

9097250 TOSHIBA (DISCRETE/OPTO)

99D 16668 D



SEMICONDUCTOR

## TECHNICAL DATA

TOSHIBA FIELD EFFECT TRANSISTOR

2SK388

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

T-39-13

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

## FEATURES:

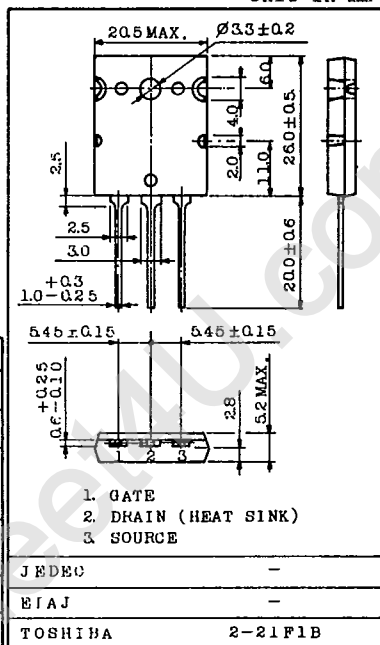
- Low Drain-Source ON Resistance :  $R_{DS(ON)}=0.2\Omega$  (Typ.)
- High Forward Transfer Admittance :  $|Y_{fs}|=6S$  (Typ.)
- Low Leakage Current :  $I_{GSS}=\pm 100nA$ (Max.) @  $V_{GS}=\pm 20V$   
 $I_{DSS}=1mA$ (Max.) @  $V_{DS}=250V$
- Enhancement-Mode :  $V_{th}=1.5\sim 3.5V$  @  $I_D=1mA$

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

CHARACTERISTIC		SYMBOL	RATING	UNIT
Drain-Source Voltage		$V_{DSX}$	250	V
Gate-Source Voltage		$V_{GSS}$	$\pm 20$	V
Drain Current	DC	$I_D$	12	A
	Pulse	$I_{DP}$	30	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 ~ 150	$^\circ C$

## INDUSTRIAL APPLICATIONS

Unit in mm



1. GATE
2. DRAIN (HEAT SINK)
3. SOURCE

JEDEC

EIAJ

TOSHIBA

2-21F1B

Weight : 9.7g

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		$I_{DSS}$	$V_{DS}=250V, V_{GS}=0$	-	-	1.0	mA
Drain-Source Breakdown Voltage		$V_{(BR)DSS}$	$I_D=10mA, V_{GS}=0$	250	-	-	V
Gate Threshold Voltage		$V_{th}$	$V_{DS}=10V, I_D=1mA$	1.5	-	3.5	V
Forward Transfer Admittance		$ Y_{fs} $	$V_{DS}=10V, I_D=10A$	3	6	-	S
Drain-Source ON Resistance		$R_{DS(ON)}$	$I_D=10A, V_{GS}=10V$	-	0.20	0.25	$\Omega$
Drain-Source ON Voltage		$V_{DS(ON)}$	$I_D=10A, V_{GS}=10V$	-	2.0	2.5	V
Input Capacitance		$C_{iss}$	$V_{DS}=10V, V_{GS}=0, f=1MHz$	-	1600	2000	pF
Reverse Transfer Capacitance		$C_{rss}$	$V_{DS}=10V, V_{GS}=0, f=1MHz$	-	220	320	pF
Output Capacitance		$C_{oss}$	$V_{DS}=10V, V_{GS}=0, f=1MHz$	-	570	700	pF
Switching Time	Rise Time	$t_r$		-	110	220	ns
	Turn-on Time	$t_{on}$		-	130	260	ns
	Fall Time	$t_f$		-	100	200	ns
	Turn-off Time	$t_{off}$		-	320	640	ns

