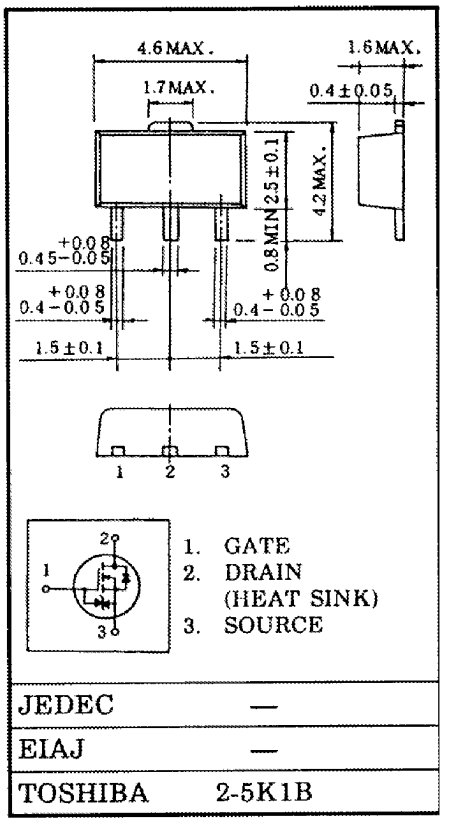
Field Effect Transistor

Silicon N Channel MOS Type (L^2-π-MOS III)

High Speed, High Current DC-DC Converter, Relay Drive and Motor Drive Applications

Industrial Applications **Unit in mm**



Weight : 0.05g

Features

- 4-Volt Gate Drive
- Low Drain-Source ON Resistance
  - $R_{DS(ON)}$ = 0.95Ω (Typ.)
- High Forward Transfer Admittance
  - $|Y_{fs}|$ = 0.65S (Typ.)
- Low Leakage Current
  - I_{GSS} = ±3μA (Max.) @ V_{GS} = ±16V
  - I_{DSS} = 100μA (Max.) @ V_{DS} = 100V
- Enhancement-Mode
  - V_{th} = -0.8 ~ -2.0V @ V_{DS} = 10V, I_D = 1mA

Absolute Maximum Ratings (Ta = 25°C)

CHARACTERISTIC		SYMBOL	RATING	UNIT
Drain-Source Voltage		V_{DSS}	100	V
Drain-Gate Voltage (R_{GS} = 20kΩ)		V_{DGR}	100	V
Gate-Source Voltage		V_{GSS}	±20	V
Drain Current	DC	I_D	0.6	A
	Pulse	I_{DP}	1.8	
Drain Power Dissipation (Ta = 25°C)		P_D	0.5	W
Drain Power Dissipation		P_D*	1.0	W
Channel Temperature		T_{ch}	150	°C
Storage Temperature Range		T_{stg}	-55 ~ 150	°C

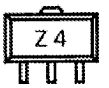
P_D*: 2SK1079 mounted on ceramic substrate (250 mm^2 x 0.8t)

Thermal Characteristics

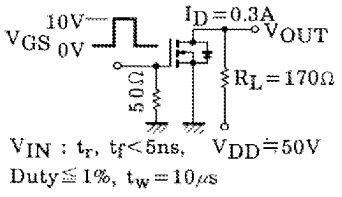
CHARACTERISTIC	SYMBOL	MAX.	UNIT
Thermal Resistance, Channel to Ambient	$R_{th(ch-a)}$	250	°C/W

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

Marking



Electrical Characteristics (Ta = 25°C)

CHARACTERISTIC		SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
Gate Leakage Current		I_{GSS}	V_{GS} = ±16V, V_{DS} = 0V	–	–	±3	μA
Drain Cut-off Current		I_{DSS}	V_{DS} = 100V, V_{GS} = 0V	–	–	100	μA
Drain-Source Breakdown Voltage		$V_{(BR)\ DSS}$	I_D = 10mA, V_{GS} = 0V	100	–	–	V
Gate Threshold Voltage		V_{th}	V_{DS} = 10V, I_D = 1mA	0.8	–	-2.0	V
ON State Drain Current		I_D (ON)	V_{DS} = 4V, V_{GS} = 4V	0.6	–	–	A
Drain-Source ON Resistance		$R_{DS\ (ON)}$	V_{GS} = 4V, I_{DS} = 0.3A	–	1.2	1.8	Ω
			V_{GS} = 10V, I_{DS} = 0.3A	–	0.95	1.3	
Forward Transfer Admittance		$\|Y_{fs}\|$	V_{DS} = 10V, I_{DS} = 0.3A	0.40	0.65	–	S
Input Capacitance		C_{iss}	V_{DS} = 10V, V_{GS} = 0V, f = 1MHz	–	85	130	pF
Reverse Transfer Capacitance		C_{rss}		–	15	35	
Output Capacitance		C_{oss}		–	40	65	
Switching Time	Rise Time	t_r		–	4	15	ns
	Turn-on Time	t_{on}		–	9	25	
	Fall Time	t_f		–	30	70	
	Turn-off Time	t_{off}		–	75	160	
Total Gate Charge (Gate-Source Plus Gate-Drain)		Q_g	V_{DD} = 80V, V_{GS} = 10V, I_D = 0.6A	–	3.6	7.2	nC
Gate-Source Charge		Q_{gs}		–	2.3	–	
Gate-Drain ("Miller") Charge		Q_{gd}		–	1.3	–	

Source-Drain Diode Ratings and Characteristics (Ta = 25°C)

CHARACTERISTICS	SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
Continuous Drain Reverse Current	I_{DR}	–	–	–	0.6	A
Pulse Drain Reverse Current	I_{DRP}	–	–	–	1.8	A
Diode Forward Voltage	V_{DSF}	I_{DR} = 0.6A, V_{GS} = 0V	–	-0.8	-1.4	V
Reverse Recovery Time	t_{rr}	I_{DR} = 0.6A, V_{GS} = 0V, dI_{DR}/dt = 20A/μs	–	120	–	ns
Reverse Recovered Charge	$Q_{rr\sim}$		–	50	–	μC