TOSHIBA FIELD EFFECT TRANSISTOR

SILICON N CHANNEL MOS TYPE (π — MOSII)

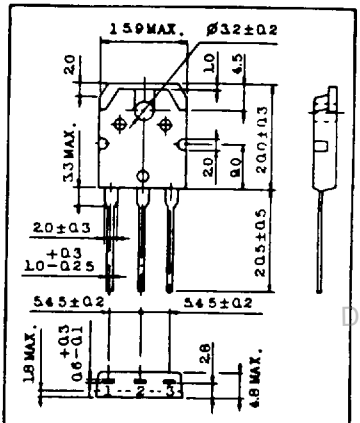
YTFP152

T-39-13

INDUSTRIAL APPLICATIONS

HIGH SPEED, HIGH CURRENT SWITCHING APPLICATIONS.
CHOPPER REGULATOR, DC_DC CONVERTER AND MOTOR
DRIVE APPLICATION.

Unit in mm



JEDEC	—
EIAJ	—
TOSHIBA	2-16C1B

Weight : 4.6g

FEATURE

- Low Drain-Source ON Resistance : $R_{DS(ON)}$=0.06Ω (Typ.)
- High Forward Transfer Admittance : $|Y_{fs}|$=11S (Typ.)
- Low Leakage Current : I_{GSS}=±500nA(Max.) @ V_{GS}=±20V
  I_{DSS}=250μA (Max.) @ V_{DS}=100V
- Enhancement-Mode : V_{th}=2.0~4.0V @ V_{DS}=V_{GS}, I_D=250μA

MAXIMUM RATINGS (Ta=25°C)

CHARACTERISTIC		SYMBOL	RATING	UNIT
Drain-Source Voltage		V_{DSX}	100	V
Drain-Gate Voltage (R_{GS}=20kΩ)		V_{DGR}	100	V
Gate-Source Voltage		V_{GSS}	±20	V
Drain Current	DC	I_D	33	A
	Pulse	I_{DP}	132	
Drain Power Dissipation (Tc=25°C)		P_D	150	W
Channel Temperature		Tch	150	°C
Storage Temperature Range		T_{stg}	-55~150	°C

THERMAL CHARACTERISTICS

CHARACTERISTIC	SYMBOL	MAX.	UNIT
Thermal Resistance, Junction to Case	$R_{th(j-c)}$	0.83	°C/W
Thermal Resistance, Junction to Ambient	$R_{th(j-a)}$	50	°C/W
Maximum Lead Temperature for Soldering Purposes (1.6mm from case for 10 seconds)	T_L	300	°C

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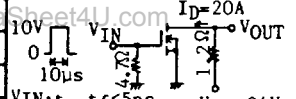
ELECTRICAL CHARACTERISTICS (Ta=25°C)

CHARACTERISTIC		SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
Gate Leakage Current		I_{GSS}	V_{GS}=±20V, V_{DS}=0V	-	-	±500	nA
Drain Cut-off Current		I_{DSS}	V_{DS}=100V, V_{GS}=0V	-	-	250	μA
Drain-Source Breakdown Voltage		$V_{(BR)DSS}$	I_D=250μA, V_{GS}=0V	100	-	-	V
Gate Threshold Voltage		V_{th}	V_{DS}=V_{GS}, I_D=250μA	2.0	-	4.0	V
Forward Transfer Admittance		$\|Y_{fs}\|$	V_{DS}=10V, I_D=20A	9.0	11	-	S
Drain-Source ON Resistance		$R_{DS(ON)}$	I_D=20A , V_{GS}=10V	-	0.06	0.08	Ω
Drain-Source ON Voltage		$V_{DS(ON)}$	I_D=33A , V_{GS}=10V	-	2.2	3.3	V
Input Capacitance		C_{iss}	V_{DS}=25V, V_{GS}=0V, f=1MHz	-	1700	3000	pF
Reverse Transfer Capacitance		C_{rss}		-	180	500	
Output Capacitance		C_{oss}		-	850	1500	
Switching Time	Rise Time	t_r		-	50	100	ns
	Turn-on Time	t_{on}		-	65	135	
	Fall Time	t_f		-	50	100	
	Turn-off Time	t_{off}		-	110	225	
Total Gate Charge (Gate-Source Plus Gate-Drain)		Q_g	I_D=50A , V_{GS}=10V V_{DD}≒80V	-	63	120	nC
Gate-Source Charge		Q_{gs}		-	27	-	
Gate-Drain ("Miller") Charge		Q_{gd}		-	36	-	

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

CHARACTERISTIC	SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
Continuous Drain Reverse Current	I_{DR}	--	-	-	33	A
Pulse Drain Reverse Current	I_{DRP}	--	-	-	132	A
Diode Forward Voltage	V_{DSF}	I_{DR}=33A , V_{GS}=0V	-	-	2.3	V
Reverse Recovery Time	t_{rr}	I_{DR}=33A dI_{DR}/dt=100A/μs	-	600	-	ns
Reverse Recovered Charge	Q_{rr}		-	3.3	-	μC