TOSHIBA FIELD EFFECT TRANSISTOR SILICON P CHANNEL MOS TYPE (L^2-π-MOSV)

2SJ360

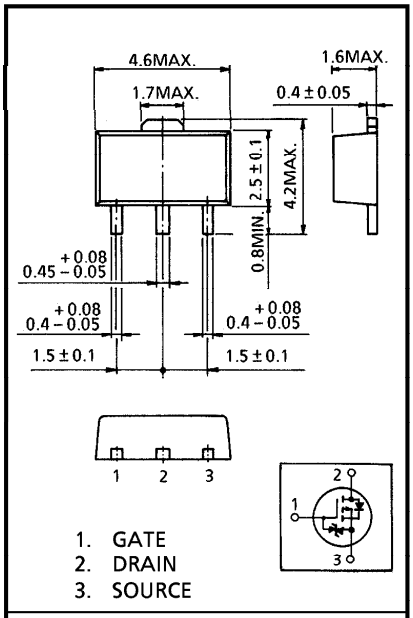
HIGH SPEED, HIGH CURRENT SWITCHING APPLICATIONS

CHOPPER REGULATOR, DC-DC CONVERTER AND MOTOR DRIVE APPLICATIONS

INDUSTRIAL APPLICATIONS

- 4V GATE DRIVE
- Low Drain-Source ON Resistance : $R_{DS\,(ON)} = 0.55\Omega$ (Typ.)
- High Forward Transfer Admittance : $|Y_{fs}| = 0.9S$ (Typ.)
- Low Leakage Current : $I_{DSS} = -100\mu A$ (Max.) ($V_{DS} = -60V$)
- Enhancement-Mode : $V_{th} = -0.8 \sim -2.0V$ ($V_{DS} = -10V$, $I_D = -1mA$)

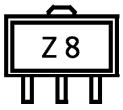
Unit in mm



JEDEC	—
EIAJ	SC-62
TOSHIBA	2-5K1B

Weight : 0.05g (Typ.)

MARKING



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	−1	A
	Pulse	I_{DP}	−3	A
Drain Power Dissipation (Ta = 25°C)		P_D	0.5	W
Drain Power Dissipation*		P_D	1.5	W
Channel Temperature		T_{ch}	150	°C
Storage Temperature Range		T_{stg}	−55~150	°C

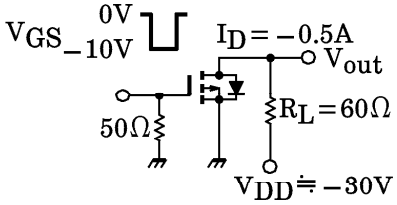
* : Mounted on ceramic substrate ($1inch^2 \times 0.8t$)

THERMAL CHARACTERISTICS

CHARACTERISTIC	SYMBOL	MAX.	UNIT
Thermal Resistance, Channel To Ambient	$R_{th\,(ch\text{-}a)}$	250	°C / W

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

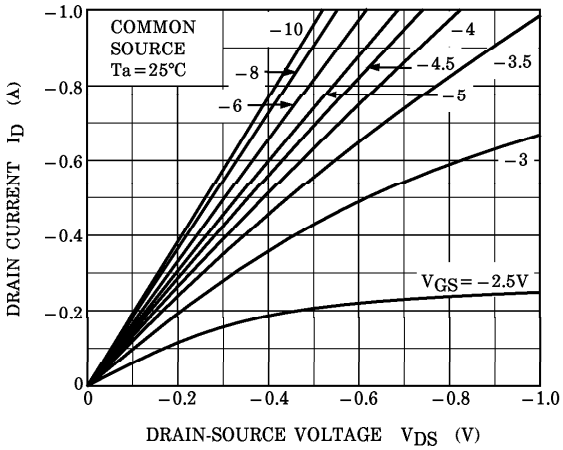
ELECTRICAL CHARACTERISTICS (Ta = 25°C)

