

9097250 TOSHIBA (DISCRETE/OPTO)

99D 16659 D

T-39-13

TOSHIBA FIELD EFFECT TRANSISTOR

2SK385

SILICON N CHANNEL MOS TYPE  
( $\pi$ -MOS)

SEMICONDUCTOR

## TECHNICAL DATA

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

## FEATURES:

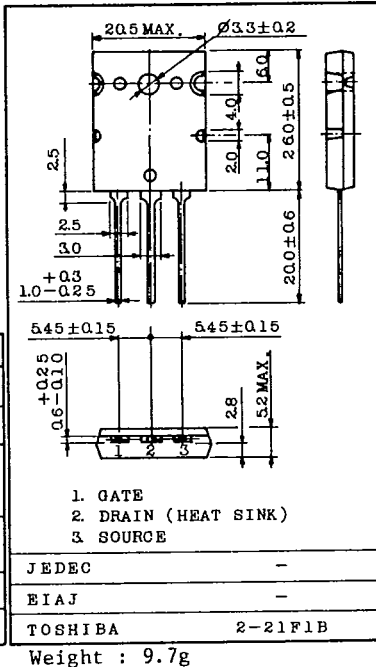
- High Breakdown Voltage :  $V_{(BR)DSS}=400V$
- High Forward Transfer Admittance :  $|Y_{fs}|=5S$  (Typ.)
- Low Leakage Current :  $I_{GSS}=\pm 100nA$ (Max.) @  $V_{GS}=\pm 20V$   
 $I_{DSS}=1mA$ (Max.) @  $V_{DS}=400V$
- Enhancement-Mode :  $V_{th}=1.5\sim 3.5V$  @  $I_D=1mA$

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

CHARACTERISTIC	SYMBOL	RATING	UNIT
Drain-Source Voltage	$V_{DSX}$	400	V
Gate-Source Voltage	$V_{GSS}$	$\pm 20$	V
Drain Current	DC	$I_D$	10
	Pulse	$I_{DP}$	15
Drain Power Dissipation ( $T_c=25^\circ C$ )	$P_D$	120	W
Channel Temperature	$T_{ch}$	150	$^\circ C$
Storage Temperature Range	$T_{stg}$	$-55\sim 150$	$^\circ C$

## INDUSTRIAL APPLICATIONS

Unit in mm

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	$I_{DSS}$	$V_{DS}=400V, V_{GS}=0$	-	-	1.0	mA		
Drain-Source Breakdown Voltage	$V_{(BR)DSS}$	$I_D=10mA, V_{GS}=0$	400	-	-	V		
Gate Threshold Voltage	$V_{th}$	$V_{DS}=10V, I_D=1mA$	1.5	-	3.5	V		
Forward Transfer Admittance	$ Y_{fs} $	$V_{DS}=10V, I_D=5A$	3.0	5.0	-	S		
Drain-Source ON Resistance	$R_{DS(ON)}$	$I_D=5A, V_{GS}=10V$	-	0.45	0.6	$\Omega$		
Drain-Source ON Voltage	$V_{DS(ON)}$	$I_D=10A, V_{GS}=10V$	-	5	7	V		
Input Capacitance	$C_{iss}$	$V_{DS}=10V, V_{GS}=0, f=1MHz$	-	1500	2000	pF		
Reverse Transfer Capacitance	$C_{rss}$	$V_{DS}=10V, V_{GS}=0, f=1MHz$	-	140	300	pF		
Output Capacitance	$C_{oss}$	$V_{DS}=10V, V_{GS}=0, f=1MHz$	-	400	600	pF		
Switching Time	Rise Time	$t_r$			-	50	100	ns
	Turn-on Time	$t_{on}$			-	80	150	ns
	Fall Time	$t_f$			-	80	150	ns
	Turn-off Time	$t_{off}$	$V_{IN}: t_r, t_f < 3ns$ $D, U \leq 1\%$ ( $Z_{OUT}=50\Omega$ )		-	350	700	ns

