

TOSHIBA

MP4202

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

MP4202

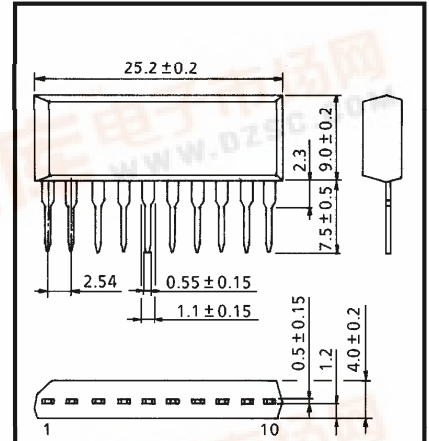
HIGH POWER HIGH SPEED SWITCHING APPLICATIONS

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°C)
- Low Drain-Source ON Resistance : R_{DS(ON)}=0.12Ω (Typ.)
- Low Leakage Current : I_{GSS}=±5μA (Max.) (V_{GS}=±16V)
I_{DSS}=100μA (Max.) (V_{DS}=60V)
- Enhancement-Mode : V_{th}=0.8~2.0V (I_D=1mA)



1, 10 SOURCE
2, 4, 6, 8 GATE
3, 5, 7, 9 DRAIN
(PIN 1 AND PIN 10 IS DISCONNECTED INTERNALLY)

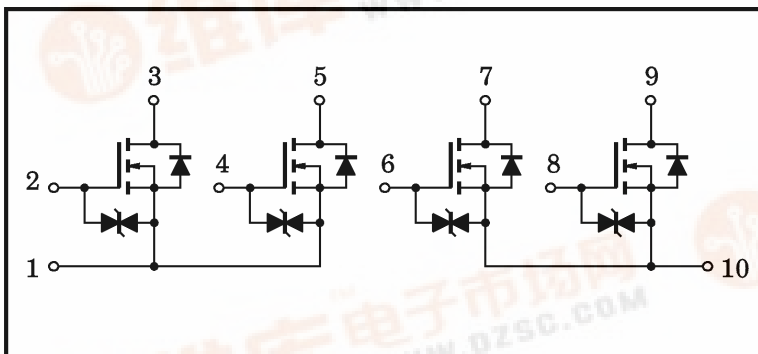
JEDEC	—
EIAJ	—
TOSHIBA	2-25A1C

Weight : 2.1g (Typ.)

MAXIMUM RATINGS (T_a = 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
Channel Temperature	T _{ch}	150	°C
Storage Temperature Range	T _{stg}	-55~150	°C

