Toshiba

SEMICONDUCTOR

TECHNICAL DATA

TOSHIBA FIELD EFFECT TRANSISTOR

2SK793

SILICON N CHANNEL MOS TYPE

(π-MOS)

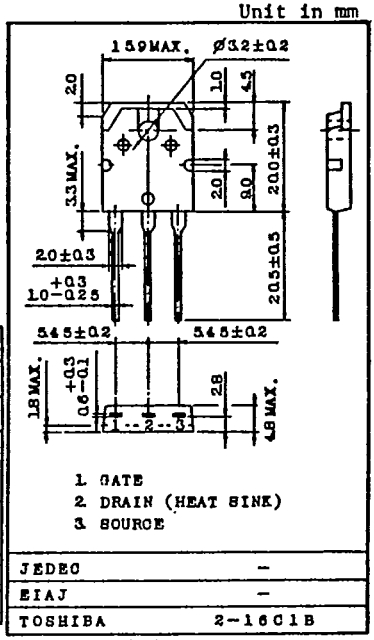
INDUSTRIAL APPLICATIONS

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

FEATURES:

- High Breakdown Voltage : $V_{(BR)DSS}$= 850V
- High Forward Transfer Admittance : $|Y_{fs}|$=1.7S(Typ.)
- Low Leakage Current : I_{GSS}=±100nA(Max.) (V_{GS}=±20V)
  I_{DSS}=300μA(Max.) (V_{DS}= 850V)
- Enhancement-Mode : V_{th}=1.5~3.5V (I_D=1mA)

Unit in mm



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

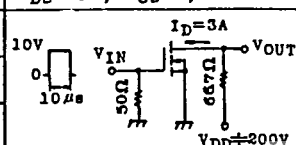
JEDEC	—
EIAJ	—
TOSHIBA	2-16C1B

Weight : 4.6g

MAXIMUM RATINGS (Ta=25°C)

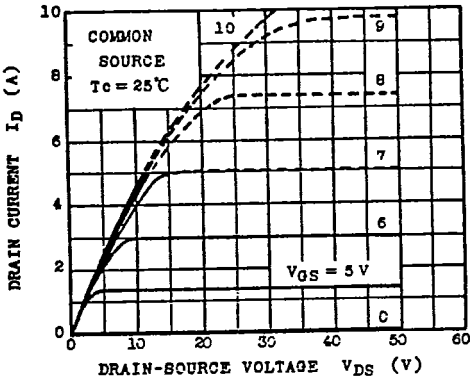
CHARACTERISTIC		SYMBOL	RATING	UNIT
Drain-Source Voltage		V_{DSX}	850	V
Gate-Source Voltage		V_{GSS}	±20	V
Drain Current	DC	I_D	5	A
	Pulse	I_{DP}	10	
Drain Power Dissipation (Tc=25°C)		P_D	150	W
Channel Temperature		T_{ch}	150	°C
Storage Temperature Range		T_{stg}	−55~150	°C

ELECTRICAL CHARACTERISTICS (Ta=25°C)

