MTD1361F

Unipolar motor driver IC (DMOS output)

Features

- Unipolar drive system
- DMOS output (low loss and low generation of heat)
- TTL and CMOS compatible gate
- 4-phase input (simultaneous ON prevention function)
- Constant current control
- Integrated flywheel diodes and no external Zener diode needed
- Surface mount type package with heatsink (HSOP28)

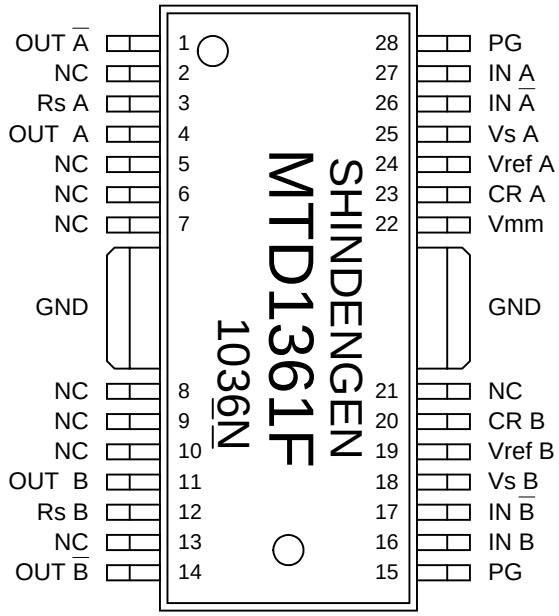
HSOP-28

■ Absolute maximum ratings / Ta=25℃

Parameter	Symbol	Rating	Unit
Logic input voltage	V_{IN}	-0.3 to 6	V
DMOS output breakdown voltage	V_{DSS}	68	V
Flywheel diode voltage	V_R	68	V
Output current	I_D	1.2	A
Flywheel diode current	I_F	1.2	A
Power dissipation*	P_T	5	W
Strage temperature range	Tstg	-40 to 150	℃
Junction temperature range	Tj	150	℃

*Mounted on glass epoxy board (50.8×50.8×1mm)

■ Pin assignment



■ Truth table

IN A or B	IN $\overline{A}$ or $\overline{B}$	OUT A or B	OUT $\overline{A}$ or $\overline{B}$
L	L	OFF	OFF
L	H	ON	OFF
H	L	OFF	ON
H	H	OFF	OFF

