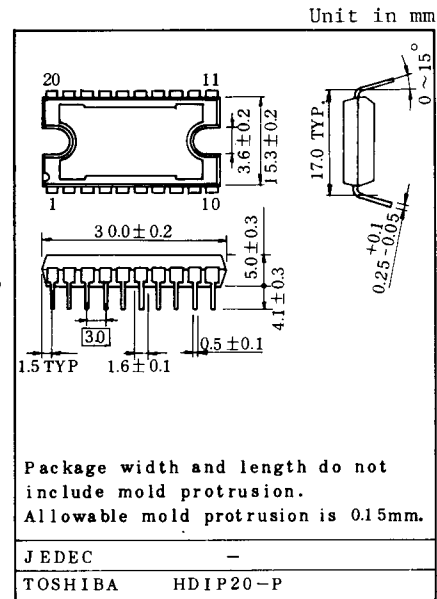# TA7248P

## DC MOTOR DRIVER

The TA7248P is a DC motor (3 phase) driver IC.
It contains regulator, position sensing amplifiers,
control amplifier, quick stop circuit and drivers.
Maximum output current (Bi-direction) of driver is
$\pm 900$mA (average).
Hall element is used as a position sensor.
By combining this IC and TA7674P (or TA7715P) F-servo
motor driver system is available.

FEATURES:

. Driver for Hall Motor (3 phase)
. Large Output Current (Bi-direction)
    : $I_O = \pm 900$mA (average)
. Built-in Reverse Rotation Detector and Quick Stop
  Circuit.
. Regulator for External Circuits
    : $V_{OUT} = 10.7$V, $I_O = 50$mA
. Operating Supply Voltage : $V_{CC} = 16 \sim 32$V

Unit in mm



Package width and length do not
include mold protrusion.
Allowable mold protrusion is 0.15mm.

| JEDEC | — |
|---|---|
| TOSHIBA | HDIP20-P |

MAXIMUM RATINGS (Ta=25°C)

| CHARACTERISTIC | SYMBOL | RATING | UNIT |
|---|---|---|---|
| Supply Voltage | $V_{CC}$ | 35 | V |
| Output Current | $I_O$ | 900 | mA |
| Regulator Output Current | $I_{CC2}$ | 50 | mA |
| Power Dissipation (Note) | $P_D$ | 25 | W |
| Operating Temperature | $T_{opr}$ | $-15 \sim 75$ | °C |
| Storage Temperature | $T_{stg}$ | $-55 \sim 150$ | °C |

Note : Tc=75°C, $P_D$=3W(Max.) at no heat sink (Ta=25°C).