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

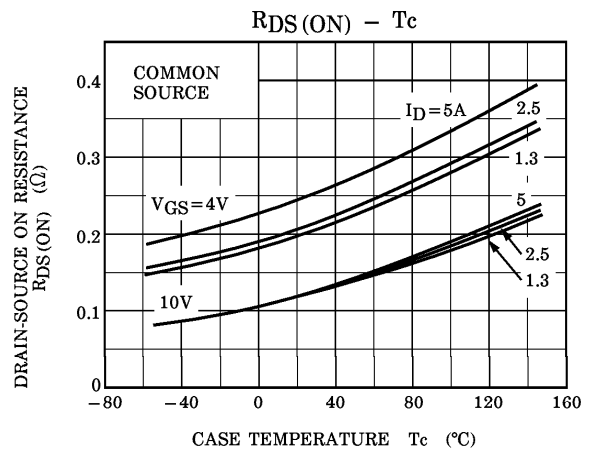
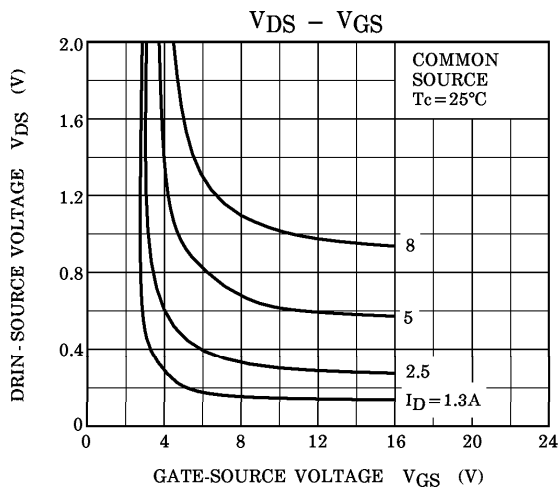
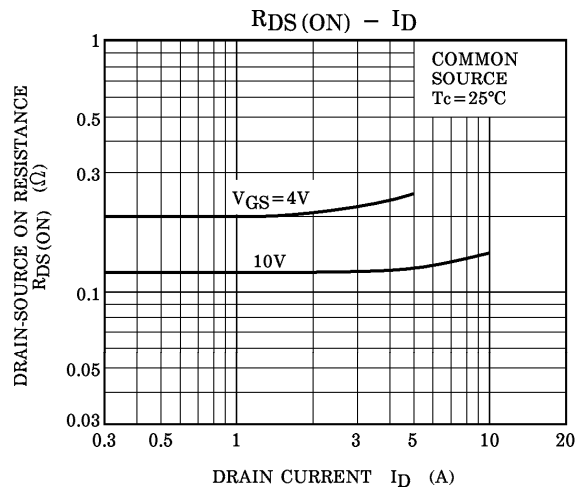
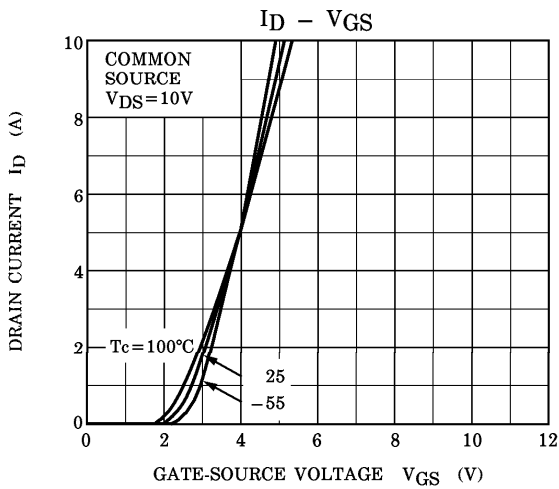
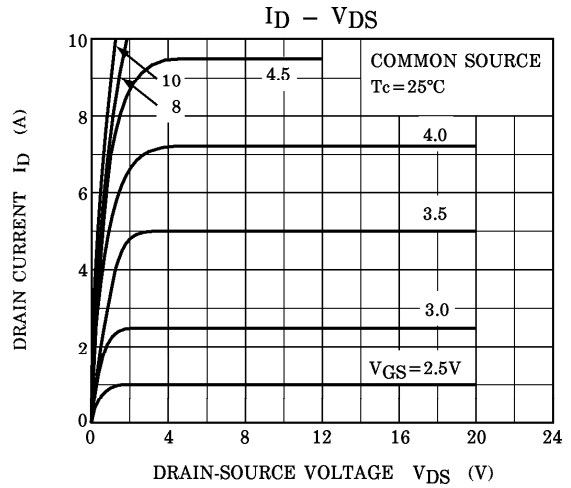
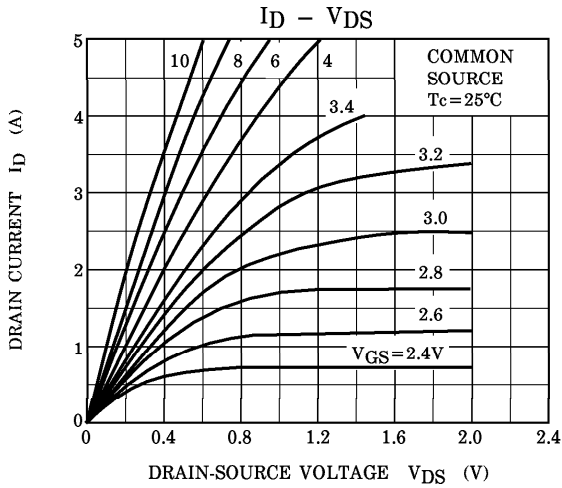
This Transistor is an Electrostatic Sensitive Device. Please Handle with Caution.

