

TOSHIBA FIELD EFFECT TRANSISTOR SILICON P CHANNEL MOS TYPE (L²-π-MOS V)

2SJ334

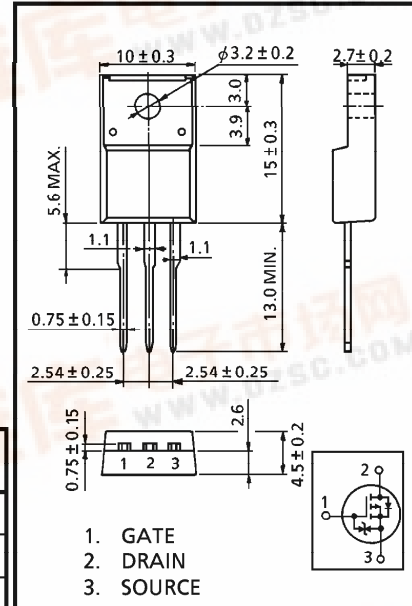
HIGH SPEED, HIGH CURRENT SWITCHING APPLICATIONS
DC-DC CONVERTER, RELAY DRIVE AND MOTOR DRIVE APPLICATIONS

INDUSTRIAL APPLICATIONS
Unit in mm

- 4V Gate Drive
- Low Drain-Source ON Resistance : $R_{DS(ON)} = 29m\Omega$ (Typ.)
- High Forward Transfer Admittance : $|Y_{fs}| = 23S$ (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 (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	-30	A
	Pulse	I_{DP}	-120	A
Drain Power Dissipation ($T_c = 25^\circ C$)		P_D	45	W
Single Pulse Avalanche Energy**		E_{AS}	936	mJ
Avalanche Current		I_{AR}	-30	A
Repetitive Avalanche Energy*		E_{AR}	4.5	mJ
Channel Temperature		T_{ch}	150	°C
Storage Temperature Range		T_{stg}	-55~150	°C



JEDEC	—
EIAJ	SC-67
TOSHIBA	2-10R1B

Weight : 1.9g

THERMAL CHARACTERISTICS

CHARACTERISTIC	SYMBOL	MAX.	UNIT
Thermal Resistance, Channel to Case	$R_{th(ch-c)}$	2.78	°C/W
Thermal Resistance, Channel to Ambient	$R_{th(ch-a)}$	62.5	°C/W

Note ;

- * Repetitive rating ; Pulse Width Limited by Max. junction temperature.
- ** $V_{DD} = -50V, T_{ch} = 25^\circ C, L = 747\mu H, R_G = 25\Omega, I_{AR} = -30A$

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

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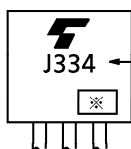
ELECTRICAL CHARACTERISTICS (Ta = 25°C)

CHARACTERISTIC		SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
Gate Leakage Current		I _{GSS}	V _{GS} = ±16V, 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 = -15A	—	46	60	mΩ
			V _{GS} = -10V, I _D = -15A	—	29	38	
Forward Transfer Admittance		Y _{fs}	V _{DS} = -10V, I _D = -15A	14	23	—	S
Input Capacitance		C _{iSS}	V _{DS} = -10V, V _{GS} = 0V f = 1MHz	—	3300	—	pF
Reverse Transfer Capacitance		C _{rSS}		—	460	—	
Output Capacitance		C _{oss}		—	1450	—	
Switching Time	Rise Time	t _r		—	20	—	ns
	Turn-on Time	t _{on}		—	25	—	
	Fall Time	t _f		—	35	—	
	Turn-off Time	t _{off}		V _{IN} : t _r , t _f < 5ns Duty ≤ 1%, t _w = 10μs	—	130	
Total Gate Charge (Gate-Source Plus Gate-Drain)		Q _g	V _{DD} ≐ -48V, V _{GS} = -10V I _D = -30A	—	110	—	nC
Gate-Source Charge		Q _{gs}		—	75	—	
Gate-Drain ("Miller") Charge		Q _{gd}		—	35	—	

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

CHARACTERISTIC	SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
Continuous Drain Reverse Current	I _{DR}	—	—	—	30	A
Pulse Drain Reverse Current	I _{DRP}	—	—	—	120	A
Diode Forward Voltage	V _{DSF}	I _{DR} = -30A, V _{GS} = 0V	—	—	1.7	V
Reverse Recovery Time	t _{rr}	I _{DR} = -30A, V _{GS} = 0V	—	100	—	ns
Reverse Recovery Charge	Q _{rr}	dI _{DR} / dt = 50A / μs	—	0.16	—	μC

