
	Lower	I_{OC2}	—		—	—	20	
Position sensing Input Sensitivity		V_H	—	—	—	10	—	mV
Maximum Position Sensing Input Voltage		$V_H \text{ MAX.}$	—	—	—	—	400	mV _{p-p}
Input Operating Voltage	Position	CMR_H	—	—	2.0	—	$V_{CC} - 2.5$	V
	Control	CMR_C	—	—	2.0	—	$V_{CC} - 2.5$	
Rotation Control Input Voltage	CW	V_F	—	—	—	0	0.4	V
	STOP	V_S	—	—	2.5	3.0	3.5	
	CCW	V_R	—	—	4.5	5.0	5.8	

INPUT vs OUTPUT



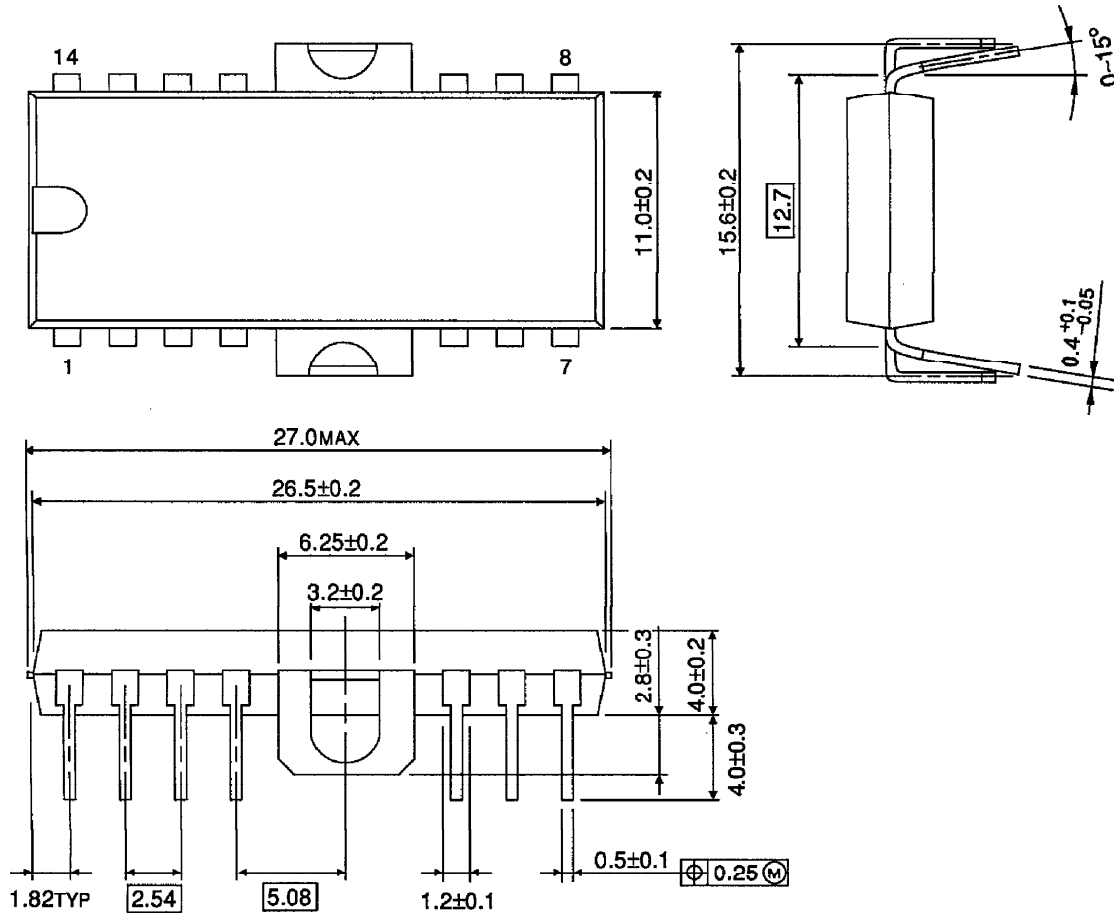
APPLICATION CIRCUIT



(Note) Utmost care is necessary in the design of the output line, V_{CC} and GND line since IC may be destroyed due to short-circuit between outputs, air contamination fault, or fault by improper grounding.

