

## Field Effect Transistor

### Silicon N Channel MOS Type (t-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
  - $V_{th} = 2.0 \sim 4.0V$  ( $V_{DS} = -10V, I_b = 1mA$ )

#### Absolute Maximum Ratings (Ta = 25°C)

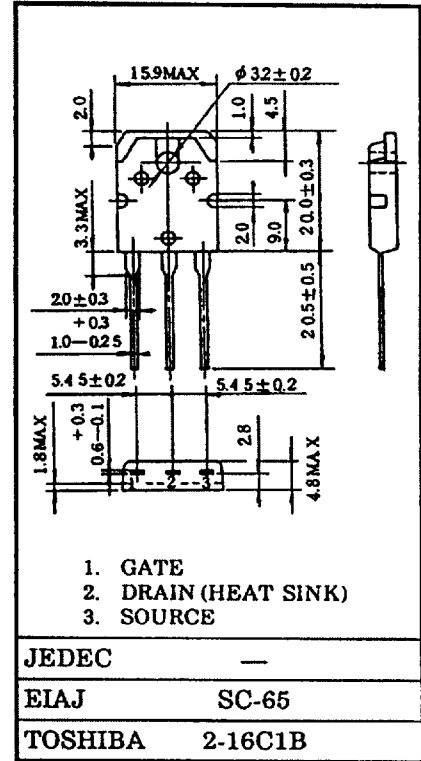
CHARACTERISTIC	SYMBOL	RATING	UNIT
Drain-Source Voltage	$V_{DSS}$	500	V
Drain-Gate Voltage ( $R_{GS} = 20k\Omega$ )	$V_{DGR}$	500	V
Gate-Source Voltage	$V_{GSS}$	$\pm 30$	V
Drain Current	DC	$I_b$	20
	Pulse	$I_{bP}$	80
Drain Power Dissipation (Tc = 25°C)	$P_D$	150	W
Channel Temperature	$T_{ch}$	150	°C
Storage Temperature Range	$T_{stg}$	-55 - 150	°C

#### Thermal Characteristics

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

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

Industrial Applications Unit in mm



Weight : 4.6g

**Electrical Characteristics (Ta = 25C)**

CHARACTERISTIC		SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
Gate Leakage Current		$I_{GSS}$	$V_{GS} = \pm 25V, V_{DS} = 0V$	-	-	$\pm 10$	nA
Gate-Source Breakdown Voltage		$V_{(BR)DSS}$	$I_G = \pm 100V, V_{DS} = 0V$	$\pm 30$	-	-	$\mu A$
Drain Cut-off Current		$I_{DSS}$	$V_{DS} = 500V, V_{GS} = 0V$	-	-	100	$\mu A$
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	$\Omega$
Forward Transfer Admittance		$ Y_{fs} $	$V_{DS} = 10V, I_D = 10A$	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	$t_r$		-	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 = 25C)**

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	-	$\mu C$

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