■ Electrical characteristics / Ta=25℃

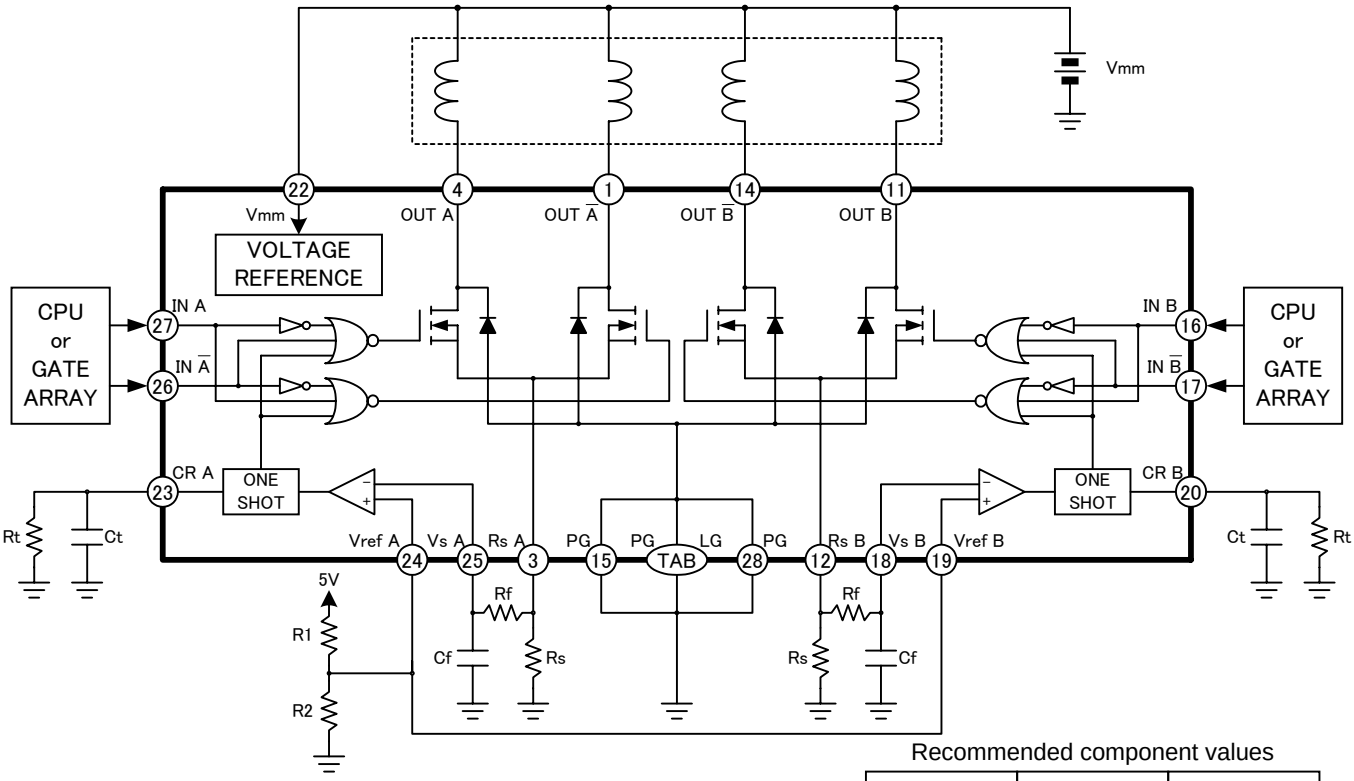
Parameter	Symbol	Condition	MIN	TYP	MAX	Unit
Load supply	Vmm		15.0		30.0	V
Load supply current	Imm	Vmm=24V		18.0		mA
"L" input voltage	Vin (L)	Vmm=24V			0.8	V
"H" input voltage	Vin (H)	Vmm=24V	2.0			V
"L" input current	Iin (L)	Vmm=24V, Vin=0V			-50.0	μA
"H" input current	Iin (H)	Vmm=24V, Vin=5V			10.0	μA
Vs input current	Is（L)	Vmm=24V, Vs=0V			-50.0	μA
Vref input current	Iref（L)	Vmm=24V, Vref=0V			-50.0	μA
Vref input voltage	Vref	Vmm=24V			1.5	V
Output saturation voltage	Vdson	Id＝1.2A		0.96		V
Flywheel diode forward drop	Vf	If＝1.2A		1.5		V
One shot OFF time	Toff	Ct＝3300pF、Rt＝8.2kΩ		18.7		μs

■ Thermal resistance

Symbol	Rating	Unit
θja *	41	℃/W

*Mounted on glass epoxy board (50.8×50.8×1mm)

