MIP504

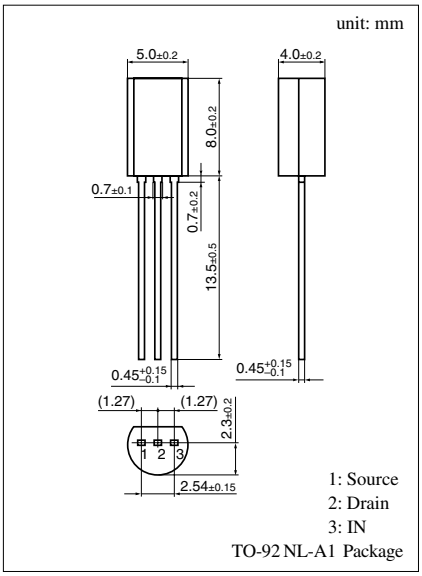
Silicon MOS IC

■ Features

- 3-pin intelligent power device
- Five protective functions (over-current, over-voltage, short circuit load, over heat, ESD) are integrated
- Acceptable both AC and DC power supply

■ Applications

- Lamp drive



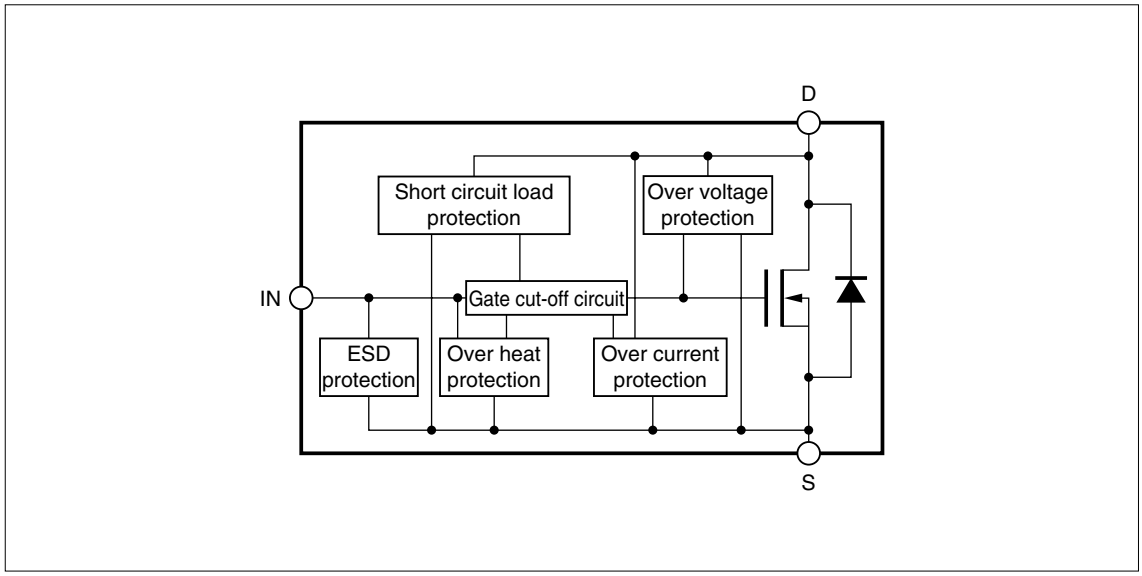
■ Absolute Maximum Ratings (Ta = 25°C)

Parameter	Symbol	Ratings	Unit
Drain to Source voltage	V_{DS}	60	V
Output peak current	I_{OP}	±5	A
Output current	I_O	−1 to 2*1	A
Input voltage	V_{IN}	− 0.5 to 6	V
Input current	I_{IN}	±10	mA
Allowable power dissipation	P_D	1*2	W
Operating ambient temperature	T_{opr}	−40 to +85	°C
Channel temperature	T_{ch}	150	°C
Storage temperature	T_{stg}	−55 to +150	°C

*1 Maximum load current, not the average current.

*2 Mounting on the PCB (Glass epoxy board, the size of 100mm × 100mm). (Ta = 25°C)

■ Block Diagram



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

Parameter	Symbol	Conditions	min	typ	max	Unit
Drain to Source ON-resistance	$R_{DS(on)}$	V_{IN} = 5V, I_{DS} = 1.5A		0.38	0.5	Ω
Drain to Source ON-voltage	$V_{DS(on)}$	V_{IN} = 5V, I_{DS} = 1.5A		0.57	0.75	V
Drain clamp voltage	$V_{DS(CLP)}$	V_{IN} = 0, I_{DS} = 3mA	60	70		V
Drain OFF current (1)	$I_{DS(off)1}$	V_{IN} = 0, V_{DS} = 12V		50	80	µA
Drain OFF current (2)	$I_{DS(off)2}$	V_{IN} = 0, V_{DS} = 25V		0.1	0.16	mA
Drain OFF current (3)	$I_{DS(off)3}$	V_{IN} = 0, V_{DS} = 40V		0.16	0.26	mA
Input voltage (High)	$V_{IN(H)}$	I_{DS} = 1.5A	4			V
Input voltage (Low)	$V_{IN(L)}$	I_{DS} = 0.1mA			0.8	V
Input current	$I_{IN(on)}$	V_{IN} = 5V, V_{DS} = 0		0.15	0.5	mA
Over current protection limit	I_{OCP}	V_{IN} = 5V, V_{DS} = 3V	3.8	5		A
Short circuit load protection limit	$V_{DS(SHT)}$	V_{IN} = 5V	3			V

Note: The oscillation of the output current is caused when the drain voltage exceeds the short circuit load detection voltage under the ON state of output.

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

Parameter	Symbol	Conditions	min	typ	max	Unit
Over heat protection temperature	T_{SHD}	V_{IN} = 5V		140		°C

Note 1: The above values of characteristics are not guaranteed values and are only references for designing.

Note 2: If the chip temperature exceeds the "Over Heat Protection Temperature", output current is shut down.

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