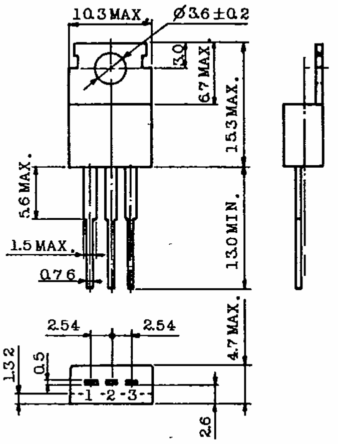
TOSHIBA FIELD EFFECT TRANSISTOR

2SK357

SILICON N CHANNEL MOS TYPE
(π-MOS)

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

INDUSTRIAL APPLICATIONS
Unit in mm



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

JEDEC	TO-220AB
EIAJ	SC-46
TOSHIBA	2-10A1C

Weight : 1.9g

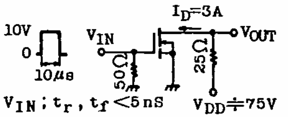
FEATURES:

- Low Drain-Source ON Resistance : $R_{DS(ON)}=0.6\Omega$ (Typ.)
- High Forward Transfer Admittance: $|Y_{fs}|=1.8S$ (Typ.)
- High Drain Current : $I_{DP}=8A$ (Max.)
- Low Leakage Current: $I_{GSS}=\pm100nA$ (Max.) @ $V_{GS}=\pm20V$
  $I_{DSS}=1mA$ (Max.) @ $V_{DS}=150V$
- Enhancement-Mode : $V_{th}=1.5\sim3.5V$ @ $I_D=1mA$

MAXIMUM RATINGS (Ta=25°C)

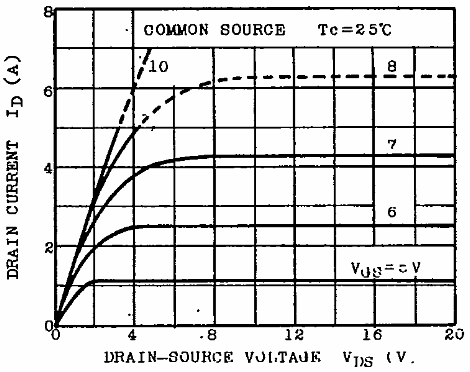
CHARACTERISTIC		SYMBOL	RATING	UNIT
Drain-Source Voltage		V_{DSX}	150	V
Gate-Source Voltage		V_{GSS}	±20	V
Drain Current	DC	I_D	5	A
	Pulse	I_{DP}	8	
Drain Power Dissipation (Tc=25°C)		P_D	40	W
Channel Temperature		T_{ch}	150	°C
Storage Temperature Range		T_{stg}	-55~150	°C

ELECTRICAL CHARACTERISTICS (Ta=25°C)

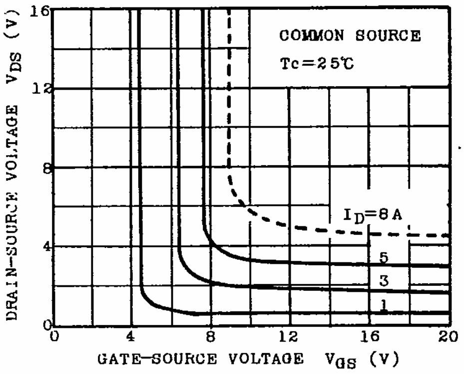
CHARACTERISTIC		SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
Gate Leakage Current		I_{GSS}	$V_{GS}=\pm20V$, $V_{DS}=0$	-	-	±100	nA
Drain Cut-off Current		I_{DSS}	$V_{DS}=150V$, $V_{GS}=0$	-	-	1.0	mA
Drain-Source Breakdown Voltage		$V_{(BR)DSS}$	I_D-10mA, $V_{GS}=0$	150	-	-	V
Gate Threshold Voltage		V_{th}	$V_{DS}=10V$, $I_D=1mA$	1.5	-	3.5	V
Forward Transfer Admittance		$\|Y_{fs}\|$	$V_{DS}=10V$, $I_D=3A$	0.8	1.8	-	S
Drain-Source ON Resistance		$R_{DS(ON)}$	$I_D=3A$, $V_{GS}=10V$	-	0.6	0.9	Ω
Drain-Source ON Voltage		$V_{DS(ON)}$	$I_D=8A$, $V_{GS}=10V$	-	5.5	9.5	V
Input Capacitance		C_{iss}	$V_{DS}=10V$, $V_{GS}=0$, f=1MHz	-	260	350	pF
Reverse Transfer Capacitance		C_{rss}	$V_{DS}=10V$, $V_{GS}=0$, f=1MHz	-	50	100	pF
Output Capacitance		C_{oss}	$V_{DS}=10V$, $V_{GS}=0$, f=1MHz	-	160	250	pF
Switching Time	Rise Time	t_r	 V_{IN}; t_r, t_f <5nS D.U≦1% ($Z_{out}=50\Omega$)	-	30	60	ns
	Turn-on Time	t_{on}		-	40	80	
	Fall Time	t_f		-	20	50	
	Turn-off Time	t_{off}		-	60	120	

THIS TRANSISTOR IS THE ELECTROSTATIC SENSITIVE DEVICE. PLEASE HANDLE WITH CAUTION.

