

TOSHIBA FIELD EFFECT TRANSISTOR SILICON N CHANNEL MOS TYPE (π -MOSIII.5)

2SK1486

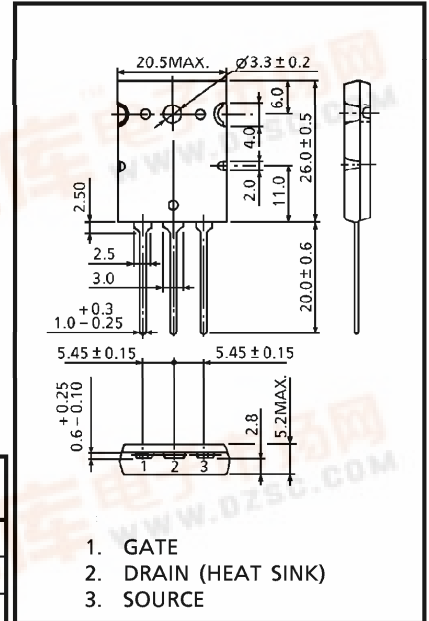
HIGH SPEED, HIGH CURRENT SWITCHING APPLICATIONS

CHOPPER REGULATOR, DC-DC CONVERTER AND MOTOR DRIVE APPLICATIONS

INDUSTRIAL APPLICATIONS

Unit in mm

- Low Drain-Source ON Resistance : $R_{DS(ON)} = 0.08 \Omega$ (Typ.)
- High Forward Transfer Admittance : $|Y_{fs}| = 14 S$ (Typ.)
- Low Leakage Current : $I_{DSS} = 300 \mu A$ (Max.) ($V_{DS} = 300 V$)
- Enhancement-Mode : $V_{th} = 2.0 \sim 4.0 V$
($V_{DS} = 10 V, I_D = 1 mA$)



1. GATE
2. DRAIN (HEAT SINK)
3. SOURCE

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

CHARACTERISTIC		SYMBOL	RATING	UNIT
Drain-Source Voltage		V_{DSS}	300	V
Drain-Gate Voltage ($R_{GS} = 20 k\Omega$)		V_{DGR}	300	V
Gate-Source Voltage		V_{GSS}	± 30	V
Drain Current	DC	I_D	32	A
	Pulse	I_{DP}	128	
Drain Power Dissipation ($T_c = 25^\circ C$)		P_D	200	W
Channel Temperature		T_{ch}	150	$^\circ C$
Storage Temperature Range		T_{stg}	$-55 \sim 150$	$^\circ C$

JEDEC	—
EIAJ	—
TOSHIBA	2-21F1B

Weight : 9.75 g

THERMAL CHARACTERISTICS

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

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

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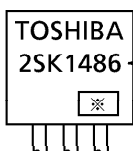
ELECTRICAL CHARACTERISTICS (Ta = 25°C)

CHARACTERISTIC		SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
Gate Leakage Current		I_{GSS}	$V_{GS} = \pm 30\text{ V}, V_{DS} = 0\text{ V}$	—	—	± 100	nA
Drain Cut-off Current		I_{DSS}	$V_{DS} = 300\text{ V}, V_{GS} = 0\text{ V}$	—	—	300	μA
Drain-Source Breakdown Voltage		$V_{(BR)DSS}$	$I_D = 10\text{ mA}, V_{GS} = 0\text{ V}$	300	—	—	V
Gate Threshold Voltage		V_{th}	$V_{DS} = 10\text{ V}, I_D = 1\text{ mA}$	2.0	—	4.0	V
Drain-Source ON Resistance		$R_{DS(ON)}$	$I_D = 16\text{ A}, V_{GS} = 10\text{ V}$	—	0.08	0.095	Ω
Forward Transfer Admittance		$ Y_{fs} $	$V_{DS} = 10\text{ V}, I_D = 16\text{ A}$	10	14	—	S
Input Capacitance		C_{iss}	$V_{DS} = 10\text{ V}, V_{GS} = 0\text{ V},$ $f = 1\text{ MHz}$	—	3500	—	pF
Reverse Transfer Capacitance		C_{rss}		—	800	—	
Output Capacitance		C_{oss}		—	1250	—	
Switching Time	Rise Time	t_r	<p>$I_D = 16\text{ A}$ $V_{GS} = 10\text{ V}$ V_{OUT} $R_L = 10\ \Omega$ $V_{DD} \doteq 160\text{ V}$ $V_{IN} : t_r, t_f < 5\text{ ns},$ $\text{Duty} \leq 1\%, t_w = 10\ \mu\text{s}$</p>	—	255	—	ns
	Turn-on Time	t_{on}		—	325	—	
	Fall Time	t_f		—	280	—	
	Turn-off Time	t_{off}		—	540	—	
Total Gate Charge (Gate-Source Plus Gate-Drain)		Q_g	$V_{DD} \doteq 240\text{ V}, V_{GS} = 10\text{ V},$ $I_D = 32\text{ A}$	—	140	—	nC
Gate-Source Charge		Q_{gs}		—	60	—	
Gate-Drain ("Miller") Charge		Q_{gd}		—	80	—	

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

CHARACTERISTIC	SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
Continuous Drain Reverse Current	I_{DR}	—	—	—	32	A
Pulse Drain Reverse Current	I_{DRP}	—	—	—	128	A
Diode Forward Voltage	V_{DSF}	$I_{DR} = 32\text{ A}, V_{GS} = 0\text{ V}$	—	—	-1.8	V
Reverse Recovery Time	t_{rr}	$I_{DR} = 32\text{ A}, V_{GS} = 0\text{ V}$	—	615	—	ns
Reverse Recovered Charge	Q_{rr}	$dI_{DR}/dt = 100\text{ A}/\mu\text{s}$	—	6.8	—	μC

MARKING



TYPE

※ Lot Number



Month (Starting from Alphabet A)

Year (Last Number of the Christian Era)