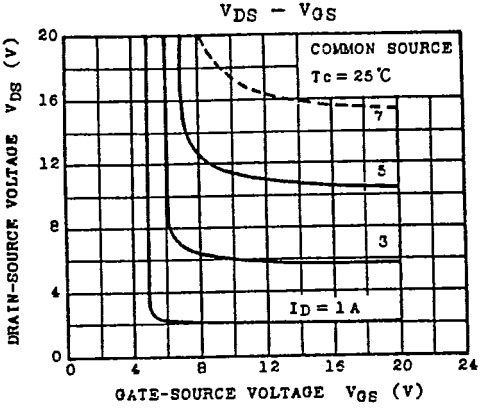
CHARACTERISTIC		SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
Gate Leakage Current		I_{GSS}	V_{GS}=±20V, V_{DS}=0	−	−	±100	nA
Drain Cut-off Current		I_{DSS}	V_{DS}=850V, V_{GS}=0	−	−	300	μA
Drain-Source Breakdown Voltage		$V_{(BR)DSS}$	I_D=10mA, V_{GS}=0	850	−	−	V
Gate Threshold Voltage		V_{th}	V_{DS}=10V, I_D=1mA	1.5	−	3.5	V
Forward Transfer Admittance		$\|Y_{fs}\|$	V_{DS}=10V, I_D=3A	1.0	1.7	−	S
Drain-Source ON Resistance		$R_{DS(ON)}$	I_D=3A, V_{GS}=10V	−	2.1	2.5	Ω
Drain-Source ON Voltage		$V_{DS(ON)}$	I_D=5A, V_{GS}=10V	−	11	13	V
Input Capacitance		C_{iss}	V_{DS}=25V, V_{GS}=0, f=1MHz	−	1400	1900	pF
Reverse Transfer Capacitance		C_{rss}	V_{DS}=25V, V_{GS}=0, f=1MHz	−	110	200	pF
Output Capacitance		C_{oss}	V_{DS}=25V, V_{GS}=0, f=1MHz	−	190	300	pF
Switching Time	Rise Time	t_r		−	110	220	ns
	Turn-on Time	t_{on}		−	130	260	
	Fall Time	t_f		−	90	260	
	Turn-off Time	t_{off}		−	480	900	

V_{IN} : t_r, t_f < 5ns
D.U ≦ 1% (Z_{OUT} = 50Ω)