CHARACTERISTIC		SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
Gate Leakage Current		I_{GSS}	$V_{GS}=\pm16V$, $V_{DS}=0V$	—	—	±10	μA
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		$R_{DS(ON)}$	$V_{GS}=-4V$, $I_D=-0.5A$	—	0.86	1.2	Ω
			$V_{GS}=-10V$, $I_D=-0.5A$	—	0.55	0.73	
Forward Transfer Admittance		$\|Y_{fs}\|$	$V_{DS}=-10V$, $I_D=-0.5A$	0.5	0.9	—	S
Input Capacitance		C_{iss}	$V_{DS}=-10V$, $V_{GS}=0V$ f=1MHz	—	155	—	pF
Reverse Transfer Capacitance		C_{rss}		—	20	—	
Output Capacitance		C_{oss}		—	75	—	
Switching Time	Rise Time	t_r		—	17	—	ns
	Turn-on Time	t_{on}		—	20	—	
	Fall Time	t_f		—	20	—	
	Turn-off Time	t_{off}	V_{IN} : t_r, $t_f<5ns$ Duty ≦ 1%, $t_w=10\mu s$	—	100	—	
Total Gate Charge (Gate-Source Plus Gate-Drain)		Q_g	$V_{DD}\fallingdotseq-48V$, $V_{GS}=-10V$ $I_D=-1A$	—	6.5	—	nC
Gate-Source Charge		Q_{gs}		—	4.5	—	
Gate-Drain ("Miller") Charge		Q_{gd}		—	2.0	—	

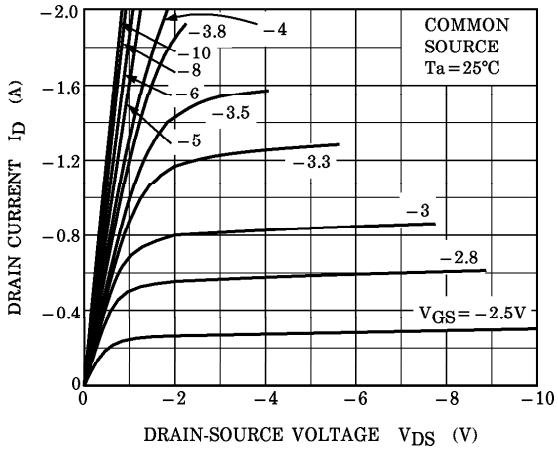
SOURCE-DRAIN DIODE RATINGS AND CHARACTERISTICS (Ta = 25°C)

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}	$I_{DR}=-1A$, $V_{GS}=0V$	—	—	1.7	V
Reverse Recovery Time	t_{rr}	$I_{DR}=-1A$, $V_{GS}=0V$ $dI_{DR}/dt=50A/\mu s$	—	50	—	ns
Reverse Recovery Charge	Q_{rr}		—	50	—	μC

