

TOSHIBA SEMICONDUCTOR

TECHNICAL DATA

TOSHIBA FIELD EFFECT TRANSISTOR

2 S K 7 9 0

SILICON N CHANNEL MOS TYPE
(π -MOS1)

INDUSTRIAL APPLICATIONS

Unit in mm

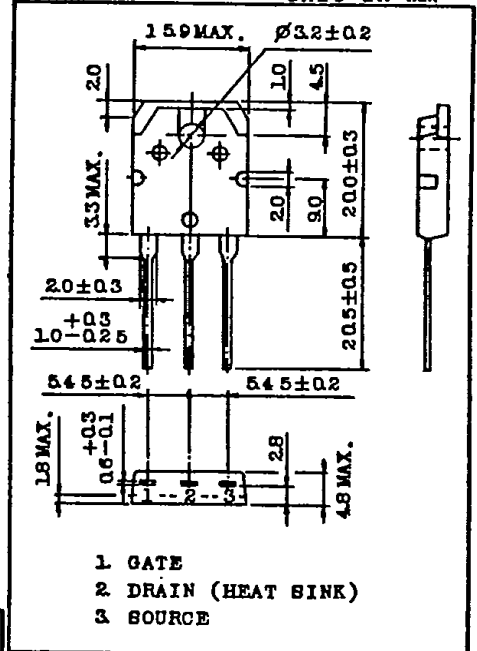
HIGH SPEED, HIGH CURRENT SWITCHING APPLICATIONS.
CHOPPER REGULATOR, DC-DC CONVERTER AND MOTOR
DRIVE APPLICATIONS.

FEATURES:

- Low Drain-Source ON Resistance : $R_{DS(ON)}=0.29\Omega$ (Typ.)
- High Forward Transfer Admittance : $|Y_{fs}|=8.0S$ (Typ.)
- Low Leakage Current : $I_{GSS}=\pm 100nA$ (Max.) @ $V_{GS}=\pm 20V$
 $I_{DSS}=300\mu A$ (Max.) @ $V_{DS}=500V$
- Enhancement-Mode : $V_{th}=2.0\sim 4.0V$ @ $V_{DS}=10V, I_D=1mA$

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

CHARACTERISTIC		SYMBOL	RATING	UNIT
Drain-Source Voltage		V_{DSX}	500	V
Drain-Gate Voltage ($R_{GS}=20k\Omega$)		V_{DGR}	500	V
Gate-Source Voltage		V_{GSS}	± 20	V
Drain Current	DC	I_D	15	A
	Pulse	I_{DP}	60	
Drain Power Dissipation ($T_c=25^\circ C$)		P_D	150	W
Channel Temperature		T_{ch}	150	$^\circ C$
Storage Temperature Range		T_{stg}	$-55\sim 150$	$^\circ C$



JEDEC	-
EIAJ	-
TOSHIBA	2-16C1B

Weight : 4.6g

THERMAL CHARACTERISTICS

CHARACTERISTIC	SYMBOL	MAX.	UNIT
Thermal Resistance, Junction to Case	$R_{th(j-c)}$	0.83	$^\circ C/W$
Thermal Resistance, Junction to Ambient	$R_{th(j-a)}$	50	$^\circ C/W$
Maximum Lead Temperature for Soldering Purposes (1.6mm from case for 10 seconds)	T_L	300	$^\circ C$

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ELECTRICAL CHARACTERISTICS (Ta=25°C)

CHARACTERISTIC		SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
Gate Leakage Current		IGSS	VGS=±20V, VDS=0V	-	-	±100	nA
Drain Cut-off Current		IDSS	VDS=500V, VGS=0V	-	-	300	μA
Drain-Source Breakdown Voltage		V(BR)DSS	ID=10mA, VGS=0V	500	-	-	V
Gate Threshold Voltage		Vth	VDS=10V, ID=1mA	2.0	-	4.0	V
Forward Transfer Admittance		Yfs	VDS=10V, ID=7A	6.0	8.0	-	S
Drain-Source ON Resistance		RDS(ON)	ID=7A, VGS=10V	-	0.29	0.40	Ω
Input Capacitance		Ciss	VDS=10V, VGS=0V, f=1MHz	-	2300	3600	pF
Reverse Transfer Capacitance		Crss		-	570	680	
Output Capacitance		Coss		-	1000	1400	
Switching Time	Rise Time	tr		-	70	140	ns
	Turn-on Time	ton		-	100	200	
	Fall Time	tf		-	75	150	
	Turn-off Time	toff		-	350	700	
Total Gate charge (Gate-Source Plus Gate-Drain)		Qg	ID=15A, VGS=10V VDD=400V	-	87	110	nC
Gate-Source Charge		Qgs		-	35	-	
Gate-Drain ("Miller") Charge		Qgd		-	52	-	