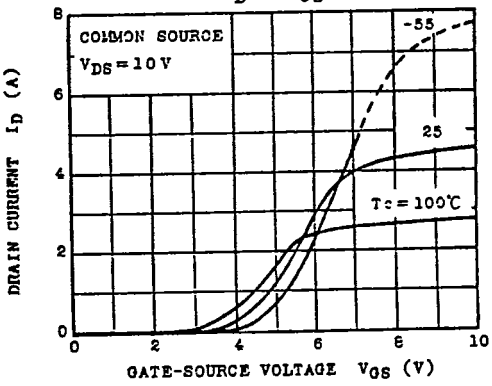
$I_D - V_{DS}$



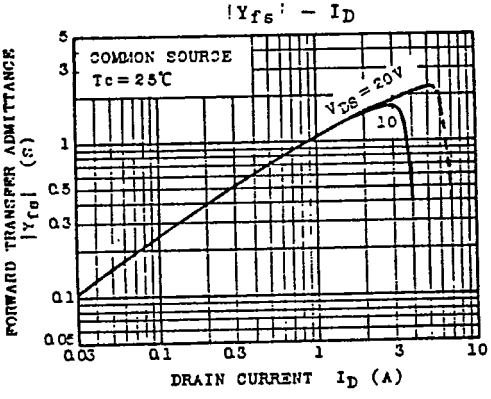
$V_{DS} - V_{GS}$



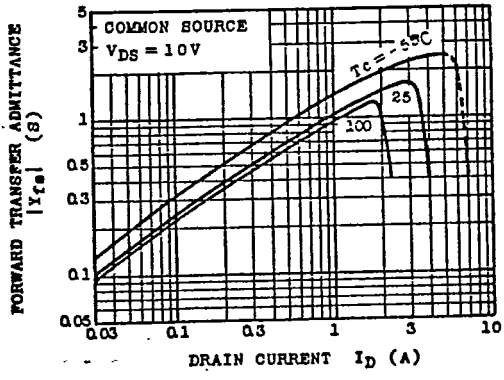
$I_D - V_{GS}$



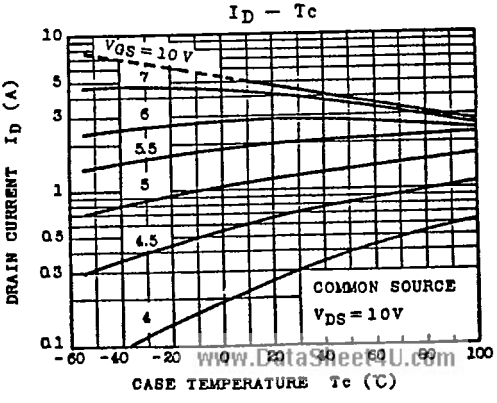
$|Y_{fs}| - I_D$



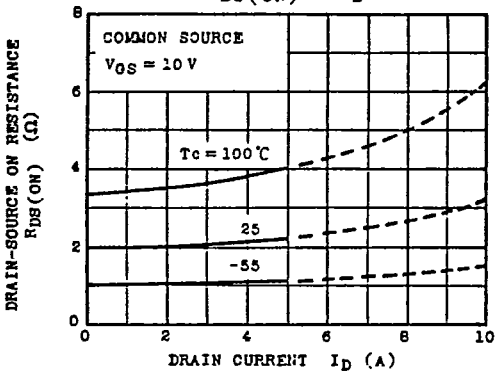
$|Y_{fs}| - I_D$



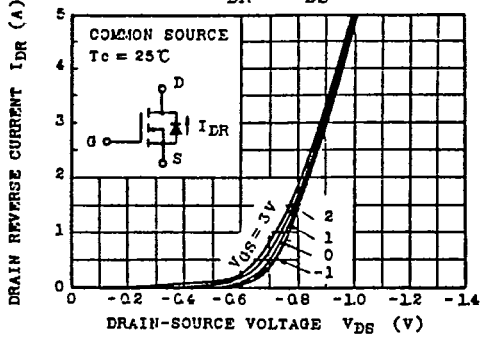
$I_D - Tc$



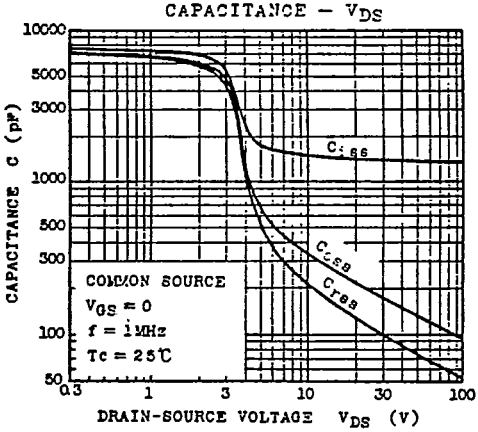
$R_{DS(ON)}$ – I_D



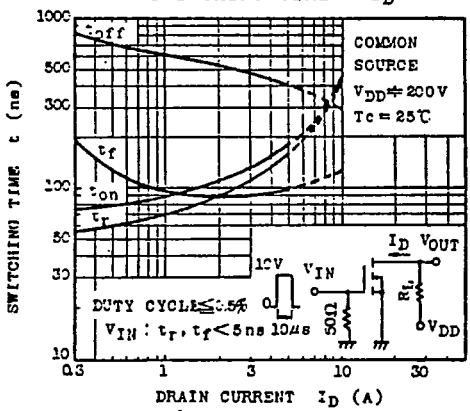
I_{DR} – V_{DS}



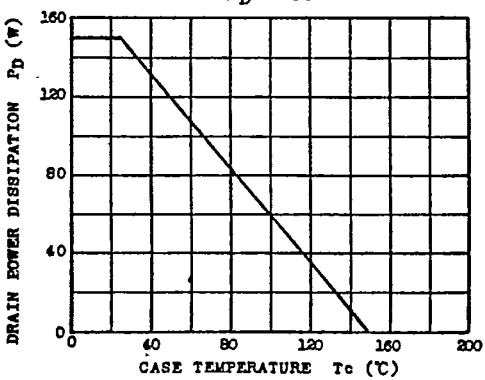
CAPACITANCE – V_{DS}



SWITCHING TIME – I_D



P_D – Tc



SAFE OPERATING AREA