

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

# 2SK1486

HIGH SPEED, HIGH CURRENT SWITCHING APPLICATIONS

INDUSTRIAL APPLICATIONS

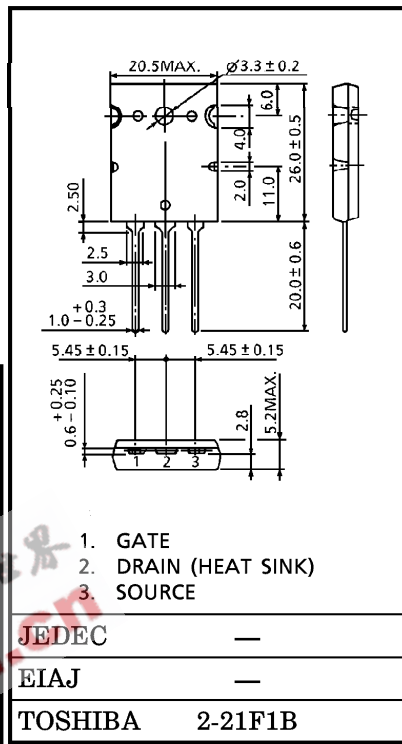
CHOPPER REGULATOR, DC-DC CONVERTER AND MOTOR DRIVE APPLICATIONS

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	A
	Pulse	$I_{DP}$	128	A
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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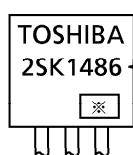
ELECTRICAL CHARACTERISTICS (Ta = 25°C)

CHARACTERISTIC		SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
Gate Leakage Current		IGSS	VGS = ±30V, VDS = 0V	—	—	±100	nA
Drain Cut-off Current		IDSS	VDS = 300V, VGS = 0V	—	—	300	μA
Drain-Source Breakdown Voltage		V(BR)DSS	ID = 10mA, VGS = 0V	300	—	—	V
Gate Threshold Voltage		Vth	VDS = 10V, ID = 1mA	2.0	—	4.0	V
Drain-Source ON Resistance		RDS(ON)	ID = 16A, VGS = 10V	—	0.08	0.095	Ω
Forward Transfer Admittance		Yfs	VDS = 10V, ID = 16A	10	14	—	S
Input Capacitance		Ciss	VDS = 10V, VGS = 0V, f = 1MHz	—	3500	—	pF
Reverse Transfer Capacitance		Crss		—	800	—	
Output Capacitance		Coss		—	1250	—	
Switching Time	Rise Time	tr	<p>VGS 10V, 0V pulse ID = 16A RL = 10Ω VDD = 160V</p>	—	255	—	ns
	Turn-on Time	ton		—	325	—	
	Fall Time	tf		—	280	—	
	Turn-off Time	t <sub>off</sub>		VIN : tr, tf < 5ns, Duty ≤ 1%, tw = 10μs	—	540	
Total Gate Charge (Gate-Source Plus Gate-Drain)		Qg	VDD = 240V, VGS = 10V, ID = 32A	—	140	—	nC
Gate-Source Charge		Qgs		—	60	—	
Gate-Drain ("Miller") Charge		Qgd		—	80	—	

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

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

MARKING



TYPE

※ Lot Number

□ □ — Month (Starting from Alphabet A)

— Year (Last Number of the Christian Era)

