

9097250 TOSHIBA (DISCRETE/OPTO)

99D 16735 D

T-39-11



SEMICONDUCTOR
TECHNICAL DATA

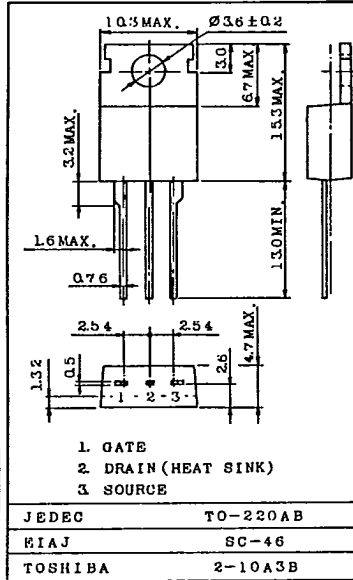
TOSHIBA FIELD EFFECT TRANSISTOR
2 S K 6 7 3
SILICON N CHANNEL MOS TYPE
(π -MOS)

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 : $R_{DS(ON)}=0.085\Omega$ (Typ.)
- High Forward Transfer Admittance : $|Y_{fs}|=5.0S$ (Typ.)
- Low Leakage Current : $I_{GSS}=\pm 100nA$ (Max.) @ $V_{GS}=\pm 20V$
 $I_{DSS}=300\mu A$ (Max.) @ $V_{DS}=60V$
- Enhancement-Mode : $V_{th}=1.5\sim 3.5V$ @ $V_{DS}=10V, I_D=1mA$



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

CHARACTERISTIC		SYMBOL	RATING	UNIT
Drain-Source Voltage		V_{DSX}	60	V
Drain-Gate Voltage ($R_{GS}=20k\Omega$)		V_{DGR}	60	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	75	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	$R_{th(j-c)}$	1.67	$^\circ C/W$
Thermal Resistance, Junction to Ambient	$R_{th(j-a)}$	83.3	$^\circ C/W$
Maximum Lead Temperature for Soldering Purposes (1.6mm from case for 10 seconds)	T_L	300	$^\circ C$

TOSHIBA CORPORATION

GT1A3A

9972SK673 TOSHIBA (DISCRETE/OPTO)

99D 16736 DT-39-11



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ELECTRICAL CHARACTERISTICS (Ta=25°C)

CHARACTERISTIC	SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNIT	
Gate Leakage Current	I _{GSS}	V _{GS} =±20V, V _{DS} =0V	-	-	±100	nA	
Drain Cut-off Current	I _{DSS}	V _{DS} =60V, V _{GS} =0V	-	-	300	μA	
Drain-Source Breakdown Voltage	V _{(BR)DSS}	I _D =10mA, V _{GS} =0V	60	-	-	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 =8A	3.5	5.0	-	S	
Drain-Source ON Resistance	R _{DS(ON)}	I _D =8A, V _{GS} =10V	-	0.085	0.11	Ω	
Drain-Source ON Voltage	V _{DS(ON)}	I _D =15A, V _{GS} =10V	-	1.3	1.8	V	
Input Capacitance	C _{iss}	V _{DS} =10V, V _{GS} =0V, f=1MHz	-	650	900	pF	
Reverse Transfer Capacitance	C _{rss}		-	150	240		
Output Capacitance	C _{oss}		-	600	900		
Switching Time	Rise Time	t _r		-	35	70	ns
	Turn-on Time	t _{on}		-	45	90	
	Fall Time	t _f		-	45	90	
	Turn-off Time	t _{off}		-	100	200	
Total Gate Charge (Gate-Source Plus Gate-Drain)	Q _g	I _D =15A, V _{GS} =10V V _{DD} =48V	-	20	33	nC	
Gate-Source Charge	Q _{gs}		-	12	-		
Gate-Drain ("Miller") Charge	Q _{gd}		-	8	-		

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

CHARACTERISTIC	SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
Continuous Drain Reverse Current	I _{DR}	--	-	-	15	A
Pulse Drain Reverse Current	I _{DRP}	--	-	-	60	A
Diode Forward Voltage	V _{DSF}	I _{DR} =15A, V _{GS} =0V	-	-	1.7	V
Reverse Recovery Time	t _{rr}	I _{DR} =15A	-	130	-	ns
Reverse Recovered Charge	Q _{rr}	dI _{DR} /dt=50A/μs	-	0.22	-	μC

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