TOSHIBA CORPORATION

GT1A2

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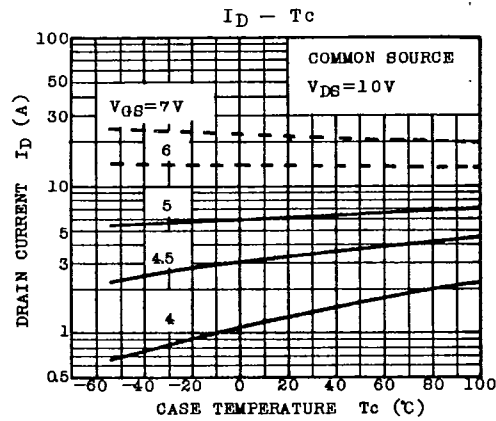
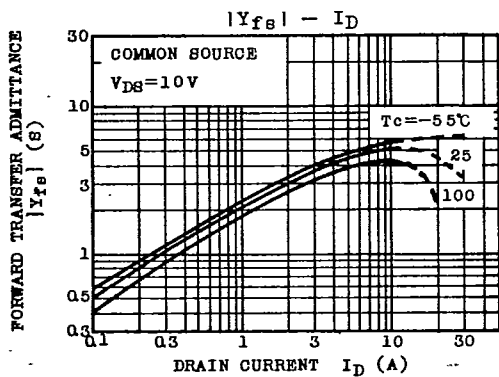
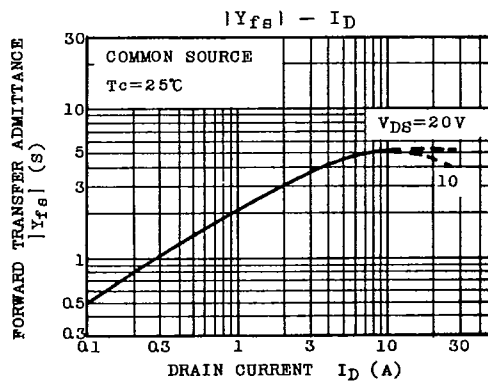
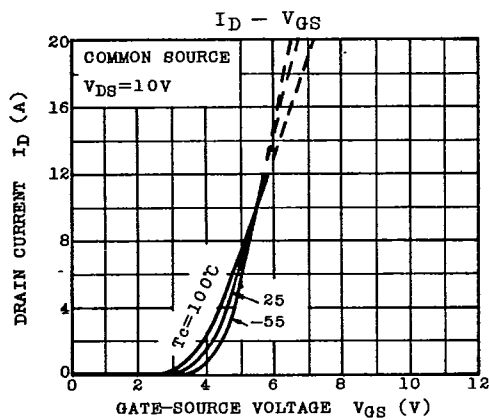
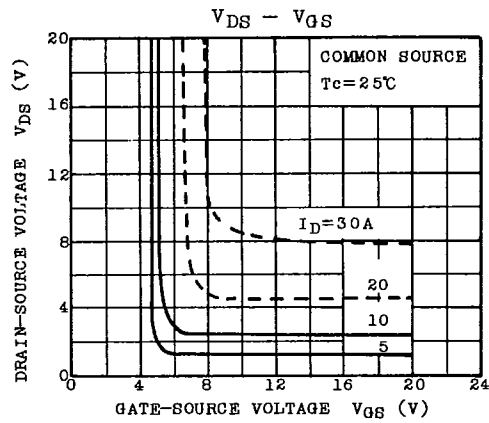
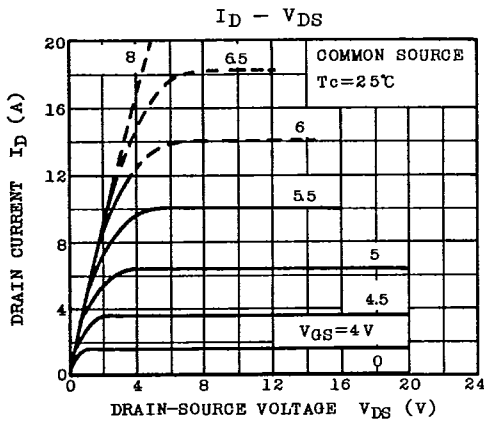