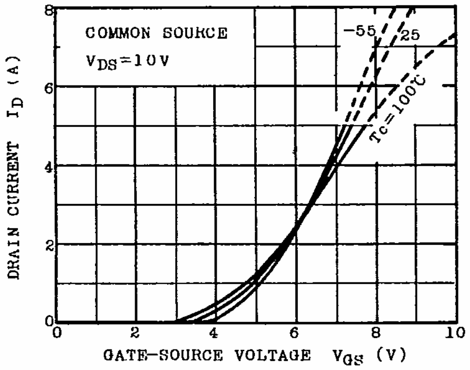
I_D — V_{DS}



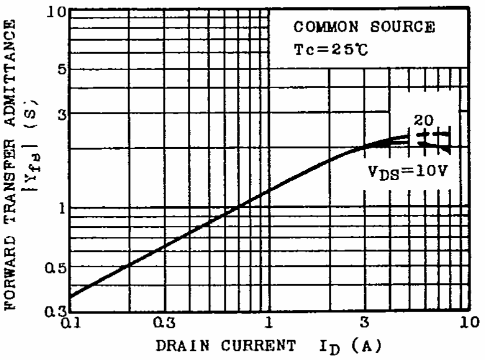
V_{DS} — V_{GS}



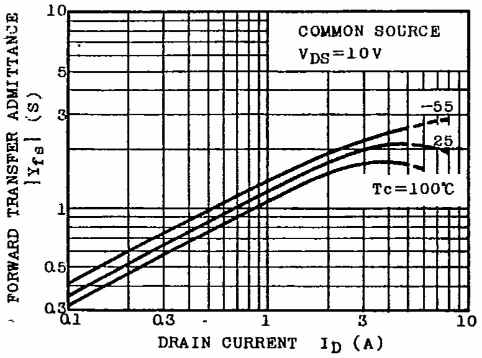
I_D — V_{GS}



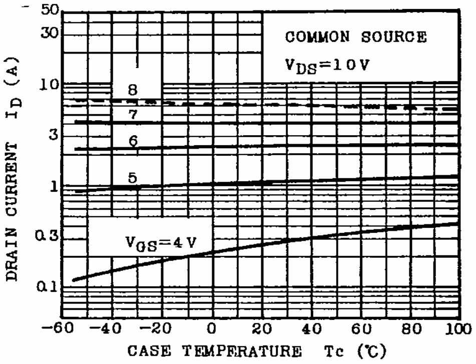
|Y_{fs}| — I_D



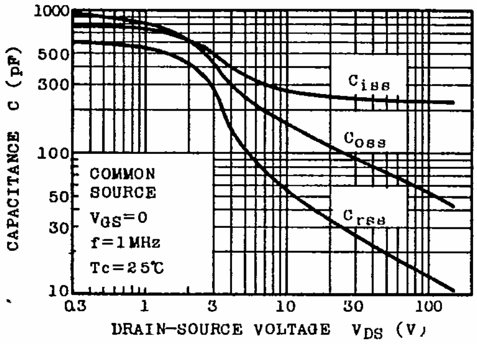
|Y_{fs}| — I_D



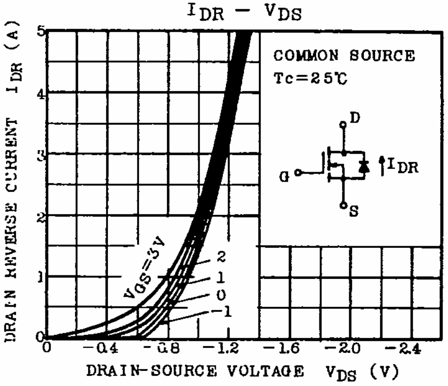
I_D — Tc



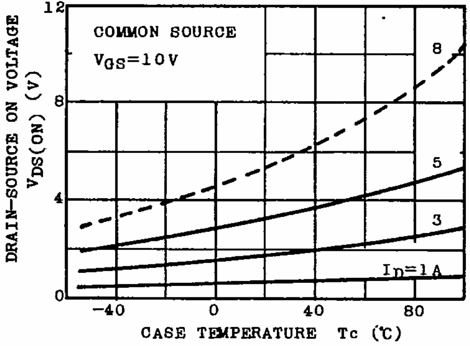
CAPACITANCE — V_{DS}



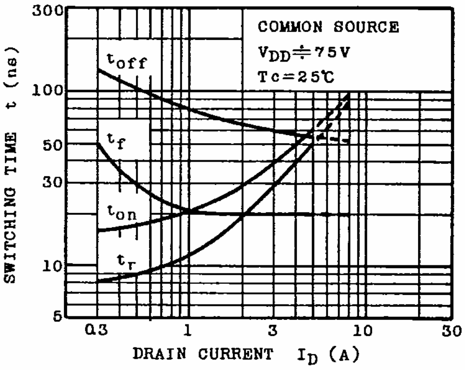
I_{DR} — V_{DS}



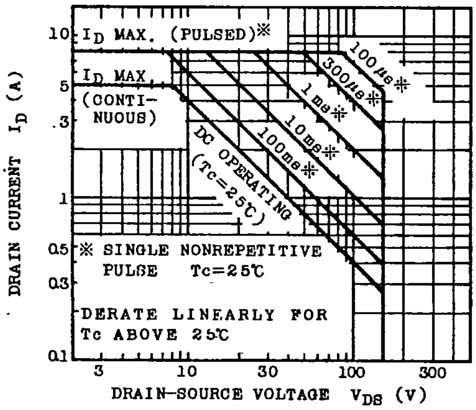
$V_{DS(ON)}$ — Tc



SWITCHING TIME — I_D



SAFE OPERATING AREA



P_D — Tc