

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

2SK3301

HIGH SPEED, HIGH VOLTAGE SWITCHING APPLICATIONS
SWITCHING REGULATOR, DC-DC CONVERTER APPLICATIONS

INDUSTRIAL APPLICATIONS
Unit in mm

- Low Drain-Source ON Resistance : $R_{DS(ON)} = 15 \Omega$ (Typ.)
- High Forward Transfer Admittance : $|Y_{fs}| = 0.65 S$ (Typ.)
- Low Leakage Current : $I_{DSS} = 100 \mu A$ (Max.) ($V_{DS} = 720 V$)
- Enhancement-Mode : $V_{th} = 2.4 \sim 3.4 V$
($V_{DS} = 10 V, I_D = 1 mA$)

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

CHARACTERISTIC	SYMBOL	RATING	UNIT
Drain-Source Voltage	V_{DSS}	900	V
Drain-Gate Voltage ($R_{GS} = 20 k\Omega$)	V_{DGR}	900	V
Gate-Source Voltage	V_{GSS}	± 30	V
DC Drain Current	DC	I_D	1 A
	Pulse	I_{DP}	2 A
Drain Power Dissipation ($T_a = 25^\circ C$)	P_D	20	W
Single Pulse Avalanche Energy**	E_{AS}	140	mJ
Avalanche Current	I_{AR}	1	A
Repetitive Avalanche Energy*	E_{AR}	2.0	mJ
Channel Temperature	T_{ch}	150	$^\circ C$
Storage Temperature Range	T_{stg}	$-55 \sim 150$	$^\circ C$

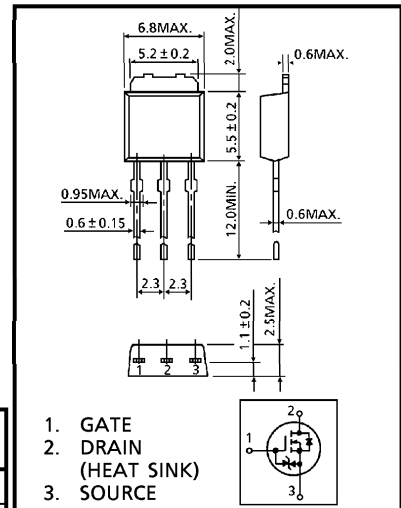
THERMAL CHARACTERISTICS

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

Note ;

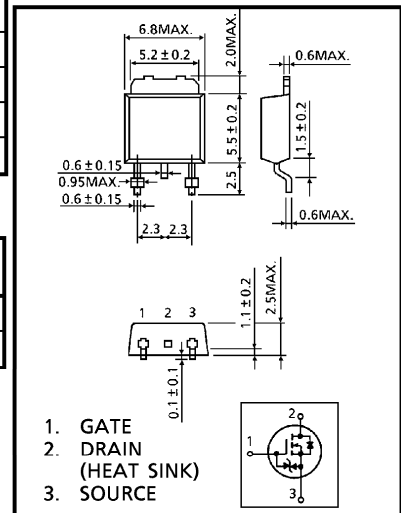
- * Repetitive rating ; Pulse Width Limited by Max. junction temperature.
- ** $V_{DD} = 90 V, T_{ch} = 25^\circ C$ (initial), $L = 257 mH$
 $R_G = 25 \Omega, I_{AR} = 1 A$

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



JEDEC	—
EIAJ	SC-64
TOSHIBA	2-7B1B

Weight : 0.36g



JEDEC	—
EIAJ	SC-64
TOSHIBA	2-7B2B

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} = ±30 V, V _{DS} = 0 V	—	—	±10	μA
Gate-Source Breakdown Voltage		V _{(BR)GSS}	I _G = ±10 μA, V _{DS} = 0 V	±30	—	—	V
Drain Cut-off Current		I _{DSS}	V _{DS} = 720 V, V _{GS} = 0 V	—	—	100	μA
Drain-Source Breakdown Voltage		V _{(BR)DSS}	I _D = 10 mA, V _{GS} = 0 V	900	—	—	V
Gate Threshold Voltage		V _{th}	V _{DS} = 10 V, I _D = 1 mA	2.4	—	3.4	V
Drain-Source ON Resistance		R _{D(S)ON}	V _{GS} = 10 V, I _D = 0.5 A	—	15	20	Ω
Forward Transfer Admittance		Y _{fs}	V _{DS} = 10 V, I _D = 0.5 A	0.3	0.65	—	S
Input Capacitance		C _{iss}	V _{DS} = 25 V, V _{GS} = 0 V, f = 1 MHz	—	165	—	pF
Reverse Transfer Capacitance		C _{rss}		—	6	—	
Output Capacitance		C _{oss}		—	21	—	
Switching Time	Rise Time	t _r		—	15	—	ns
	Turn-on Time	t _{on}		—	60	—	
	Fall Time	t _f		—	40	—	
	Turn-off Time	t _{off}		—	110	—	
Total Gate Charge (Gate-Source Plus Gate-Drain)		Q _g	V _{DD} ≐ 400 V, V _{GS} = 10 V, I _D = 1 A	—	6	—	nC
Gate-Source Charge		Q _{gs}		—	3	—	
Gate-Drain ("Miller") Charge		Q _{gd}		—	3	—	

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

CHARACTERISTIC	SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
Continuous Drain Reverse Current	I _{IDR}	—	—	—	1	A
Pulse Drain Reverse Current	I _{IDRP}	—	—	—	2	A
Diode Forward Voltage	V _{D(S)F}	I _{IDR} = 1 A, V _{GS} = 0 V	—	—	-1.7	V
Reverse Recovery Time	t _{rr}	I _{IDR} = 1 A, V _{GS} = 0 V	—	1300	—	ns
Reverse Recovery Charge	Q _{rr}	dI _{IDR} / dt = 100 A / μs	—	1.95	—	μC

MARKING

