

9097250 TOSHIBA (DISCRETE/OPTO)

99D 16804 D T-39-13



SEMICONDUCTOR

TECHNICAL DATA

TOSHIBA FIELD EFFECT TRANSISTOR

YTF250

SILICON N CHANNEL MOS TYPE

(N-MOS II)

HIGH SPEED, HIGH CURRENT SWITCHING APPLICATIONS.

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

FEATURES:

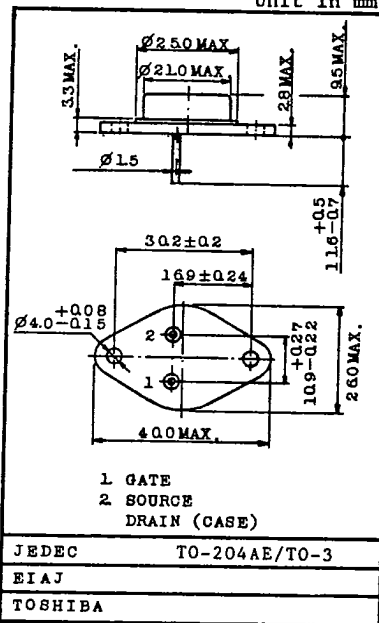
- Low Drain-Source ON Resistance : $R_{DS(ON)}=0.07\Omega$ (Typ.)
- High Forward Transfer Admittance : $|Y_{fs}|=14S$ (Typ.)
- Low Leakage Current : $I_{GSS}=\pm 100nA$ (Max.) @ $V_{GS}=\pm 20V$
 $I_{DSS}=250\mu A$ (Max.) @ $V_{DS}=200V$
- Enhancement-Mode : $V_{th}=2.0\sim 4.0V$ @ $V_{DS}=V_{GS}$, $I_D=250\mu A$

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

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	30
	DC($T_c=100^\circ C$)	I_D	19
	Pulse	I_{DP}	120
Inductive Current (Clamped)	I_{LP}	120	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	$^\circ C$

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Y T F 2 5 0

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ELECTRICAL CHARACTERISTICS ($T_a=25^\circ\text{C}$)

CHARACTERISTIC	SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
Gate Leakage Current	I_{GSS}	$V_{GS}=\pm 20\text{V}$, $V_{DS}=0\text{V}$	-	-	± 100	nA
Drain Cut-off Current	I_{DSS}	$V_{DS}=200\text{V}$, $V_{GS}=0\text{V}$, $T_c=25^\circ\text{C}$	-	-	250	μA
Drain-Source Breakdown Voltage	$V_{(BR)DSS}$	$I_D=250\mu\text{A}$, $V_{GS}=0\text{V}$	200	-	-	V
Gate Threshold Voltage	V_{th}	$V_{DS}=V_{GS}$, $I_D=250\mu\text{A}$	2.0	-	4.0	V
Forward Transfer Admittance	$ Y_{fs} $	$V_{DS}=10\text{V}$, $I_D=16\text{A}$	8	14	-	S
On-State Drain Current	$I_{D(ON)}$	$V_{DS}=10\text{V}$, $V_{GS}=10\text{V}$	30	-	-	A
Drain-Source ON Resistance	$R_{DS(ON)}$	$I_D=16\text{A}$, $V_{GS}=10\text{V}$	-	0.070	0.085	Ω
Drain-Source ON Voltage	$V_{DS(ON)}$	$I_D=30\text{A}$, $V_{GS}=10\text{V}$	-	2.3	3.5	V
Input Capacitance	C_{iss}	$V_{DS}=25\text{V}$, $V_{GS}=0\text{V}$, $f=1\text{MHz}$	-	2300	3000	pF
Reverse Transfer Capacitance	C_{rss}		-	390	500	pF
Output Capacitance	C_{oss}		-	920	1200	pF
Switching Time	Rise Time		-	50	100	ns
	Turn-on Time		-	65	135	ns
	Fall Time		-	50	100	ns
	Turn-off Time		-	110	225	ns
Total Gate Charge (Gate-Source Plus Gate-Drain)	Q_g	$V_{GS}=10\text{V}$, $I_D=38\text{A}$, $V_{DS}=160\text{V}$	-	79	120	nC
Gate Source Charge	Q_{gs}		-	37	-	nC
Gate-Drain ("Miller") Charge	Q_{gd}		-	42	-	nC

SOURCE-DRAIN DIODE RATINGS AND CHARACTERISTICS ($T_a=25^\circ\text{C}$)

CHARACTERISTIC	SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
Continuous Source Current	I_S	—	-	-	30	A
Pulse Source Current	I_{SP}	—	-	-	120	A
Diode Forward Voltage	V_{SD}	$I_S=30\text{A}$, $V_{GS}=0\text{V}$, $T_c=25^\circ\text{C}$	-	-	2.0	V
Reverse Recovery Time	t_{rr}	$T_j=150^\circ\text{C}$, $I_F=30\text{A}$,	-	750	-	ns
Reverse Recovered Charge	Q_{rr}	$dI_F/dt=100\text{A}/\mu\text{s}$	-	4.7	-	μC

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