■ Internal equation circuits / Typical application



Recommended component values

Symbol	Value	Unit
Rs	0.68	Ω
Rt	8.2	kΩ
Ct	3300	pF
Rf	1	kΩ
Cf	3300	pF
R1+R2	≦10	kΩ

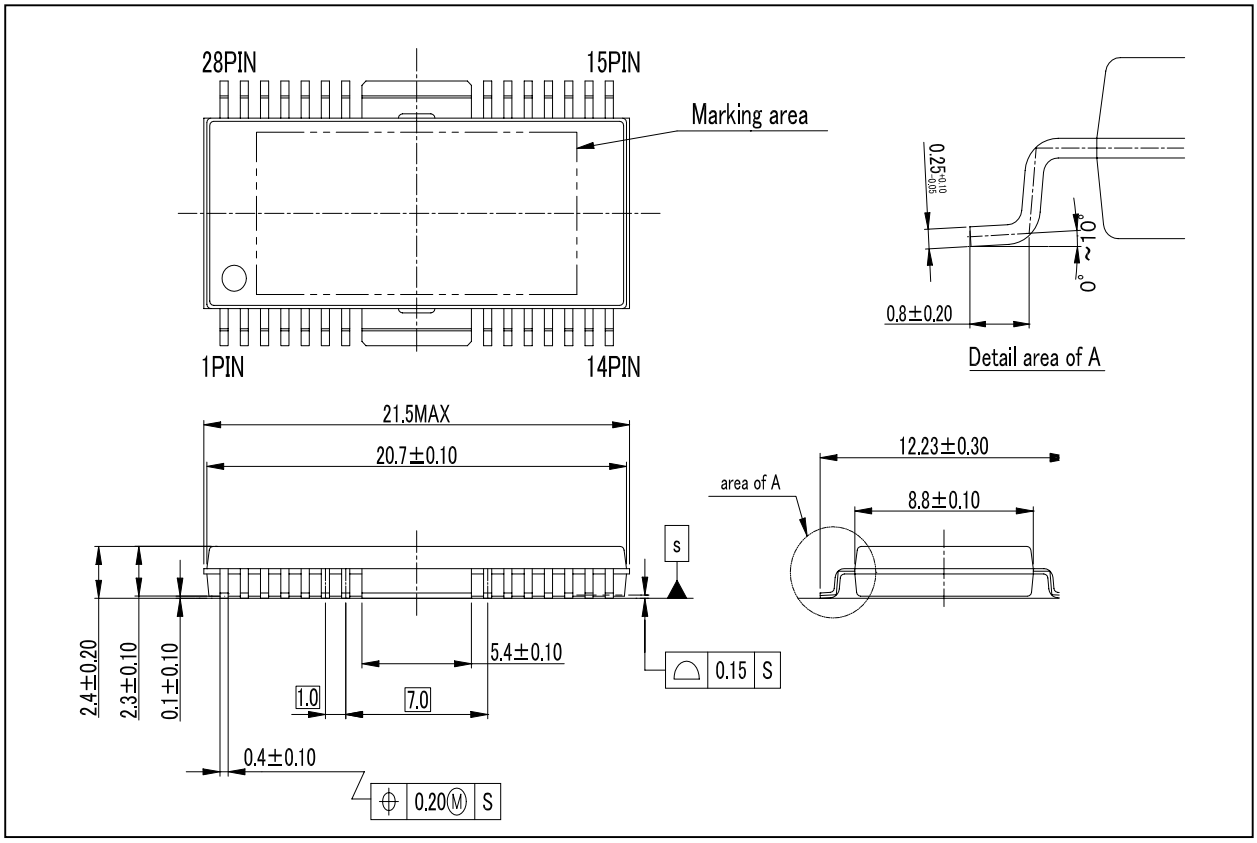
Constant chopping current level

$$Io = \frac{Vref}{Rs}$$

One Shot OFF time

$$Toff = 0.69CtRt$$

■ Outline dimension



(Unit : mm)

■ This device fully meets the reliability and quality control standards described in our company's catalog. If this device is to be used in a situation where its misuse or failure might cause serious injury or death, consult with our company.
Reliability and quality control standards for this device are considered adequate when it is used with the following type of end equipment.
Standard applications
Computers, OA and other office equipment, Communication terminal, Measurement machine tools, Audio-visual, Game and other amusements, Household electric appliances, Personal items, Industrial robot, etc.
Special applications where the device may or not be suitable include the following.
Transportation and conveyance (cargo loading) equipment, Primary communications equipment, Traffic signal control equipment, Fire and burglary alarms, Various safety devices, Medical equipment, etc.
Other special applications where the device reliability is not considered high enough include the following.
Atomic power control systems, Aviation equipment, Aerospace equipment, Submarine relay equipment, Life support equipment, etc.

■ Our company makes a constant effort to improve the quality and reliability of our products. However, it is the customer's responsibility to provide safety. Take the appropriate steps to prevent personal injury, fire, and damage by providing redundancy equipment, fire containment equipment, and devices to protect personnel and equipment from operational mistakes.

If you want to any more detail information and design application, please contact sales office regarding any questions you may have.
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