MARKING



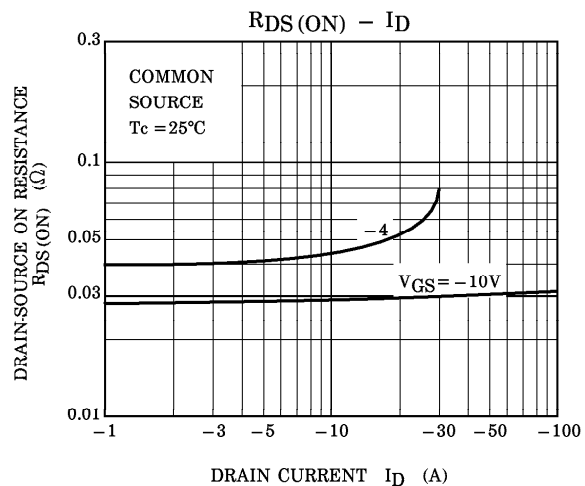
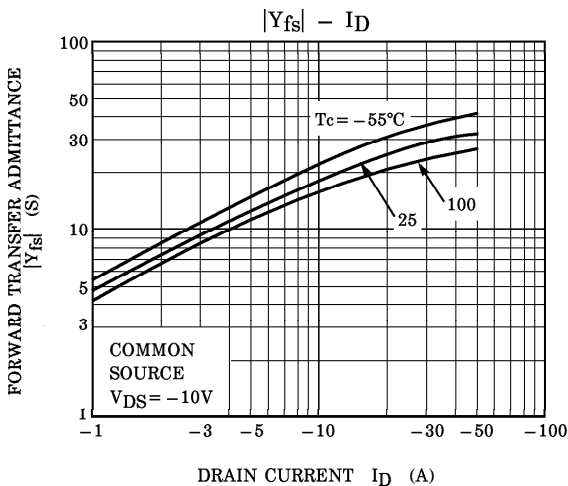
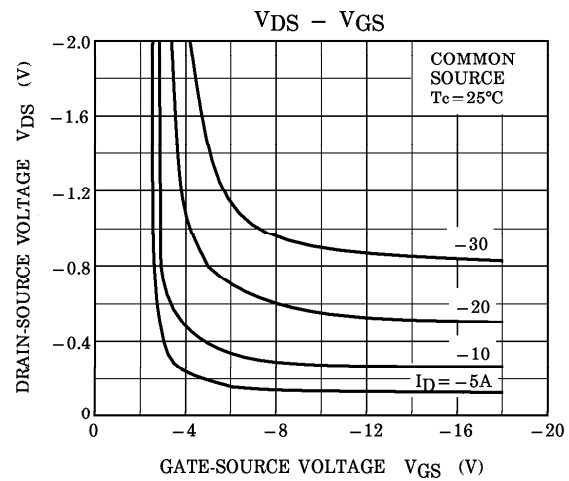
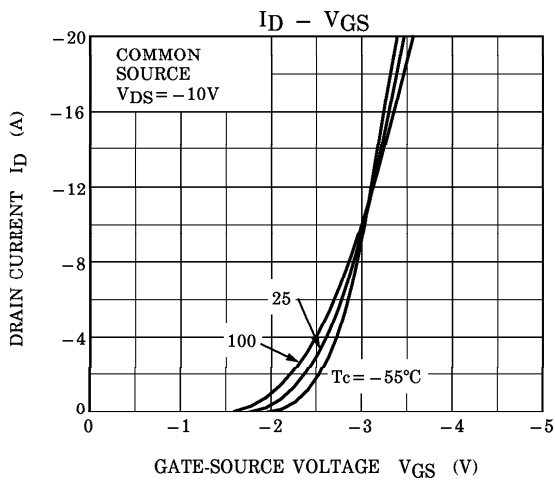
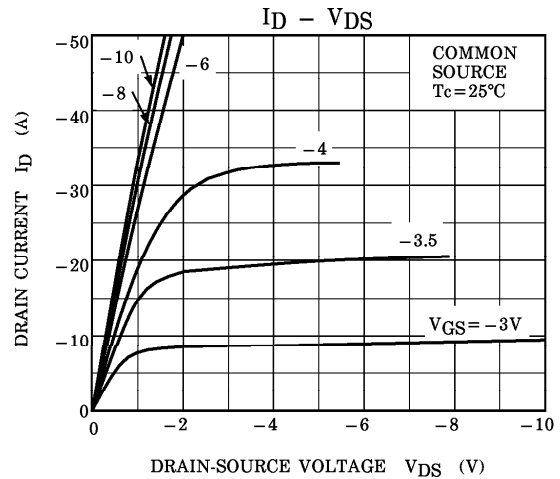
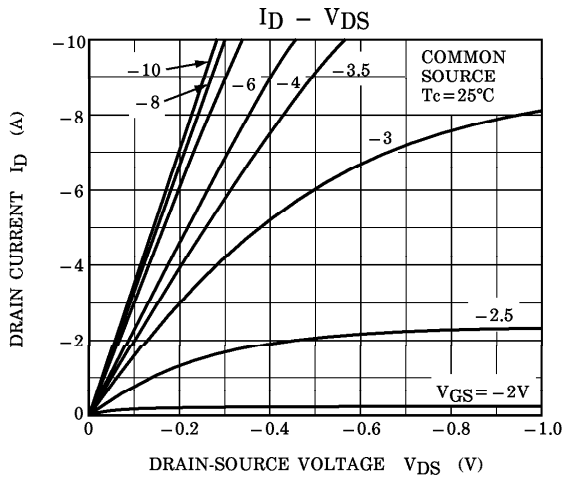
※ Lot Number

