

TOSHIBA FIELD EFFECT TRANSISTOR SILICON N CHANNEL MOS TYPE (π -MOSV)

2SK2493

HIGH SPEED, HIGH CURRENT SWITCHING APPLICATIONS
CHOPPER REGULATOR, AND DC-DC CONVERTER APPLICATIONS

INDUSTRIAL APPLICATIONS
Unit in mm

- 2.5V Gate Drive
- Low Drain-Source ON Resistance : $R_{DS(ON)} = 0.08m\Omega$ (Typ.)
- High Forward Transfer Admittance : $|Y_{fs}| = 8.0S$ (Typ.)
- Low Leakage Current : $I_{DSS} = 100\mu A$ (Max.) ($V_{DS} = 16V$)
- Enhancement-Mode : $V_{th} = 0.5 \sim 1.1V$ ($V_{DS} = 10V, I_D = 1mA$)

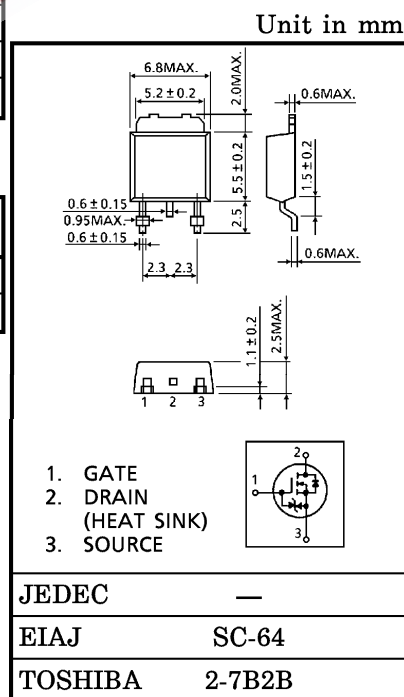
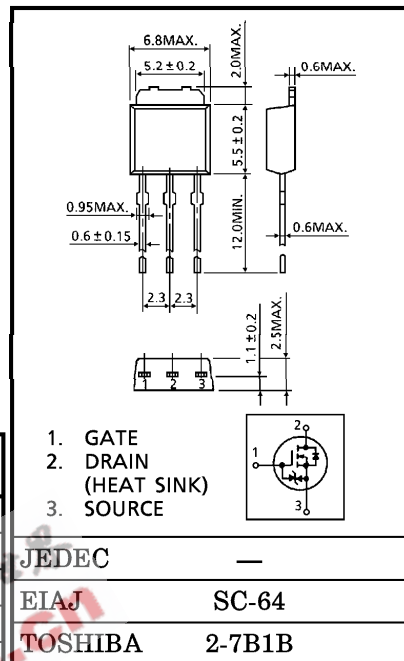
MAXIMUM RATINGS ($T_a = 25^\circ C$)

CHARACTERISTIC	SYMBOL	RATING	UNIT
Drain-Source Voltage	V_{DSS}	16	V
Drain-Gate Voltage ($R_{GS} = 20k\Omega$)	V_{DGR}	16	V
Gate-Source Voltage	V_{GSS}	± 8	V
Drain Current	DC	I_D	5 A
	Pulse	I_{DP}	20 A
Drain Power Dissipation ($T_c = 25^\circ C$)	P_D	20	W
Channel Temperature	T_{ch}	150	$^\circ C$
Storage Temperature Range	T_{stg}	$-55 \sim 150$	$^\circ C$

THERMAL CHARACTERISTICS

CHARACTERISTIC	SYMBOL	MAX.	UNIT
Thermal Resistance, Channel To Case	$R_{th(ch-c)}$	6.25	$^\circ C / W$
Thermal Resistance, Channel To Ambient	$R_{th(ch-a)}$	125	$^\circ C / W$

