

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

2SJ439

HIGH SPEED, HIGH CURRENT SWITCHING APPLICATIONS
DC-DC CONVERTER, RELAY DRIVE AND MOTOR DRIVE APPLICATIONS

INDUSTRIAL APPLICATIONS
Unit in mm

- 2.5V Gate Drive
- Low Drain-Source ON Resistance : $R_{DS(ON)} = 0.18\Omega$ (Typ.)
- High Forward Transfer Admittance : $|Y_{fs}| = 6.0S$ (Typ.)
- Low Leakage Current : $I_{DSS} = -100\mu A$ (Max.) ($V_{DS} = -16V$)
- Enhancement-Mode : $V_{th} = -0.5 \sim -1.1V$
($V_{DS} = -10V, I_D = -1mA$)

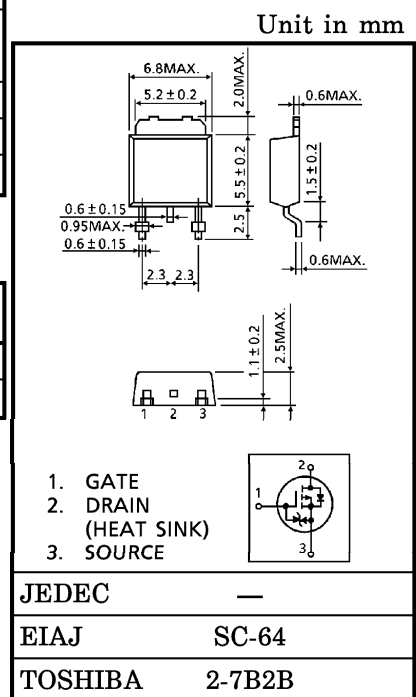
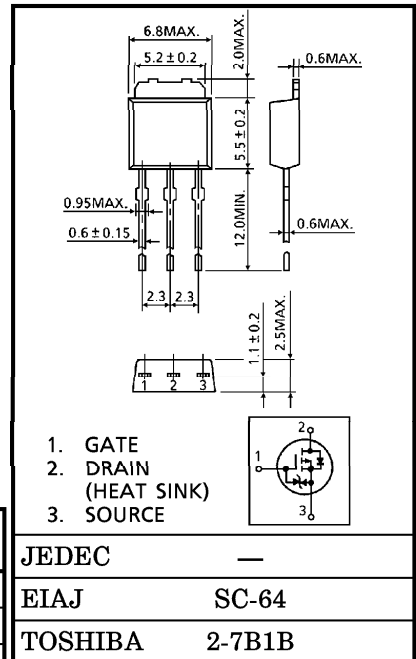
MAXIMUM RATINGS ($T_a = 25^\circ C$)

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	
Drain Power Dissipation ($T_c = 25^\circ C$)		P_D	20	W
Channel Temperature		T_{ch}	150	$^\circ C$
Storage Temperature Range		T_{stg}	-55~150	$^\circ C$

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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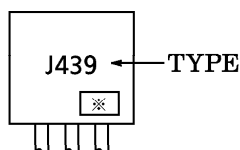
ELECTRICAL CHARACTERISTICS (Ta = 25°C)

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	$R_{DS(ON)}$	$V_{GS} = -2.5V, I_D = -2.5A$	—	0.18	0.28	Ω	
		$V_{GS} = -4V, I_D = -2.5A$	—	0.14	0.2		
Forward Transfer Admittance	$ Y_{fs} $	$V_{DS} = -10V, I_D = -2.5A$	3.0	6.0	—	S	
Input Capacitance	C_{iss}	$V_{DS} = -10V, V_{GS} = 0V, f = 1MHz$	—	1050	—	pF	
Reverse Transfer Capacitance	C_{rss}		—	120	—		
Output Capacitance	C_{oss}		—	460	—		
Switching Time	Rise Time	t_r		—	80	—	ns
	Turn-on Time	t_{on}		—	100	—	
	Fall Time	t_f		—	250	—	
	Turn-off Time	t_{off}		$V_{IN} : t_r, t_f < 5ns, Duty \le 1%, t_w = 10\mu s$	—	550	
Total Gate Charge (Gate-Source Plus Gate-Drain)	Q_g	$V_{DD} = -16V, V_{GS} = -5V, I_D = -5A$	—	24	—	nC	
Gate-Source Charge	Q_{gs}		—	16	—		
Gate-Drain ("Miller") Charge	Q_{gd}		—	8	—		

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 Recovered Charge	Q_{rr}	$dI_{DR} / dt = 50A / \mu s$	—	0.12	—	μC

MARKING



※ Lot Number

□ □ — Month (Starting from Alphabet A)

— Year (Last Number of the Christian Era)

