

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

2SK3126

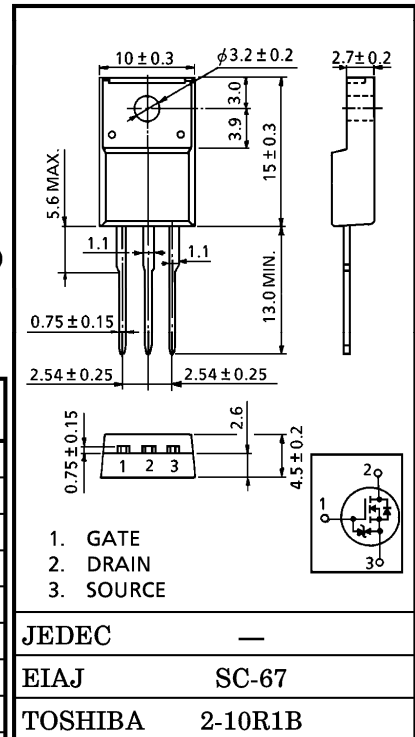
HIGH SPEED, HIGH VOLTAGE SWITCHING APPLICATIONS
SWITCHING REGULATOR APPLICATIONS

INDUSTRIAL APPLICATIONS
Unit in mm

- Low Drain-Source ON Resistance : $R_{DS(ON)} = 0.48 \Omega$ (Typ.)
- High Forward Transfer Admittance : $|Y_{fs}| = 7.5 S$ (Typ.)
- Low Leakage Current : $I_{DSS} = 100 \mu A$ (Max.) ($V_{DS} = 450 V$)
- Enhancement-Mode : $V_{th} = 2.4 \sim 3.4 V$ ($V_{DS} = 10 V, I_D = 1 mA$)

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

CHARACTERISTIC		SYMBOL	RATING	UNIT
Drain-Source Voltage		V_{DSS}	450	V
Drain-Gate Voltage ($R_{GS} = 20 k\Omega$)		V_{DGR}	450	V
Gate-Source Voltage		V_{GSS}	± 30	V
Drain Current	DC	I_D	10	A
	Pulse	I_{DP}	40	A
Drain Power Dissipation ($T_c = 25^\circ C$)		P_D	40	W
Single Pulse Avalanche Energy**		E_{AS}	222	mJ
Avalanche Current		I_{AR}	10	A
Repetitive Avalanche Energy*		E_{AR}	4	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	$R_{th(ch-c)}$	3.125	$^\circ C/W$
Thermal Resistance, Channel to Ambient	$R_{th(ch-a)}$	62.5	$^\circ C/W$

Note ;

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

** $V_{DD} = 90 V$, Starting $T_{ch} = 25^\circ C$, $L = 3.7 mH$, $R_G = 25 \Omega$, $I_{AR} = 10 A$

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

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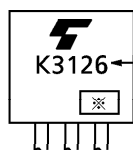
ELECTRICAL CHARACTERISTICS (Ta = 25°C)

CHARACTERISTIC		SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
Gate Leakage Current		IGSS	VGS = ±25 V, VDS = 0 V	—	—	±10	μA
Gate-Source Breakdown Voltage		V(BR)GSS	IG = ±10 μA, VDS = 0 V	±30	—	—	V
Drain Cut-off Current		IDSS	VDS = 450 V, VGS = 0 V	—	—	100	μA
Drain-Source Breakdown Voltage		V(BR)DSS	ID = 10 mA, VGS = 0 V	450	—	—	V
Gate Threshold Voltage		Vth	VDS = 10 V, ID = 1 mA	2.4	—	3.4	V
Drain-Source ON Resistance		RDS(ON)	VGS = 10 V, ID = 5 A	—	0.48	0.65	Ω
Forward Transfer Admittance		Yfs	VDS = 10 V, ID = 5 A	3.5	7.5	—	S
Input Capacitance		Ciss	VDS = 10 V, VGS = 0 V, f = 1 MHz	—	1400	—	pF
Reverse Transfer Capacitance		Crss		—	240	—	
Output Capacitance		Coss		—	590	—	
Switching Time	Rise Time	tr	<p> $V_{GS} = 10\text{ V}$ $V_{GS} = 0\text{ V}$ $I_D = 5\text{ A}$ $R_L = 40\ \Omega$ $V_{DD} \cong 200\text{ V}$ </p>	—	35	—	ns
	Turn-on Time	ton		—	50	—	
	Fall Time	tf		—	80	—	
	Turn-off Time	t _{off}		$V_{IN} : t_r, t_f < 5\text{ ns}$, $\text{Duty} \leq 1\%$, $t_w = 10\ \mu\text{s}$	—	260	
Total Gate Charge (Gate-Source Plus Gate-Drain)		Qg	VDD ≅ 400 V, VGS = 10 V, ID = 10 A	—	35	—	nC
Gate-Source Charge		Qgs		—	19	—	
Gate-Drain (“Miller”) Charge		Qgd		—	16	—	

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

CHARACTERISTIC	SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
Continuous Drain Reverse Current	IDR	—	—	—	10	A
Pulse Drain Reverse Current	IDRP	—	—	—	40	A
Diode Forward Voltage	VDSF	IDR = 10 A, VGS = 0 V	—	—	-1.7	V
Reverse Recovery Time	t _{rr}	IDR = 10 A, VGS = 0 V	—	1400	—	ns
Reverse Recovery Charge	Q _{rr}	dIDR / dt = 100 A / μs	—	14	—	μC

MARKING



※ Lot Number

□ □ — Month (Starting from Alphabet A)

— Year (Last Number of the Christian Era)