

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

2SK2606

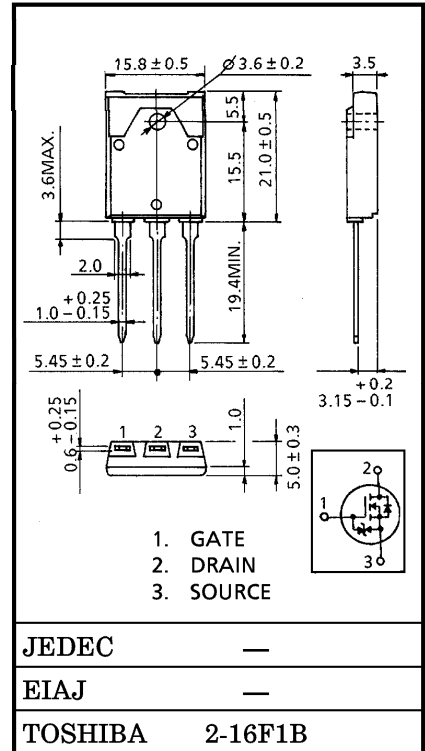
HIGH SPEED, HIGH VOLTAGE SWITCHING APPLICATIONS
DC-DC CONVERTER, RELAY DRAIVE AND MOTOR DRIVE APPLICATIONS

INDUSTRIAL APPLICATIONS
Unit in mm

- Low Drain-Source ON Resistance : $R_{DS(ON)} = 1.0 \Omega$ (Typ.)
- High Forward Transfer Admittance : $|Y_{fs}| = 7.0 S$ (Typ.)
- Low Leakage Current : $I_{DSS} = 100 \mu A$ (Max.) ($V_{DS} = 640 V$)
- Enhancement-Mode : $V_{th} = 2.0 \sim 4.0 V$
($V_{DS} = 10 V, I_D = 1 mA$)

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

CHARACTERISTIC		SYMBOL	RATING	UNIT
Drain-Source Voltage		V_{DSS}	800	V
Drain-Gate Voltage ($R_{GS} = 20 k\Omega$)		V_{DGR}	800	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}	883	mJ
Avalanche Current		I_{AR}	8	A
Repetitive Avalanche Energy*		E_{AR}	8.5	mJ
Channel Temperature		T_{ch}	150	$^\circ C$
Storage Temperature Range		T_{stg}	$-55 \sim 150$	$^\circ C$



THERMAL CHARACTERISTICS

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

Note ;

* Repetitive rating ; Pulse Width Limited by Max. junction temperature.

** $V_{DD} = 90 V, T_{ch} = 25^\circ C$ (initial), $L = 25.0 mH, I_{AR} = 8 A, R_G = 25 \Omega$

**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} = ±30 V, V _{DS} = 0 V	—	—	±10	μA
Gate-Source Breakdown Voltage		V _{(BR)GSS}	I _G = ±10 μA, V _{DS} = 0 V	±30	—	—	V
Drain Cut-off Current		I _{DSS}	V _{DS} = 640 V, V _{GS} = 0 V	—	—	100	μA
Drain-Source Breakdown Voltage		V _{(BR)DSS}	I _D = 10 mA, V _{GS} = 0 V	800	—	—	V
Gate Threshold Voltage		V _{th}	V _{DS} = 10 V, I _D = 1 mA	2.0	—	4.0	V
Drain-Source ON Resistance		R _{D(S)ON}	V _{GS} = 10 V, I _D = 4 A	—	1.0	1.2	Ω
Forward Transfer Admittance		Y _{fs}	V _{DS} = 15 V, I _D = 4 A	3.0	7.0	—	S
Input Capacitance		C _{iss}	V _{DS} = 25 V, V _{GS} = 0 V f = 1 MHz	—	2160	—	pF
Reverse Transfer Capacitance		C _{rss}		—	45	—	
Output Capacitance		C _{oss}		—	200	—	
Switching Time	Rise Time	t _r	<p>V_{GS} 10 V, 0 V, 7 Ω, I_D = 4 A, V_{out}, R_L = 100 Ω, V_{DD} ≐ 400 V</p>	—	25	—	ns
	Turn-on Time	t _{on}		—	60	—	
	Fall Time	t _f		—	25	—	
	Turn-off Time	t _{off}		V _{IN} : t _r , t _f < 5 ns, Duty ≦ 1%, t _w = 10 μs	—	110	
Total Gate Charge (Gate-Source Plus Gate-Drain)		Q _g	V _{DD} ≐ 400 V, V _{GS} = 10 V	—	68	—	nC
Gate-Source Charge		Q _{gs}	I _D = 8 A	—	38	—	
Gate-Drain (“Miller”) Charge		Q _{gd}		—	30	—	

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

CHARACTERISTIC	SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
Continuous Drain Reverse Current	I _{IDR}	—	—	—	8	A
Pulse Drain Reverse Current	I _{IDRP}	—	—	—	24	A
Diode Forward Voltage	V _{D(S)F}	I _{IDR} = 8 A, V _{GS} = 0 V	—	—	-1.9	V
Reverse Recovery Time	t _{rr}	I _{IDR} = 8 A, V _{GS} = 0 V	—	1500	—	ns
Reverse Recovery Charge	Q _{rr}	dI _{IDR} / dt = 100 A / μs	—	19	—	μC