

Field Effect Transistor

Silicon N Channel MOS Type (n-MOS IV)

High Speed, High Current Switching Applications

Features

- Low Drain-Source ON Resistance
 - $R_{DS(ON)} = 0.24\Omega$ (Typ.)
- High Forward Transfer Admittance
 - $|Y_{fs}| = 15S$ (Typ.)
- Low Leakage Current
 - $I_{DSS} = -100\mu A$ (Max.) ($V_{DS} = 500V$)
- Enhancement-Mode
 - $V_{th} = 2.0 \sim 4.0V$ ($V_{DS} = -10V$, $I_D = 1mA$)

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

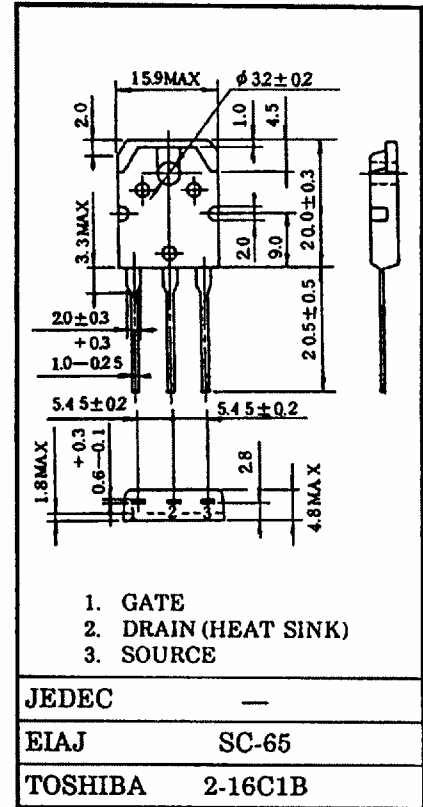
CHARACTERISTIC		SYMBOL	RATING	UNIT
Drain-Source Voltage		V_{DSS}	500	V
Drain-Gate Voltage ($R_{DS} = 20k\Omega$)		V_{DGR}	500	V
Gate-Source Voltage		V_{GSS}	± 30	V
Drain Current	DC	I_D	20	A
	Pulse	I_{DP}	80	
Drain Power Dissipation ($T_c = 25^\circ C$)		P_D	150	W
Channel Temperature		T_{ch}	150	$^\circ C$
Storage Temperature Range		T_{stg}	-55 ~ 150	$^\circ C$

Thermal Characteristics

CHARACTERISTIC	SYMBOL	MAX.	UNIT
Thermal Resistance, Channel to Case	$\theta_{(ch-c)}$	0.833	$^\circ C/W$
Thermal Resistance, Channel to Ambient	$\theta_{(ch-a)}$	50	$^\circ C/W$

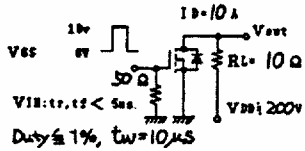
This transistor is an electrostatic sensitive device. Please handle with caution.

Industrial Applications Unit in mm



Weight : 4.6g

Electrical Characteristics (Ta = 25°C)

CHARACTERISTIC		SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
Gate Leakage Current		I_{GSS}	$V_{GS} = \pm 25V, V_{DS} = 0V$	—	—	± 10	nA
Gate-Source Breakdown Voltage		$V_{(BR)DSS}$	$I_G = \pm 100\mu A, V_{DS} = 0V$	± 30	—	—	μA
Drain Cut-off Current		I_{DSS}	$V_{DS} = 500V, V_{GS} = 0V$	—	—	100	μA
Drain-Source Breakdown Voltage		$V_{(BR)DSS}$	$I_D = 10mA, V_{GS} = 0V$	500	—	—	V
Gate Threshold Voltage		V_{th}	$V_{DS} = 10V, I_D = -1mA$	2.0	—	4.0	V
Drain-Source ON Resistance		$R_{DS(ON)}$	$V_{GS} = 10V, I_D = 10A$	—	0.24	0.30	Ω
Forward Transfer Admittance		$ Y_{fs} $	$V_{DS} = 10V, I_{BS} = 10A$	10	15	—	S
Input Capacitance		C_{iss}	$V_{DS} = 10V, V_{GS} = 0V,$ $f = 1MHz$	—	3000	4800	pF
Reverse Transfer Capacitance		C_{rss}		—	220	270	
Output Capacitance		C_{oss}		—	830	1200	
Switching Time	Rise Time	t_r	 $I_D = 10A$ $V_{GS} = 10V$ $V_{DS} = 200V$ $R_L = 10\Omega$ $V_{th} : t_r, t_f < 5\mu s$ $Duty \leq 1\%, t_w = 10\mu s$	—	25	50	ns
	Turn-on Time	t_{on}		—	60	120	
	Fall Time	t_f		—	55	110	
	Turn-off Time	t_{off}		—	280	560	
Total Gate Charge (Gate-Source Plus Gate-Drain)		Q_g	$V_{DD} = 400V, V_{GS} = -10V,$ $I_D = -20A$	—	65	130	nC
Gate-Source Charge		Q_{gs}		—	40	—	
Gate-Drain ("Miller") Charge		Q_{gd}		—	25	—	

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

CHARACTERISTICS	SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
Continuous Drain Reverse Current	I_{DR}	—	—	—	20	A
Pulse Drain Reverse Current	I_{DRP}	—	—	—	80	A
Diode Forward Voltage	V_{DSF}	$I_{DR} = 20A, V_{GS} = 0V$	—	-1.0	-1.7	V
Reverse Recovery Time	t_r	$I_{DR} = 20A, V_{GS} = 0V$	—	450	—	ns
Reverse Recovered Charge	Q_r	$dI_{DR}/dt = 100A/\mu s$	—	6.8	—	μC