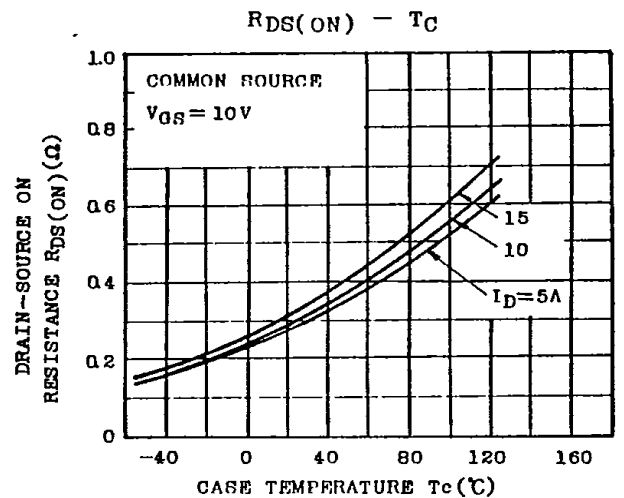
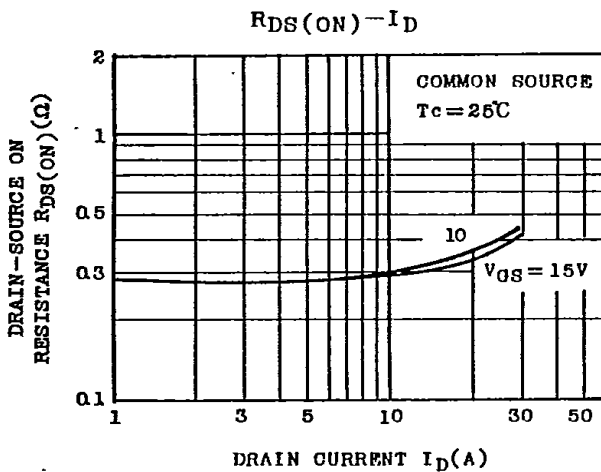
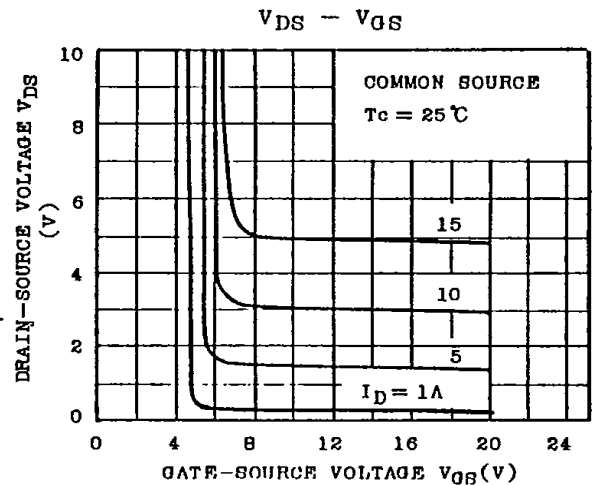
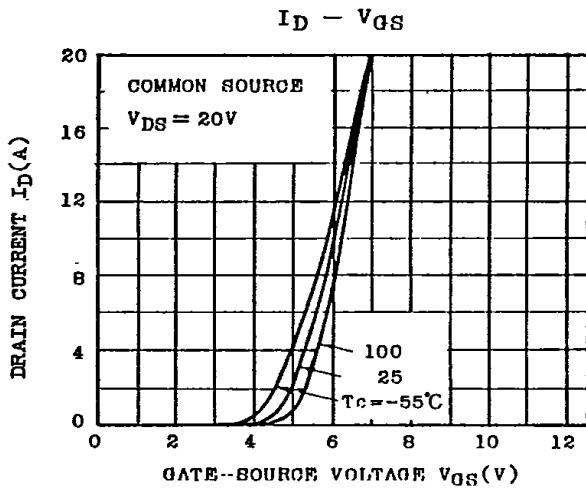
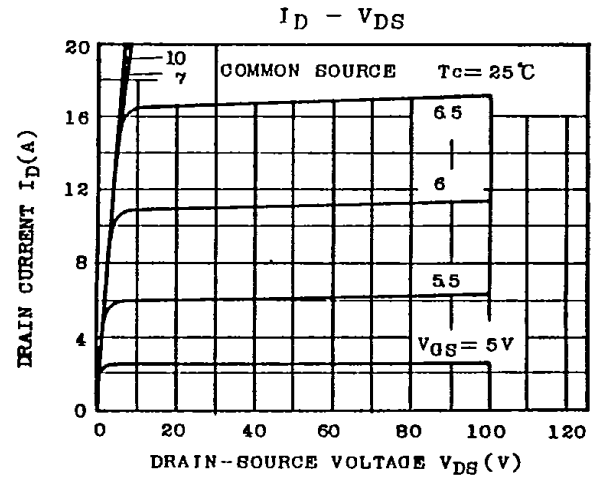
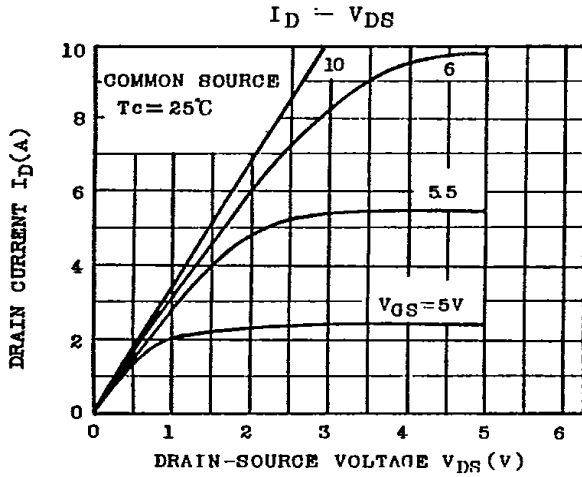
SOURCE-DRAIN DIODE RATINGS AND CHARACTERISTICS (Ta=25°C)

