

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

MP4203

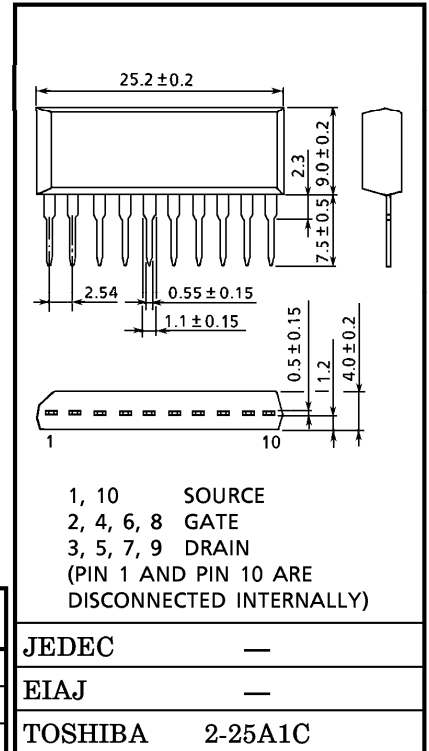
HIGH POWER SWITCHING APPLICATIONS

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 Collector Power Dissipation (4 Devices Operation)
: P_T=4W (Ta=25°C)
- Low Drain-Source ON Resistance : R_{DS (ON)}=0.3Ω (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)

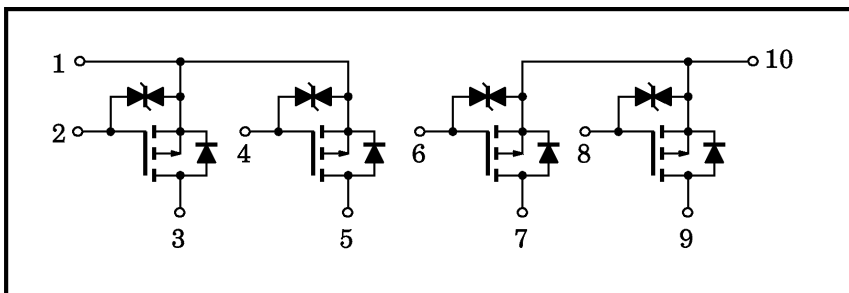


MAXIMUM RATINGS (Ta = 25°C)

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

Weight : 2.1g (Typ.)

