

2SK1379

FIELD EFFECT TRANSISTOR

SILICON N CHANNEL MOS TYPE (L²- π -MOS^{III})

HIGH SPEED, HIGH CURRENT SWITCHING APPLICATIONS.

RELAY DRIVE, MOTOR DRIVE AND DC-DC CONVERTER APPLICATIONS.

INDUSTRIAL APPLICATIONS

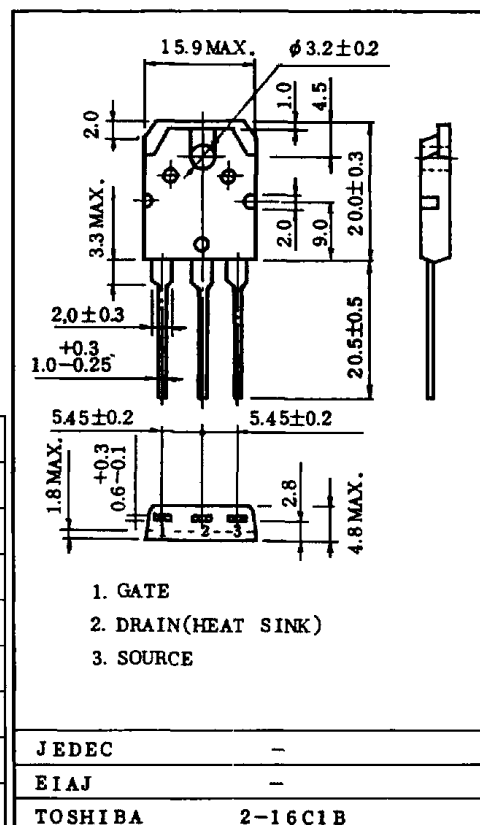
Unit in mm

FEATURES:

- 4-Volt Gate Drive
- Low Drain-Source ON Resistance : $R_{DS(ON)}=11m\Omega$ (Typ.)
- High Forward Transfer Admittance : $|Y_{fs}| = 35S$ (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_{DS}	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	50	A
	Pulse	I_{DP}	200	A
Drain Power Dissipation ($T_c=25^\circ C$)		P_D	150	W
Channel Temperature		T_{ch}	150	$^\circ C$
Storage Temperature Range		T_{stg}	$-55\sim 150$	$^\circ C$

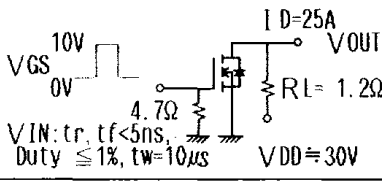


Weight : 4.6g

THERMAL CHARACTERISTICS

CHARACTERISTIC	SYMBOL	MAX.	UNIT
Thermal Impedance, Channel to Case	$R_{th(ch-c)}$	0.833	$^\circ C/W$
Thermal Impedance, Channel To Ambient	$R_{th(ch-a)}$	50	$^\circ C/W$

ELECTRICAL CHARACTERISTICS (Ta=25 °C)

CHARACTERISTIC		SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
Gate Leakage Current		I _{GSS}	V _{GS} = ±20V, V _{DS} =0V	—	—	±100	nA
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 =25A	—	16	25	mΩ
			V _{GS} =10V, I _D =25A	—	11	17	
Forward Transfer Admittance		Y _{fs}	V _{DS} =10V, I _D =25A	25	35	—	S
Input Capacitance		C _{iss}	V _{DS} =10V, V _{GS} =0V, f=1MHz	—	3600	4500	pF
Reverse Transfer Capacitance		C _{rss}		—	1000	1400	
Output Capacitance		C _{oss}		—	2800	3600	
Switching Time	Rise Time	t _r		—	24	48	ns
	Turn-on Time	t _{on}		—	54	100	
	Fall Time	t _f		—	170	340	
	Turn-off Time	t _{off}		—	470	800	
Total Gate Charge (Gate-Source Plus Gate-Drain)		Q _g	V _{DD} ≒48V, V _{GS} =10V, I _D =50A	—	170	340	nC
Gate-Source Charge		Q _{gs}		—	104	—	
Gate-Drain(" Miller")Charge		Q _{gd}		—	66	—	

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

CHARACTERISTIC	SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
Continuous Drain Reverse Current	I _{DR}	— — —	—	—	50	A
Pulse Drain Reverse Current	I _{DRP}	— — —	—	—	200	A
Diode Forward Voltage	V _{DSF}	I _{DR} =50A, V _{GS} =0V	—	-1.0	-1.6	V
Reverse Recovery Time	t _{rr}	I _{DR} =50A, V _{GS} =0V	—	250	—	ns
Reverse Recovered Charge	Q _{rr}	d I _{DR} /dt = 50A/μs	—	0.5	—	μC