MIP516

Silicon MOSFET type integrated circuit

Features

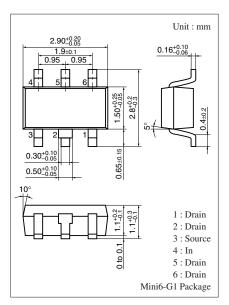
- Built-in five protection functions. (over-current, over-voltage, load-short-circuit, over heat, ESD)
- Driving directly from CMOS (microcomputer) is possible.
- It is exchangeable easily from a bipolar transistor and MOSFET
- The miniaturized package equipped with three terminals was adapted.

Applications

- Lamp-Solenoid, driver
- Motor driver

Parameter Symbol Rating Unit						
Гагапісісі	Oymbol	riating	Unit			
Drain-source voltage	V _{DS}	- 0.5 to +45	V			
Output current	Io	1.0	А			
Input voltage	V _{IN}	- 0.5 to +6.0	V			
Input current	I _{IN}	±2	mA			
Drain clamp energy endurance *1	E _{CLP}	13	mJ			
Power dissipation 1 *2	P _{D1}	0.2	W			
Power dissipation 2 *3	P _{D2}	0.8	W			
Operating ambient temperature	T _{opr}	-40 to +85	°C			
Channel temperature	T _{ch}	150	°C			
Storage temperature	T _{stg}	-55 to +150	°C			

Absolute Maximum Ratings $T_C = 25^{\circ}C \pm 3^{\circ}C$



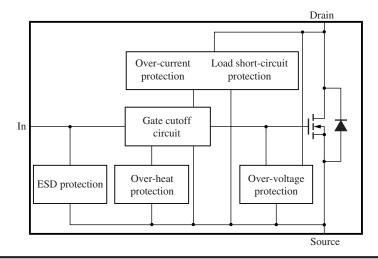
Marking Symbol: MB

Note) *1: L = 10 mH, I_L = 1.61 A, V_{DD} = 20 V, 1 pulse, T_C = 25°C

*2: Single unit

*3: Mounting on the PCB (40 mm², thickness 1.7mm glass epoxy substrate) ($T_a = 25^{\circ}C$)

Block Diagram



Electrical Characteristics $T_C = 25^{\circ}C \pm 3^{\circ}C$

Parameter	Symbol	Conditions	Min	Тур	Max	Unit
Drain-source ON resistance	R _{DS(on)}	$V_{IN} = 5 V, I_{DS} = 1 A$		0.70	0.90	Ω
Drain-source voltage	V _{DS(on)}	$V_{IN} = 5 V, I_{DS} = 1 A$		0.70	0.90	V
Drain clamp voltage	V _{DS(CLP)}	$V_{IN} = 0 V, I_{DS} = 3 mA$	45	52		V
Drain-source cutoff current 1	I _{DS(off)1}	$V_{IN} = 0 V, V_{DS} = 12 V$		0.01	5.00	μΑ
Drain-source cutoff current 2	I _{DS(off)2}	$V_{IN} = 0 V, V_{DS} = 25 V$		0.02	8.00	
Drain-source cutoff current 3	I _{DS(off)3}	$V_{IN} = 0 V, V_{DS} = 40 V$		0.08	10.00	
Input voltage high-level	V _{IN(H)}	$I_{\rm DS}=0.5~{\rm A}$	4			V
Input voltage low-level	V _{IN(L)}	$I_{DS} = 1 \text{ mA}$			0.80	V
Input current (normal)	I _{IN(on)}	$V_{IN} = 5 V, V_{DS} = 0 V$		0.3	0.5	mA
Input current (act on protection) *	I _{IN(PROT)}	$V_{IN} = 5 V$		0.75	1.10	mA
Over current protection limit	I _{OCP}	V _{IN} = 5 V	1.1	1.7		А
Short circuit load protection limit	V _{DS(SHT)}	V _{IN} = 5 V	1.0	1.6		V
Input voltage of act on protection	V _{IN(PROT)}		4.0	6.0		V

Note) 1. At on-state when drain voltage exceeds the "Short circuit load protection voltage", output current begin to oscillate.

2. When drain voltage exceeds the "drain clamp voltage" output MOS turn on, so drain voltage are clamped before the drain-source junction become breakdown

3. *: State of short circuit laod protection and over heat protection (designed guarantee).

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