CHARACTERISTICS	SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
Continuous Drain Reverse Current	IDR	--	-	-	15	A
Rulse Drain Reverse Current	IDRP	--	-	-	60	A
Diode Foward Voltage	VDSF	IDR=15A, VGS=0V	-	-	2.0	V
Reverse Recovery Time	trr	IDR=15A	-	400	-	ns
Reverse Recovered Charge	Qrr	dIDR/dt=100A/us	-	4.0	-	μC

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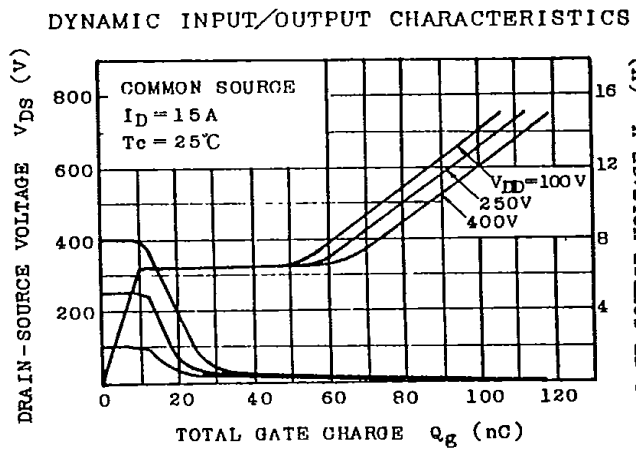
