

Field Effect Transistor

Silicon N Channel MOS Type (L^2 - π -MOS III)

High Speed, High Current Switching Applications

Features

- Low Drain-Source ON Resistance
 - $R_{DS(ON)} = 0.055\Omega$ (Typ.)
- High Forward Transfer Admittance
 - $|Y_{fs}| = 7.5S$ (Typ.)
- Low Leakage Current
 - $I_{DSS} = 100\mu A$ (Max.) @ $V_{DS} = 60V$
- Enhancement-Mode
 - $V_{th} = 0.8 \sim 2.0V$ @ $V_{DS} = 10V$, $b = 1mA$

Absolute Maximum Ratings ($T_a = 25^\circ C$)

CHARACTERISTIC	SYMBOL	RATING	UNIT
Drain-Source Voltage	V_{DS}	60	V
Drain-Gate Voltage ($R_{GS} = 20k\Omega$)	V_{DGR}	60	V
Gate-Source Voltage	V_{GSS}	± 20	V
Drain Current	DC	I_D	12
	Pulse	I_{DP}	48
			A
Drain Power Dissipation ($T_c = 25^\circ C$)	P_D	15	W
Channel Temperature	T_{ch}	150	$^\circ C$
Storage Temperature	T_{slg}	-55-150	$^\circ C$

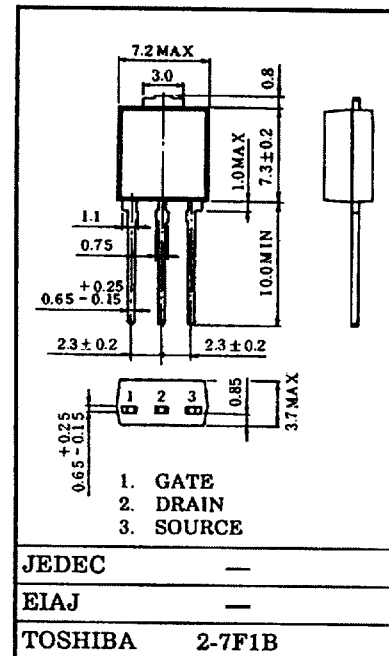
Thermal Characteristics

CHARACTERISTIC	SYMBOL	MAX.	UNIT
Thermal Resistance, Channel to Case	$R_{th(ch-c)}$	8.33	$^\circ C/W$
Thermal Resistance, Channel to Ambient	$R_{th(ch-a)}$	96.2	$^\circ C/W$

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

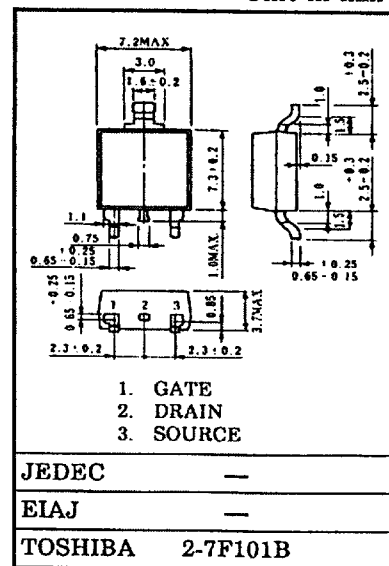
Industrial Applications

Unit in mm



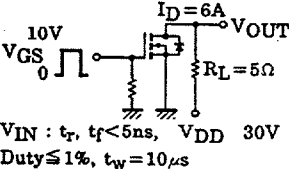
LB

Unit in mm



Weight: 0.6g

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}	$V_{DS} = 60V, V_{GS} = 0V$	—	—	100	μA
Drain-Source Breakdown Voltage	$V_{(BR) DSS}$	$I_D = 10mA, V_{GS} = 0V$	60	—	—	V
Gate Threshold Voltage	V_{th}	$V_{DS} = 10V, I_D = 1mA$	0.8	—	2.0	V
Drain-Source ON Resistance	$R_{DS(ON)}$	$V_{GS} = 4A, I_D = 3A$	—	0.088	0.13	Ω
		$V_{GS} = 10V, I_D = 6A$	—	0.055	0.070	
Forward Transfer Admittance	$ Y_{fs} $	$V_{DS} = 10V, I_{DS} = 6A$	4.5	7.5	—	S
Input Capacitance	C_{iss}	$V_{DS} = 10V, V_{GS} = 0V,$ $f = 1MHz$	—	900	1300	pF
Reverse Transfer Capacitance	C_{rss}		—	230	350	
Output Capacitance	C_{oss}		—	640	900	
Switching Time	Rise Time	 $V_{IN} : t_r, t_f < 5ns, V_{DD} 30V$ Duty $\leq 1\%, t_W = 10\mu s$	—	13	30	ns
	Turn-on Time		—	25	50	
	Fall Time		—	80	160	
	Turn-off Time		—	220	440	
Total Gate Charge (Gate-Source Plus Gate-Drain)	Q_g	$V_{DD} = 48V, V_{GS} = -10V,$ $I_D = 12A$	—	42	84	nC
Gate-Source Charge	Q_{gs}		—	26	—	
Gate-Drain ("Miller") Charge	Q_{gd}		—	16	—	

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

CHARACTERISTICS	SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
Continuous Drain Reverse Current	I_{DR}	—	—	—	12	A
Pulse Drain Reverse Current	I_{DRP}	—	—	—	48	A
Diode Forward Voltage	V_{DSF}	$I_{DR} = 12A, V_{GS} = 0V$	—	-1.0	-1.7	V
Reverse Recovery Time	t_{rr}	$I_{DR} = 12A, V_{GS} = 0V$ $dI_{DR}/dt = 50A/\mu s$	—	130	—	ns
Reverse Recovered Charge	Q_{rr}		—	0.3	—	μC

