

TA8486F

DRIVER FOR LOW-SATURATION VOLTAGE MOTORS

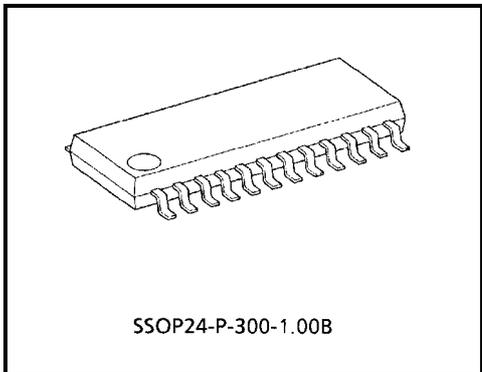
The TA8486F is a multi-chip IC containing ten low-saturation voltage discrete transistors.

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.

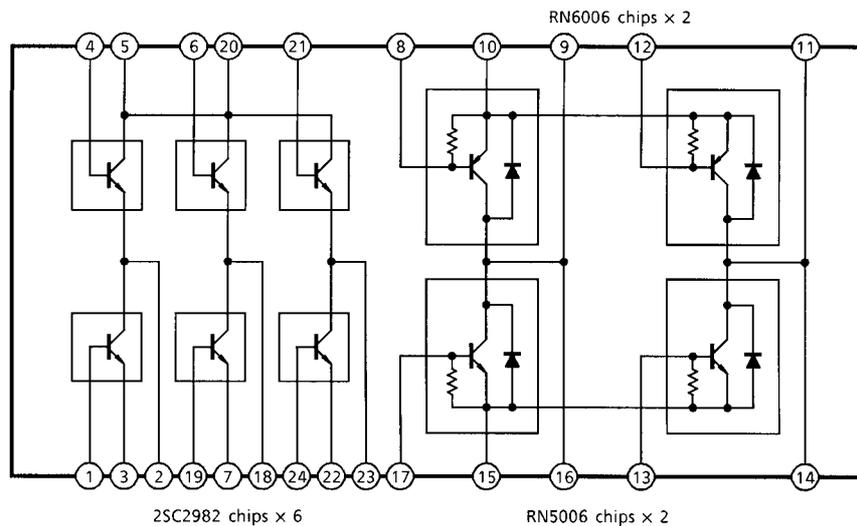
FEATURES

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

BLOCK DIAGRAM

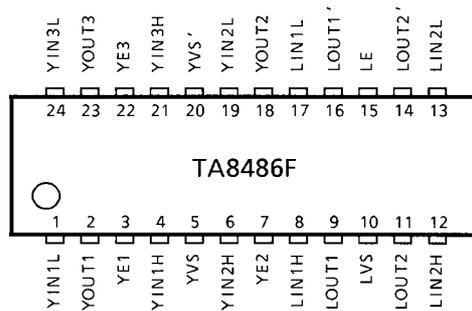


Weight: 0.27 g (Typ.)



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_{CC} (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 _{CC}	10	V
Voltage Between the Collector and Base	V _{CB0}	10	V
Voltage Between the Collector and Emitter	V _{CER}	10	V
Voltage Between the Emitter and Base	V _{EBO}	6	V
Output Transistor Current	I _{OUT}	2	A
Base Current	I _B	±0.4	A
Diode Forward Current	I _F	2 (Note 1)	A
Power Dissipation	P _D	830 (Note 2)	mW
Connection Temperature	T _j	150	°C
Operating Temperature	T _{opr}	-40~85	°C
Storage Temperature	T _{stg}	-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	μA
	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 Ω
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	

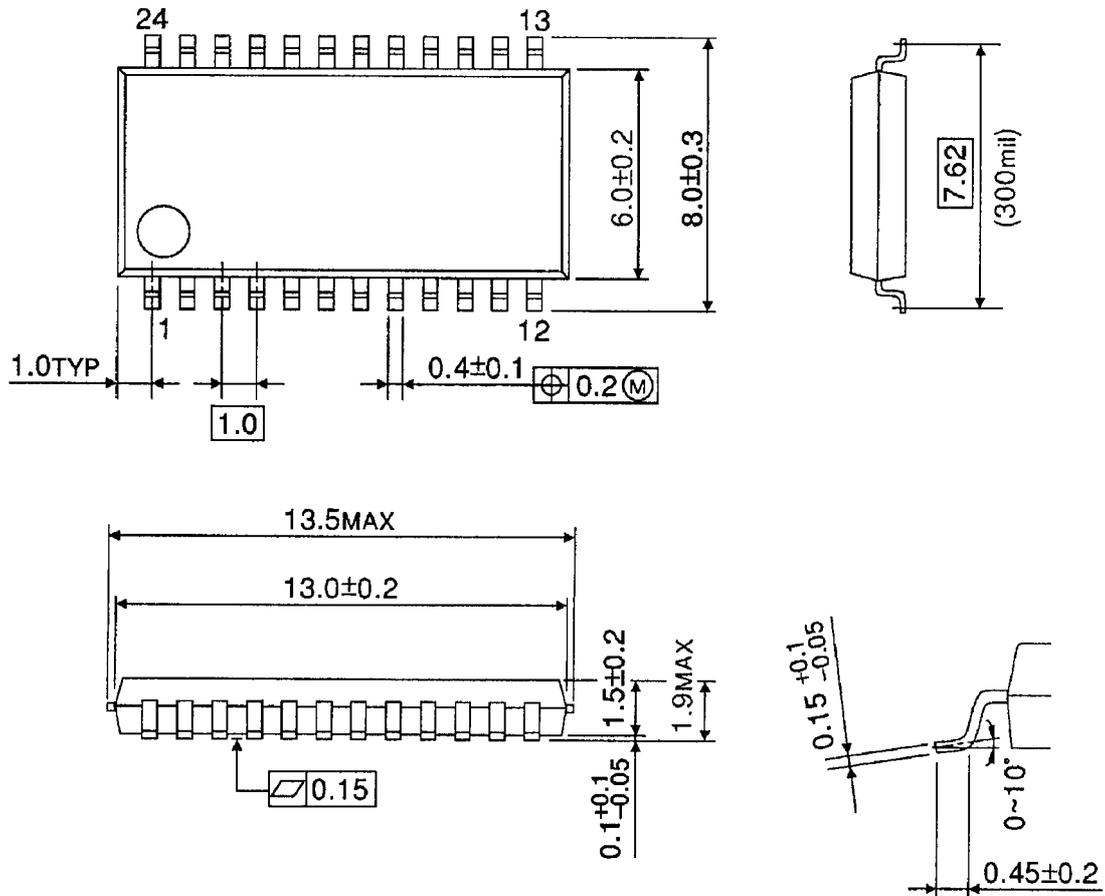
Three-phase motor

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_{FE} 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	μA
	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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