

**TOSHIBA****2SJ507**TOSHIBA FIELD EFFECT TRANSISTOR SILICON P CHANNEL MOS TYPE ( $L^2-\pi$ -MOSV)**2SJ507**

HIGH SPEED, HIGH CURRENT SWITCHING APPLICATIONS

CHOPPER REGULATOR, DC-DC CONVERTER AND MOTOR DRIVE APPLICATIONS

- 4V Gate Drive
- Low Drain-Source On Resistance :  $R_{DS(ON)} = 0.5\Omega$  (Typ.)
- High Forward Transfer Admittance :  $|Y_{fs}| = 1.0S$  (Typ.)
- Low Leakage Current :  $I_{DSS} = -100\mu A$  (Max.) ( $V_{DS} = -60V$ )
- Enhancement-Mode :  $V_{th} = -0.8 \sim -2.0V$   
( $V_{DS} = -10V$ ,  $I_D = -1mA$ )

MAXIMUM RATINGS ( $T_a = 25^\circ C$ )

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		$V_{GSS}$	$\pm 20$	V
Drain Current	DC	$I_D$	-1	A
	Pulse	$I_{DP}$	-3	A
Drain Power Dissipation ( $T_a = 25^\circ C$ )		$P_D$	0.9	W
Single Pulse Avalanche Energy**		$E_{AS}$	249.6	mJ
Avalanche Current		$I_{AR}$	-1	A
Repetitive Avalanche Energy*		$E_{AR}$	0.09	mJ
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 Ambient	$R_{th(ch-a)}$	138	$^\circ C/W$

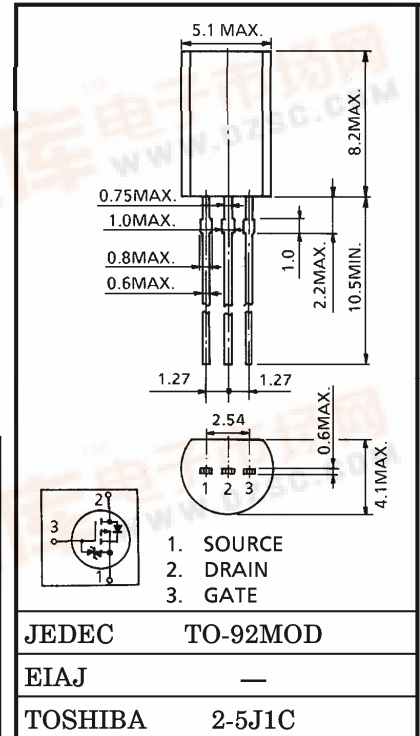
Note ;

\* Repetitive rating ; Pulse Width Limited by Max. junction temperature.

\*\*  $V_{DD} = -25V$ , Starting  $T_{ch} = 25^\circ C$ ,  $L = 339mH$ ,  $R_G = 25\Omega$ ,  $I_{AR} = -1A$ **This transistor is an electrostatic sensitive device.****Please handle with caution.**

## INDUSTRIAL APPLICATIONS

Unit in mm

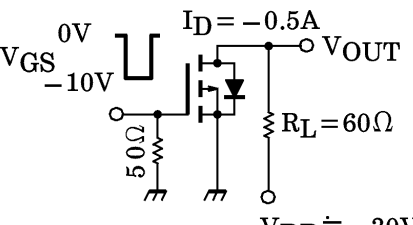


Weight : 0.36g (Typ.)

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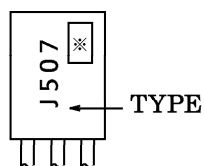
## ELECTRICAL CHARACTERISTICS (Ta = 25°C)

CHARACTERISTIC		SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
Gate Leakage Current		$I_{GSS}$	$V_{GS} = \pm 16V, V_{DS} = 0V$	—	—	$\pm 10$	$\mu A$
Drain Cut-off Current		$I_{DSS}$	$V_{DS} = -60V, V_{GS} = 0V$	—	—	-100	$\mu A$
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		$R_{DS(ON)}$	$V_{GS} = -4V, I_D = -0.5A$	—	0.72	1.0	$\Omega$
			$V_{GS} = -10V, I_D = -0.5A$	—	0.5	0.7	
Forward Transfer Admittance		$ Y_{fs} $	$V_{DS} = -10V, I_D = -0.5A$	0.5	1.0	—	S
Input Capacitance		$C_{iss}$	$V_{DS} = -10V, V_{GS} = 0V, f = 1MHz$	—	170	—	pF
Reverse Transfer Capacitance		$C_{rss}$		—	25	—	
Output Capacitance		$C_{oss}$		—	72	—	
Switching Time	Rise Time	$t_r$		—	20	—	ns
	Turn-on Time	$t_{on}$		—	35	—	
	Fall Time	$t_f$		—	30	—	
	Turn-off Time	$t_{off}$		—	135	—	
Total Gate Charge (Gate-Source Plus Gate-Drain)		$Q_g$	$V_{DD} = -48V, V_{GS} = -10V, I_D = -1A$	—	5.6	—	nC
Gate-Source Charge		$Q_{gs}$		—	3.9	—	
Gate-Drain ("Miller") Charge		$Q_{gd}$		—	1.7	—	

## SOURCE-DRAIN DIODE RATINGS AND CHARACTERISTICS (Ta = 25°C)


CHARACTERISTIC	SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
Continuous Drain Reverse Current	$I_{DR}$	—	—	—	-1	A
Pulse Drain Reverse Current	$I_{DRP}$	—	—	—	-3	A
Diode Forward Voltage	$V_{DSF}$	$I_{DR} = -1A, V_{GS} = 0V$	—	—	1.5	V
Reverse Recovery Time	$t_{rr}$	$I_{DR} = -1A, V_{GS} = 0V, dI_{DR}/dt = 50A/\mu s$	—	58	—	ns
Reverse Recovery Charge	$Q_{rr}$		—	72.5	—	nC

## MARKING



※ Lot Number


 Month (Starting from Alphabet A)


 Year (Last Number of the Christian Era)