OUTLINE DRAWING
HDIP14-P-500-2.54A

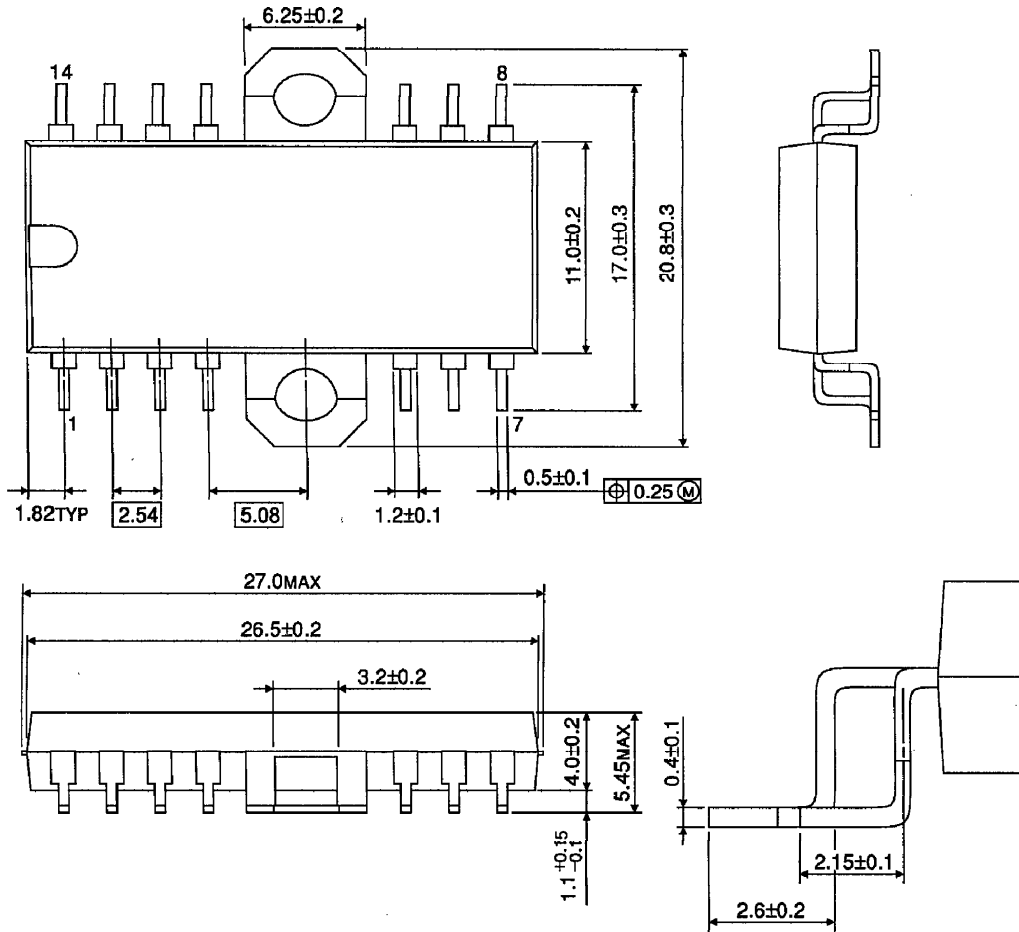
Unit : mm



Weight : 3.00g (Typ.)

OUTLINE DRAWING
HSOP14-P-2.54

Unit : mm

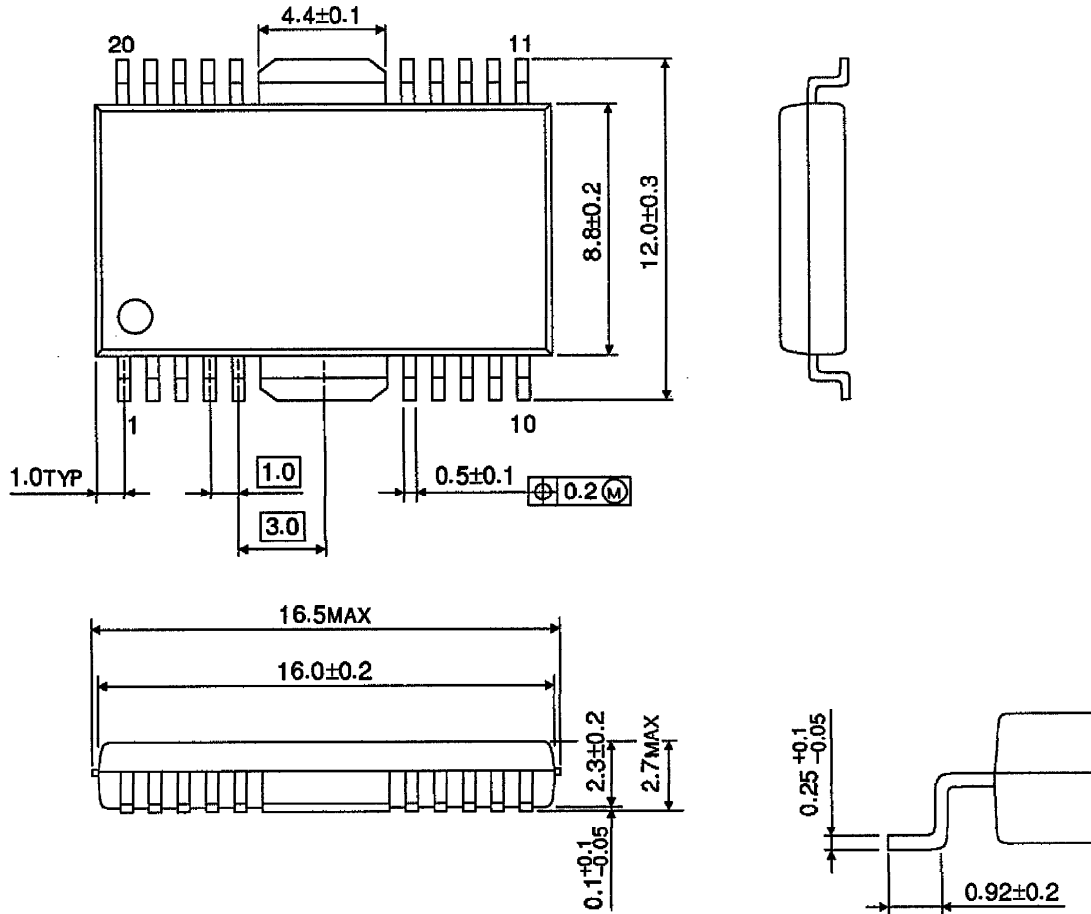


Weight : 3.00g (Typ.)

OUTLINE DRAWING

HSOP20-P-450-1.00

Unit : mm



Weight : 0.79g (Typ.)