**This transistor is an electrostatic sensitive device.
Please handle with caution.**



Weight : 0.36g

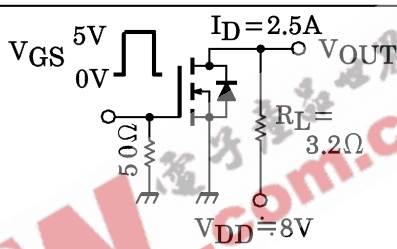
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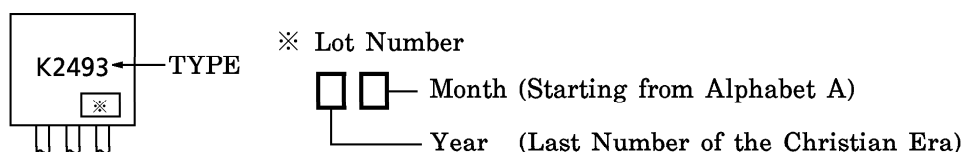
ELECTRICAL CHARACTERISTICS (Ta = 25°C)

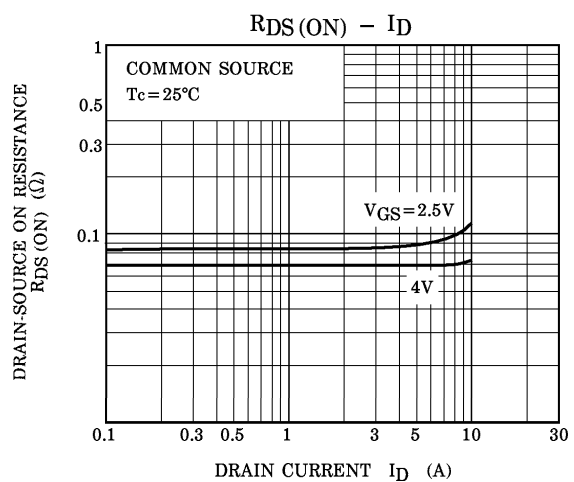
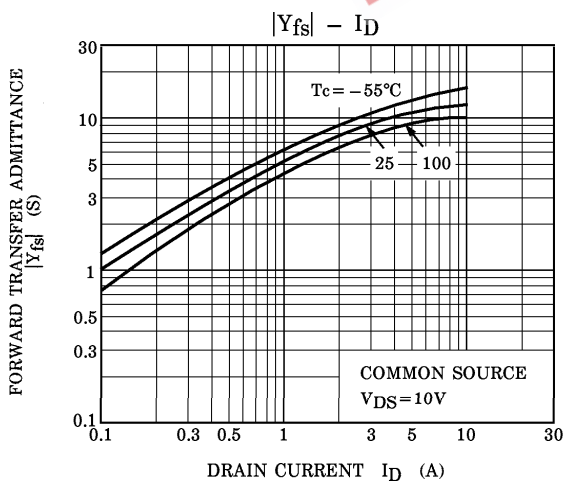
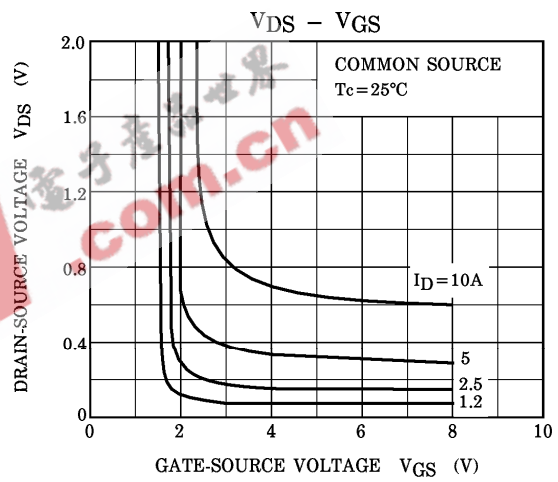
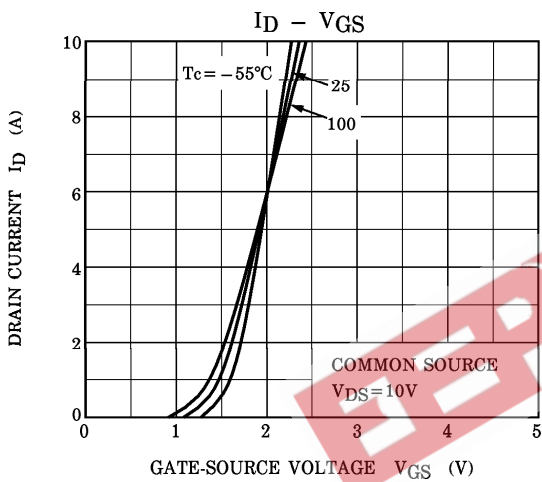
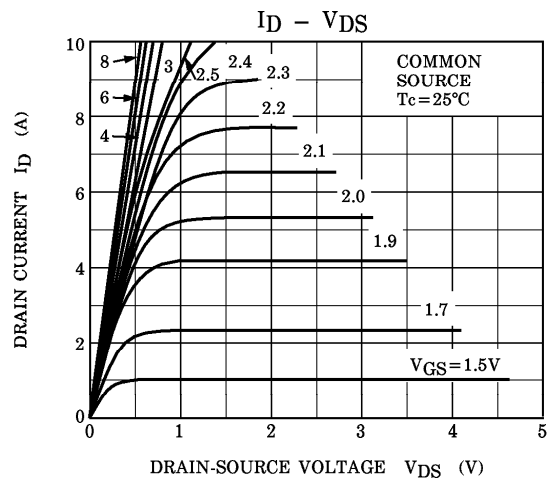
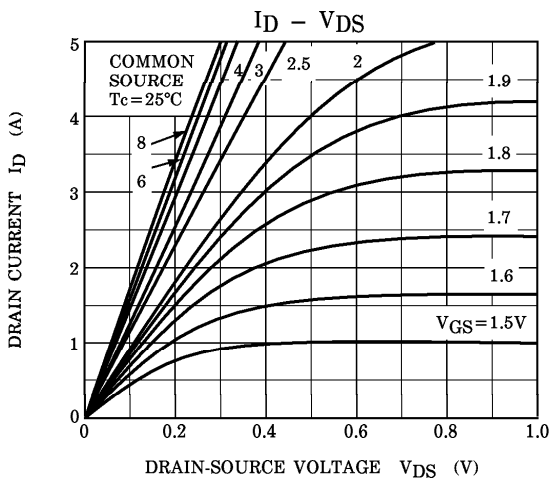
CHARACTERISTIC	SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNIT	
Gate Leakage Current	I _{GSS}	V _{GS} = ±6.5V, V _{DS} = 0V	—	—	±10	μA	
Drain Cut-off Current	I _{DSS}	V _{DS} = 16V, V _{GS} = 0V	—	—	100	μA	
Drain-Source Breakdown Voltage	V (BR) DSS	I _D = 10mA, V _{GS} = 0V	16	—	—	V	
