

Field Effect Transistor

Silicon N Channel MOS Type (L²-π-MOS III)

High Speed, High Current DC-DC Converter,

Relay Drive and Motor Drive Applications

Features

- 4-Volt Gate Drive
- Low Drain-Source ON Resistance
 - $R_{DS(ON)} = 6.5\Omega$ (Typ.)
- High Forward Transfer Admittance
 - $|Y_{fs}| = 50S$ (Typ.)
- Low Leakage Current
 - $I_{DSS} = 100\mu A$ (Max.) @ $V_{DS} = 60V$
- Enhancement-Mode
 - $V_{th} = 0.8 \sim 2.0V$ @ $V_{DS} = 10V$, $I_D = 1mA$

Absolute Maximum Ratings (Ta = 25°C)

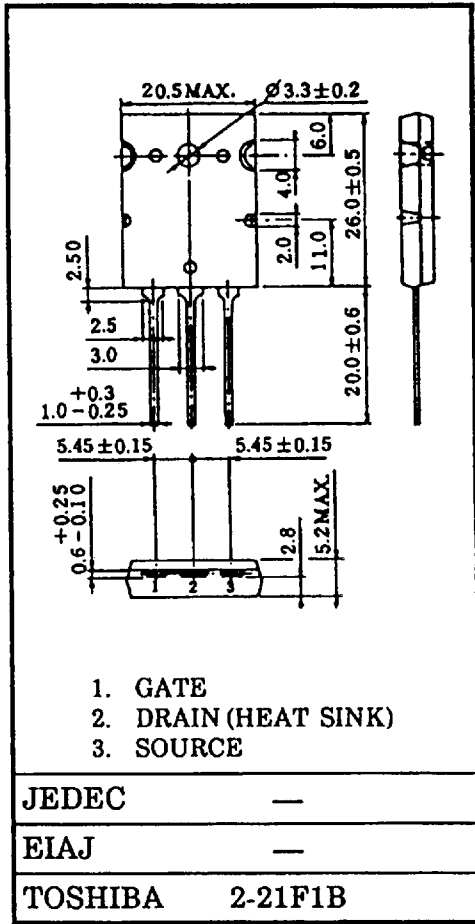
CHARACTERISTIC		SYMBOL	RATING	UNIT
Drain-Source Voltage		V_{DSS}	60	V
Drain-Gate Voltage ($R_{GS} = 20k\Omega$)		V_{DGR}	60	V
Gate-Source Voltage		V_{GSS}	±20	V
Drain Current	DC	I_D	60	A
	Pulse	I_{DP}	240	
Drain Power Dissipation (Tc = 25°C)		P_D	200	W
Channel Temperature		T_{ch}	150	°C
Storage Temperature Range		T_{stg}	-55 ~ 150	°C

Thermal Characteristics

CHARACTERISTIC	SYMBOL	MAX.	UNIT
Thermal Resistance, Channel to Case	$R_{th(ch-c)}$	0.625	°C/W
Thermal Resistance, Channel to Ambient	$R_{th(ch-a)}$	35.7	°C/W

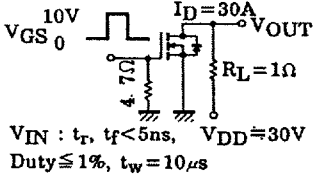
This transistor is an electrostatic sensitive device.
Please handle with care.

Unit in mm



Weight : 9.75g

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	$R_{DS(ON)}$	$V_{GS} = 4V, I_D = 30A,$	—	9	15	Ω
		$V_{GS} = 10V, I_D = 30A,$	—	6.5	11	
Forward Transfer Admittance	$ Y_{fs} $	$V_{DS} = 10V, I_D = 30A$	40	50	—	S
Input Capacitance	C_{iss}	$V_{DS} = 10V, V_{GS} = 0V,$ $f = 1MHz$	—	6200	7100	pF
Reverse Transfer Capacitance	C_{rss}		—	1700	2100	
Output Capacitance	C_{oss}		—	4500	5300	
Switching Time	Rise Time	 $V_{IN} : t_r, t_f < 5ns, V_{DD} = 30V$ Duty $\leq 1\%, t_w = 10\mu s$	—	30	60	ns
	Turn-on Time		—	70	140	
	Fall Time		—	190	380	
	Turn-off Time		—	550	900	
Total Gate Charge (Gate-Source Plus Gate-Drain)	Q_g	$V_{DD} = 48V, V_{GS} = 10V,$ $I_D = 60A$	—	300	600	nC
Gate-Source Charge	Q_{gs}		—	200	—	
Gate-Drain ("Miller") Charge	Q_{gd}		—	100	—	

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

CHARACTERISTICS	SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
Continuous Drain Reverse Current	I_{DR}	—	—	—	60	A
Pulse Drain Reverse Current	I_{DRP}	—	—	—	240	A
Diode Forward Voltage	V_{DSF}	$I_{DR} = 60A, V_{GS} = 0V$	—	-0.93	-1.6	V
Reverse Recovery Time	t_{rr}	$I_{DR} = 60A, V_{GS} = 0V$ $dI_{DR}/dt = 50A/\mu s$	—	350	—	ns
Reverse Recovered Charge	Q_{rr}		—	0.7	—	μC