TOSHIBA CORPORATION

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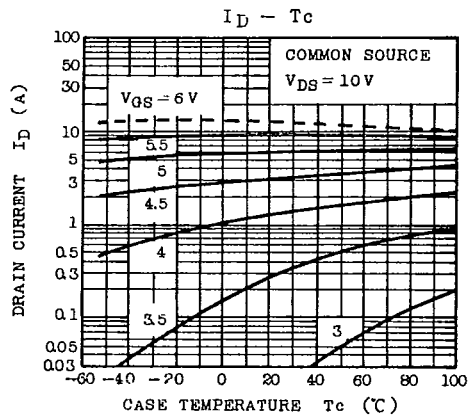
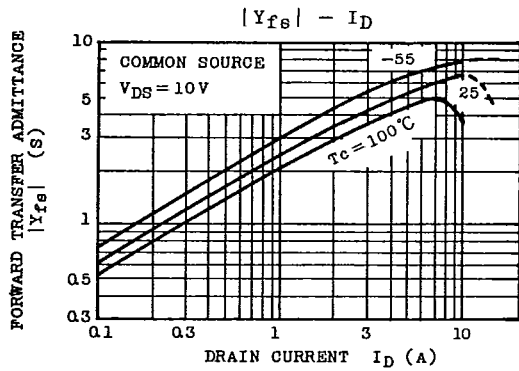
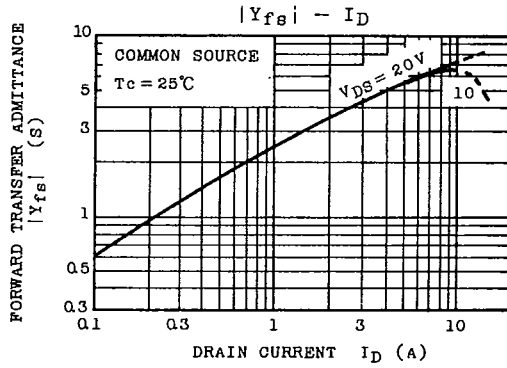
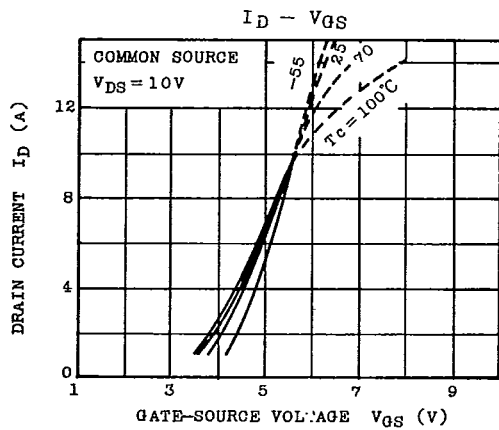
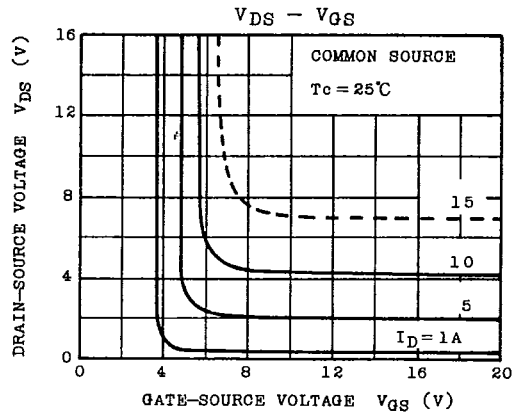
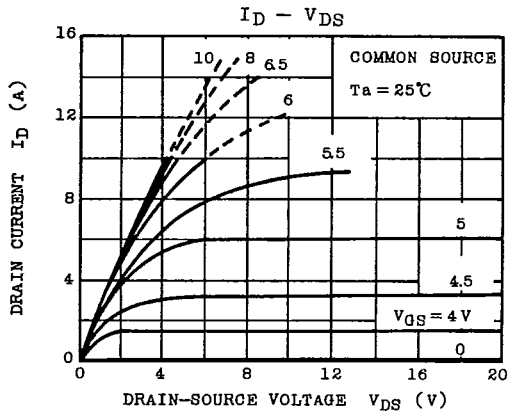