Gate Threshold Voltage	V _{th}	V _{DS} = 10V, I _D = 1mA	0.5	—	1.1	V	
Drain-Source ON Resistance	R _{DS (ON)}	V _{GS} = 2.5V, I _D = 2.5A	—	0.08	0.12	Ω	
		V _{GS} = 4V, I _D = 2.5A	—	0.07	0.1		
Forward Transfer Admittance	Y _{fs}	V _{DS} = 10V, I _D = 2.5A	4.0	8.0	—	S	
Input Capacitance	C _{iss}	V _{DS} = 10V, V _{GS} = 0V f = 1MHz	—	1200	—	pF	
Reverse Transfer Capacitance	C _{rss}		—	110	—		
Output Capacitance	C _{oss}		—	380	—		
Switching Time	Rise Time	t _r		—	30	—	ns
	Turn-on Time	t _{on}		—	50	—	
	Fall Time	t _f		—	200	—	
	Turn-off Time	t _{off}		V _{IN} : t _r , t _f < 5ns, Duty ≤ 1%, t _w = 10μs	—	650	
Total Gate Charge (Gate-Source Plus Gate-Drain)	Q _g	V _{DD} = 16V, V _{GS} = 5V	—	23	—	nC	
Gate-Source Charge	Q _{gs}	I _D = 5A	—	17	—		
Gate-Drain ("Miller") Charge	Q _{gd}		—	6	—		

