

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 : $V_{th} = 0.5 \sim 1.1V$ ($V_{DS} = 10V, I_D = 1mA$)

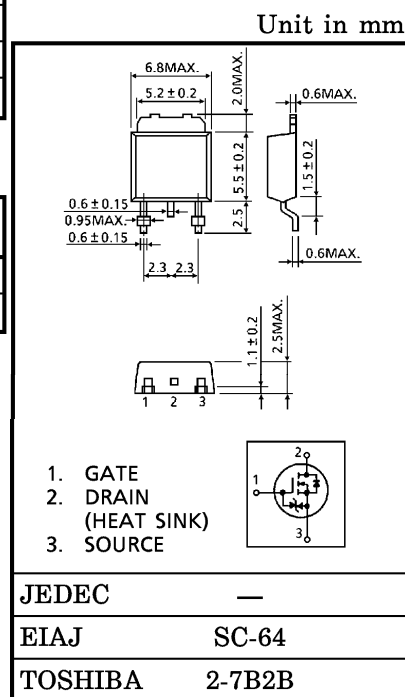
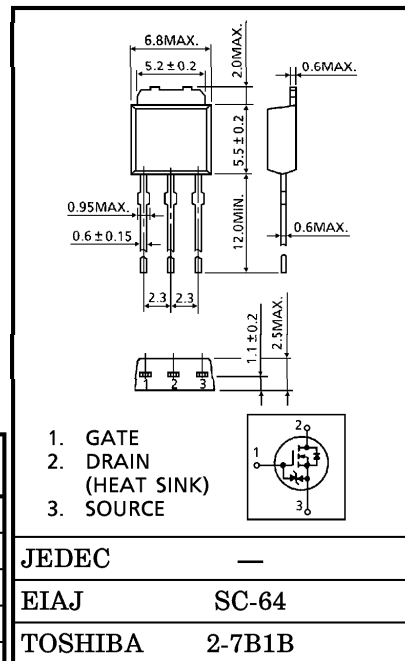
MAXIMUM RATINGS ($T_a = 25^\circ C$)

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.**

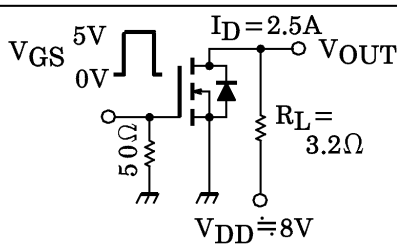


Weight : 0.36g

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ELECTRICAL CHARACTERISTICS (Ta = 25°C)

CHARACTERISTIC	SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNIT	
Gate Leakage Current	I_{GSS}	$V_{GS} = \pm 6.5V, V_{DS} = 0V$	—	—	± 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}		$V_{IN} : t_r, t_f < 5ns,$ $Duty \leq 1\%, t_w = 10\mu s$	—	650	
Total Gate Charge (Gate-Source Plus Gate-Drain)	Q_g	$V_{DD} \approx 16V, V_{GS} = 5V$ $I_D = 5A$	—	23	—	nC	
Gate-Source Charge	Q_{gs}		—	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}	$I_{DR} = 5A, V_{GS} = 0V$ $dI_{DR} / dt = 50A / \mu s$	—	120	—	ns
Reverse Recovery Charge	Q_{rr}		—	0.12	—	μC

MARKING