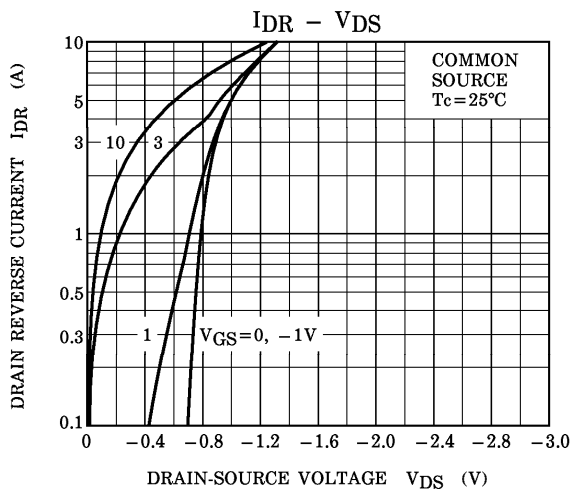
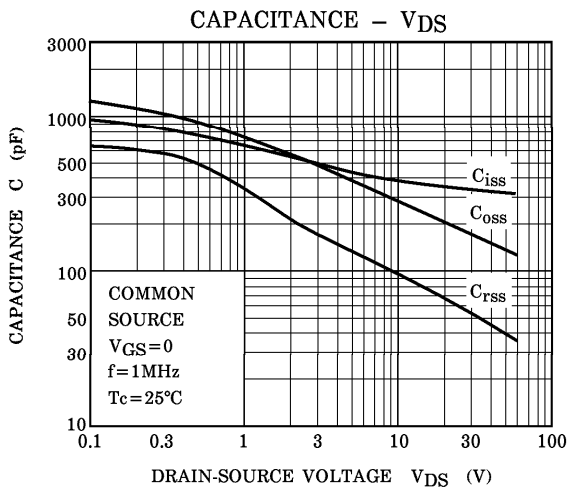
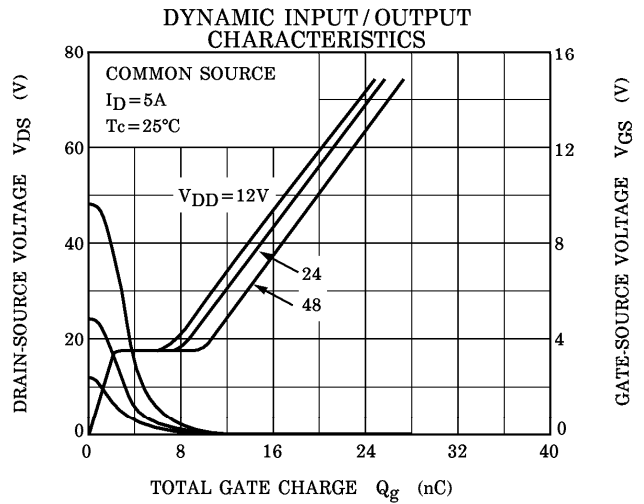
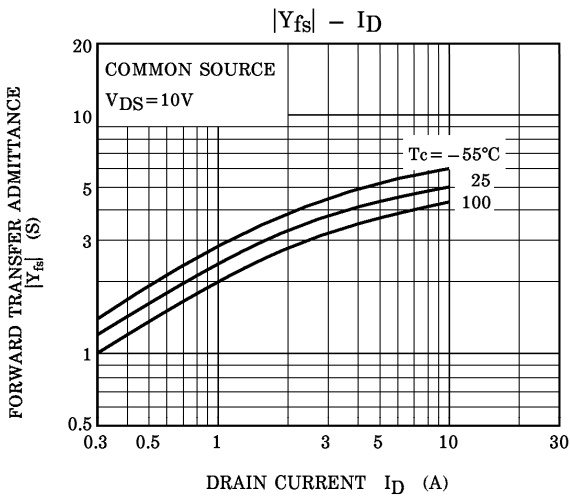
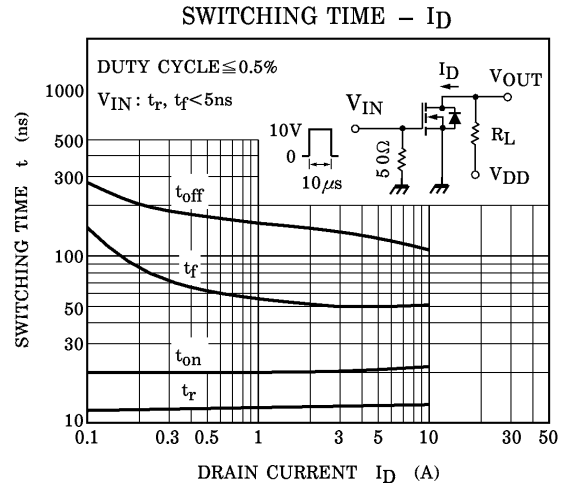
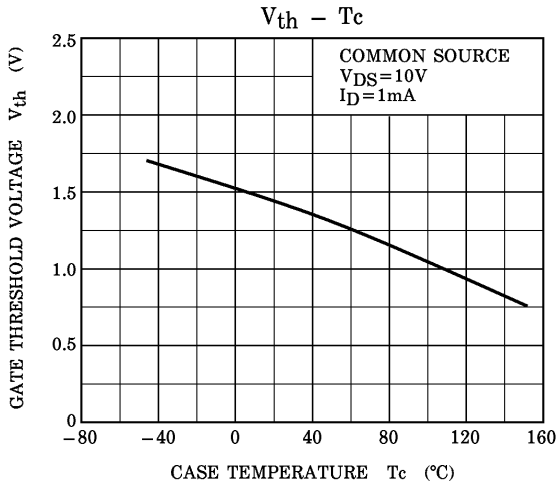
ELECTRICAL CHARACTERISTICS (Ta = 25°C)