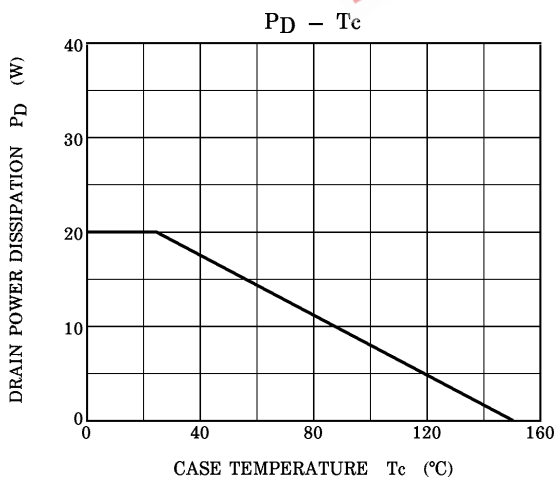
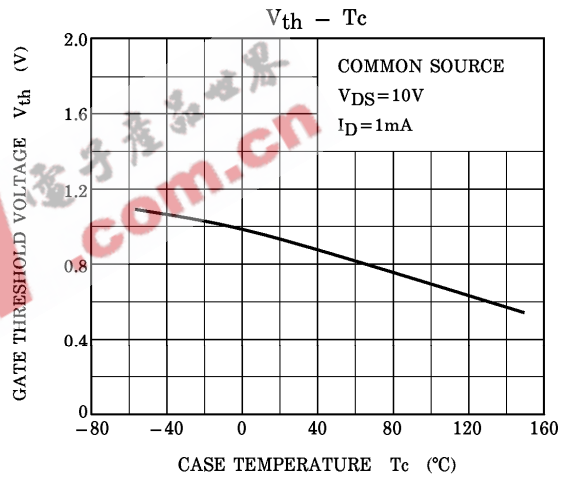
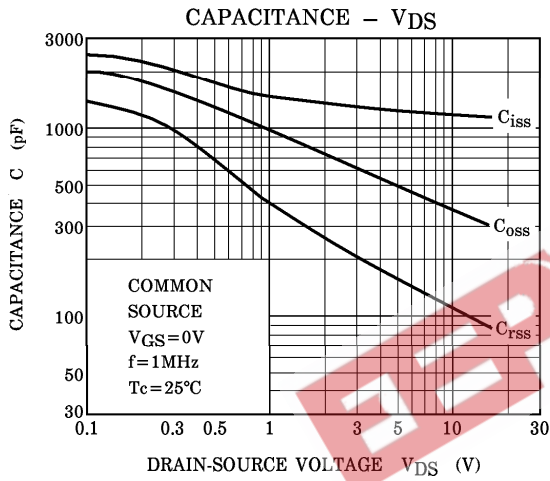
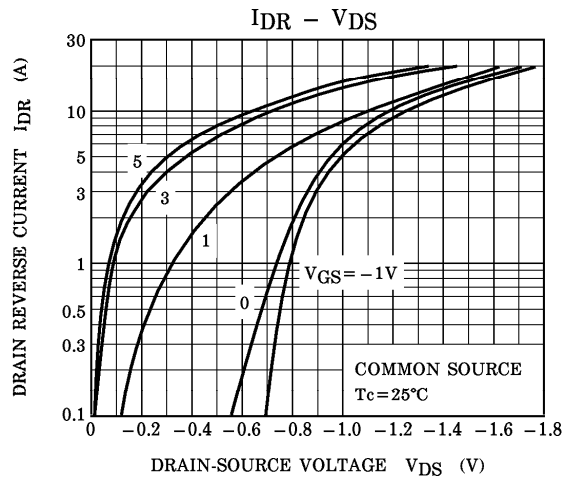
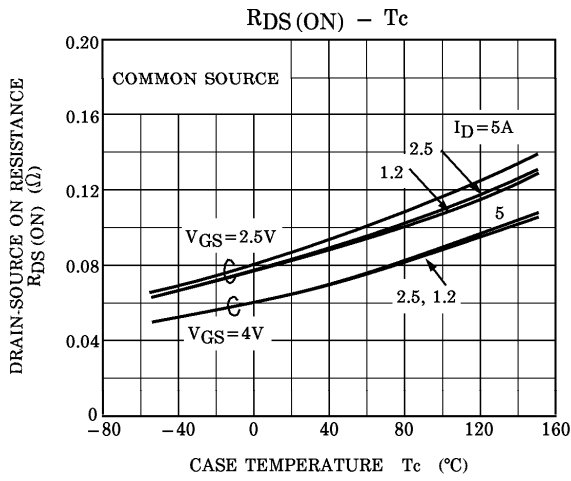
SOURCE-DRAIN DIODE RATINGS AND CHARACTERISTICS (Ta = 25°C)