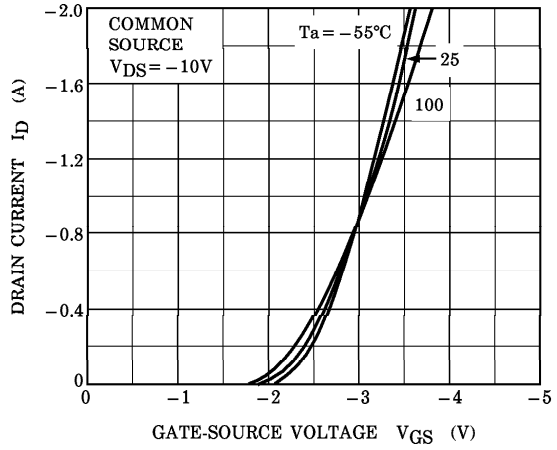
$I_D - V_{DS}$



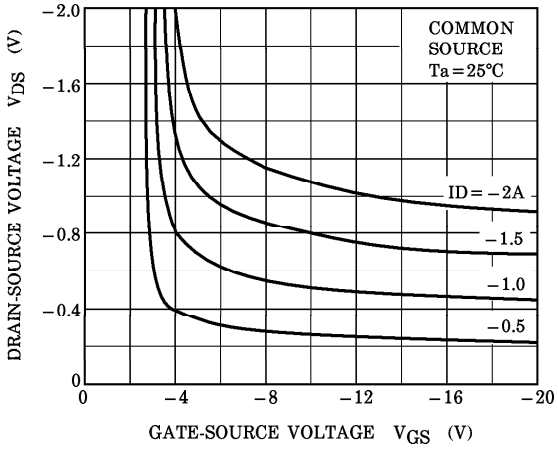
$I_D - V_{DS}$



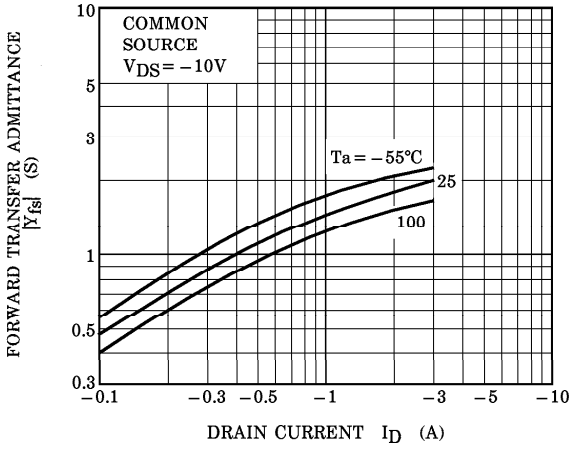
$I_D - V_{GS}$



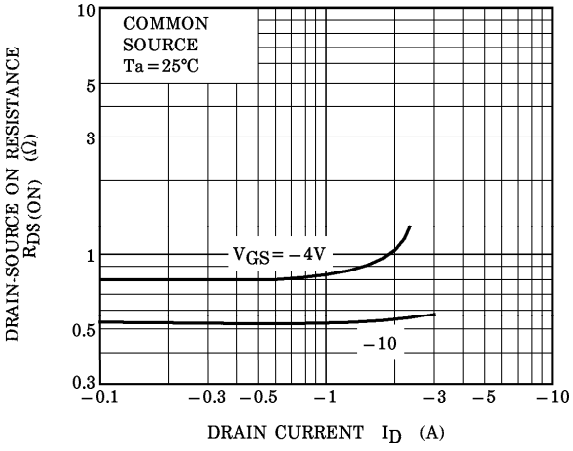
$V_{DS} - V_{GS}$



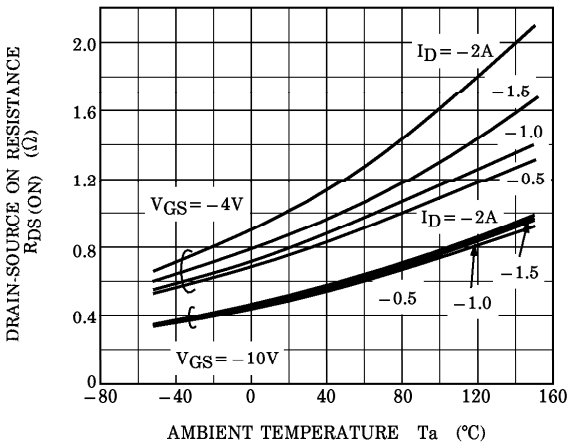
$|Y_{fs}| - I_D$



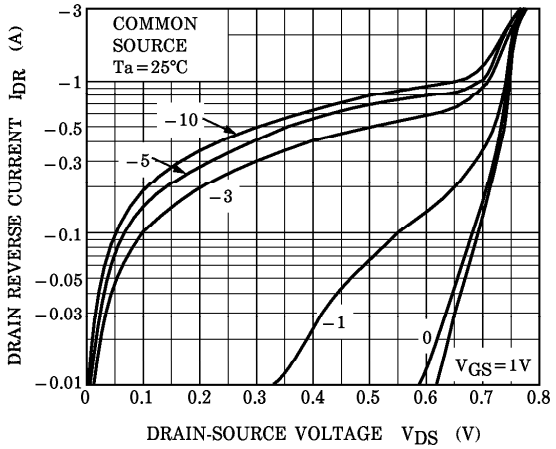
