

MIP403(Tentative)

Silicon MOS IC

■ Features

- High breakdown voltage N-Ch MOS FET built-in ($V_{DSS} > 400V$)
- Over-current, over input voltage, and over output voltage protective functions built-in
- For the power supply of a half-wave or of full-wave rectification of AC
- DC-5V, 25mA output is available from half-wave rectified-input of AC 100V by the constant voltage (external).

■ Applications

- Non-isolated power supply (for microcomputer of home electric appliances)

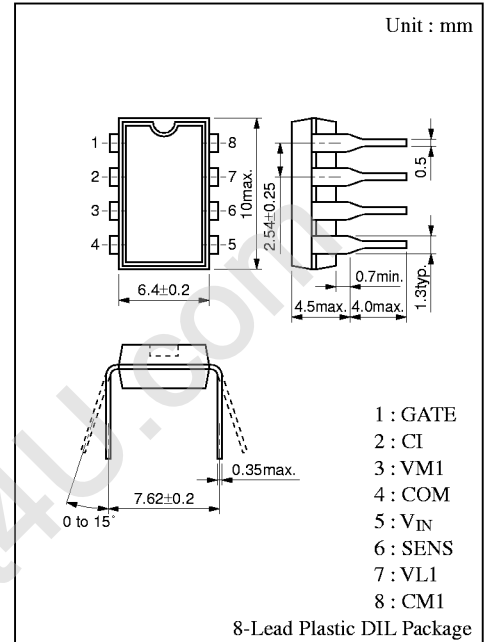
■ Absolute Maximum Ratings ($T_a = 25^\circ C$)

Parameter	Symbol	Rating	Unit
Input voltage	V_{IN}	- 400	V
Output breakdown voltage	CM1 * 1	400	V
Output current	I_D	1.2	A
Each pin voltage	VL1	-15 to 0.3	V
	VM1	-15 to 0.3	V
	CI	$V_{IN} - 0.3$ to $V_{IN} + 5$	V
	GATE	$V_{IN} - 0.3$ to $V_{IN} + 15$	V
	SENS	$V_{IN} - 0.7$ to $V_{IN} + 0.7$	V
Allowable power dissipation	P_D	0.8 * 2 1.2 * 3	W
Operating ambient temperature	T_{opr}	- 20 to + 85	$^\circ C$
Junction temperature	T_j	- 20 to + 150	$^\circ C$
Storage temperature	T_{stg}	- 55 to + 150	$^\circ C$

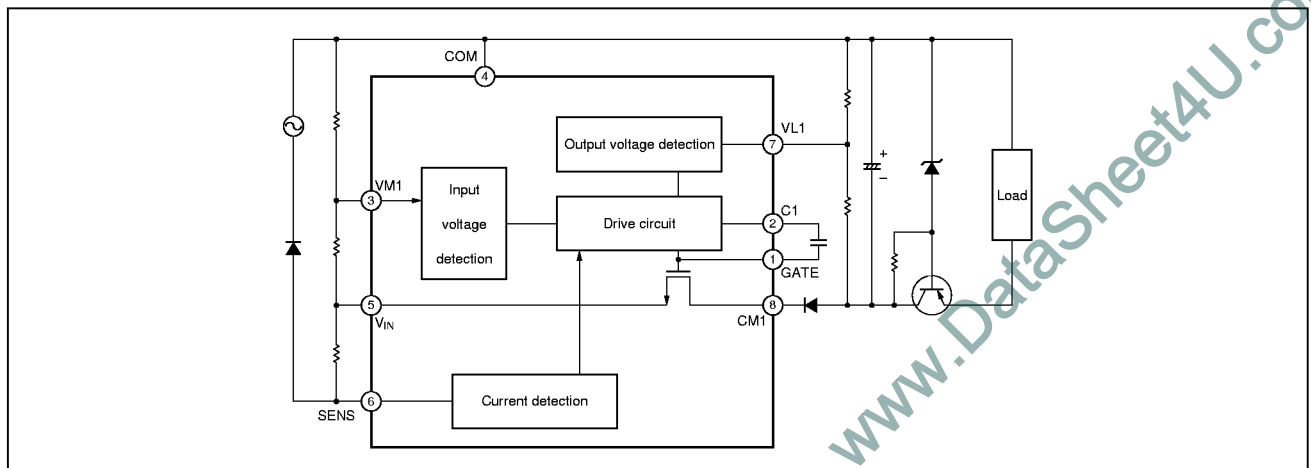
* 1: The output breakdown voltage reference is the V_{IN} pin. COM pin is used as reference for other pins.

* 2: Without heat sink

* 3: At mounted on the $2 \times 5cm^2$ glass epoxy PCB.



■ Block Diagram



■ Electrical Characteristics (T_c= 25± 2°C)

Parameter	Symbol	Condition	Min	Typ	Max	Unit
Maximum output current	I _{DP}	V _{IN} = 0V, CM1= 50V, GATE=10V	0.8			A
Output ON-resistance	R _{ON}	V _{IN} = 0V, GATE=10V, I _D = 0.8A			10	Ω
Output breakdown voltage	CM1	V _{IN} = 0V	400			V
Output-Off leakage current	I _{D (OFF)}	V _{IN} = 0V, CM1= 400V			10	μA
Sense current	I _{SENS}	R _{SENS} =2Ω, V _{IN} = - 40V, COM= 0V		800		mA
Sense current variation	ΔI _{SENS}	R _{SENS} = 2Ω, V _{IN} = - 40 to 30V, COM= 0V	- 5	0	5	%
Comparator voltage	VL1 _(TH)	V _{IN} = - 50V, COM=VL1= 0V		- 8		V
	VM1 _(TH)	V _{IN} = - 50V, COM=VL1= 0V		- 8		V
Circuit-OFF current	I _{IN (OFF)}	V _{IN} = -100V, COM=VM1=VL1= 0V		0.5	1	mA
Output-ON voltage range	V _{IN (ON)}	V _{IN} =100VAC, COM= 0V	- 50		0	V
Recommended operating supply voltage range	V _{IN}	AC= 60Hz/50Hz	70	100	115	VAC

■ Pin Descriptions

Pin No.	Symbol	Description
1	GATE	MOS FET gate pin
2	CI	Oscillation-prevention capacitor connection pin. Connect a capacitor between gate and this pin.
3	VM1	Input-voltage detection pin. Apply the input voltage after deviding with resistor.
4	COM	GND pin
5	V _{IN}	Output-MOS FET source-pin. Connect the current detection resistor between this and No.6 pin.
6	SENS	Current detection pin. Apply the AC voltage after rectification.
7	VL1	Output voltage detection pin. Apply the output voltage after deviding with the resistor.
8	CM1	Output-MOS FET drain pin. The diode is connected between this pin and output capacitor to allow the current flow from the capacitor to MOS FET-drain only.

Note : This is the tentative development specification and may be changed without notice.
Refer to the update product specification when final design is to be established.