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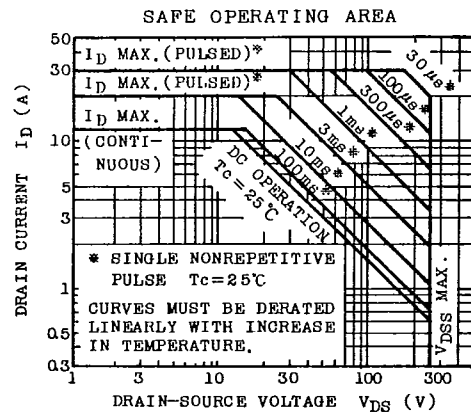
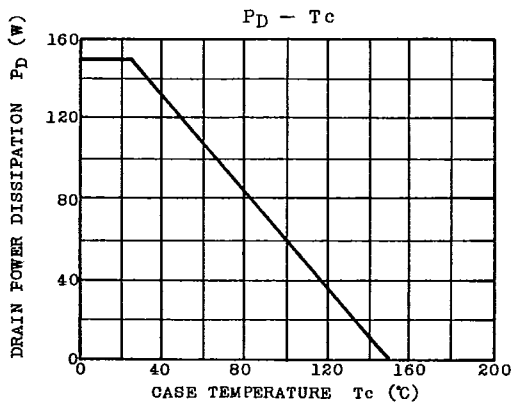
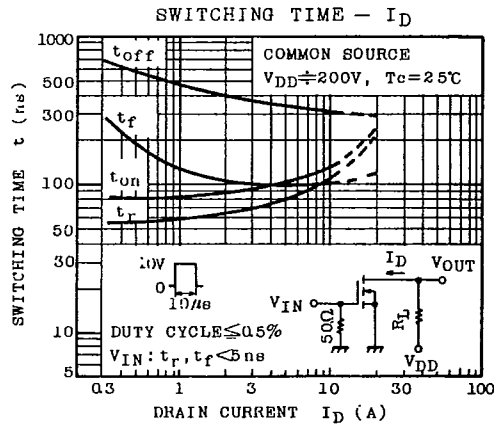
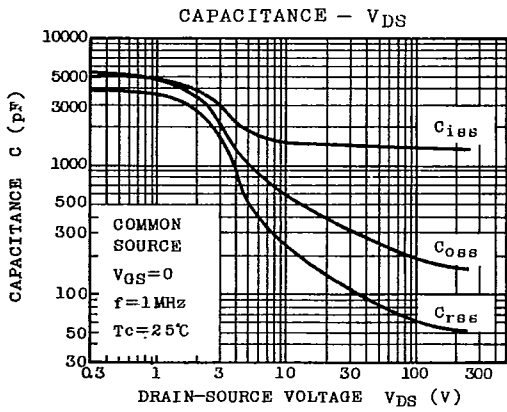
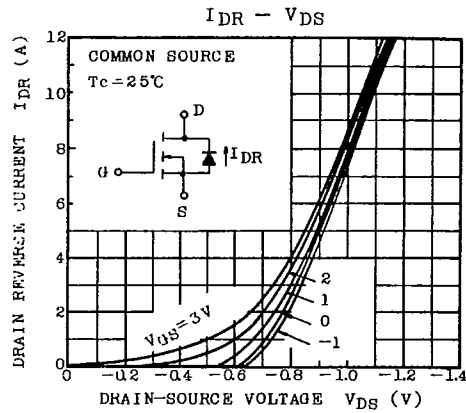
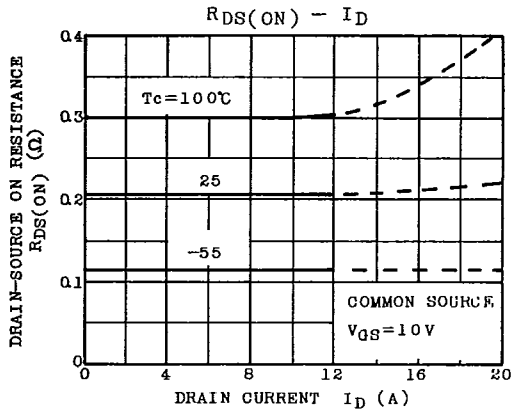
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