

9097250 TOSHIBA (DISCRETE/OPTO) TOSHIBA FIELD EFFECT TRANSISTOR
TOSHIBA SEMICONDUCTOR
 TECHNICAL DATA

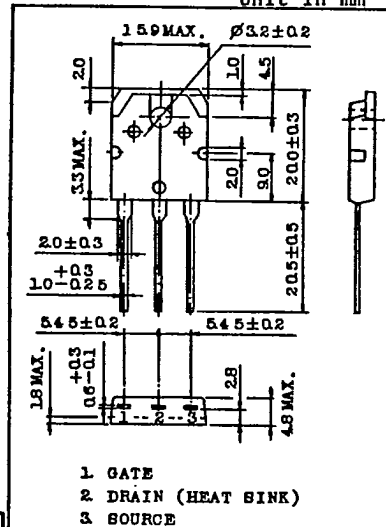
2 S K 7 9 0 99D 16755 D
 SILICON N CHANNEL MOS TYPE
 (N-MOS) T-39-13

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 : $V_{th}=2.0\sim 4.0V$ @ $V_{DS}=10V, I_D=1mA$



JEDEC	-
EIAJ	-
TOSHIBA	2-16C1B

Weight : 4.6g

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
	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}	$-55\sim 150$	$^\circ C$

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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99D 16756 DT-39-13

TOSHIBA SEMICONDUCTOR

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ELECTRICAL CHARACTERISTICS (Ta=25°C)

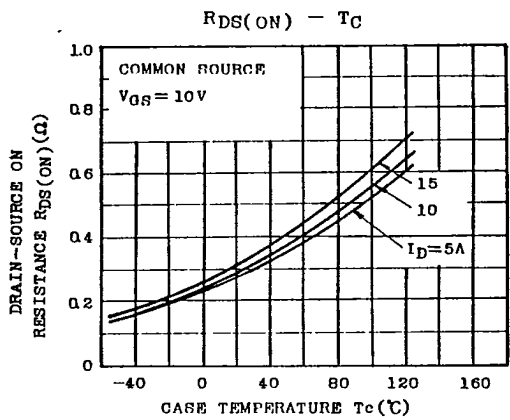
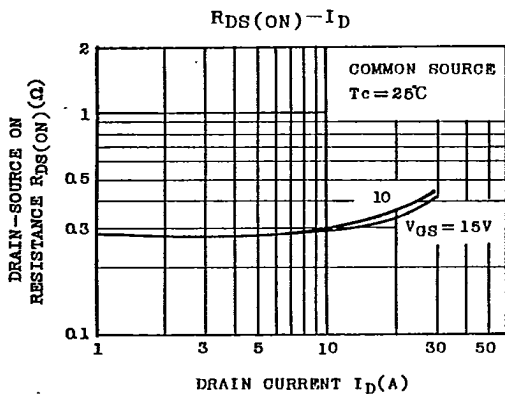
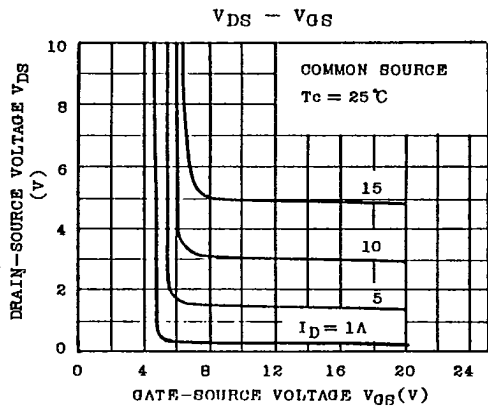
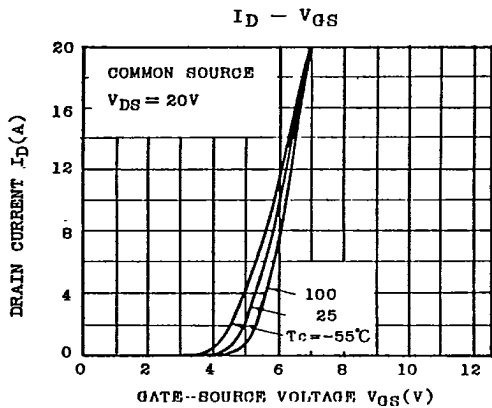
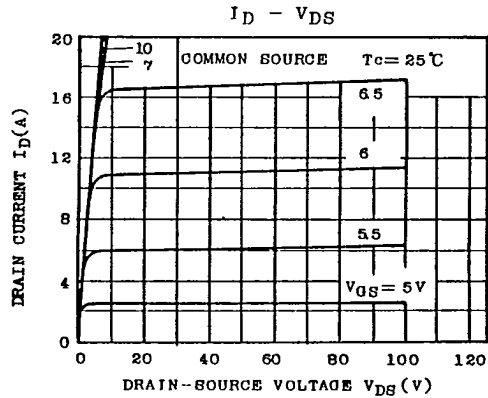
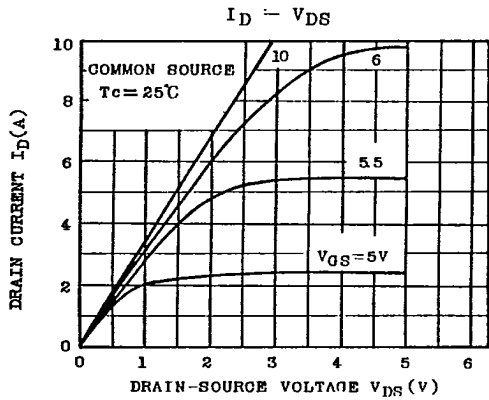
CARACTERISTIC	SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNIT			
Gate Leakage Current	IGSS	VGS=±20V, VDS=0V	-	-	±100	nA			
Drain Cut-off Current	IDSS	VDS=500V, VGS=0V	-	-	300	µA			
Drain-Source Breakdown Voltage	V(BR)DSS	ID=10mA, VGS=0V	500	-	-	V			
Gate Threshold Voltage	Vth	VDS=10V, ID=1mA	2.0	-	4.0	V			
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/µs	-	4.0	-	µC

