

# TA8486F

## DRIVER FOR LOW-SATURATION VOLTAGE MOTORS

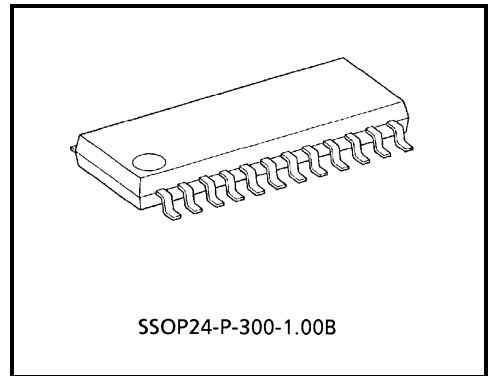
The TA8486F is a multi-chip IC containing ten low-saturation voltage discrete transistors.

The TA8486F is perfect as a driver for low-saturation driven motor drive transistors. 2.0 A is possible as the output current. Care must be taken over thermal conditions during usage.

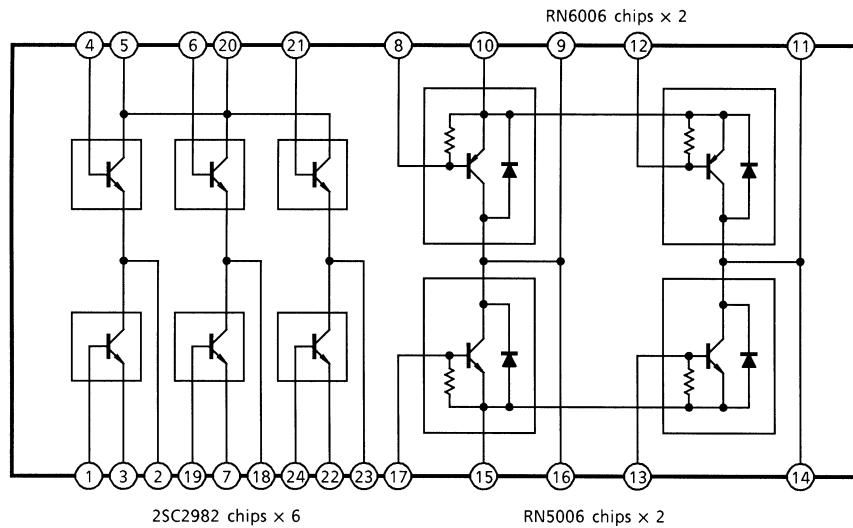
### FEATURES

- Most suitable as a high-efficiency motor driver circuit
- Enclosed in a compact package: SSOP24.

### BLOCK DIAGRAM

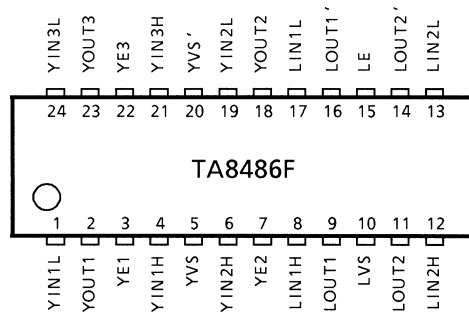


Weight: 0.27 g (Typ.)



Note: Short circuiting between output and line to ground faults may result in damage to the IC. Ensure that great care is taken during the design of the output line,  $V_M$ ,  $V_S$ ,  $V_{EE}$  and the GND line.

## PIN ASSIGNMENTS (TOP VIEW)



## MAXIMUM RATINGS (Ta = 25°C)

### H-bridge

CHARACTERISTIC	SYMBOL	RATING	UNIT
Power Voltage	V <sub>CC</sub>	10	V
Voltage Between the Collector and Base	V <sub>CB0</sub>	10	V
Voltage Between the Collector and Emitter	V <sub>CER</sub>	10	V
Voltage Between the Emitter and Base	V <sub>EBO</sub>	6	V
Output Transistor Current	I <sub>OUT</sub>	2	A
Base Current	I <sub>B</sub>	±0.4	A
Diode Forward Current	I <sub>F</sub>	2 (Note 1)	A
Power Dissipation	P <sub>D</sub>	830 (Note 2)	mW
Connection Temperature	T <sub>j</sub>	150	°C
Operating Temperature	T <sub>opr</sub>	-40~85	°C
Storage Temperature	T <sub>stg</sub>	-55~150	°C

