

TOSHIBA FIELD EFFECT TRANSISTOR SILICON P CHANNEL MOS TYPE (L²- π -MOS V)

2 S J 4 6 5

HIGH SPEED, HIGH CURRENT SWITCHING APPLICATIONS

DC-DC CONVERTER, RELAY DRIVE AND MOTOR DRIVE

APPLICATIONS

- 2.5V Gate Drive
- Low Drain-Source ON Resistance : $R_{DS(ON)} = 0.54\Omega$ (Typ.)
- High Forward Transfer Admittance : $|Y_{fs}| = 1.7S$ (Typ.)
- Low Leakage Current : $I_{DSS} = -100\mu A$ (Max.) ($V_{DS} = -16V$)
- Enhancement-Mode : $V_{th} = -0.5 \sim -1.1V$
($V_{DS} = -10V$, $I_D = -200\mu A$)

MAXIMUM RATINGS (T_a = 25°C)

CHARACTERISTIC		SYMBOL	RATING	UNIT
Drain-Source Voltage		V_{DSS}	-16	V
Drain-Gate Voltage ($R_{GS}=20k\Omega$)		V_{DGR}	-16	V
Gate-Source Voltage		V_{GSS}	± 8	V
Drain Current	DC	I_D	-2	A
	Pulse	I_{DP}	-6	
Drain Power Dissipation ($T_a=25^{\circ}C$)		P_D	0.5	W
Drain Power Dissipation*		P_D	1.5	W
Channel Temperature		T_{ch}	150	$^{\circ}C$
Storage Temperature Range		T_{stg}	-55~150	$^{\circ}C$

* : Mounted on ceramic substrate (600mm²×0.8t)

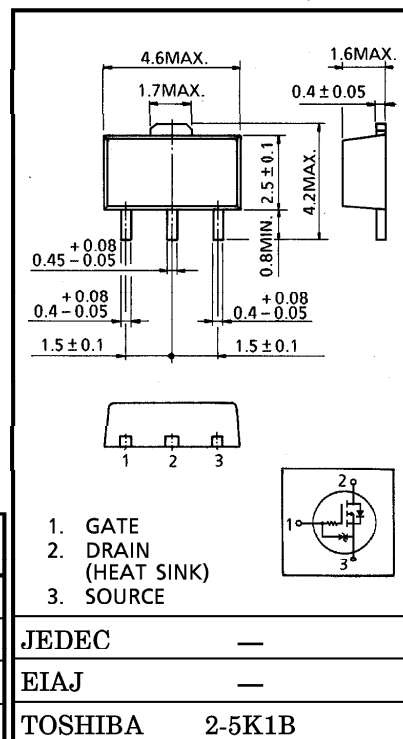
THERMAL CHARACTERISTICS

CHARACTERISTIC	SYMBOL	MAX.	UNIT
Thermal Resistance, Channel to Ambient	$R_{th(ch-a)}$	250	°C / W

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

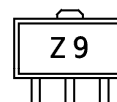
INDUSTRIAL APPLICATIONS

Unit in mm



Weight : 0.05g (Typ.)

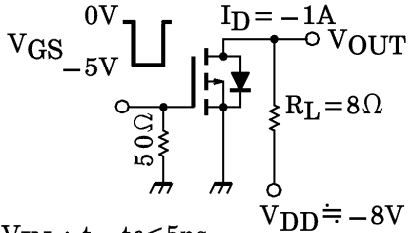
MARKING



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ELECTRICAL CHARACTERISTICS (Ta = 25°C)

CHARACTERISTIC		SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
Gate Leakage Current		I_{GSS}	$V_{GS} = \pm 6.5V, V_{DS} = 0V$	—	—	± 10	μA
Drain Cut-off Current		I_{DSS}	$V_{DS} = -16V, V_{GS} = 0V$	—	—	-100	μA
Drain-Source Breakdown Voltage		$V_{(BR)DSS}$	$I_D = -10mA, V_{GS} = 0V$	-16	—	—	V
Gate Threshold Voltage		V_{th}	$V_{DS} = -10V, I_D = -200\mu A$	-0.5	—	-1.1	V
Drain-Source ON Resistance		$R_{DS(ON)}$	$V_{GS} = -2.5V, I_D = -0.5A$	—	0.86	1.0	Ω
			$V_{GS} = -4V, I_D = -1A$	—	0.54	0.71	
Forward Transfer Admittance		$ Y_{fs} $	$V_{DS} = -10V, I_D = -1A$	0.8	1.7	—	S
Input Capacitance		C_{iss}	$V_{DS} = -10V, V_{GS} = 0V, f = 1MHz$	—	270	—	pF
Reverse Transfer Capacitance		C_{rss}		—	25	—	
Output Capacitance		C_{oss}		—	115	—	
Switching Time	Rise Time	t_r		—	200	—	ns
	Turn-on Time	t_{on}		—	250	—	
	Fall Time	t_f		—	200	—	
	Turn-off Time	t_{off}		—	500	—	
Total Gate Charge (Gate-Source Plus Gate-Drain)		Q_g	$V_{DD} = -16V, V_{GS} = -5V, I_D = -2A$	—	5	—	nC
Gate-Source Charge		Q_{gs}		—	3.2	—	
Gate-Drain ("Miller") Charge		Q_{gd}		—	1.8	—	

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

CHARACTERISTIC	SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
Continuous Drain Reverse Current	I_{DR}	—	—	—	-2	A
Pulse Drain Reverse Current	I_{DRP}	—	—	—	-6	A
Diode Forward Voltage	V_{DSF}	$I_{DR} = -2A, V_{GS} = 0V$	—	—	1.7	V
Reverse Recovery Time	t_{rr}	$I_{DR} = -2A, V_{GS} = 0V$	—	130	—	ns
Reverse Recovered Charge	Q_{rr}	$dI_{DR} / dt = 50A / \mu s$	—	0.13	—	μC

