

TOSHIBA FIELD EFFECT TRANSISTOR SILICON N CHANNEL MOS TYPE (L²-π-MOSV)

2SK2961

HIGH SPEED SWITCHING APPLICATIONS

RELAY DRIVE, MOTOR DRIVE AND DC-DC CONVERTER APPLICATION

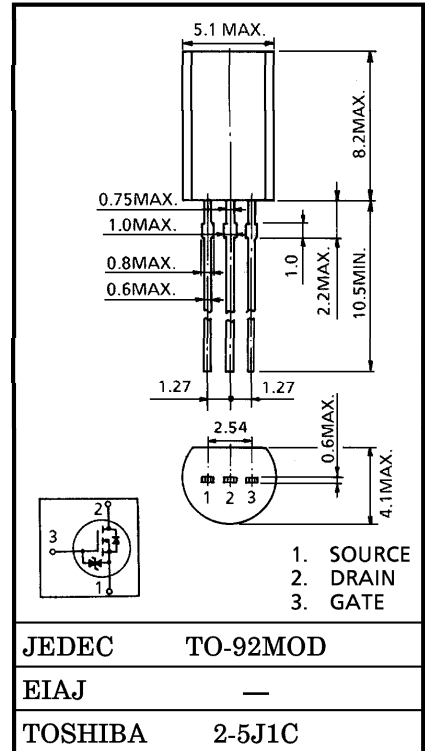
- Low Drain-Source ON Resistance : $R_{DS(ON)} = 0.2\Omega$ (Typ.)
- High Forward Transfer Admittance : $|Y_{fs}| = 2.0S$ (Typ.)
- Low Leakage Current : $I_{DSS} = 100\mu A$ ($V_{DS} = 60V$)
- Enhancement-Mode : $V_{th} = 0.8 \sim 2.0V$ ($V_{DS} = 10V, I_D = 1mA$)

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

CHARACTERISTIC		SYMBOL	RATING	UNIT
Drain-Source Voltage		V_{DSS}	60	V
Drain-Gate Voltage ($R_{GS} = 20k\Omega$)		V_{DGR}	60	V
Gate-Source Voltage		V_{GSS}	± 20	V
Drain Current	DC	I_D	2.0	A
	Pulse	I_{DP}	6.0	
Drain Power Dissipation		P_D	0.9	W
Channel Temperature		T_{ch}	150	$^\circ C$
Storage Temperature Range		T_{stg}	$-55 \sim 150$	$^\circ C$

INDUSTRIAL APPLICATIONS

Unit in mm



THERMAL CHARACTERISTICS

CHARACTERISTIC	SYMBOL	MAX.	UNIT
Thermal Resistance, Channel to Ambient	$R_{th(ch-a)}$	138	$^\circ C / W$

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

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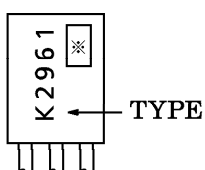
ELECTRICAL CHARACTERISTICS (Ta = 25°C)

CHARACTERISTIC	SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNIT	
Gate Leakage Current	I _{GSS}	V _{GS} = ±16V, V _{DS} = 0V	—	—	±10	μA	
Drain Cut-off Current	I _{DSS}	V _{DS} = 60V, V _{GS} = 0V	—	—	100	μA	
Drain-Source Breakdown Voltage	V _{(BR)DSS}	I _D = 10mA, V _{GS} = 0V	60	—	—	V	
Gate Threshold Voltage	V _{th}	V _{DS} = 10V, I _D = 1mA	0.8	—	2.0	V	
Drain-Source ON Resistance	R _{D(S)ON}	V _{GS} = 4V, I _D = 1.0A	—	0.26	0.38	Ω	
		V _{GS} = 10V, I _D = 1.0A	—	0.20	0.27		
Forward Transfer Admittance	Y _{fs}	V _{DS} = 10V, I _D = 1.0A	1.0	2.0	—	S	
Input Capacitance	C _{iss}	V _{DS} = 10V, V _{GS} = 0V f = 1MHz	—	170	—	pF	
Reverse Transfer Capacitance	C _{rss}		—	25	—		
Output Capacitance	C _{oss}		—	75	—		
Switching Time	Rise Time	t _r		—	10	—	ns
	Turn-on Time	t _{on}		—	15	—	
	Fall Time	t _f		—	50	—	
	Turn-off Time	t _{off}		V _{IN} : t _r , t _f < 5ns, Duty ≤ 1%, t _w = 10μs	—	170	
Total Gate Charge (Gate-Source Plus Gate-Drain)	Q _g	V _{DD} = 48V, V _{GS} = 10V I _D = 2A	—	5.8	—	nC	
Gate-Source Charge	Q _{gs}		—	4.1	—		
Gate-Drain ("Miller") Charge	Q _{gd}		—	1.7	—		

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

CHARACTERISTIC	SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
Continuous Drain Reverse Current	I _{DR}	—	—	—	2.0	A
Pulse Drain Reverse Current	I _{DRP}	—	—	—	6.0	A
Diode Forward Voltage	V _{DSF}	I _{DR} = 2A, V _{GS} = 0V	—	—	-1.5	V
Reverse Recovery Time	t _{rr}	I _{DR} = 2A, V _{GS} = 0V	—	45	—	ns
Reverse Recovery Charge	Q _{rr}	dI _{DR} / dt = 50A / μs	—	40.5	—	nC

MARKING



※ Lot Number

□ □ — Month (Starting from Alphabet A)

□ — Year (Last Number of the Christian Era)