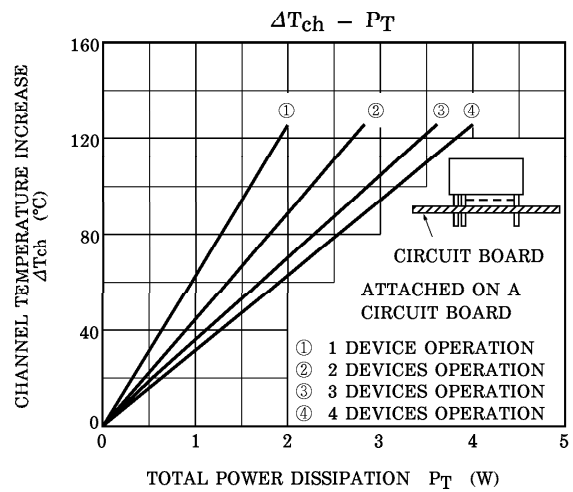
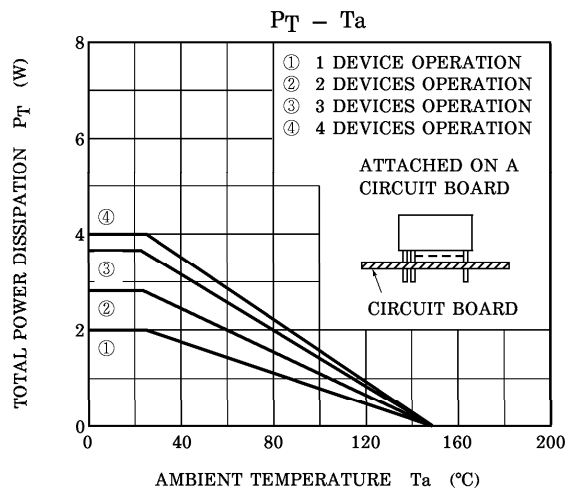
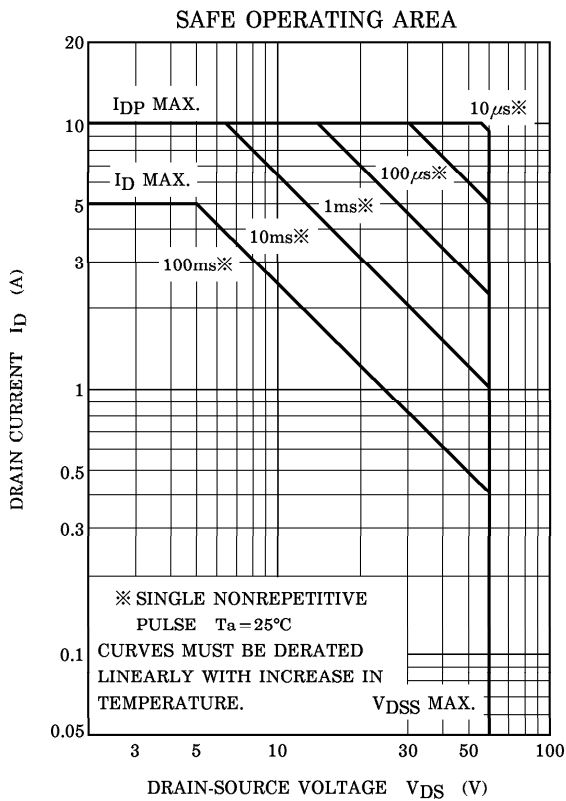
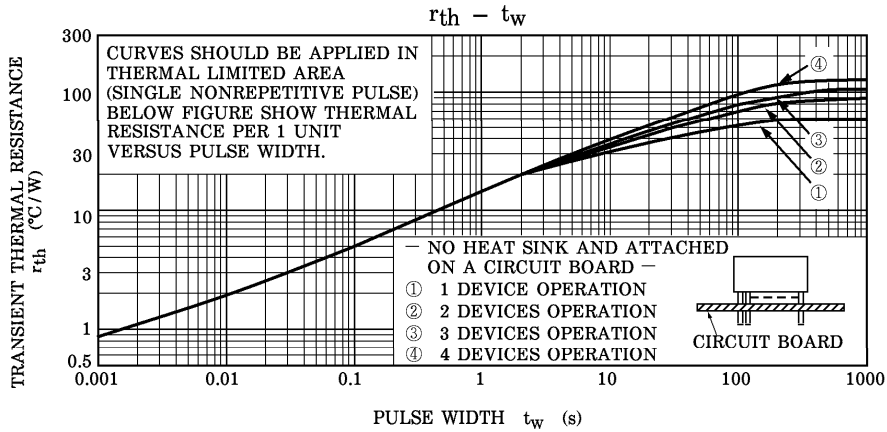
CHARACTERISTIC	SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNIT	
Gate Leakage Current	I _{GSS}	V _{GS} = ±16V, V _{DS} = 0	—	—	±5	μA	
Drain Cut-off Current	I _{DSS}	V _{DS} = 60V, V _{GS} = 0	—	—	100	μA	
Drain-Source Breakdown Voltage	V (BR) DSS	I _D = 10mA, V _{GS} = 0	60	—	—	V	
Gate Threshold Voltage	V _{th}	V _{DS} = 10V, I _D = 1mA	0.8	—	2.0	V	
Forward Transfer Admittance	Y _{fs}	V _{DS} = 10V, I _D = 2.5A	1.5	3.5	—	S	
Drain-Source ON Resistance	R _{DS(ON)}	I _D = 2.5A, V _{GS} = 4V	—	0.2	0.32	Ω	
	R _{DS(ON)}	I _D = 2.5A, V _{GS} = 10V	—	0.12	0.2		
Input Capacitance	C _{iss}	V _{DS} = 10V, V _{GS} = 0, f = 1MHz	—	380	—	pF	
Reverse Transfer Capacitance	C _{rss}		—	95	—		
Output Capacitance	C _{oss}		—	280	—		
Switching Time	Rise Time	t _r		—	12	—	ns
	Turn-on Time	t _{on}		—	20	—	
	Fall Time	t _f		—	50	—	
	Turn-off Time	t _{off}		—	140	—	
Total Gate Charge (Gate-Source Plus Gate-Drain)	Q _g	I _D = 5A, V _{GS} = 10V, V _{DD} = 48V	—	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 _{DSF}	I _{DR} = 5A, V _{GS} = 0	—	-1.0	-1.7	V
Reverse Recovery Time	t _{rr}	I _{DR} = 5A, V _{GS} = 0	—	120	—	ns
Reverse Recovery Charge	Q _{rr}	dI _{DR} / dt = -20A / μs	—	0.09	—	μC







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