

9097250 TOSHIBA (DISCRETE/OPTO)

99D 16820 DT-39-13



SEMICONDUCTOR

TECHNICAL DATA

TOSHIBA FIELD EFFECT TRANSISTOR

YTF450

SILICON N CHANNEL MOS TYPE

(π-MOS II)

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

FEATURES:

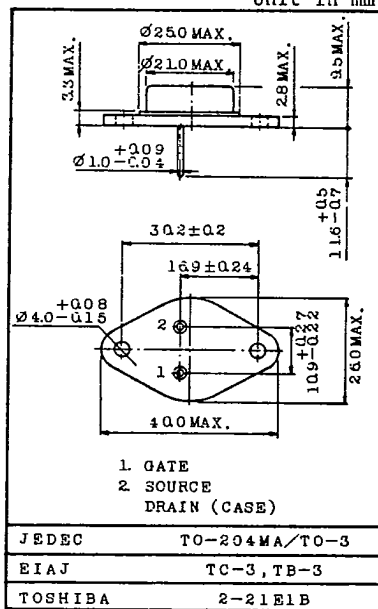
- Low Drain-Source ON Resistance : $R_{DS(ON)}=0.3\Omega$ (Typ.)
- High Forward Transfer Admittance : $|Y_{fs}|=11S$ (Typ.)
- Low Leakage Current : $I_{GSS}=\pm 10nA(Max.)$ @ $V_{GS}=\pm 20V$
 $I_{DSS}=250\mu A(Max.)$ @ $V_{DS}=500V$
- Enhancement-Mode : $V_{th}=2.0\sim 4.0V$ @ $V_{DS}=V_{GS}, I_D=250\mu A$

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

CHARACTERISTIC	SYMBOL	RATING	UNIT
Drain-Source Voltage	V_{DSX}	500	V
Drain-Gate Voltage ($R_{GS}=1M\Omega$)	V_{DGR}	500	V
Gate-Source Voltage	V_{GSS}	± 20	V
Drain Current	DC($T_c=25^\circ C$)	I_D	13
	DC($T_c=100^\circ C$)	I_D	8
	Pulse	I_{DP}	52
Inductive Current (Clamped)	I_{LP}	52	A
Drain Power Dissipation ($T_c=25^\circ C$)	P_D	150	W
Channel Temperature	T_{ch}	150	$^\circ C$
Storage Temperature Range	T_{stg}	$-55\sim 150$	$^\circ C$

INDUSTRIAL APPLICATIONS

Unit in mm



Weight : 15.8g

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	$R_{th(j-a)}$	30	$^\circ C/W$
Maximum Lead Temperature for Soldering Purposes (1.6mm from case for 10 seconds)	T_L	300	$^\circ C$

TOSHIBA CORPORATION

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9097250 TOSHIBA (DISCRETE/OPTO)

99D 16821 D T-39-13



SEMICONDUCTOR

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TECHNICAL DATA

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}	$V_{DS}=500V, V_{GS}=0V, T_c=25^\circ C$	-	-	250	μA
Drain-Source Breakdown Voltage	$V_{(BR)DSS}$	$I_D=250\mu A, V_{GS}=0V$	500	-	-	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} $	$V_{DS}=10V, I_D=7A$	6	11	-	S
On-State Drain Current	$I_{D(ON)}$	$V_{DS}=10V, V_{GS}=10V$	13	-	-	A
Drain-Source ON Resistance	$R_{DS(ON)}$	$I_D=7A, V_{GS}=10V$	-	0.3	0.4	Ω
Drain-Source ON Voltage	$V_{DS(ON)}$	$I_D=13A, V_{GS}=10V$	-	4.3	6.3	V
Input Capacitance	C_{iss}	$V_{DS}=25V, V_{GS}=0V, f=1MHz$	-	2000	3000	pF
Reverse Transfer Capacitance	C_{rss}		-	100	200	pF
Output Capacitance	C_{oss}		-	370	600	pF
Switching Time	Rise Time		-	25	50	ns
	Turn-on Time		-	40	85	ns
	Fall Time		-	35	70	ns
	Turn-off Time		-	110	220	ns
Total Gate Charge (Gate-Source Plus Gate-Drain)	Q_g	$V_{GS}=10V, I_D=16A,$	-	82	120	nC
Gate Source Charge	Q_{gs}	$V_{DS}=400V$	-	40	-	nC
Gate-Drain ("Miller") Charge	Q_{gd}		-	42	-	nC

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

CHARACTERISTIC	SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
Continuous Source Current	I_S	—	-	-	13	A
Pulse Source Current	I_{SP}	—	-	-	52	A
Diode Forward Voltage	V_{SD}	$I_S=13A, V_{GS}=0V, T_c=25^\circ C$	-	-	1.4	V
Reverse Recovery Time	t_{rr}	$T_j=150^\circ C, I_F=13A,$	-	1300	-	ns
Reverse Recovered Charge	Q_{rr}	$dI_F/dt=100A/\mu s$	-	7.4	-	μC

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