

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

2SK2614

HIGH SPEED, HIGH CURRENT SWITCHING APPLICATIONS

CHOPPER REGULATOR, DC-DC CONVERTER AND MOTOR DRIVE APPLICATIONS

INDUSTRIAL APPLICATIONS

Unit in mm

- 4 V Gate Drive
- Low Drain-Source ON Resistance : $R_{DS(ON)} = 0.032 \Omega$ (Typ.)
- High Forward Transfer Admittance : $|Y_{fs}| = 8 S$ (Typ.)
- Low Leakage Current : $I_{DSS} = 100 \mu A$ (Max.)
($V_{DS} = 50 V$)
- Enhancement-Mode : $V_{th} = 0.8 \sim 2.0 V$
($V_{DS} = 10 V, I_D = 1 mA$)

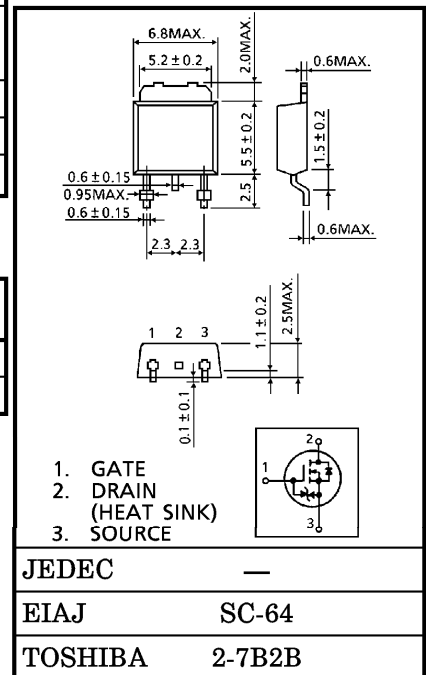
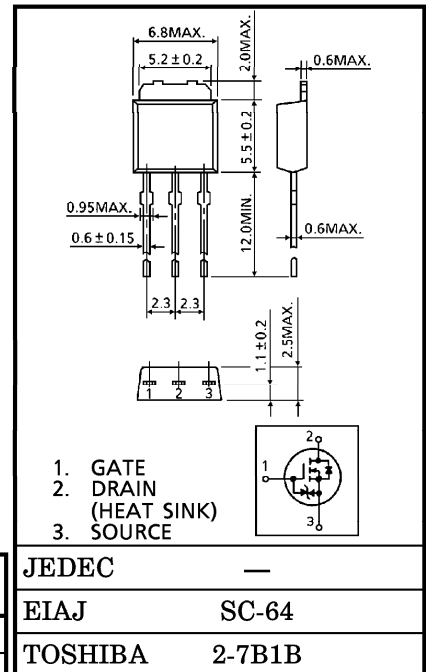
MAXIMUM RATINGS (Ta = 25°C)

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	I_D	20	A
	Pulse	I_{DP}	50	
Drain Power Dissipation (Tc = 25°C)		P_D	40	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	$R_{th(ch-c)}$	3.125	°C/W
Thermal Resistance, Channel to Ambient	$R_{th(ch-a)}$	125	°C/W

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



Weight : 0.36 g

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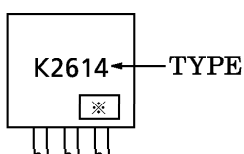
ELECTRICAL CHARACTERISTICS (Ta = 25°C)

CHARACTERISTIC	SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNIT	
Gate Leakage Current	I _{GSS}	V _{GS} = ±16 V, V _{DS} = 0 V	—	—	±10	μA	
Drain Cut-off Current	I _{DSS}	V _{DS} = 50 V, V _{GS} = 0 V	—	—	100	μA	
Drain-Source Breakdown Voltage	V _{(BR)DSS}	I _D = 10 mA, V _{GS} = 0 V	50	—	—	V	
Gate Threshold Voltage	V _{th}	V _{DS} = 10 V, I _D = 1 mA	0.8	—	2.0	V	
Drain-Source ON Resistance	R _{DS(ON)}	V _{GS} = 4 V, I _D = 5 A	—	0.055	0.08	Ω	
		V _{GS} = 10 V, I _D = 10 A	—	0.032	0.046		
Forward Transfer Admittance	Y _{fs}	V _{DS} = 10 V, I _D = 10 A	7	13	—	S	
Input Capacitance	C _{iss}	V _{DS} = 10 V, V _{GS} = 0 V, f = 1 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}		V _{IN} : t _r , t _f < 5 ns, Duty ≤ 1%, t _w = 10 μs	—	100	
Total Gate Charge (Gate-Source Plus Gate-Drain)	Q _g	V _{DD} ≐ 40 V, V _{GS} = 10 V, I _D = 20 A	—	25	—	nC	
Gate-Source Charge	Q _{gs}		—	19	—		
Gate-Drain ("Miller") Charge	Q _{gd}		—	6	—		

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

CHARACTERISTIC	SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
Continuous Drain Reverse Current	I _{DR}	—	—	—	20	A
Pulse Drain Reverse Current	I _{DRP}	—	—	—	50	A
Diode Forward Voltage	V _{DSSF}	I _{DR} = 20 A, V _{GS} = 0 V	—	—	-1.7	V
Reverse Recovery Time	t _{rr}	I _{DR} = 20 A, V _{GS} = 0 V dI _{DR} /dt = 50 A/μs	—	60	—	ns
Reverse Recovery Charge	Q _{rr}		—	45	—	μC

MARKING



※ Lot Number

□ □ — Month (Starting from Alphabet A)

— Year (Last Number of the Christian Era)