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

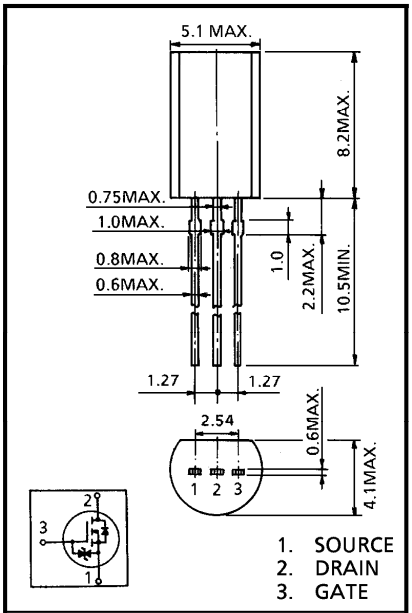
2SK2989

HIGH SPEED SWITCHING APPLICATIONS

CHOPPER REGULATOR, DC-DC CONVERTER AND MOTOR DRIVE APPLICATIONS

INDUSTRIAL APPLICATIONS

Unit in mm



JEDEC	TO-92MOD
EIAJ	—
TOSHIBA	2-5J1C

- Low Drain-Source ON Resistance : $R_{DS\,(ON)} = 120\,m\Omega$ (Typ.)
- High Forward Transfer Admittance : $|Y_{fs}| = 2.6\,S$ (Typ.)
- Low Leakage Current : $I_{DSS} = 100\,\mu A$ ($V_{DS} = 50\,V$)
- Enhancement-Mode : $V_{th} = 1.0 \sim 2.2\,V$ ($V_{DS} = 10\,V$, $I_D = 1mA$)

MAXIMUM RATINGS (Ta = 25°C)

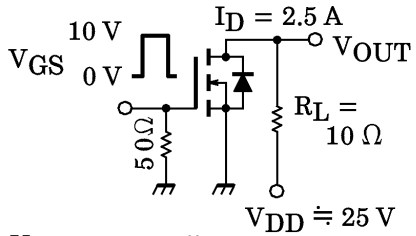
CHARACTERISTIC		SYMBOL	RATING	UNIT
Drain-Source Voltage		V_{DSS}	50	V
Drain-Gate Voltage ($R_{GS} = 20\,k\Omega$)		V_{DGR}	50	V
Gate-Source Voltage		V_{GSS}	±20	V
Drain Current	DC	I_D	5	A
	Pulse	I_{DP}	15	
Drain Power Dissipation (Ta = 25°C)		P_D	0.9	W
Channel Temperature		T_{ch}	150	°C
Storage Temperature Range		T_{stg}	−55~150	°C

THERMAL CHARACTERISTICS

CHARACTERISTIC	SYMBOL	MAX.	UNIT
Thermal Resistance, Channel to Ambient	$R_{th\,(ch\text{-}a)}$	138	°C / W

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

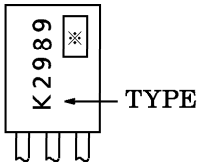
ELECTRICAL CHARACTERISTICS (Ta = 25°C)

CHARACTERISTIC		SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
Gate Leakage Current		I_{GSS}	V_{GS} = ±16 V, V_{DS} = 0 V	—	—	±10	μA
Drain Cut-off Current		I_{DSS}	V_{DS} = 50 V, V_{GS} = 0 V	—	—	100	μA
Drain-Source Breakdown Voltage		$V_{(BR)\,DSS}$	I_D = 10 mA, V_{GS} = 0 V	50	—	—	V
Gate Threshold Voltage		V_{th}	V_{DS} = 10 V, I_D = 1 mA	0.8	—	2.0	V
Drain-Source ON Resistance		$R_{DS\,(ON)}$	V_{GS} = 4 V, I_D = 1.3 A	—	240	330	mΩ
			V_{GS} = 10 V, I_D = 2.5 A	—	120	150	
Forward Transfer Admittance		$\|Y_{fs}\|$	V_{DS} = 10 V, I_D = 2.5 A	1.3	2.6	—	S
Input Capacitance		C_{iss}	V_{DS} = 10 V, V_{GS} = 0 V f = 1 MHz	—	145	—	pF
Reverse Transfer Capacitance		C_{rss}		—	25	—	
Output Capacitance		C_{oss}		—	75	—	
Switching Time	Rise Time	t_r	 V_{IN} : t_r, t_f < 5 ns, Duty ≦ 1%, t_w = 10 μs	—	16	—	ns
	Turn-on Time	t_{on}		—	23	—	
	Fall Time	t_f		—	27	—	
	Turn-off Time	t_{off}		—	110	—	
Total Gate Charge (Gate-Source Plus Gate-Drain)		Q_g	V_{DD} ≒ 40 V, V_{GS} = 10 V I_D = 5 A	—	6.5	—	nC
Gate-Source Charge		Q_{gs}		—	5	—	
Gate-Drain ("Miller") Charge		Q_{gd}		—	1.5	—	

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

CHARACTERISTIC	SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
Continuous Drain Reverse Current	I_{DR}	—	—	—	5	A
Pulse Drain Reverse Current	I_{DRP}	—	—	—	15	A
Diode Forward Voltage	V_{DSF}	I_{DR} = 5 A, V_{GS} = 0 V	—	—	−1.5	V

MARKING



※ Lot Number

□□ — Month (Starting from Alphabet A)

— Year (Last Number of the Christian Era)