

TOSHIBA FIELD EFFECT TRANSISTOR SILICON N CHANNEL MOS TYPE (L^2 - π -MOSIV)**2SK2228**

HIGH SPEED, HIGH CURRENT SWITCHING APPLICATIONS.

CHOPPER REGULATOR, DC-DC CONVERTER AND MOTOR DRIVE APPLICATIONS.

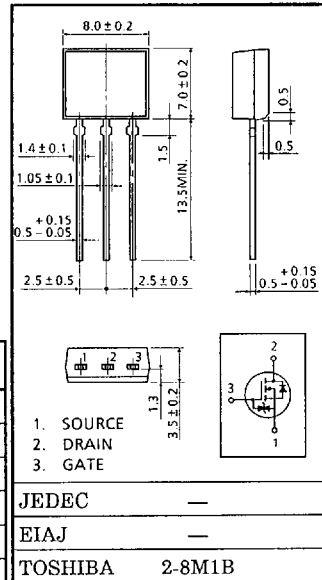
INDUSTRIAL APPLICATIONS

Unit in mm

- 4V GATE DRIVE
- Low Drain-Source ON Resistance : $R_{DS(ON)} = 0.08\Omega$ (Typ.)
- High Forward Transfer Admittance : $|Y_{fs}| = 6.0S$ (Typ.)
- Low Leakage Current : $I_{DSS} = 100\mu A$ (Max.) ($V_{DS} = 60V$)
- Enhancement-Mode : $V_{th} = 0.8 \sim 2.0V$ ($V_{DS} = 10V$, $I_D = 1mA$)

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

CHARACTERISTIC		SYMBOL	RATING	UNIT
Drain-Source Voltage		V_{DSS}	60	V
Drain-Gate Voltage ($R_{GS} = 20k\Omega$)		V_{DGR}	60	V
Gate-Source Voltage		V_{GSS}	± 20	V
Drain Current	DC	I_D	5	A
	Pulse	I_{DP}	20	A
Drain Power Dissipation ($T_a = 25^\circ C$)		P_D	1.2	W
Channel Temperature		T_{ch}	150	$^\circ C$
Storage Temperature Range		T_{stg}	$-55 \sim 150$	$^\circ C$



Weight : 0.54g

THERMAL CHARACTERISTICS

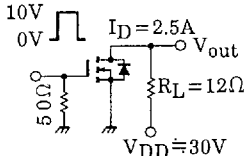
CHARACTERISTIC	SYMBOL	MAX.	UNIT
Thermal Resistance, Channel To Ambient	$R_{th(ch-a)}$	104	$^\circ C / W$

THIS TRANSISTOR IS AN ELECTROSTATIC SENSITIVE DEVICE.
PLEASE HANDLE WITH CAUTION.

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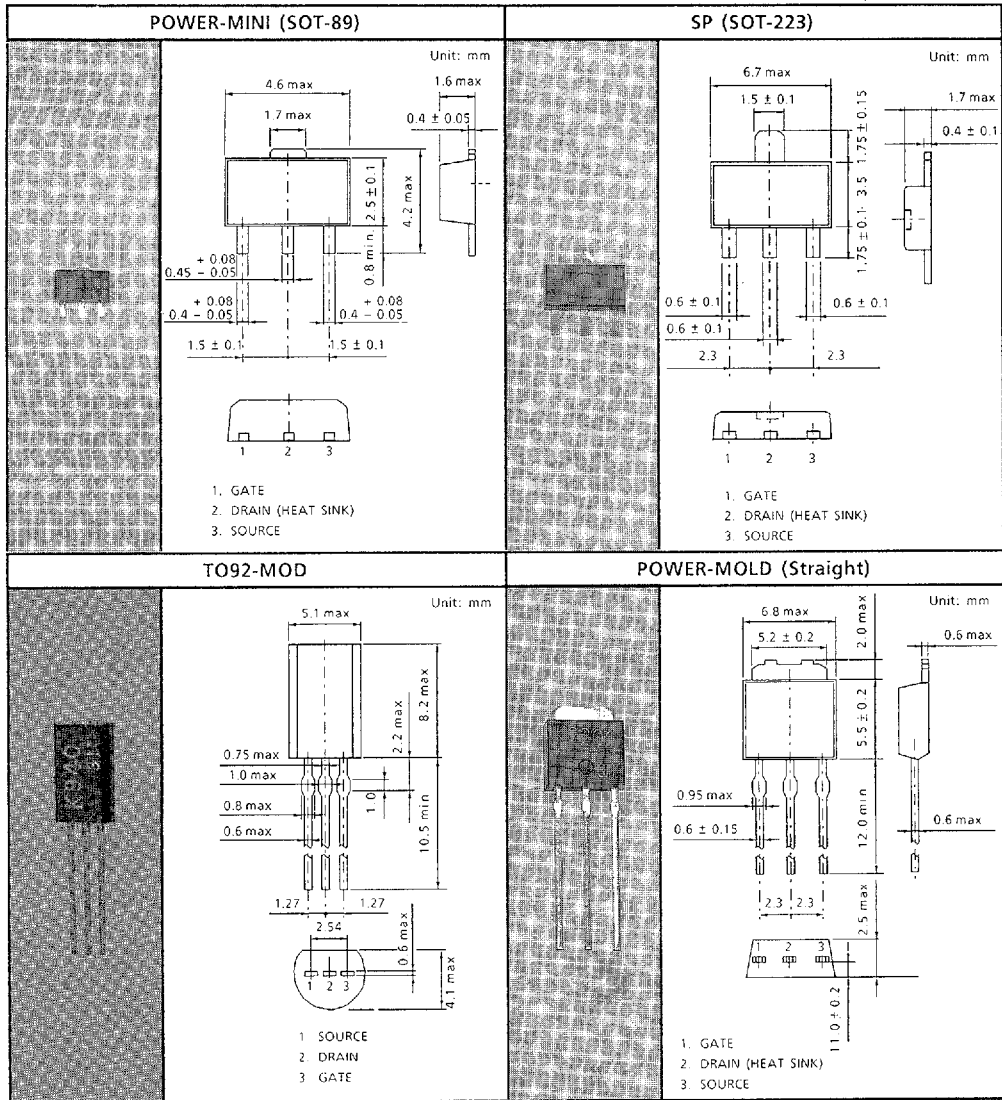
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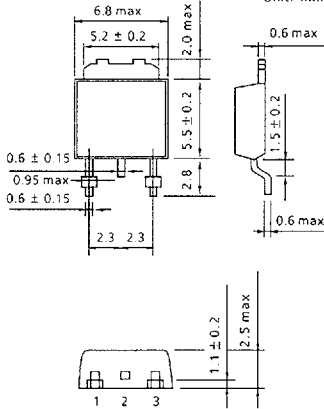
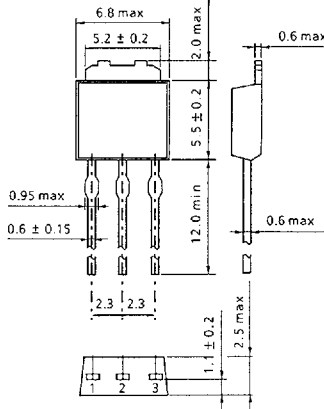
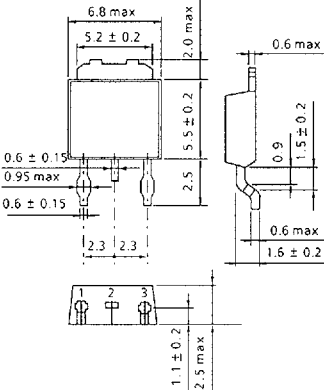
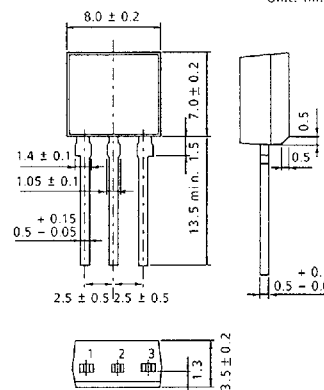
ELECTRICAL CHARACTERISTICS (Ta = 25°C)

