

FIELD EFFECT TRANSISTOR
SILICON N CHANNEL MOS TYPE (π -MOSII)

2SK1117

HIGH SPEED, HIGH CURRENT SWITCHING APPLICATIONS.
CHOPPER REGULATOR, DC-DC CONVERTER AND MOTOR
DRIVE APPLICATIONS.

INDUSTRIAL APPLICATIONS

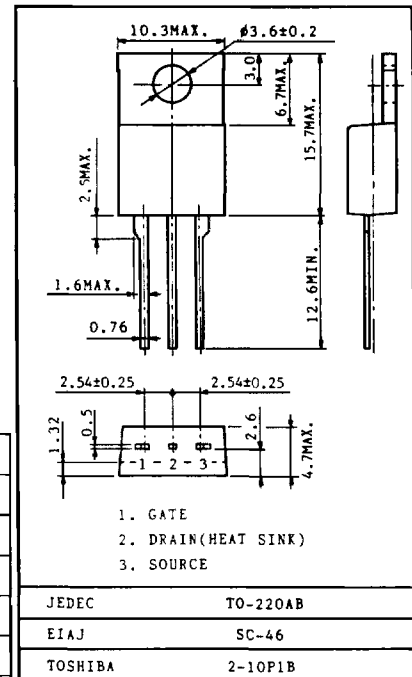
Unit in mm

FEATURES:

- Low Drain-Source ON Resistance : $R_{DS(ON)} = 0.95\Omega$ (Typ.)
- High Forward Transfer Admittance : $|Y_{fs}| = 4.0S$ (Typ.)
- Low Leakage Current : $I_{DSS} = 300\mu A$ (Max.) @ $V_{DS} = 600V$
- Enhancement-Mode : $V_{th} = 1.5 \sim 3.5V$ @ $V_{DS} = 10V, I_D = 1mA$

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

CHARACTERISTIC		SYMBOL	RATING	UNIT
Drain-Source Voltage		V_{DSS}	600	V
Drain-Gate Voltage ($R_{GS} = 20k\Omega$)		V_{DGR}	600	V
Gate-Source Voltage		V_{GSS}	± 20	V
Drain Current	DC	I_D	6	A
	Pulse	I_{DP}	24	A
Drain Power Dissipation ($T_c = 25^\circ C$)		P_D	100	W
Channel Temperature		T_{ch}	150	$^\circ C$
Storage Temperature Range		T_{stg}	-55~150	$^\circ C$



Weight: 2.0g

THERMAL CHARACTERISTICS

CHARACTERISTIC	SYMBOL	MAX.	UNIT
Thermal Resistance, Channel To Case	$R_{th(ch-c)}$	1.25	$^\circ C/W$
Thermal Resistance, Channel To Ambient	$R_{th(ch-a)}$	83.3	$^\circ C/W$

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} =600V, V _{GS} =0V	—	—	300	μA
Drain-Source Breakdown Voltage		V(BR)DSS	I _D =10mA, V _{GS} =0V	600	—	—	V
Gate Threshold Voltage		V _{th}	V _{DS} =10V, I _D =1mA	1.5	—	3.5	V
Drain-Source ON Resistance		R _{DS(ON)}	I _D =3A, V _{GS} =10V	—	0.95	1.25	Ω
Forward Transfer Admittance		Y _{fs}	V _{DS} =10V, I _D =3A	2.5	4.0	—	S
Input Capacitance		C _{iss}	V _{DS} =10V, V _{GS} =0V, f=1MHz	—	1400	2000	pF
Reverse Transfer Capacitance		C _{rss}		—	75	120	
Output Capacitance		C _{oss}		—	250	380	
Switching Time	Rise Time	t _r	<p>V_{GS} 10V 0V I_D=3A 4.7Ω V_{OUT} R_L=100Ω V_{IN}: t_r, t_f<5ns, Duty ≤1%, t_w=10μs V_{DD}≅300V</p>	—	25	50	ns
	Turn-on Time	t _{on}		—	40	80	
	Fall Time	t _f		—	20	40	
	Turn-off Time	t _{off}		—	85	170	
Total Gate Charge (Gate-Source Plus Gate-Drain)		Q _g	V _{DD} ≅400V, V _{GS} =10V, I _D =6A	—	56	110	nC
Gate-Source Charge		Q _{gs}		—	32	—	
Gate-Drain(" Miller")Charge		Q _{gd}		—	24	—	

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

CHARACTERISTIC	SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
Continuous Drain Reverse Current	I _{DR}	---	—	—	6	A
Pulse Drain Reverse Current	I _{DRP}	---	—	—	24	A
Diode Forward Voltage	V _{DSF}	I _{DR} =6A, V _{GS} =0V	—	—	-2.0	V
Reverse Recovery Time	t _{rr}	I _{DR} =6A, V _{GS} =0V	—	460	—	ns
Reverse Recovered Charge	Q _{rr}	d I _{DR} /dt =100A/μs	—	3.5	—	μC