**TOSHIBA CORPORATION**
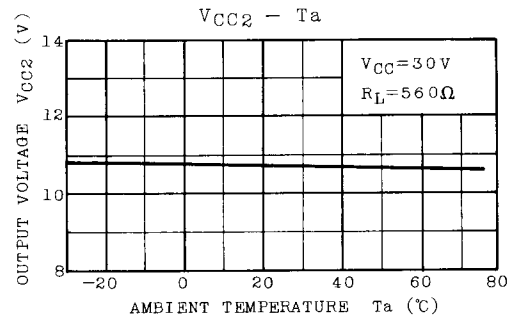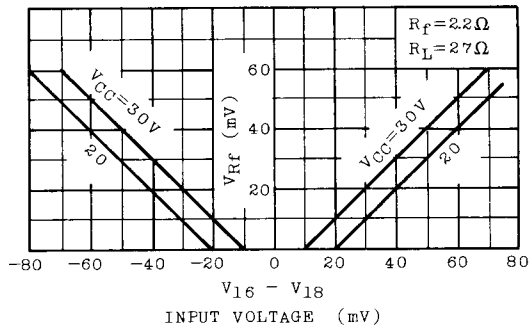
# TA7248P

## BLOCK DIAGRAM
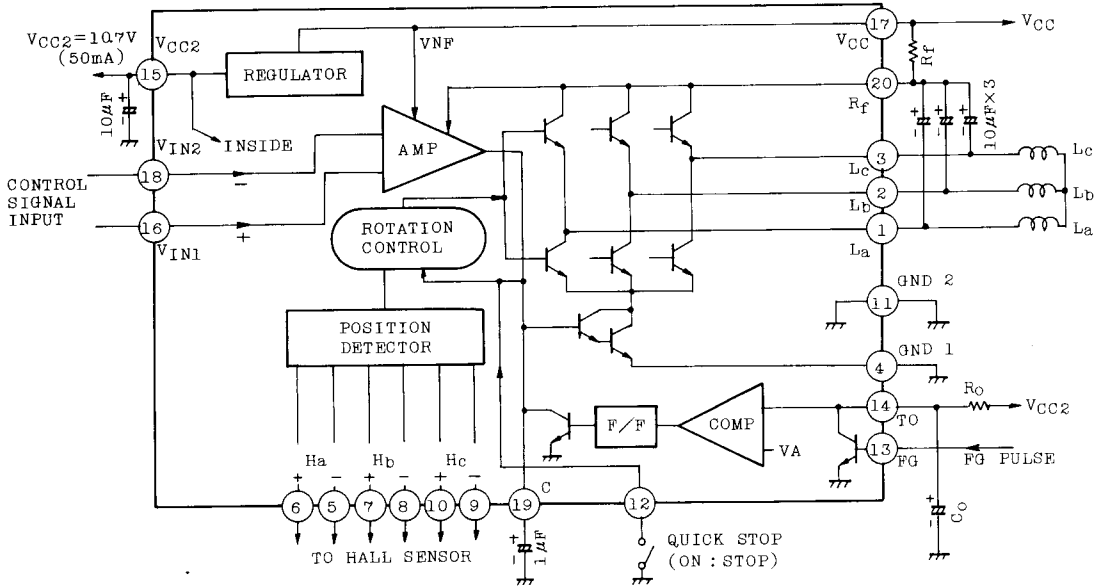


## ELECTRICAL CHARACTERISTICS

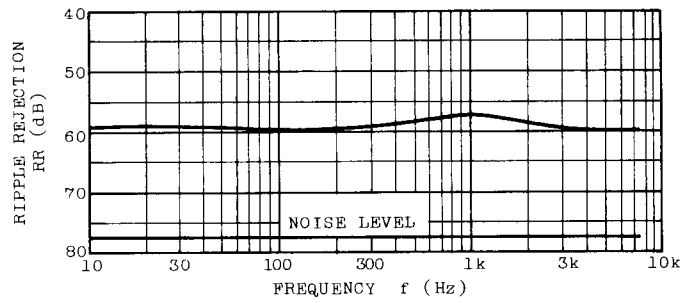(Unless otherwise specified, $V_{CC}=30V$, $R_L=27\Omega$, $R_f=2.2\Omega$, $Ta=25°C$)

| CHARACTERISTIC | | SYMBOL | TEST CIRCUIT | TEST CONDITION | MIN. | TYP. | MAX. | UNIT |
|---|---|---|---|---|---|---|---|---|
| Supply Current | | $I_{CC}$ | 1 | – | 5.5 | – | 13 | mA |
| Input Offset Voltage | | $V_{IO}$ | 2 | | –9 | – | 95 | mV |
| Input Dead Band | | $V_{ID}$ | 2 | $V_{IN2}=3.5V$ | 22 | – | 190 | mV |
| Residual Output Voltage | | $V_{OR}$ | 2 | | – | – | 10 | mV |
| Voltage Gain | | $G_V$ | 2 | | 0.8 | – | 1.2 | |
| Saturation Voltage | Upper | $V_{SAT1}$ | 3 | $V_{IN1}=4.5V$, $V_{IN2}=3.5V$ | – | – | 2.1 | V |
| | Lower | $V_{SAT2}$ | | | – | – | 3.8 | |
| Cut-off Current | Upper | $I_{OC1}$ | 4 | $V_{IN1}=4.5V$, $V_{IN2}=3.5V$ $R_L=100k\Omega$ | – | – | 15 | $\mu A$ |
| | Lower | $I_{OC2}$ | | | – | – | 15 | |
| To Threshold Voltage | | $V_{TO}$ | 5 | – | 6.2 | – | 7.3 | V |
| To Saturation Voltage | | $V_{SAT\ TO}$ | 5 | $R_L=6k\Omega$ | – | – | 2 | V |
| Output Voltage | | $V_{CC2}$ | 6 | $R_L=560\Omega$ | 10.2 | 10.7 | 11.2 | V |
| Load Regulation Voltage | | $\varDelta V_{CC2}$ | 6 | $R_L=560\Omega\sim\infty$ | – | – | 60 | mV |
| Ripple Rejection | | RR | 6 | $R_L=560\Omega$, $f=1kHz$ | 50 | – | – | dB |
| Temperature Coefficient | | $Tc\ V_{CC2}$ | 6 | $R_L=560\Omega$ | –2 | – | 2 | mV/deg |

INPUT OUTPUT CHARACTERISTICS

$R_f = 2.2\Omega$
$R_L = 27\Omega$

$V_{CC} = 30V$
20
$V_{Rf}$ (mV)
60
40
20
$V_{CC} = 30V$
20

$V_{16} - V_{18}$
INPUT VOLTAGE (mV)

$V_{CC2} - Ta$

OUTPUT VOLTAGE $V_{CC2}$ (V)

$V_{CC} = 30V$
$R_L = 560\Omega$

AMBIENT TEMPERATURE Ta (℃)

RR — f

RIPPLE REJECTION RR (dB)

NOISE LEVEL

FREQUENCY f (Hz)

$Z_O - f$

OUTPUT IMPEDANCE $Z_O$ ($\Omega$)

FREQUENCY f (Hz)

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# TA7248P

APPLICATION CIRCUIT



R<sub>A</sub> and R<sub>B</sub> should be determined by characteristic of hall sensor.