

### Field Effect Transistor

### Silicon N Channel MOS Type ( $\tau$ -MOS II.5)

### High Speed, High Current Switching Applications

#### Features

- Low Drain-Source ON Resistance
  - $R_{DS(ON)} = 1.0\Omega$  (Typ.)
- High Forward Transfer Admittance
  - $|Y_{fs}| = 4.0S$  (Typ.)
- Low Leakage Current
  - $I_{DSS} = 300\mu A$  (Max.) ( $V_{DS} = 0V$ )
- Enhancement-Mode
  - $V_{th} = 1.5 \sim 3.5V$  ( $V_{GS} = 10V, I_D = 1mA$ )

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

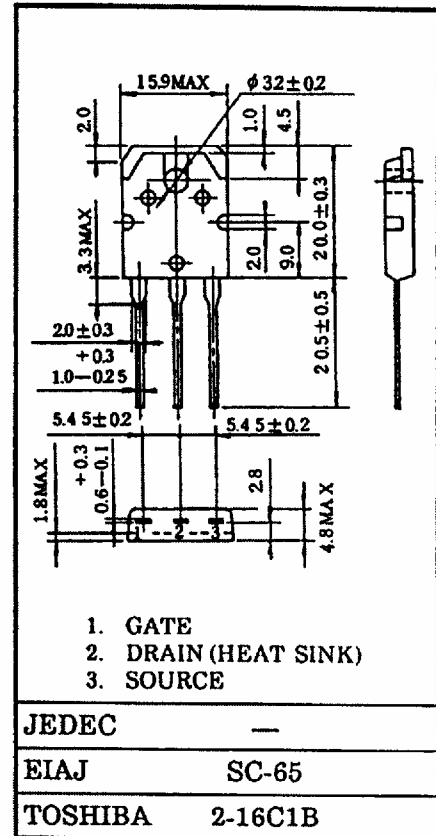
CHARACTERISTIC	SYMBOL	RATING	UNIT
Drain-Source Voltage	$V_{DSS}$	800	V
Drain-Gate Voltage ( $R_{GS} = 20k\Omega$ )	$V_{DGR}$	800	V
Gate-Source Voltage	$V_{GSS}$	$\pm 30$	V
Drain Current	DC	$I_b$	9
	Pulse	$I_{DP}$	27
Drain Power Dissipation ( $T_c = 25^\circ C$ )	$P_D$	150	W
Channel Temperature	$T_{ch}$	150	$^\circ C$
Storage Temperature Range	$T_{sg}$	-55 ~ 150	$^\circ C$

#### Thermal Characteristics

CHARACTERISTIC	SYMBOL	MAX.	UNIT
Thermal Resistance, Channel to Case	$R_{(ch-c)}$	0.833	$^\circ C/W$
Thermal Resistance, Channel to Ambient	$R_{(ch-a)}$	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		$I_{GSS}$	$V_{GS} = \pm 30V, V_{DS} = 0V$	-	-	$\pm 100$	nA
Drain Cut-off Current		$I_{DSS}$	$V_{DS} = 800V, V_{GS} = 0V$	-	-	100	$\mu A$
Drain-Source Breakdown Voltage		$V_{(BR) DSS}$	$I_D = 10mA, V_{GS} = 0V$	800	-	-	V
Gate Threshold Voltage		$V_{th}$	$V_{DS} = 10V, I_D = 1mA$	1.5	-	3.5	V
Drain-Source ON Resistance		$R_{DS(ON)}$	$V_{GS} = 10V, I_D = 4A$	-	1.0	1.2	$\Omega$
Forward Transfer Admittance		$ Y_{fs} $	$V_{DS} = 15V, I_D = 4A$	2.0	40	-	S
Input Capacitance		$C_{iss}$	$V_{DS} = 25V, V_{GS} = 0V,$ $f = 1MHz$	-	1150	-	pF
Reverse Transfer Capacitance		$C_{rss}$		-	135	-	
Output Capacitance		$C_{oss}$		-	210	-	
Switching Time	Rise Time	$t_r$	<p><math>V_{GS} = 10V, 0V</math> <math>I_D = 4A</math> <math>V_{DD} = 400V</math> <math>R_L = 100\Omega</math> <math>V_{IN} : t_r, t_f &lt; 5ns,</math> <math>Duty \leq 1\%, t_w = 10\mu s</math></p>	-	35	-	ns
	Turn-on Time	$t_{on}$		-	55	-	
	Fall Time	$t_f$		-	25	-	
	Turn-off Time	$t_{off}$		-	100	-	
Total Gate Charge (Gate-Source Plus Gate-Drain)		$Q_g$	$V_{DD} = 400V, V_{GS} = -10V,$ $I_D = 9A$	-	85	-	nC
Gate-Source Charge		$Q_{gs}$		-	40	-	
Gate-Drain ("Miller") Charge		$Q_{gd}$		-	45	-	

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

CHARACTERISTICS	SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
Continuous Drain Reverse Current	$I_{DR}$	-	-	-	9	A
Pulse Drain Reverse Current	$I_{DRP}$	-	-	-	27	A
Diode Forward Voltage	$V_{DSF}$	$I_{DR} = 9A, V_{GS} = 0V$	-	-	-2.0	V
Reverse Recovery Time	$t_r$	$I_{DR} = 9A, V_{GS} = 0V$	-	300	-	ns
Reverse Recovered Charge	$Q_r$	$dI_{DR}/dt = 100A/\mu s$	-	26	-	$\mu C$