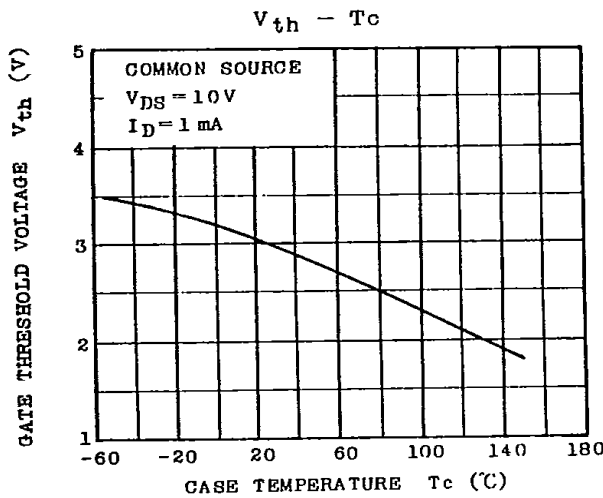
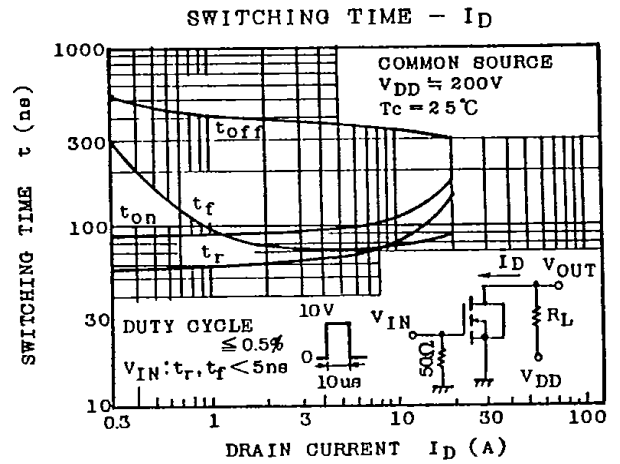
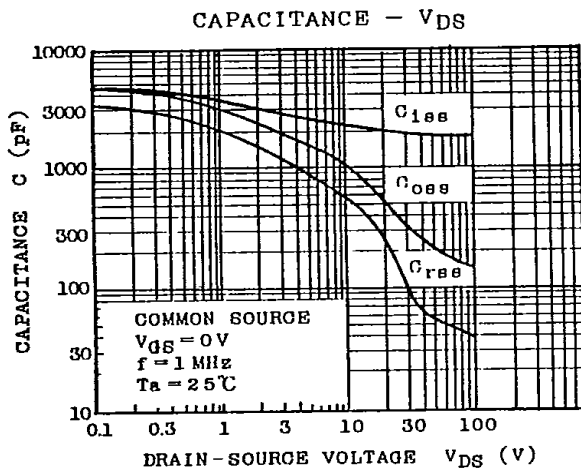
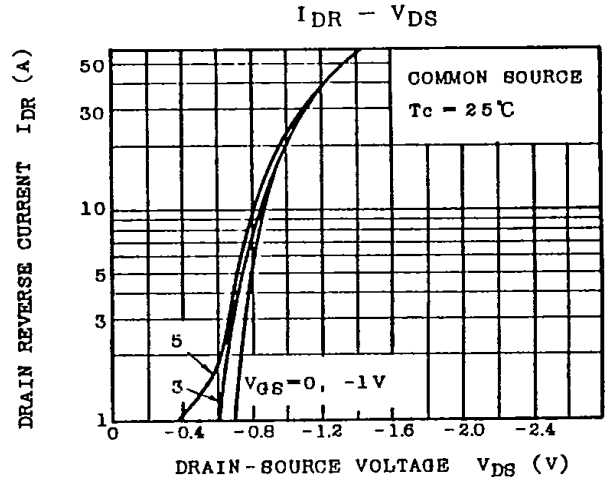
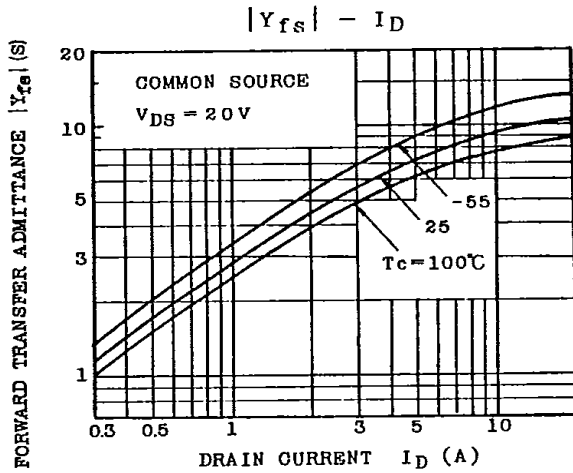
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2SK790



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