

TOSHIBA FIELD EFFECT TRANSISTOR SILICON N CHANNEL MOS TYPE (π -MOSII⁻⁵)

2SK1930

HIGH SPEED, HIGH CURRENT SWITCHING APPLICATIONS

CHOPPER REGULATOR, DC-DC CONVERTER AND MOTOR DRIVE APPLICATIONS

INDUSTRIAL APPLICATIONS

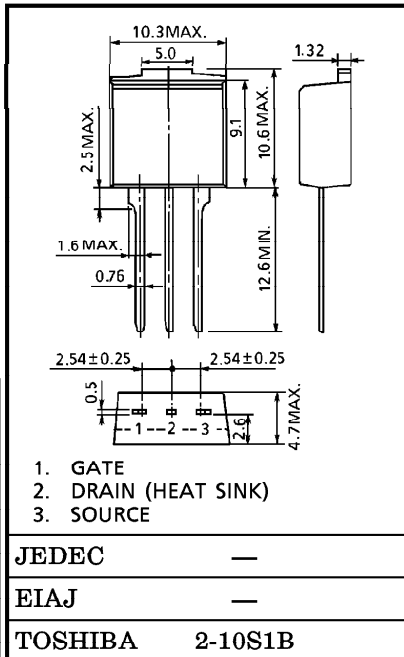
TO-220FL

Unit in mm

- Low Drain-Source ON Resistance : $R_{DS(ON)}=3.0\Omega$ (Typ.)
- High Forward Transfer Admittance : $|Y_{fs}|=2.0S$ (Typ.)
- Low Leakage Current : $I_{DSS}=300\mu A$ (Max.) ($V_{DS}=800V$)
- Enhancement-Mode : $V_{th}=1.5\sim 3.5V$ ($V_{DS}=10V, I_D=1mA$)

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

CHARACTERISTIC		SYMBOL	RATING	UNIT
Drain-Source Voltage		V_{DSS}	1000	V
Drain-Gate Voltage ($R_{GS}=20k\Omega$)		V_{DGR}	1000	V
Gate-Source Voltage		V_{GSS}	± 20	V
Drain Current	DC	I_D	4	A
	Pulse	I_{DP}	12	
Drain Power Dissipation ($T_c=25^\circ C$)		P_D	80	W
Channel Temperature		T_{ch}	150	$^\circ C$
Storage Temperature Range		T_{stg}	$-55\sim 150$	$^\circ C$

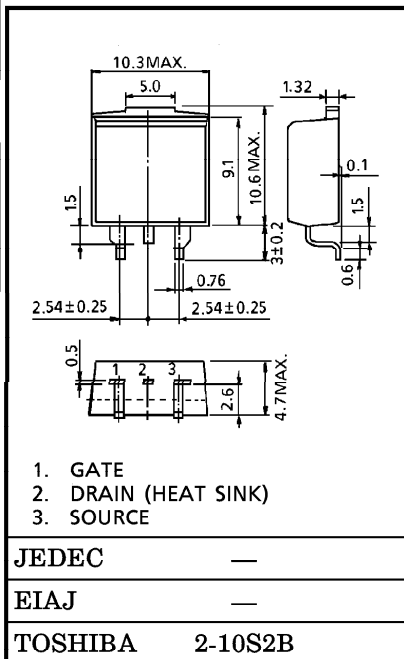


THERMAL CHARACTERISTICS

CHARACTERISTIC	SYMBOL	MAX.	UNIT
Thermal Resistance, Channel to Case	$R_{th(ch-c)}$	1.56	$^\circ C/W$
Thermal Resistance, Channel to Ambient	$R_{th(ch-a)}$	83.3	$^\circ C/W$

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

TO-220SM



Weight : 1.5g

961001EAA2

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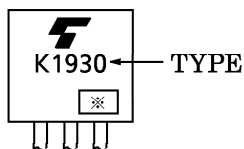
ELECTRICAL CHARACTERISTICS (Ta = 25°C)

CHARACTERISTIC		SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
Gate Leakage Current		I_{GSS}	$V_{GS} = \pm 20V, V_{DS} = 0V$	—	—	± 100	nA
Drain Cut-off Current		I_{DSS}	$V_{DS} = 800V, V_{GS} = 0V$	—	—	300	μA
Drain-Source Breakdown Voltage		$V(BR)_{DSS}$	$I_D = 10mA, V_{GS} = 0V$	1000	—	—	V
Gate Threshold Voltage		V_{th}	$V_{DS} = 10V, I_D = 1mA$	1.5	—	3.5	V
Drain-Source ON Resistance		$R_{DS(ON)}$	$V_{GS} = 10V, I_D = 2A$	—	3.0	3.8	Ω
Forward Transfer Admittance		$ Y_{fs} $	$V_{DS} = 20V, I_D = 2A$	1.0	2.0	—	S
Input Capacitance		C_{iss}	$V_{DS} = 25V, V_{GS} = 0V,$ $f = 1MHz$	—	700	—	pF
Reverse Transfer Capacitance		C_{rss}		—	55	—	
Output Capacitance		C_{oss}		—	100	—	
Switching Time	Rise Time	t_r	<p>$I_D = 2A$ $V_{GS} = 10V, 0V$ 50Ω $R_L = 200\Omega$ $V_{DD} \approx 400V$</p>	—	18	—	ns
	Turn-on Time	t_{on}		—	30	—	
	Fall Time	t_f		—	12	—	
	Turn-off Time	t_{off}		$V_{IN} : t_r, t_f < 5ns,$ $Duty \leq 1\%, t_w = 10\mu s$	—	70	
Total Gate Charge (Gate-Source Plus Gate-Drain)		Q_g	$V_{DD} \approx 400V, V_{GS} = 10V,$ $I_D = 4A$	—	60	—	nC
Gate-Source Charge		Q_{gs}		—	35	—	
Gate-Drain ("Miller") Charge		Q_{gd}		—	25	—	

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

CHARACTERISTIC	SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
Continuous Drain Reverse Current	I_{DR}	—	—	—	4	A
Pulse Drain Reverse Current	I_{DRP}	—	—	—	12	A
Diode Forward Voltage	V_{DSF}	$I_{DR} = 4A, V_{GS} = 0V$	—	—	-1.9	V

MARKING



※ Lot Number

□ □ — Month (Starting from Alphabet A)

— Year (Last Number of the Christian Era)