Note 1: T = 10 ms one-shot pulse

Note 2: Unit (package total)

## Three-phase motor

CHARACTERISTIC	SYMBOL	RATING	UNIT
Power Voltage	$V_{CC}$	15	V
Voltage Between the Collector and Base	$V_{CBO}$	15	V
Voltage Between the Collector and Emitter	$V_{CER}$	15	V
Voltage Between the Emitter and Base	$V_{EBO}$	6	V
Output Transistor Current	$I_O$	2	A
Base Current	$I_B$	0.4	A
Power Dissipation	$P_D$	830 (Note 1)	mW
Connection Temperature	$T_j$	150	°C
Operating Temperature	$T_{opr}$	-40~85	°C
Storage Temperature	$T_{stg}$	-55~150	°C

Note 1: Unit (package total)

## ELECTRICAL CHARACTERISTICS (Ta = 25°C)

### H-bridge

CHARACTERISTICS		SYMBOL	TEST CIR-CUIT	TEST CONDITION	MIN	TYP.	MAX	UNIT
Direct Current Amplification		$h_{FE(1)}$	—	$V_{CE} = 1\text{ V}, I_C = 0.5\text{ A}$	160	—	600	—
		$h_{FE(2)}$	—	$V_{CE} = 1\text{ V}, I_C = 2.0\text{ A}$	60	130	—	
Output Saturation Voltage	Upper	$V_{CE(sat)}$	—	$I_C = -1\text{ A}, I_B = -25\text{ mA}$	—	-0.15	-0.25	V
	Lower			$I_C = 1\text{ A}, I_B = 25\text{ mA}$	—	0.25	0.35	
	Upper and Lower			$I_C = 1\text{ A}, I_B = 25\text{ mA}$	—	0.4	0.6	
Transition Frequency		$f_T$	—	$V_{CE} = 2\text{ V}, I_C = 0.5\text{ A}$	—	150	—	MHz
Output Leak Current	Upper	$I_{OL}$	—	$V_{CC} = -10\text{ V}$	—	0	-5	$\mu\text{A}$
	Lower			$V_{CC} = 10\text{ V}$	—	0	5	
Diode Forward Voltage	Upper	$V_F$	—	$I_F = 300\text{ mA}$	—	1.1	1.3	V
	Lower			$I_F = 300\text{ mA}$	—	1.1	1.3	
Resistance Between the Base and Emitter		$R_{BE}$	—	—	7	10	13	k $\Omega$
Voltage Between the Base and Emitter		$V_{BE(PNP)}$	—	$V_{CE} = -1\text{ V}, I_C = -2\text{ A}$	—	-0.84	-1.5	V
		$V_{BE(NPN)}$	—	$V_{CE} = 1\text{ V}, I_C = 2\text{ A}$	—	0.84	1.5	