ARRAY CONFIGURATION



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

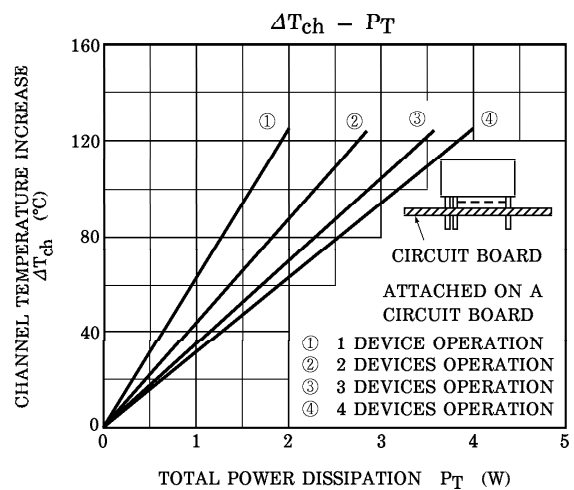
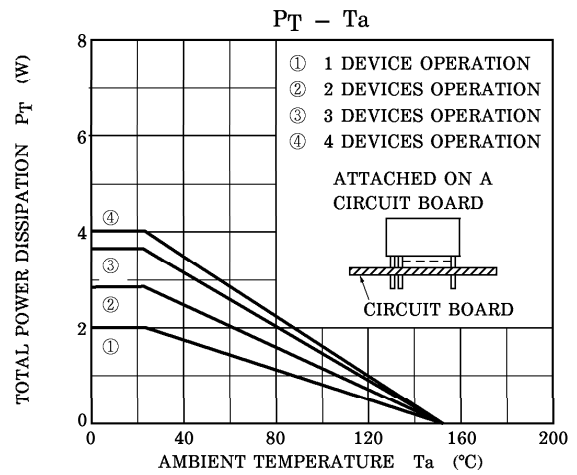
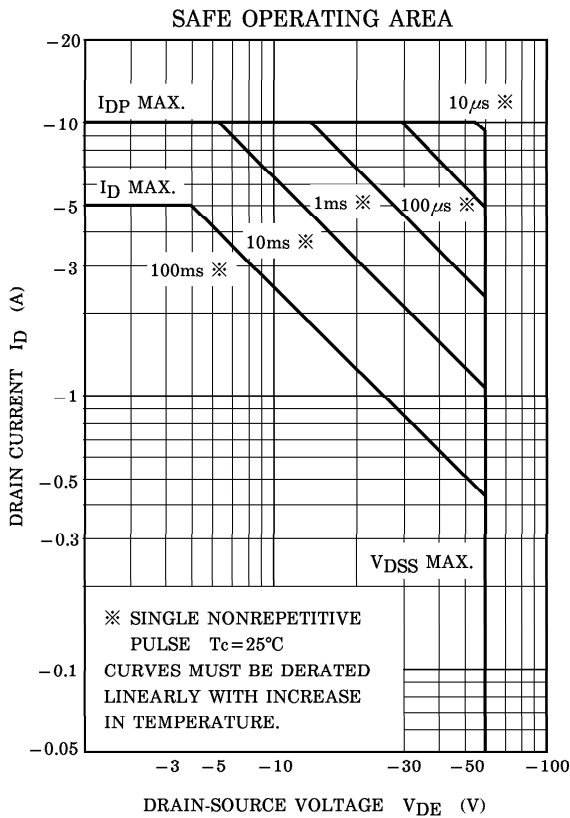
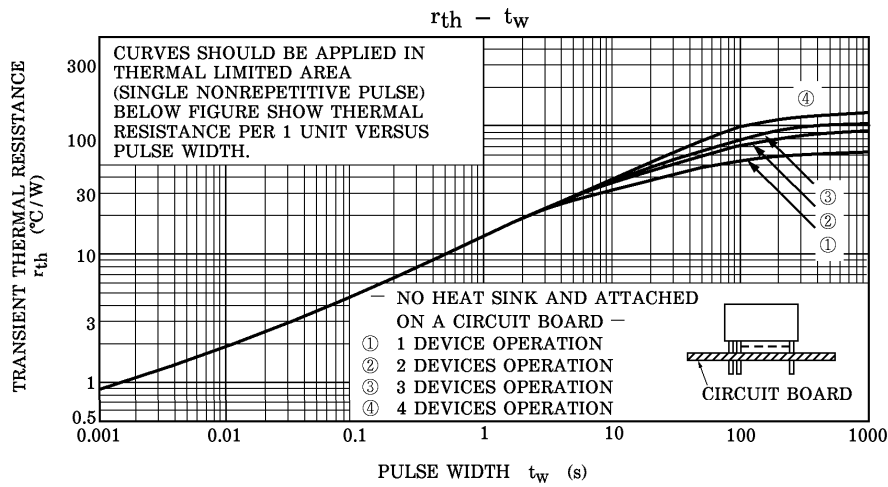
This Transistor is an Electrostatic Sensitive Device. Please Handle with Caution.

ELECTRICAL CHARACTERISTICS (Ta = 25°C)

CHARACTERISTIC		SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
Gate Leakage Current		I _{GSS}	V _{GS} = ±16V, V _{DS} = 0	—	—	±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
Drain-Source ON Resistance		R _{D(S) ON}	V _{GS} = -4V, I _D = -2.5A	—	0.45	0.8	Ω
			V _{GS} = -10V, I _D = -2.5A	—	0.30	0.4	
Forward Transfer Admittance		Y _{fs}	V _{DS} = -10V, I _D = -2.5A	1.0	2.0	—	S
Input Capacitance		C _{iss}	V _{DS} = -10V, V _{GS} = 0, f = 1MHz	—	380	—	pF
Reverse Transfer Capacitance		C _{rss}		—	90	—	
Output Capacitance		C _{oss}		—	270	—	
Switching Time	Rise Time	t _r		—	30	—	ns
	Turn-on Time	t _{on}		—	50	—	
	Fall Time	t _f		—	48	—	
	Turn-off Time	t _{off}		—	120	—	
Total Gate Charge (Gate-Source Plus Gate-Drain)		Q _g	V _{DD} = -48V, V _{GS} = -10V, I _D = -5A	—	20	—	nC
Gate-Source Charge		Q _{gs}		—	12	—	
Gate-Drain ("Miller") Charge		Q _{gd}		—	8	—	

SOURCE-DRAIN DIODE RATINGS AND CHARACTERISTICS (Ta = 25°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 _{D(S)F}	I _{DR} = -5A, V _{GS} = 0	—	1.0	1.6	V
Reverse Recovery Time	t _{rr}	I _{DR} = -5A, V _{GS} = 0	—	170	—	ns
Reverse Recovery Charge	Q _{rr}	dI _{DR} / dt = -20A / μs	—	0.42	—	μC



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