$R_{DS\,(ON)} - I_D$



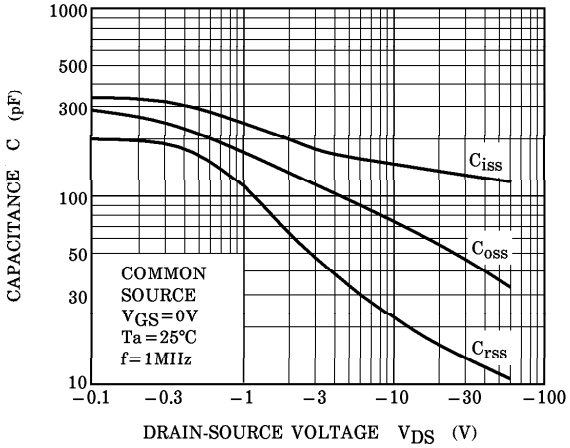
$R_{DS\,(ON)}$ – Ta



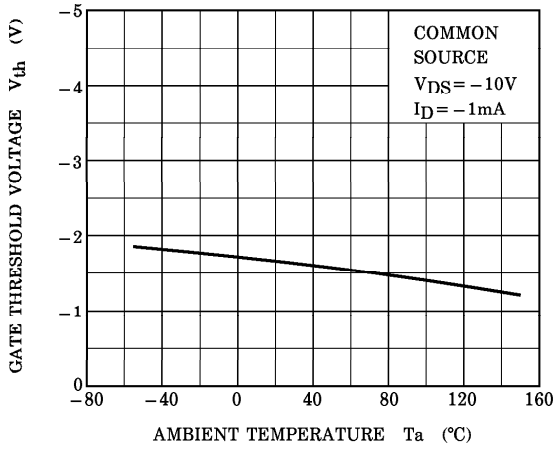
I_{DR} – V_{DS}



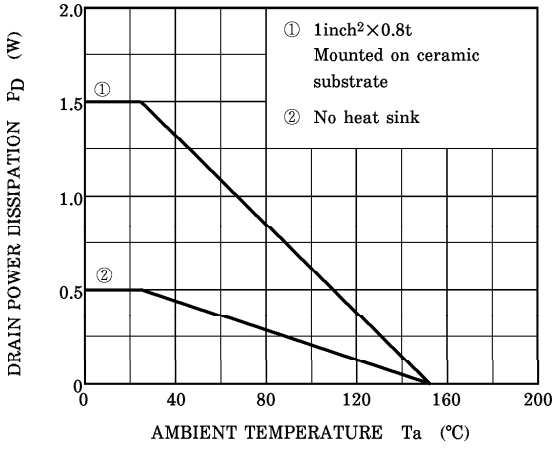
CAPACITANCE – V_{DS}



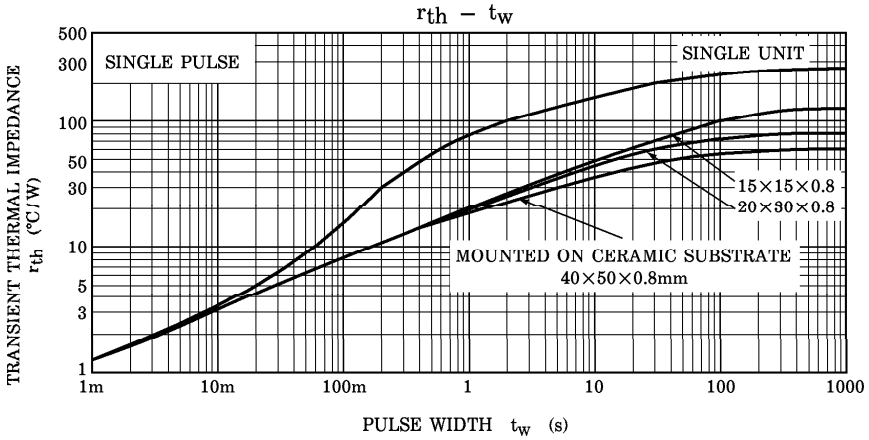
V_{th} – Ta



P_D – Ta



$r_{th} - t_w$



SAFE OPERATING AREA