

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

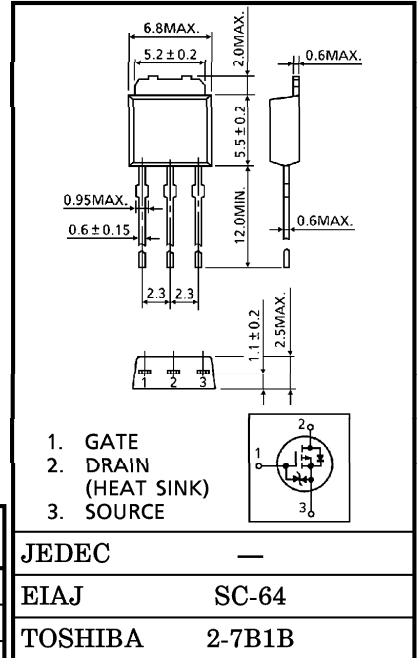
2SJ439

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

INDUSTRIAL APPLICATIONS

Unit in mm

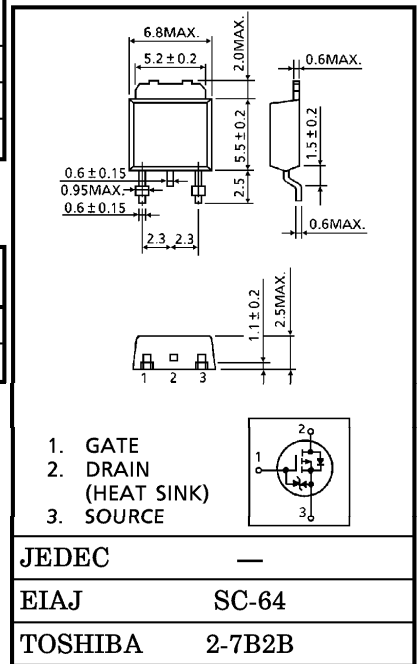
- 2.5V Gate Drive
- Low Drain-Source ON Resistance : $R_{DS(ON)} = 0.18\Omega$ (Typ.)
- High Forward Transfer Admittance : $|Y_{fs}| = 6.0S$ (Typ.)
- Low Leakage Current : $I_{DSS} = -100\mu A$ (Max.) ($V_{DS} = -16V$)
- Enhancement-Mode : $V_{th} = -0.5 \sim -1.1V$
($V_{DS} = -10V, I_D = -1mA$)



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
	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	$^\circ C$

Unit in mm



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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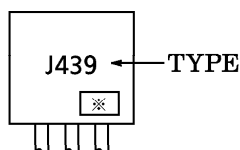
ELECTRICAL CHARACTERISTICS (Ta = 25°C)

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	—	0.18	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 ≤ 1%, t _w = 10μs	—	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 / μs	—	0.12	—	μC

MARKING



※ Lot Number

□ □ — Month (Starting from Alphabet A)

— Year (Last Number of the Christian Era)

