

9097250 TOSHIBA (DISCRETE/OPTO)

99D 16780 D

T-39-11



SEMICONDUCTOR

TECHNICAL DATA

TOSHIBA FIELD EFFECT TRANSISTOR

Y T F 2 2 0

SILICON N CHANNEL MOS TYPE

(π -MOS II)

HIGH SPEED, HIGH CURRENT SWITCHING APPLICATIONS.

CHOPPER REGULATOR, DC-DC CONVERTER AND MOTOR DRIVE APPLICATIONS.

FEATURES:

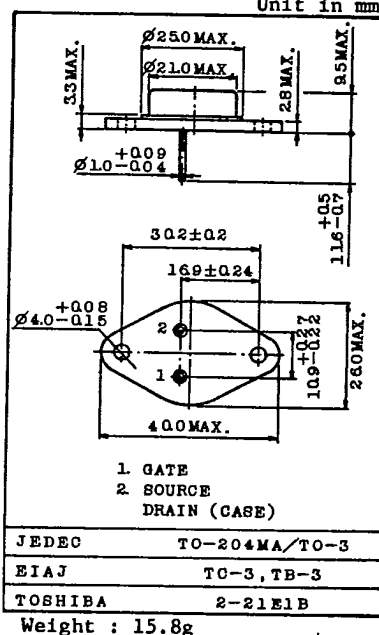
- . Low Drain-Source ON Resistance : $R_{DS(ON)}=0.5\Omega$ (Typ.)
- . High Forward Transfer Admittance : $|Y_{fs}|=2.5S$ (Typ.)
- . Low Leakage Current : $I_{GSS}=\pm 100nA(Max.)$ @ $V_{GS}=\pm 20V$
 $I_{DSS}=250\mu A(Max.)$ @ $V_{DS}=200V$
- . Enhancement-Mode : $V_{th}=2.0\sim 4.0V$ @ $V_{DS}=V_{GS}, I_D=250\mu A$

MAXIMUM RATINGS (Ta=25°C)

CHARACTERISTIC		SYMBOL	RATING	UNIT
Drain-Source Voltage		V_{DSX}	200	V
Drain-Gate Voltage ($R_{GS}=1M\Omega$)		V_{DGR}	200	V
Gate-Source Voltage		V_{GSS}	± 20	V
Drain Current	DC($T_c=25^\circ C$)	I_D	5	A
	DC($T_c=100^\circ C$)	I_D	3	
	Pulse	I_{DP}	20	
Inductive Current (Clamped)		I_{LP}	20	A
Drain Power Dissipation ($T_c=25^\circ C$)		P_D	40	W
Channel Temperature		T_{ch}	150	$^\circ C$
Storage Temperature Range		T_{stg}	$-55\sim 150$	$^\circ C$

INDUSTRIAL APPLICATIONS

Unit in mm



THERMAL CHARACTERISTICS

CHARACTERISTIC	SYMBOL	MAX.	UNIT
Thermal Resistance, Junction to Case	$R_{th(j-c)}$	3.12	°C/W
Thermal Resistance, Junction to Ambient	$R_{th(j-a)}$	30	°C/W
Maximum Lead Temperature for Soldering Purposes (1.6mm from case for 10 seconds)	T_L	300	°C

TOSHIBA CORPORATION

GT1A2

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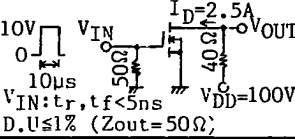


SEMICONDUCTOR

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Y T F 2 2 0

ELECTRICAL CHARACTERISTICS (Ta=25°C)

CHARACTERISTIC	SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
Gate Leakage Current	I_{GSS}	$V_{GS}=\pm 20V, V_{DS}=0V$	-	-	± 100	nA
Drain Cut-off Current	I_{DSS}	$V_{DS}=200V, V_{GS}=0V, T_c=25^\circ C$	-	-	250	μA
Drain-Source Breakdown Voltage	$V_{(BR)DSS}$	$I_D=250\mu A, V_{GS}=0V$	200	-	-	V
Gate Threshold Voltage	V_{th}	$V_{DS}=V_{GS}, I_D=250\mu A$	2.0	-	4.0	V
Forward Transfer Admittance	$ Y_{fs} $	$V_{DS}=10V, I_D=2.5A$	1.3	2.5	-	S
On-State Drain Current	$I_{D(ON)}$	$V_{DS}=10V, V_{GS}=10V$	5	-	-	A
Drain-Source ON Resistance	$R_{DS(ON)}$	$I_D=2.5A, V_{GS}=10V$	-	0.5	0.8	Ω
Drain-Source ON Voltage	$V_{DS(ON)}$	$I_D=5A, V_{GS}=10V$	-	2.7	4.1	V
Input Capacitance	C_{iss}	$V_{DS}=25V, V_{GS}=0V, f=1MHz$	-	460	600	pF
Reverse Transfer Capacitance	C_{rss}		-	50	80	pF
Output Capacitance	C_{oss}		-	230	300	pF
Switching Time	Rise Time		-	30	60	ns
	Turn-on Time		-	50	100	ns
	Fall Time		-	30	60	ns
	Turn-off Time		-	80	160	ns
Total Gate Charge (Gate-Source Plus Gate-Drain)	Q_g	$V_{GS}=10V, I_D=6A, V_{DS}=160V$	-	11	15	nC
Gate Source Charge	Q_{gs}		-	5	-	nC
Gate-Drain ("Miller") Charge	Q_{gd}		-	6	-	nC

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

CHARACTERISTIC	SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
Continuous Source Current	I_S	—	-	-	5	A
Pulse Source Current	I_{SP}	—	-	-	20	A
Diode Forward Voltage	V_{SD}	$I_S=5A, V_{GS}=0V, T_c=25^\circ C$	-	-	2.0	V
Reverse Recovery Time	t_{rr}	$T_j=150^\circ C, I_F=5A$	-	350	-	ns
Reverse Recovered Charge	Q_{rr}	$dI_F/dt=100A/\mu s$	-	2.3	-	μC

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