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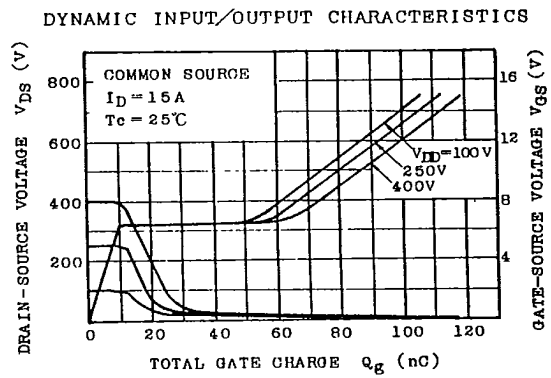
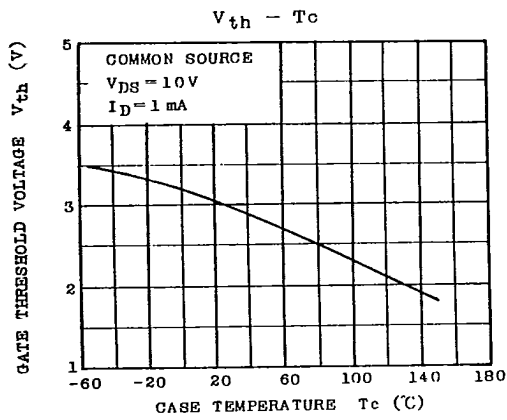
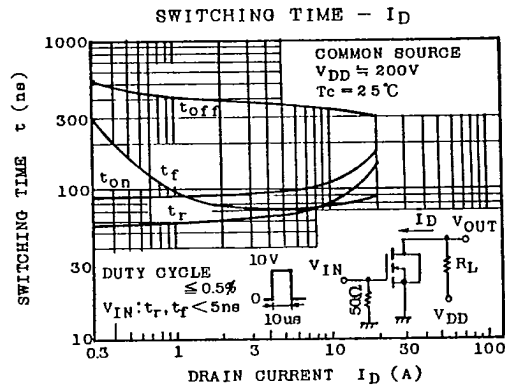
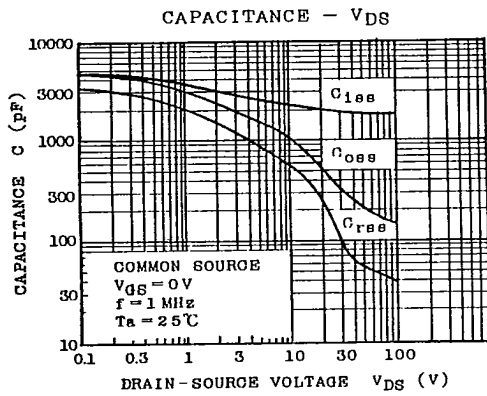
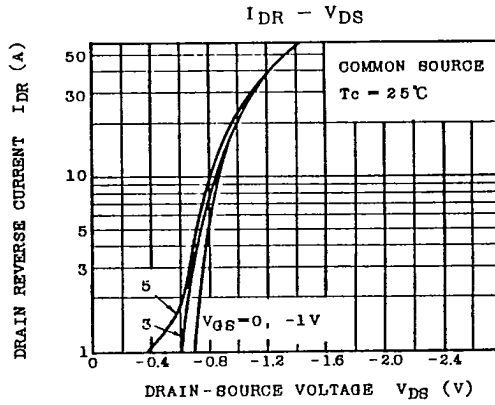
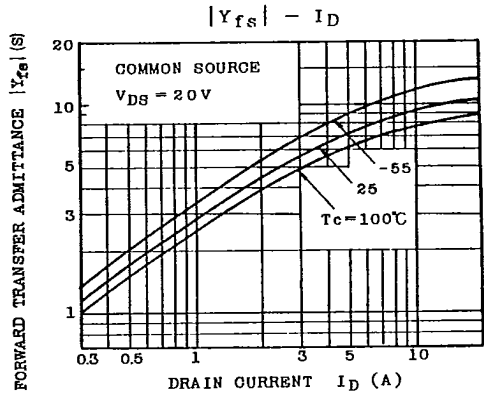
2SK790



EGA-2SK790-3
TOSHIBA CORPORATION

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