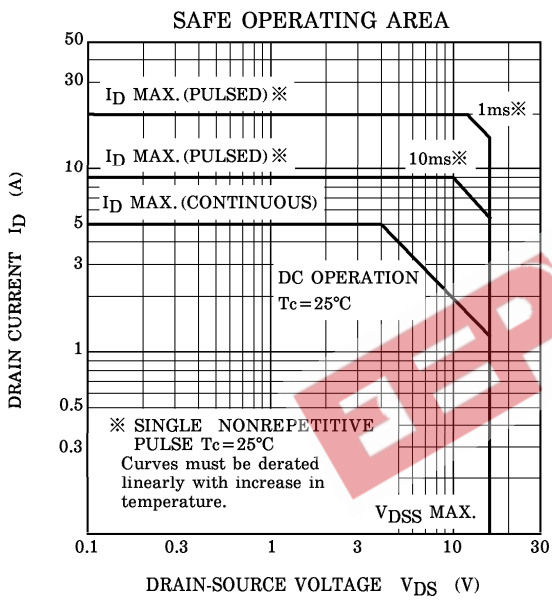
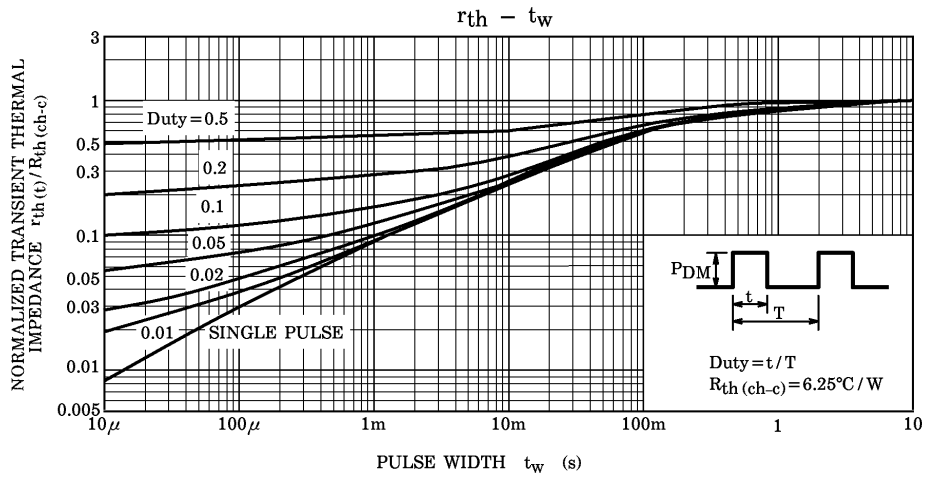
CHARACTERISTIC	SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
Continuous Drain Reverse Current	I _{DR}	—	—	—	5	A
Pulse Drain Reverse Current	I _{DRP}	—	—	—	20	A
Diode Forward Voltage	V _{DSF}	I _{DR} = 5A, V _{GS} = 0V	—	—	-1.7	V
Reverse Recovery Time	t _{rr}	I _{DR} = 5A, V _{GS} = 0V	—	120	—	ns
Reverse Recovery Charge	Q _{rr}	dI _{DR} / dt = 50A / μs	—	0.12	—	μC

MARKING









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