

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

MP4208

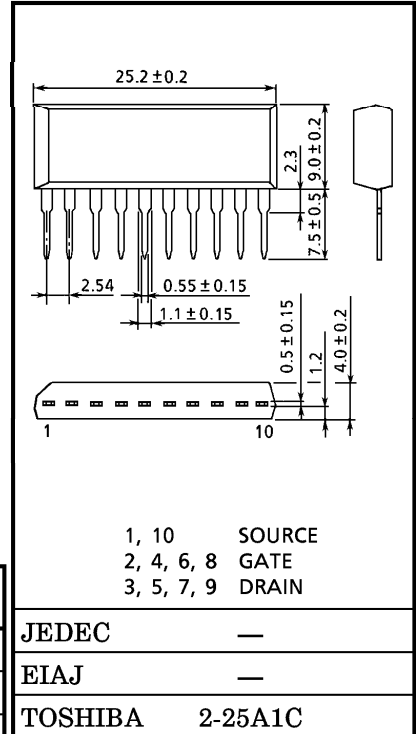
HIGH POWER HIGH SPEED SWITCHING APPLICATIONS

HAMMER DRIVE, PULSE MOTOR DRIVE AND INDUCTIVE LOAD SWITCHING

INDUSTRIAL APPLICATIONS

Unit in mm

- -4-Volt Gate Drive Available
- Small Package by Full Molding (SIP 10 Pin)
- High Drain Power Dissipation (4 Devices Operation)
: P_T = 4W (T_a = 25°C)
- Low Drain-Source ON Resistance : R_{DS (ON)} = 0.2Ω (Typ.)
- Low Leakage Current : I_{GSS} = ±10μA (Max.) (V_{GS} = ±16V)
I_{DSS} = -100μA (Max.) (V_{DS} = -60V)
- Enhancement-Mode : V_{th} = -0.8 ~ -2.0V (I_D = -1mA)

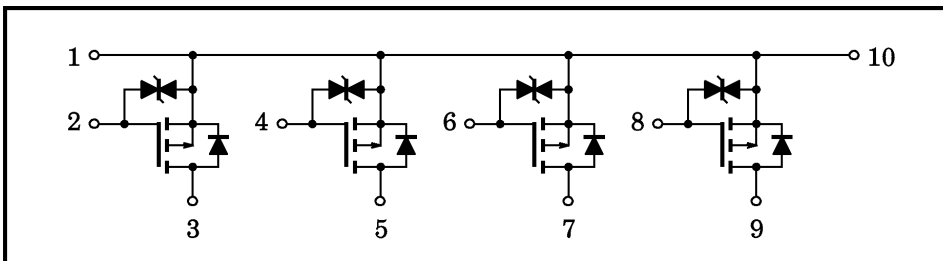


Weight : 2.1g

MAXIMUM RATINGS (T_a = 25°C)

CHARACTERISTIC	SYMBOL	RATING	UNIT
Drain-Source Voltage	V _{DSS}	-60	V
Gate-Source Voltage	V _{GS}	±20	V
Drain Current	I _D	-5	A
Peak Drain Current	I _{DP}	-10	A
Drain Power Dissipation (1 Device Operation, T _a = 25°C)	P _D	2.0	W
Drain Power Dissipation (4 Devices Operation, T _a = 25°C)	P _{DT}	4.0	W
Channel Temperature	T _{ch}	150	°C
Storage Temperature Range	T _{stg}	-55 ~ 150	°C

ARRAY CONFIGURATION



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THERMAL CHARACTERISTICS

CHARACTERISTIC	SYMBOL	MAX.	UNIT
Thermal Resistance of Channel to Ambient (4 Devices Operation, Ta=25°C)	$\Sigma R_{th} (ch-a)$	31.3	°C / W
Maximum Lead Temperature for Soldering Purposes (3.2mm from Case for 10 Second)	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	—	—	±10	μA	
Drain Cut-off Current	I _{DSS}	V _{DS} = -60V, V _{GS} = 0	—	—	-100	μA	
Drain-Source Breakdown Voltage	V (BR) DSS	I _D = -10mA, V _{GS} = 0	-60	—	—	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 = -2.5A	1	3	—	S	
Drain-Source ON Resistance	R _{D(S) ON}	I _D = -2.5A, V _{GS} = -4V	—	0.3	0.5	Ω	
	R _{D(S) ON}	I _D = -2.5A, V _{GS} = -10V	—	0.2	0.3		
Input Capacitance	C _{iss}	V _{DS} = -10V, V _{GS} = 0, f = 1MHz	—	630	—	pF	
Reverse Transfer Capacitance	C _{rss}	V _{DS} = -10V, V _{GS} = 0, f = 1MHz	—	95	—		
Output Capacitance	C _{oss}	V _{DS} = -10V, V _{GS} = 0, f = 1MHz	—	290	—		
Switching Time	Rise Time	t _r		—	25	—	ns
	Turn-on Time	t _{on}		—	45	—	
	Fall Time	t _f		—	55	—	
	Turn-off Time	t _{off}		—	200	—	
Total Gate Charge (Gate-Source Plus Gate-Drain)	Q _g	I _D = -5A, V _{GS} = -10V, V _{DD} ≐ 48V	—	22	—	nC	
Gate-Source Charge	Q _{gs}		—	16	—		
Gate-Drain (“Miller”) Charge	Q _{gd}		—	6	—		

SOURCE-DRAIN DIODE RATINGS AND CHARACTERISTICS ($T_a = 25^\circ\text{C}$)

CHARACTERISTIC	SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
Drain Reverse Current	I_{DR}	—	—	—	-5	A
Peak Drain Reverse Current	I_{DRP}	—	—	—	-10	A
Diode Forward Voltage	V_{DSF}	$I_{DR} = -5\text{A}, V_{GS} = 0$	—	1.0	2.0	V
Reverse Recovery Time	t_{rr}	$I_{DR} = -5\text{A}, V_{GS} = 0$ $dI_{DR}/dt = -50\text{A}/\mu\text{s}$	—	80	—	ns
Reverse Recovery Charge	Q_{rr}		—	0.1	—	μC