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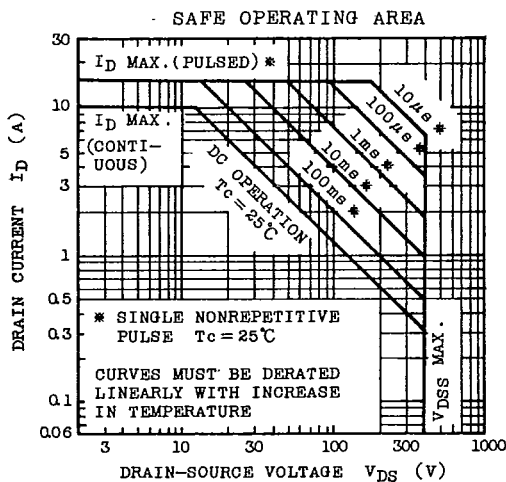
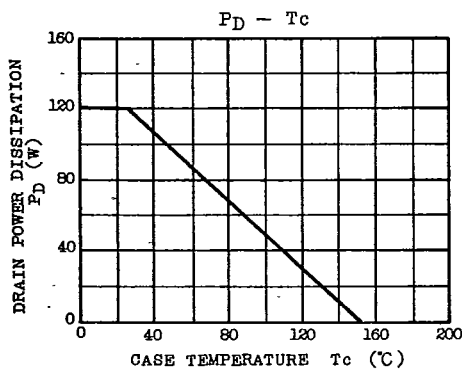
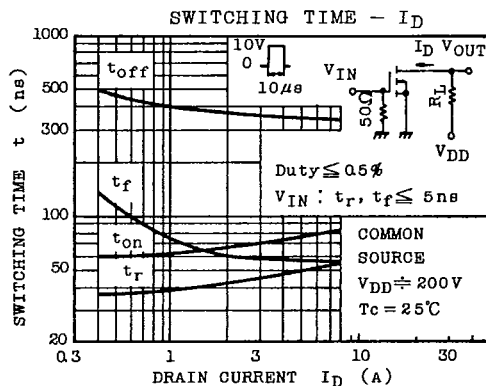
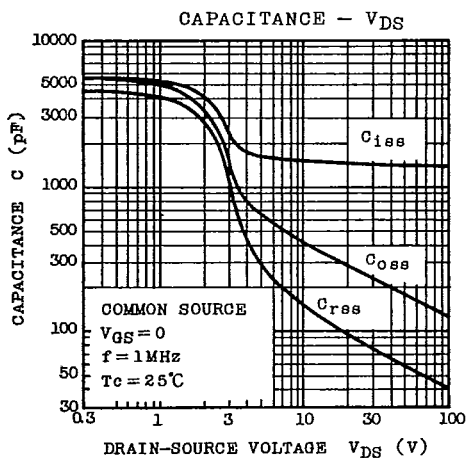
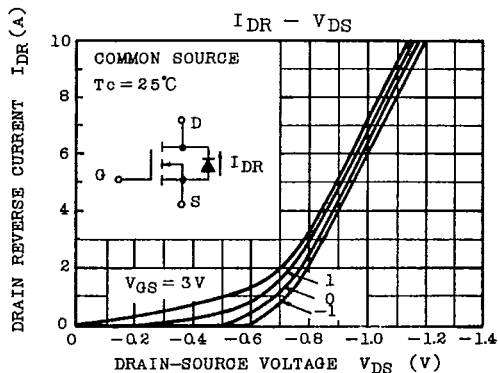
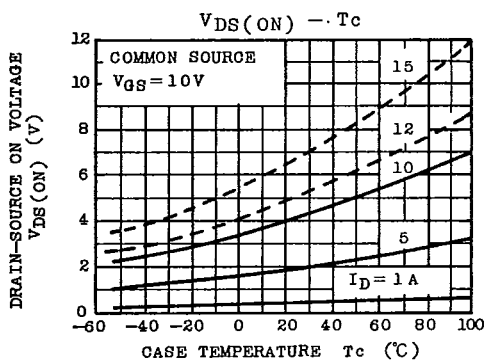
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