

# 2SK538

## FIELD EFFECT TRANSISTOR SILICON N CHANNEL MOS TYPE ( $\pi$ -MOS)

HIGH SPEED, HIGH VOLTAGE SWITCHING APPLICATIONS.  
SWITCHING REGULATOR AND MOTOR DRIVE APPLICATIONS.

### FEATURES:

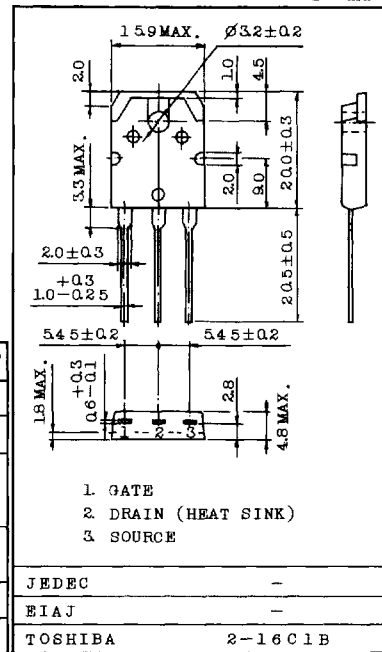
- High Breakdown Voltage :  $V_{(BR)DSS}=900V$
- High Forward Transfer Admittance :  $|Y_{fs}|=1.0S(\text{Typ.})$
- Low Leakage Current :  $I_{GSS}=\pm 100nA(\text{Max.})$  @ $V_{GS}=\pm 20V$   
 $I_{DSS}=300\mu A(\text{Max.})$  @ $V_{DS}=900V$
- Enhancement-Mode :  $V_{th}=1.5 \sim 3.5V$  @ $I_D=1mA$

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

CHARACTERISTIC		SYMBOL	RATING	UNIT
Drain-Source Voltage		$V_{DSX}$	900	V
Gate-Source Voltage		$V_{GSS}$	$\pm 20$	V
Drain Current	DC	$I_D$	3	A
	Pulse	$I_{DP}$	5	
Drain Power Dissipation ( $T_c=25^\circ C$ )		$P_D$	100	W
Channel Temperature		$T_{ch}$	150	$^\circ C$
Storage Temperature Range		$T_{stg}$	$-55 \sim 150$	$^\circ C$

### INDUSTRIAL APPLICATIONS

Unit in mm



Weight : 4.6g

### ELECTRICAL CHARACTERISTICS ( $T_a=25^\circ C$ )

CHARACTERISTIC		SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
Gate Leakage Current		$I_{GSS}$	$V_{GS}=\pm 20V, V_{DS}=0$	-	-	$\pm 100$	nA
Drain Cut-off Current		$I_{DSS}$	$V_{DS}=900V, V_{GS}=0$	-	-	300	$\mu A$
Drain-Source Breakdown Voltage		$V_{(BR)DSS}$	$I_D=10mA, V_{GS}=0$	900	-	-	V
Gate Threshold Voltage		$V_{th}$	$V_{DS}=10V, I_D=1mA$	1.5	-	3.5	V
Forward Transfer Admittance		$ Y_{fs} $	$V_{DS}=10V, I_D=1.5A$	0.5	1.0	-	S
Drain-Source ON Resistance		$R_{DS(ON)}$	$I_D=1.5A, V_{GS}=10V$	-	3.3	4.5	$\Omega$
Drain-Source ON Voltage		$V_{DS(ON)}$	$I_D=3A, V_{GS}=10V$	-	12	15	V
Input Capacitance		$C_{iss}$	$V_{DS}=25V, V_{GS}=0, f=1MHz$	-	800	1100	pF
Reverse Transfer Capacitance		$C_{rss}$	$V_{DS}=25V, V_{GS}=0, f=1MHz$	-	70	120	pF
Output Capacitance		$C_{oss}$	$V_{DS}=25V, V_{GS}=0, f=1MHz$	-	120	200	pF
Switching Time	Rise Time	$t_r$		-	55	120	ns
	Turn-on Time	$t_{on}$		-	70	165	
	Fall Time	$t_f$		-	60	120	
	Turn-off Time	$t_{off}$		-	280	550	

