

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

2SK2614

CHOPPER REGULATOR, DC-DC CONVERTER AND MOTOR DRIVE APPLICATIONS

- 4 V Gate Drive
- Low Drain-Source ON Resistance : $R_{DS(ON)} = 0.032 \Omega$ (Typ.)
- High Forward Transfer Admittance : $|Y_{fs}| = 13 S$ (Typ.)
- Low Leakage Current : $I_{DSS} = 100 \mu A$ (Max.)
($V_{DS} = 50 V$)
- Enhancement-Mode : $V_{th} = 0.8 \sim 2.0 V$
($V_{DS} = 10 V, I_D = 1 mA$)

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

CHARACTERISTIC		SYMBOL	RATING	UNIT
Drain-Source Voltage		V_{DSS}	50	V
Drain-Gate Voltage ($R_{GS} = 20 k\Omega$)		V_{DGR}	50	V
Gate-Source Voltage		V_{GSS}	± 20	V
Drain Current	DC (Note 1)	I_D	20	A
	Pulse (Note 1)	I_{DP}	50	
Drain Power Dissipation ($T_c = 25^\circ C$)		P_D	40	W
Channel Temperature		T_{ch}	150	$^\circ C$
Storage Temperature Range		T_{stg}	$-55 \sim 150$	$^\circ C$

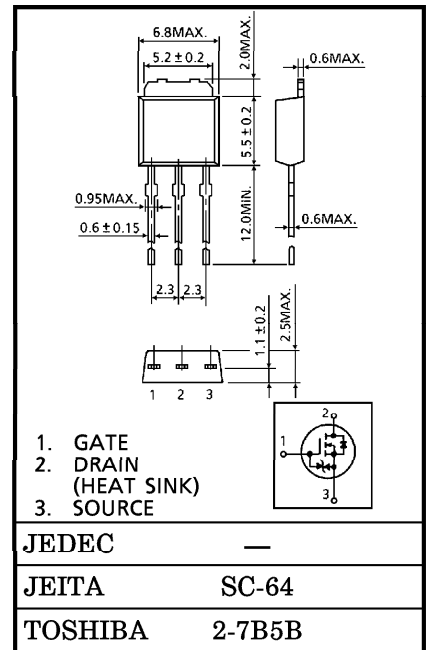
THERMAL CHARACTERISTICS

CHARACTERISTIC	SYMBOL	MAX.	UNIT
Thermal Resistance, Channel to Case	$R_{th(ch-c)}$	3.125	$^\circ C/W$
Thermal Resistance, Channel to Ambient	$R_{th(ch-a)}$	125	$^\circ C/W$

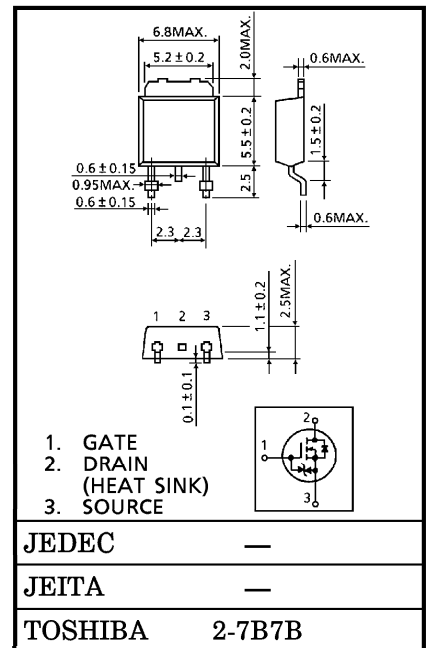
(Note 1) : Please use devices on condition that the channel temperature is below 150°C.

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

Unit in mm



Weight : 0.36 g (Typ.)



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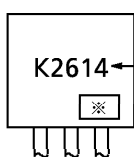
ELECTRICAL CHARACTERISTICS (Ta = 25°C)

CHARACTERISTIC	SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNIT	
Gate Leakage Current	I_{GSS}	$V_{GS} = \pm 16\text{ V}, V_{DS} = 0\text{ V}$	—	—	± 10	μA	
Drain Cut-off Current	I_{DSS}	$V_{DS} = 50\text{ V}, V_{GS} = 0\text{ V}$	—	—	100	μA	
Drain-Source Breakdown Voltage	$V_{(BR)DSS}$	$I_D = 10\text{ mA}, V_{GS} = 0\text{ V}$	50	—	—	V	
Gate Threshold Voltage	V_{th}	$V_{DS} = 10\text{ V}, I_D = 1\text{ mA}$	0.8	—	2.0	V	
Drain-Source ON Resistance	$R_{DS(ON)}$	$V_{GS} = 4\text{ V}, I_D = 5\text{ A}$	—	0.055	0.08	Ω	
		$V_{GS} = 10\text{ V}, I_D = 10\text{ A}$	—	0.032	0.046		
Forward Transfer Admittance	$ Y_{fs} $	$V_{DS} = 10\text{ V}, I_D = 10\text{ A}$	7	13	—	S	
Input Capacitance	C_{iss}	$V_{DS} = 10\text{ V}, V_{GS} = 0\text{ V}, f = 1\text{ MHz}$	—	900	—	pF	
Reverse Transfer Capacitance	C_{rss}		—	130	—		
Output Capacitance	C_{oss}		—	370	—		
Switching Time	Rise Time	t_r		—	15	—	ns
	Turn-on Time	t_{on}		—	25	—	
	Fall Time	t_f		—	30	—	
	Turn-off Time	t_{off}		Duty $\leq 1\%$, $t_w = 10\ \mu\text{s}$	—	100	
Total Gate Charge (Gate-Source Plus Gate-Drain)	Q_g	$V_{DD} \doteq 40\text{ V}, V_{GS} = 10\text{ V}, I_D = 20\text{ A}$	—	25	—	nC	
Gate-Source Charge	Q_{gs}		—	19	—		
Gate-Drain ("Miller") Charge	Q_{gd}		—	6	—		

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

CHARACTERISTIC	SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
Continuous Drain Reverse Current (Note 1)	I_{DR}	—	—	—	20	A
Pulse Drain Reverse Current (Note 1)	I_{DRP}	—	—	—	50	A
Forward Voltage (Diode)	V_{DSF}	$I_{DR} = 20\text{ A}, V_{GS} = 0\text{ V}$	—	—	-1.7	V
Reverse Recovery Time	t_{rr}	$I_{DR} = 20\text{ A}, V_{GS} = 0\text{ V}$ $dI_{DR}/dt = 50\text{ A}/\mu\text{s}$	—	60	—	ns
Reverse Recovery Charge	Q_{rr}		—	45	—	μC

MARKING



TYPE ← K2614
 ※ Lot Number
 □ □ — Month (Starting from Alphabet A)
 — Year (Last Number of the Christian Era)

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