

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 : $V_{th}=1.5\sim 3.5V$ ($V_{DS}=10V, I_D=1mA$)

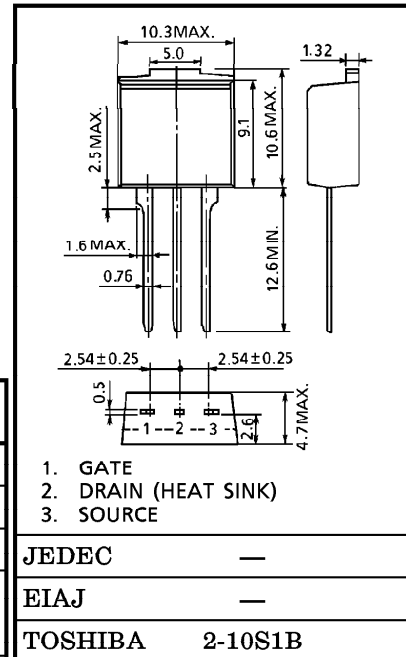
MAXIMUM RATINGS (Ta = 25°C)

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	°C
Storage Temperature Range		T_{stg}	-55~150	°C

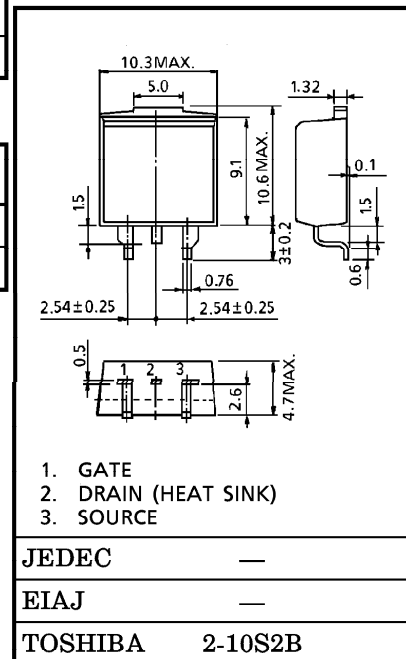
THERMAL CHARACTERISTICS

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

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



TO-220SM

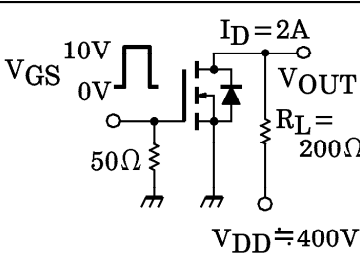


Weight : 1.5g

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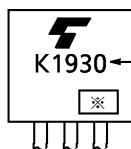
ELECTRICAL CHARACTERISTICS (Ta = 25°C)

CHARACTERISTIC		SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
Gate Leakage Current		IGSS	VGS = ±20V, VDS = 0V	—	—	±100	nA
Drain Cut-off Current		IDSS	VDS = 800V, VGS = 0V	—	—	300	μA
Drain-Source Breakdown Voltage		V (BR) DSS	ID = 10mA, VGS = 0V	1000	—	—	V
Gate Threshold Voltage		Vth	VDS = 10V, ID = 1mA	1.5	—	3.5	V
Drain-Source ON Resistance		RDS (ON)	VGS = 10V, ID = 2A	—	3.0	3.8	Ω
Forward Transfer Admittance		Yfs	VDS = 20V, ID = 2A	1.0	2.0	—	S
Input Capacitance		Ciss	VDS = 25V, VGS = 0V, f = 1MHz	—	700	—	pF
Reverse Transfer Capacitance		Crss		—	55	—	
Output Capacitance		Coss		—	100	—	
Switching Time	Rise Time	tr		—	18	—	ns
	Turn-on Time	ton		—	30	—	
	Fall Time	tf		—	12	—	
	Turn-off Time	t _{off}		VIN : tr, tf < 5ns, Duty ≤ 1%, tw = 10μs	—	70	
Total Gate Charge (Gate-Source Plus Gate-Drain)		Qg	VDD ≐ 400V, VGS = 10V, ID = 4A	—	60	—	nC
Gate-Source Charge		Qgs		—	35	—	
Gate-Drain ("Miller") Charge		Qgd		—	25	—	

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

CHARACTERISTIC	SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
Continuous Drain Reverse Current	IDR	—	—	—	4	A
Pulse Drain Reverse Current	IDRP	—	—	—	12	A
Diode Forward Voltage	VDSF	IDR = 4A, VGS = 0V	—	—	-1.9	V

MARKING



TYPE

※ Lot Number

□ □ — Month (Starting from Alphabet A)

— Year (Last Number of the Christian Era)

