

2SK2989

HIGH SPEED SWITCHING APPLICATIONS

CHOPPER REGULATOR, DC-DC CONVERTER AND MOTOR DRIVE APPLICATIONS

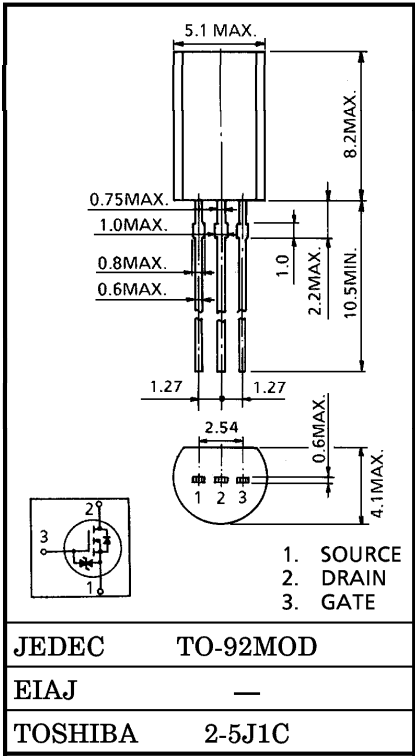
- Low Drain-Source ON Resistance : $R_{DS(ON)} = 120\text{ m}\Omega$ (Typ.)
- High Forward Transfer Admittance : $|Y_{fs}| = 2.6\text{ S}$ (Typ.)
- Low Leakage Current : $I_{DSS} = 100\text{ }\mu\text{A}$ ($V_{DS} = 50\text{ V}$)
- Enhancement-Mode : $V_{th} = 0.8\sim 2.0\text{ V}$
($V_{DS} = 10\text{ V}$, $I_D = 1\text{ mA}$)

MAXIMUM RATINGS (Ta = 25°C)

CHARACTERISTIC		SYMBOL	RATING	UNIT
Drain-Source Voltage		V_{DSS}	50	V
Drain-Gate Voltage ($R_{GS} = 20\text{ k}\Omega$)		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

INDUSTRIAL APPLICATIONS

Unit in mm



THERMAL CHARACTERISTICS

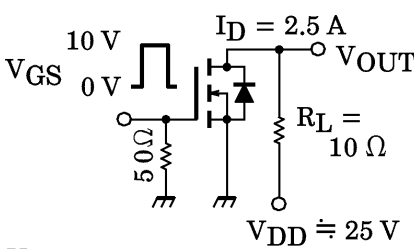
CHARACTERISTIC	SYMBOL	MAX.	UNIT
Thermal Resistance, Channel to Ambient	$R_{th(ch-a)}$	138	°C/W

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

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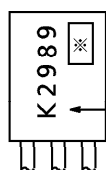
ELECTRICAL CHARACTERISTICS (Ta = 25°C)

CHARACTERISTIC		SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
Gate Leakage Current		I_{GSS}	$V_{GS} = \pm 16 \text{ V}, V_{DS} = 0 \text{ V}$	—	—	± 10	μA
Drain Cut-off Current		I_{DSS}	$V_{DS} = 50 \text{ V}, V_{GS} = 0 \text{ V}$	—	—	100	μA
Drain-Source Breakdown Voltage		$V_{(BR)DSS}$	$I_D = 10 \text{ mA}, V_{GS} = 0 \text{ V}$	50	—	—	V
Gate Threshold Voltage		V_{th}	$V_{DS} = 10 \text{ V}, I_D = 1 \text{ mA}$	0.8	—	2.0	V
Drain-Source ON Resistance		$R_{DS(ON)}$	$V_{GS} = 4 \text{ V}, I_D = 1.3 \text{ A}$	—	240	330	$\text{m}\Omega$
			$V_{GS} = 10 \text{ V}, I_D = 2.5 \text{ A}$	—	120	150	
Forward Transfer Admittance		$ Y_{fs} $	$V_{DS} = 10 \text{ V}, I_D = 2.5 \text{ A}$	1.3	2.6	—	S
Input Capacitance		C_{iss}	$V_{DS} = 10 \text{ V}, V_{GS} = 0 \text{ V}$ $f = 1 \text{ MHz}$	—	145	—	pF
Reverse Transfer Capacitance		C_{rss}		—	25	—	
Output Capacitance		C_{oss}		—	75	—	
Switching Time	Rise Time	t_r	 <p>$V_{GS} = 10 \text{ V}, 0 \text{ V}$ $I_D = 2.5 \text{ A}$ $R_L = 10 \Omega$ $V_{DD} \doteq 25 \text{ V}$</p>	—	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	$V_{DD} \doteq 40 \text{ V}, V_{GS} = 10 \text{ V}$ $I_D = 5 \text{ A}$	—	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}	$I_{DR} = 5 \text{ A}, V_{GS} = 0 \text{ V}$	—	—	—1.5	V

MARKING



※ Lot Number



Month (Starting from Alphabet A)

Year (Last Number of the Christian Era)