

Field Effect Transistor

Silicon N Channel MOS Type (L²-π-MOS III)

High Speed, High Current DC-DC Converter,

Relay Drive and Motor Drive Applications

Features

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

Absolute Maximum Ratings (Ta = 25°C)

CHARACTERISTIC	SYMBOL	RATING	UNIT
Drain-Source Voltage	V_{DSS}	100	V
Drain-Gate Voltage ($R_{GS} = 20k\Omega$)	V_{DGR}	100	V
Gate-Source Voltage	V_{GSS}	± 20	V
Drain Current	DC	I_D	0.6
	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

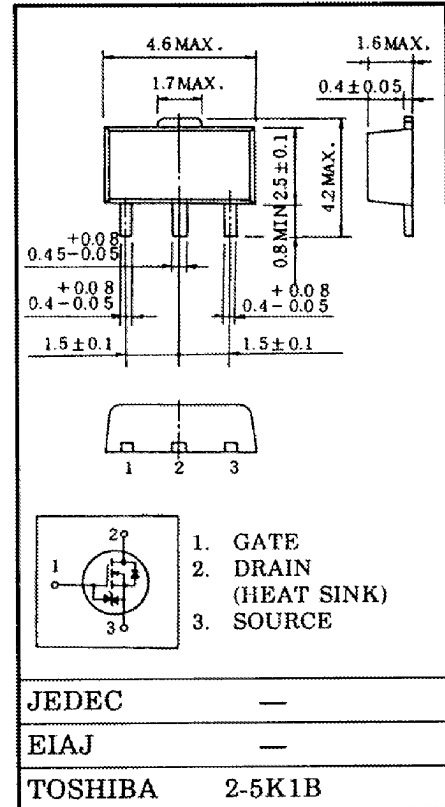
P_D^* : 2SK1079 mounted on ceramic substrate (250 mm² x 0.8t)

Thermal Characteristics

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

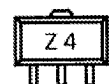
This transistor is an electrostatic sensitive device. Please handle with care.

Industrial Applications Unit in mm



Weight : 0.05g

Marking



Electrical Characteristics (Ta = 25°C)

CHARACTERISTIC	SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNIT	
Gate Leakage Current	I_{GSS}	$V_{GS} = \pm 16V, V_{DS} = 0V$	-	-	± 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	μF	
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}	$I_{DR} = 0.6A, V_{GS} = 0V$	-	120	-	ns
Reverse Recovered Charge	Q_{rr-}	$dI_{DR}/dt = 20A/\mu s$	-	50	-	μC

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