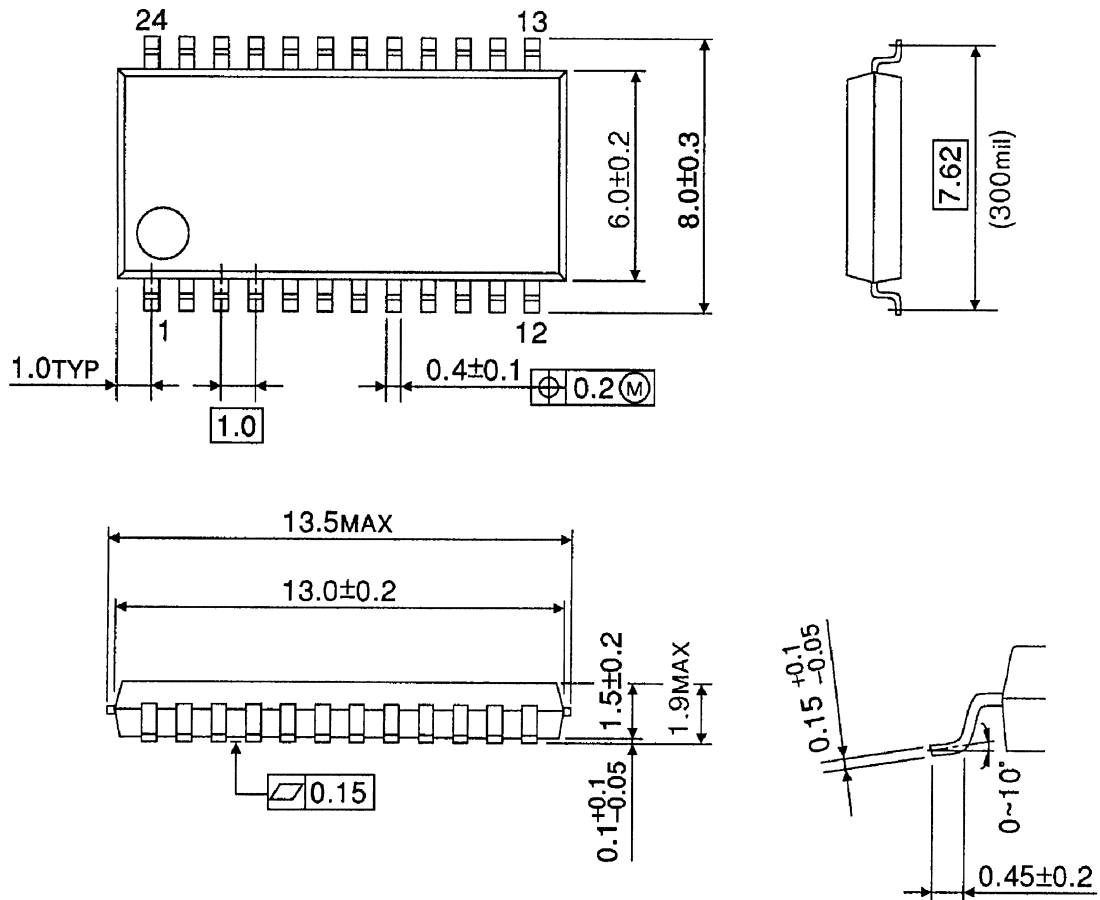
## Three-phase motor

CHARACTERISTICS		SYMBOL	TEST CIR-CUIT	TEST CONDITION	MIN	TYP.	MAX	UNIT
Direct Current Amplification		$h_{FE} (1)$	—	$V_{CE} = 0.4 \text{ V}, I_C = 30 \text{ mA}$	160	—	600	—
		$h_{FE} (2)$	—	$V_{CE} = 0.4 \text{ V}, I_C = 0.2 \text{ A}$	160	—	600	
h <sub>FE</sub> Ratio		$h_{FE} (1) / h_{FE} (2)$	—	$V_{CE} = 0.4 \text{ V}, I_C = 30 \text{ mA}$ $V_{CE} = 0.4 \text{ V}, I_C = 0.2 \text{ A}$	0.75	—	1.25	—
Output Saturation Voltage	Upper	$V_{CE} (\text{sat})$	—	$I_C = 1 \text{ A}, I_B = 25 \text{ mA}$	—	0.2	0.35	V
	Lower			$I_C = 1 \text{ A}, I_B = 25 \text{ mA}$	—	0.2	0.35	
	Upper and Lower			$I_C = 1 \text{ A}, I_B = 25 \text{ mA}$	—	0.4	0.7	
Transition Frequency		$f_T$	—	$V_{CE} = 2 \text{ V}, I_C = 0.5 \text{ A}$	—	140	—	MHz
Output Leak Current	Upper	$I_{OL}$	—	$V_{CC} = 15 \text{ V}$	—	0	10	$\mu\text{A}$
	Lower			$V_{CC} = 15 \text{ V}$	—	0	10	
Voltage Between the Base and Emitter		$V_{BE} (\text{NPN})$	—	$V_{CE} = 1 \text{ V}, I_C = 2 \text{ A}$	—	0.84	1.5	V

## PACKAGE DIMENSIONS

SSOP24-P-300-1.00B

Unit: mm



Weight: 0.27 g (Typ.)

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