

TOSHIBA

MP4201

TOSHIBA POWER MOS FET MODULE SILICON N CHANNEL MOS TYPE (L²-π-MOSIII 4 IN 1)

MP4201

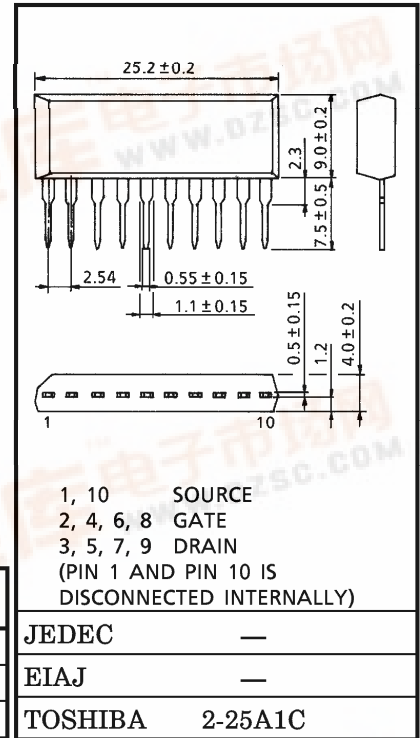
HIGH POWER, HIGH SPEED SWITCHING APPLICATIONS

HAMMER DRIVE, PULSE MOTOR DRIVE AND INDUCTIVE LOAD SWITCHING

INDUSTRIAL APPLICATIONS

Unit in mm

- 4V Gate Drive Available
- Small Package by Full Molding (SIP 10 Pin)
- High Drain Power Dissipation (4 Devices Operation)
: $P_T = 4W$ ($T_a = 25^\circ C$)
- Low Drain-Source ON Resistance : $R_{DS(ON)} = 0.33\Omega$ (Typ.)
- Low Leakage Current : $I_{GSS} = \pm 5\mu A$ (Max.) ($V_{GS} = \pm 16V$)
 $I_{DSS} = 100\mu A$ (Max.) ($V_{DS} = 120V$)
- Enhancement-Mode : $V_{th} = 0.8 \sim 2.0V$ ($I_D = 1mA$)

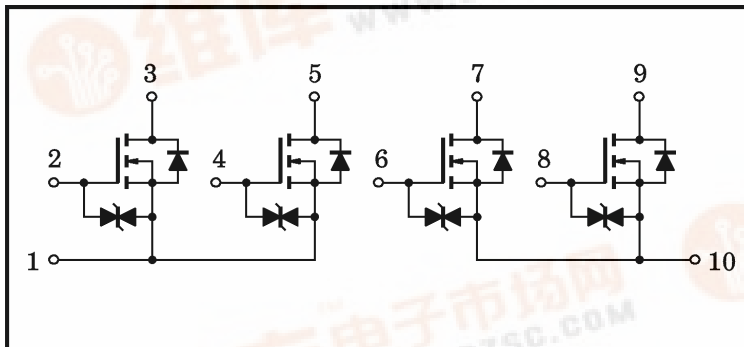


MAXIMUM RATINGS ($T_a = 25^\circ C$)

CHARACTERISTIC	SYMBOL	RATING	UNIT
Drain-Source Voltage	V_{DSS}	120	V
Gate-Source Voltage	V_{GSS}	± 20	V
Drain Current	I_D	3	A
Peak Drain Current	I_{DP}	6	A
Drain Power Dissipation (1 Device Operation)	P_D	2.0	W
Drain Power Dissipation (4 Devices Operation)	P_{DT}	4.0	W
Channel Temperature	T_{ch}	150	$^\circ C$
Storage Temperature Range	T_{stg}	$-55 \sim 150$	$^\circ C$

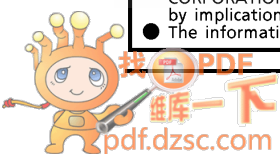
Weight : 2.1g (Typ.)

ARRAY CONFIGURATION



961001EAA2

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THERMAL CHARACTERISTICS

CHARACTERISTIC	SYMBOL	MAX.	UNIT
Thermal Resistance of Channel to Ambient (4 Devices Operation, Ta=25°C)	$\Sigma R_{th(ch-a)}$	31.2	°C / W
Maximum Lead Temperature for Soldering Purposes (3.2mm from Case for 10s)	T _L	260	°C

This Transistor is an Electrostatic Sensitive Device. Please Handle with Caution.

ELECTRICAL CHARACTERISTICS (Ta = 25°C)

CHARACTERISTIC	SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNIT	
Gate Leakage Current	I _{GSS}	V _{GS} = ±16V, V _{DS} = 0	—	—	±5	μA	
Drain Cut-off Current	I _{DSS}	V _{DS} = 120V, V _{GS} = 0	—	—	100	μA	
Drain-Source Breakdown Voltage	V(BR) DSS	I _D = 10mA, V _{GS} = 0	120	—	—	V	
Gate Threshold Voltage	V _{th}	V _{DS} = 10V, I _D = 1mA	0.8	—	2.0	V	
Forward Transfer Admittance	Y _{fs}	V _{DS} = 10V, I _D = 1.5A	1.5	3.2	—	S	
Drain-Source ON Resistance	R _{DS(ON)}	I _D = 1.5A, V _{GS} = 4V	—	0.42	0.74	Ω	
	R _{DS(ON)}	I _D = 1.5A, V _{GS} = 10V	—	0.33	0.45		
Input Capacitance	C _{iss}	V _{DS} = 10V, V _{GS} = 0, f = 1MHz	—	350	—	pF	
Reverse Transfer Capacitance	C _{rss}		—	35	—		
Output Capacitance	C _{oss}		—	155	—		
Switching Time	Rise Time	t _r		—	6	—	ns
	Turn-on Time	t _{on}		—	12	—	
	Fall Time	t _f		—	40	—	
	Turn-off Time	t _{off}		—	100	—	
Total Gate Charge (Gate-Source Plus Gate-Drain)	Q _g	I _D = 3A, V _{GS} = 10V, V _{DD} = 96V	—	11	—	nC	
Gate-Source Charge	Q _{gs}		—	7	—		
Gate-Drain ("Miller") Charge	Q _{gd}		—	4	—		

SOURCE-DRAIN DIODE RATINGS AND CHARACTERISTICS (Ta = 25°C)

CHARACTERISTIC	SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
Drain Reverse Current	I _{DR}	—	—	—	3	A
Peak Drain Reverse Current	I _{DRP}	—	—	—	6	A
Diode Forward Voltage	V _{DSF}	I _{DR} = 3A, V _{GS} = 0	—	-0.9	-1.5	V
Reverse Recovery Time	t _{rr}	I _{DR} = 3A, V _{GS} = 0,	—	130	—	ns
Reverse Recovery Charge	Q _{rr}	dI _{DR} / dt = -20A / μs	—	0.14	—	μC

