

TOSHIBA

2SK1382

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

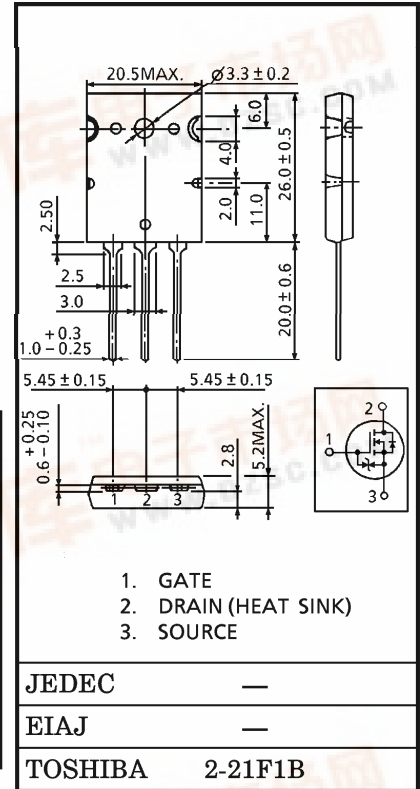
2SK1382

HIGH SPEED SWITCHING APPLICATIONS
RELAY DRIVE, MOTOR DRIVE AND DC-DC CONVERTER APPLICATIONS

INDUSTRIAL APPLICATIONS

Unit in mm

- 4V Gate Drive
- Low Drain-Source ON Resistance : $R_{DS(ON)} = 15m\Omega$ (Typ.)
- High Forward Transfer Admittance : $|Y_{fs}| = 47S$ (Typ.)
- Low Leakage Current : $I_{DSS} = 100\mu A$ (Max.) ($V_{DS} = 100V$)
- Enhancement-Mode : $V_{th} = 0.8 \sim 2.0V$ ($V_{DS} = 10V, I_D = 1mA$)



Weight : 9.75g

MAXIMUM RATINGS (Ta = 25°C)

CHARACTERISTIC	SYMBOL	RATING	UNIT
Drain-Source Voltage	V_{DSS}	100	V
Drain-Gate Voltage ($R_{GS} = 20k\Omega$)	V_{DGR}	100	V
Gate-Source Voltage	V_{GSS}	± 20	V
Drain Current	DC	I_D 60	A
	Pulse	I_{DP} 240	
Drain Power Dissipation ($T_c = 25^\circ C$)	P_D	200	W
Channel Temperature	T_{ch}	150	°C
Storage Temperature Range	T_{stg}	-55~150	°C

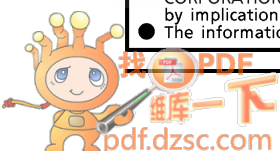
THERMAL CHARACTERISTICS

CHARACTERISTIC	SYMBOL	MAX.	UNIT
Thermal Resistance, Channel to Case	$R_{th(ch-c)}$	0.625	°C/W
Thermal Resistance, Channel to Ambient	$R_{th(ch-a)}$	35.7	°C/W

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

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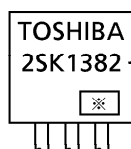
ELECTRICAL CHARACTERISTICS (Ta = 25°C)

CHARACTERISTIC		SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
Gate Leakage Current		I_{GSS}	$V_{GS} = \pm 20V, V_{DS} = 0V$	—	—	± 10	nA
Drain Cut-off Current		I_{DSS}	$V_{DS} = 100V, V_{GS} = 0V$	—	—	100	μA
Drain-Source Breakdown Voltage		$V(BR)_{DSS}$	$I_D = 10mA, V_{GS} = 0V$	100	—	—	V
Gate Threshold Voltage		V_{th}	$V_{DS} = 10V, I_D = 1mA$	0.8	—	2.0	V
Drain-Source ON Resistance		$R_{DS(ON)}$	$V_{GS} = 4V, I_D = 30A$	—	20	29	m Ω
			$V_{GS} = 10V, I_D = 30A$		15	20	
Forward Transfer Admittance		$ Y_{fs} $	$V_{DS} = 10V, I_D = 30A$	30	47	—	S
Input Capacitance		C_{iss}	$V_{DS} = 10V, V_{GS} = 0V, f = 1MHz$	—	7000	—	pF
Reverse Transfer Capacitance		C_{rss}		—	400	—	
Output Capacitance		C_{oss}		—	2700	—	
Switching Time	Rise Time	t_r	<p>$I_D = 30A$ $V_{GS} = 10V, 0V$ $R_L = 1.6\Omega$ $V_{IN} : t_r, t_f < 5ns, V_{DD} \doteq 50V$ Duty $\leq 1\%, t_W = 10\mu s$</p>	—	16	—	ns
	Turn-on Time	t_{on}		—	55	—	
	Fall Time	t_f		—	80	—	
	Turn-off Time	t_{off}		—	280	—	
Total Gate Charge (Gate-Source Plus Gate-Drain)		Q_g	$V_{DD} \doteq 80V, V_{GS} = 10V, I_D = 60A$	—	176	—	nC
Gate-Source Charge		Q_{gs}		—	132	—	
Gate-Drain ("Miller") Charge		Q_{gd}		—	44	—	

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

CHARACTERISTIC	SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
Continuous Drain Reverse Current	I_{DR}	—	—	—	60	A
Pulse Drain Reverse Current	I_{DRP}	—	—	—	240	A
Diode Forward Voltage	V_{DSF}	$I_{DR} = 60A, V_{GS} = 0V$	—	—	-1.6	V
Reverse Recovery Time	t_{rr}	$I_{DR} = 60A, V_{GS} = 0V$	—	300	—	ns
Reverse Recovered Charge	Q_{rr}	$dI_{DR} / dt = 50A / \mu s$	—	0.75	—	μC

MARKING



TYPE

※ Lot Number

□ □ — Month (Starting from Alphabet A)

— Year (Last Number of the Christian Era)