CHARACTERISTIC		SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
Gate Leakage Current		I_{GSS}	$V_{GS} = \pm 16V, V_{DS} = 0V$	—	—	± 10	μA
Drain Cut-off Current		I_{DSS}	$V_{DS} = 60V, V_{GS} = 0V$	—	—	100	μA
Drain-Source Breakdown Voltage		$V_{(BR)DSS}$	$I_D = 10mA, V_{GS} = 0V$	60	—	—	V
Gate Threshold Voltage		V_{th}	$V_{DS} = 10V, I_D = 1mA$	0.8	—	2.0	V
Drain-Source ON Resistance		$R_{DS(ON)}$	$V_{GS} = 4V, I_D = 2.5A$	—	0.11	0.16	Ω
			$V_{GS} = 10V, I_D = 2.5A$	—	0.08	0.11	
Forward Transfer Admittance		$ Y_{fs} $	$V_{DS} = 10V, I_D = 2.5A$	3.5	6.0	—	S
Input Capacitance		C_{iss}	$V_{DS} = 10V, V_{GS} = 0V$ $f = 1MHz$	—	500	—	pF
Reverse Transfer Capacitance		C_{rss}		—	90	—	
Output Capacitance		C_{oss}		—	290	—	
Switching Time	Rise Time	t_r	 $V_{IN} : t_r, t_f < 5ns$ $Duty \leq 1\%, t_w = 10\mu s$	—	20	—	ns
	Turn-on Time	t_{on}		—	60	—	
	Fall Time	t_f		—	80	—	
	Turn-off Time	t_{off}		—	300	—	
Total Gate Charge (Gate-Source Plus Gate-Drain)		Q_g	$V_{DD} \approx 48V, V_{GS} = 10V$ $I_D = 5A$	—	20	—	nC
Gate-Source Charge		Q_{gs}		—	14	—	
Gate-Drain ("Miller") Charge		Q_{gd}		—	6	—	

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}	—	—	—	20	A
Diode Forward Voltage	V_{DSF}	$I_{DR} = 5A, V_{GS} = 0V$	—	—	-1.5	V
Reverse Recovery Time	t_{rr}	$I_{DR} = 5A, V_{GS} = 0V$ $dI_{DR} / dt = 100A / \mu s$	—	140	—	ns
Reverse Recovery Charge	Q_{rr}		—	0.4	—	μC



POWER-MOLD (Lead Formed)	DP (Straight)
  Unit: mm 1. GATE 2. DRAIN (HEAT SINK) 3. SOURCE	  1. GATE 2. DRAIN (HEAT SINK) 3. SOURCE
DP (Lead Forming)	TPS
  1. GATE 2. DRAIN (HEAT SINK) 3. SOURCE	  Unit: mm 1. SOURCE 2. DRAIN 3. GATE

