

TOSHIBA (DISCRETE/OPTO) 45E D ■ 9097250 0017974 4 ■ TOS4
 TOSHIBA FIELD EFFECT TRANSISTOR
 SILICON N CHANNEL MOS TYPE (π - MOSI) **YTFP250**

T-30-13

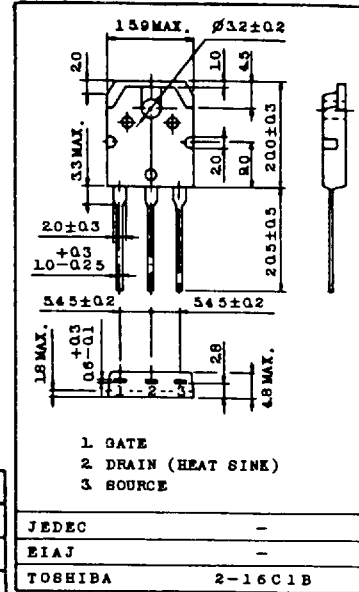
HIGH SPEED, HIGH CURRENT SWITCHING APPLICATIONS.
 CHOPPER REGULATOR, DC-DC CONVERTER AND MOTOR
 DRIVE APPLICATIONS.

FEATURES:

- Low Drain-Source ON Resistance : $R_{DS(ON)}=0.070\Omega$ (Typ.)
- High Forward Transfer Admittance : $|Y_{fs}|=12S$ (Typ.)
- Low Leakage Current : $I_{GSS}=\pm 100nA$ (Max.) @ $V_{GS}=\pm 20V$
 $I_{DSS}=250\mu A$ (Max.) @ $V_{DS}=200V$
- Enhancement-Mode : $V_{th}=2.0\sim 4.0V$ @ $V_{DS}=10V, I_D=250\mu A$

INDUSTRIAL APPLICATIONS

Unit in mm



Weight : 4.6g

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

CHARACTERISTIC	SYMBOL	RATING	UNIT
Drain-Source Voltage	V_{DSX}	200	V
Drain-Gate Voltage ($R_{GS}=20k\Omega$)	V_{DGR}	200	V
Gate-Source Voltage	V_{GSS}	± 20	V
Drain Current	DC	I_D	30
	Pulse	I_{DP}	120
Drain Power Dissipation ($T_c=25^\circ C$)	P_D	150	W
Channel Temperature	T_{ch}	150	$^\circ C$
Storage Temperature Range	T_{stg}	$-55\sim 150$	$^\circ C$

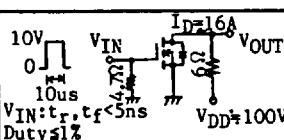
THERMAL CHARACTERISTICS

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	$^\circ C$

YTFP250

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ELECTRICAL CHARACTERISTICS (Ta=25°C)

CHARACTERISTIC		SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
Gate Leakage Current		IGSS	VGS=±20V, VDS=0V	-	-	±100	nA
Drain Cut-off Current		IDSS	VDS=200V, VGS=0V	-	-	250	µA
Drain-Source Breakdown Voltage		V(BR)DSS	ID=250µA, VGS=0V	200	-	-	V
Gate Threshold Voltage		Vth	VDS=10V, ID=250µA	2.0	-	4.0	V
Forward Transfer Admittance		Yfs	VDS=10V, ID=16A	8	12	-	S
Drain-Source ON Resistance		RDS(ON)	ID=16A, VGS=10V	-	0.070	0.085	Ω
Input Capacitance		Ciss	VDS=10V, VGS=0V, f=1MHz	-	2100	2700	pF
Reverse Transfer Capacitance		Crss		-	600	900	
Output Capacitance		Coss		-	1400	2000	
Switching Time	Rise Time	tr	 VIN: tr, tf < 5ns Duty ≤ 1% ID=16A VDD=100V	-	35	70	ns
	Turn-on Time	ton		-	55	110	
	Fall Time	tf		-	30	60	
	Turn-off Time	toff		-	90	180	
Total Gate charge (Gate-Source Plus Gate-Drain)		Qg	ID=30A, VGS=10V	-	85	120	nC
Gate-Source Charge		Qgs	VDD=160V	-	40	-	
Gate-Drain ("Miller") Charge		Qgd		-	45	-	

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

CHARACTERISTICS	SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
Continuous Drain Reverse Current	IDR	--	-	-	30	A
Pulse Drain Reverse Current	IDRP	--	-	-	120	A
Diode Forward Voltage	VDSF	IDR=30A, VGS=0V	-	-	2.0	V
Reverse Recovery Time	trr	IDR=30A	-	500	-	ns
Reverse Recovered Charge	Qrr	dIDR/dt=100A/µs	-	4.2	-	µC