

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

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

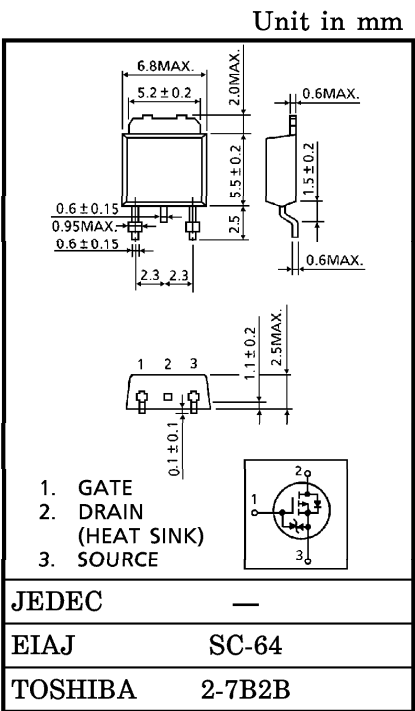
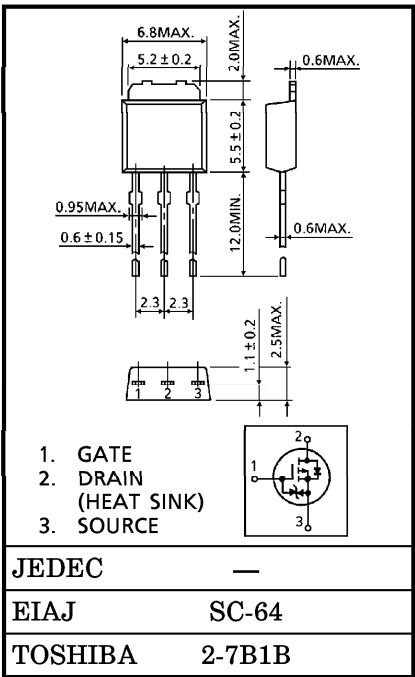
MAXIMUM RATINGS (Ta = 25°C)

CHARACTERISTIC		SYMBOL	RATING	UNIT
Drain-Source Voltage		V_{DSS}	-16	V
Drain-Gate Voltage ($R_{GS} = 20 k\Omega$)		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	°C
Storage Temperature Range		T_{stg}	-55~150	°C

THERMAL CHARACTERISTICS

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

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



Weight : 0.36 g

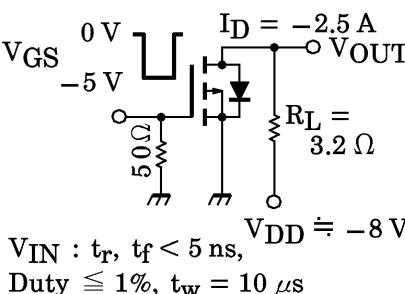
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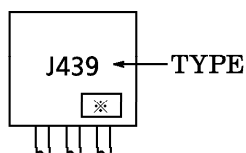
ELECTRICAL CHARACTERISTICS (Ta = 25°C)

CHARACTERISTIC		SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
Gate Leakage Current		I_{GSS}	$V_{GS} = \pm 6.5 \text{ V}, V_{DS} = 0 \text{ V}$	—	—	± 10	μA
Drain Cut-off Current		I_{DSS}	$V_{DS} = -16 \text{ V}, V_{GS} = 0 \text{ V}$	—	—	-100	μA
Drain-Source Breakdown Voltage		$V_{(BR)DSS}$	$I_D = -10 \text{ mA}, V_{GS} = 0 \text{ V}$	-16	—	—	V
Gate Threshold Voltage		V_{th}	$V_{DS} = -10 \text{ V}, I_D = -1 \text{ mA}$	-0.5	—	-1.1	V
Drain-Source ON Resistance		$R_{DS(ON)}$	$V_{GS} = -2.5 \text{ V}, I_D = -2.5 \text{ A}$	—	0.18	0.28	Ω
			$V_{GS} = -4 \text{ V}, I_D = -2.5 \text{ A}$	—	0.14	0.2	
Forward Transfer Admittance		$ Y_{fs} $	$V_{DS} = -10 \text{ V}, I_D = -2.5 \text{ A}$	3.0	6.0	—	S
Input Capacitance		C_{iss}	$V_{DS} = -10 \text{ V}, V_{GS} = 0 \text{ V}, f = 1 \text{ MHz}$	—	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}		—	550	—	
Total Gate Charge (Gate-Source Plus Gate-Drain)		Q_g	$V_{DD} \doteq -16 \text{ V}, V_{GS} = -5 \text{ V}, I_D = -5 \text{ A}$	—	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}	$I_{DR} = -5 \text{ A}, V_{GS} = 0 \text{ V}$	—	—	1.7	V
Reverse Recovery Time	t_{rr}	$I_{DR} = -5 \text{ A}, V_{GS} = 0 \text{ V}$ $dI_{DR}/dt = 50 \text{ A}/\mu\text{s}$	—	120	—	ns
Reverse Recovered Charge	Q_{rr}		—	0.12	—	μC

MARKING



※ Lot Number


 Month (Starting from Alphabet A)


 Year (Last Number of the Christian Era)

