

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

2SK2847

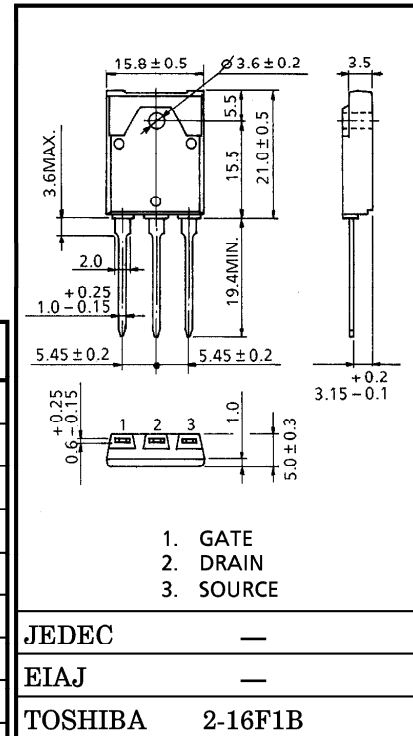
HIGH SPEED, HIGH CURRENT SWITCHING APPLICATIONS
DC-DC CONVERTER AND MOTOR DRIVE APPLICATIONS

INDUSTRIAL APPLICATIONS
Unit in mm

- Low Drain-Source ON Resistance : $R_{DS(ON)}=1.1\Omega$ (Typ.)
- High Forward Transfer Admittance : $|Y_{fs}|=7.0S$ (Typ.)
- Low Leakage Current : $I_{DSS}=100\mu A$ (Max.) ($V_{DS}=720V$)
- Enhancement-Mode : $V_{th}=2.0\sim 4.0V$ ($V_{DS}=10V, I_D=1mA$)

MAXIMUM RATINGS (Ta = 25°C)

CHARACTERISTIC		SYMBOL	RATING	UNIT
Drain-Source Voltage		V_{DSS}	900	V
Drain-Gate Voltage ($R_{GS}=20k\Omega$)		V_{DGR}	900	V
Gate-Source Voltage		V_{GSS}	± 30	V
Drain Current	DC	I_D	8	A
	Pulse	I_{DP}	24	A
Drain Power Dissipation ($T_c=25^\circ C$)		P_D	85	W
Single Pulse Avalanche Energy**		E_{AS}	799	mJ
Avalanche Current		I_{AR}	8	A
Repetitive Avalanche Energy*		E_{AR}	8.5	mJ
Channel Temperature		T_{ch}	150	°C
Storage Temperature Range		T_{stg}	-55~150	°C



Weight : 5.8g

THERMAL CHARACTERISTICS

CHARACTERISTIC	SYMBOL	MAX.	UNIT
Thermal Resistance, Channel to Case	$R_{th(ch-c)}$	1.47	°C / W
Thermal Resistance, Channel to Ambient	$R_{th(ch-a)}$	41.6	°C / W

Note ;
 * Repetitive rating ; Pulse Width Limited by Max. junction temperature.
 ** $V_{DD}=90V, T_{ch}=25^\circ C, L=22.9mH$
 $R_G=25\Omega, I_{AR}=8A$

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	—	—	±10	μA
Gate-Source Breakdown Voltage		V(BR)GSS	IG = ±10μA, VDS = 0V	±30	—	—	V
Drain Cut-off Current		IDSS	VDS = 720V, VGS = 0V	—	—	100	μA
Drain-Source Breakdown Voltage		V(BR)DSS	ID = 10mA, VGS = 0V	900	—	—	V
Gate Threshold Voltage		Vth	VDS = 10V, ID = 1mA	2.0	—	4.0	V
Drain-Source ON Resistance		RDS(ON)	VGS = 10V, ID = 4A	—	1.1	1.4	Ω
Forward Transfer Admittance		Yfs	VDS = 15V, ID = 4A	3.0	7.0	—	S
Input Capacitance		Ciss	VDS = 25V, VGS = 0V, f = 1MHz	—	2040	—	pF
Reverse Transfer Capacitance		Crss		—	45	—	
Output Capacitance		Coss		—	190	—	
Switching Time	Rise Time	tr	<p>VGS 10V 0V 4.7Ω ID = 4A VOUT RL = 100Ω VDD ≐ 400V</p>	—	25	—	ns
	Turn-on Time	ton		—	60	—	
	Fall Time	tf		—	20	—	
	Turn-off Time	t _{off}		VIN : tr, tf < 5ns, Duty ≤ 1%, tw = 10μs	—	95	
Total Gate Charge (Gate-Source Plus Gate-Drain)		Qg	VDD ≐ 400V, VGS = 10V, ID = 8A	—	58	—	nC
Gate-Source Charge		Qgs		—	32	—	
Gate-Drain (“Miller”) Charge		Qgd		—	26	—	

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

CHARACTERISTIC	SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
Continuous Drain Reverse Current	IDR	—	—	—	8	A
Pulse Drain Reverse Current	IDRP	—	—	—	24	A
Diode Forward Voltage	VDSF	IDR = 8A, VGS = 0V	—	—	-1.9	V
Reverse Recovery Time	t _{rr}	IDR = 8A, VGS = 0V	—	1650	—	ns
Reverse Recovery Charge	Q _{rr}	dIDR / dt = 100A / μs	—	21	—	μC

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