

TOSHIBA FIELD EFFECT TRANSISTOR SILICON N CHANNEL MOS TYPE ( $\pi$ -MOSIII.5)

# 2SK1486

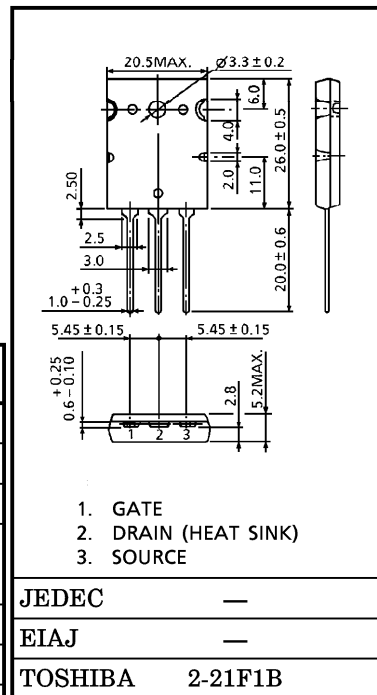
HIGH SPEED, HIGH CURRENT SWITCHING APPLICATIONS  
 CHOPPER REGULATOR, DC-DC CONVERTER AND MOTOR DRIVE APPLICATIONS

INDUSTRIAL APPLICATIONS  
 Unit in mm

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

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

CHARACTERISTIC	SYMBOL	RATING	UNIT
Drain-Source Voltage	$V_{DSS}$	300	V
Drain-Gate Voltage ( $R_{GS} = 20k\Omega$ )	$V_{DGR}$	300	V
Gate-Source Voltage	$V_{GSS}$	$\pm 30$	V
Drain Current	DC	$I_D$	32
	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	$T_{stg}$	$-55 \sim 150$	$^\circ C$



Weight : 9.75g

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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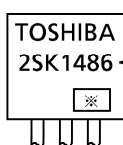
ELECTRICAL CHARACTERISTICS (Ta = 25°C)

CHARACTERISTIC	SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNIT	
Gate Leakage Current	I <sub>GSS</sub>	V <sub>GS</sub> = ±30V, V <sub>DS</sub> = 0V	—	—	±100	nA	
Drain Cut-off Current	I <sub>DSS</sub>	V <sub>DS</sub> = 300V, V <sub>GS</sub> = 0V	—	—	300	μA	
Drain-Source Breakdown Voltage	V(BR)DSS	I <sub>D</sub> = 10mA, V <sub>GS</sub> = 0V	300	—	—	V	
Gate Threshold Voltage	V <sub>th</sub>	V <sub>DS</sub> = 10V, I <sub>D</sub> = 1mA	2.0	—	4.0	V	
Drain-Source ON Resistance	R <sub>DS(ON)</sub>	I <sub>D</sub> = 16A, V <sub>GS</sub> = 10V	—	0.08	0.095	Ω	
Forward Transfer Admittance	Y <sub>fs</sub>	V <sub>DS</sub> = 10V, I <sub>D</sub> = 16A	10	14	—	S	
Input Capacitance	C <sub>iss</sub>	V <sub>DS</sub> = 10V, V <sub>GS</sub> = 0V, f = 1MHz	—	3500	—	pF	
Reverse Transfer Capacitance	C <sub>rss</sub>		—	800	—		
Output Capacitance	C <sub>oss</sub>		—	1250	—		
Switching Time	Rise Time	t <sub>r</sub>	<p>V<sub>GS</sub> 10V, 0V, I<sub>D</sub> = 16A, V<sub>OUT</sub>, R<sub>L</sub> = 10Ω, V<sub>DD</sub> ≐ 160V</p>	—	255	—	ns
	Turn-on Time	t <sub>on</sub>		—	325	—	
	Fall Time	t <sub>f</sub>		—	280	—	
	Turn-off Time	t <sub>off</sub>		V <sub>IN</sub> : t <sub>r</sub> , t <sub>f</sub> < 5ns, Duty ≤ 1%, t <sub>w</sub> = 10μs	—	540	
Total Gate Charge (Gate-Source Plus Gate-Drain)	Q <sub>g</sub>	V <sub>DD</sub> ≐ 240V, V <sub>GS</sub> = 10V, I <sub>D</sub> = 32A	—	140	—	nC	
Gate-Source Charge	Q <sub>gs</sub>		—	60	—		
Gate-Drain ("Miller") Charge	Q <sub>gd</sub>		—	80	—		

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

CHARACTERISTIC	SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
Continuous Drain Reverse Current	I <sub>DR</sub>	—	—	—	32	A
Pulse Drain Reverse Current	I <sub>DRP</sub>	—	—	—	128	A
Diode Forward Voltage	V <sub>DSF</sub>	I <sub>DR</sub> = 32A, V <sub>GS</sub> = 0V	—	—	-1.8	V
Reverse Recovery Time	t <sub>rr</sub>	I <sub>DR</sub> = 32A, V <sub>GS</sub> = 0V	—	615	—	ns
Reverse Recovered Charge	Q <sub>rr</sub>	dI <sub>DR</sub> / dt = 100A / μs	—	6.8	—	μC

MARKING



TYPE

※ Lot Number

□ □ — Month (Starting from Alphabet A)

— Year (Last Number of the Christian Era)

