Field Effect Transistor

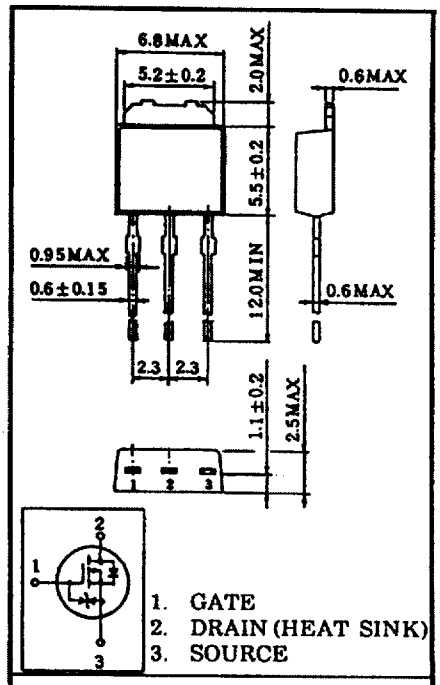
Silicon N Channel MOS Type (π-MOS IV)

High Speed, High Current Switching Applications

Features

- Low Drain-Source ON Resistance
  - $R_{DS(ON)}$ = 0.10Ω (Typ.)
- High Forward Transfer Admittance
  - $|Y_{fs}|$ = 3.0S (Typ.)
- Low Leakage Current
  - I_{DSS} = 100μA (Max.) @ V_{DS} = 60V
- Enhancement-Mode
  - V_{th} = 2.0 ~ 4.0V @ V_{DS} = 10V, I_D = 1mA

Unit in mm



JEDEC	—
EIAJ	SC-64
TOSHIBA	2-7B1B

Weight : 0.36g

Absolute Maximum Ratings (Ta = 25℃)

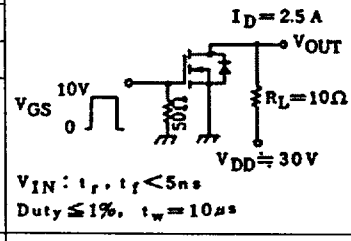
CHARACTERISTIC		SYMBOL	RATING	UNIT
Drain-Source Voltage		V_{DSS}	60	V
Drain-Gate Voltage (R_{GS} = 20kΩ)		V_{DGR}	60	V
Gate-Source Voltage		V_{GSS}	±20	V
Drain Current	DC	I_D	5	A
	Pulse	I_{DP}	20	
Drain Power Dissipation (Tc = 25°C)		P_D	20	W
Channel Temperature		T_{ch}	150	°C
Storage Temperature		T_{stg}	-55 ~ 150	°C

Thermal Characteristics

CHARACTERISTIC	SYMBOL	MAX.	UNIT
Thermal Resistance, Channel to Case	$R_{th(ch-c)}$	6.25	°C/W
Thermal Resistance, Channel to Ambient	$R_{th(ch-a)}$	125	°C/W

This transister is an electrostatic sensitive device. Please handle with caution.

Electrical Characteristics (Ta = 25C)

CHARACTERISTIC		SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
Gate Leakage Current		I_{GSS}	V_{GS} = ±16V, V_{DS} = 0V	–	–	±10	μA
Drain Cut-off Current		I_{DSS}	V_{DS} = 60V, V_{GS} = 0V	–	–	100	μA
Drain-Source Breakdown Voltage		$V_{(BR)\ DSS}$	I_D = 10mA, V_{GS} = 0V	60	–	–	V
Gate Threshold Voltage		V_{th}	V_{DS} = 10V, I_D = 1mA	2.0	–	4.0	V
Drain-Source ON Resistance		$R_{DS\ (ON)}$	V_{GS} = 10V, I_D = 2.5A	–	0.10	0.14	Ω
Forward Transfer Admittance		$\|Y_{fs}\|$	V_{DS} = 10V, I_D = 2.5A	1.8	3.0	–	S
Input Capacitance		C_{iss}	V_{DS} = 10V, V_{GS} = 0V, f = 1MHz	–	400	700	pF
Reverse Transfer Capacitance		C_{rss}		–	120	240	
Output Capacitance		C_{oss}		–	300	500	
Switching Time	Rise Time	tr		–	25	50	ns
	Turn-on Time	t_{on}		–	65	130	
	Fall Time	t_f		–	25	50	
	Turn-off Time	t_{off}		–	70	140	
Total Gate Charge (Gate-Source Plus Gate-Drain)		Q_g	V_{DD} = 48V, V_{GS} = -10V, I_D = 5A	–	15	30	nC
Gate-Source Charge		Q_{gs}		–	7	–	
Gate-Drain ("Miller") Charge		Q_{gd}		–	8	–	

Source-Drain Diode Ratings and Characteristics (Ta = 25C)

CHARACTERISTICS	SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
Continuous Drain Reverse Current	I_{DR}	–	–	–	5	A
Pulse Drain Reverse Current	I_{DRP}	–	–	–	20	A
Diode Forward Voltage	V_{DSF}	I_{DR} = 5A, V_{GS} = 0V	–	–	-1.5	V