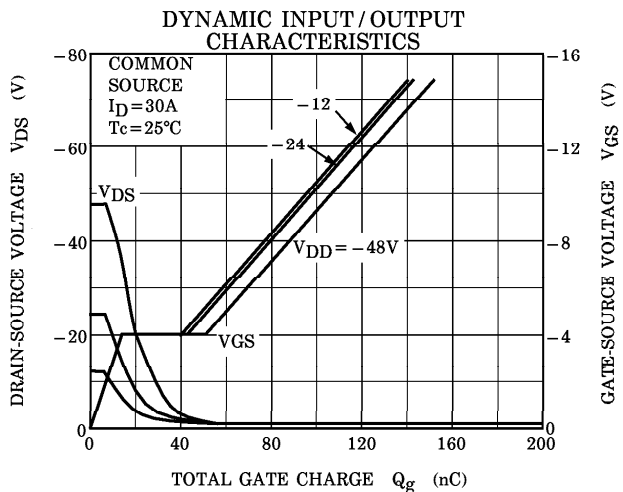
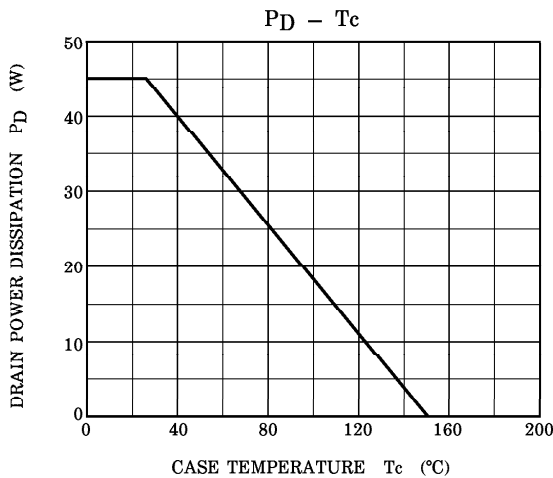
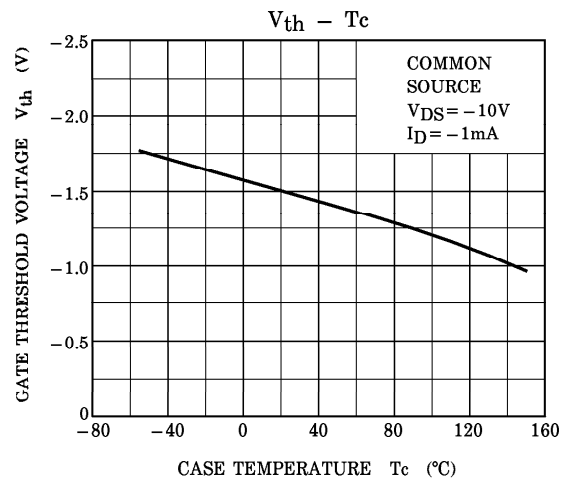
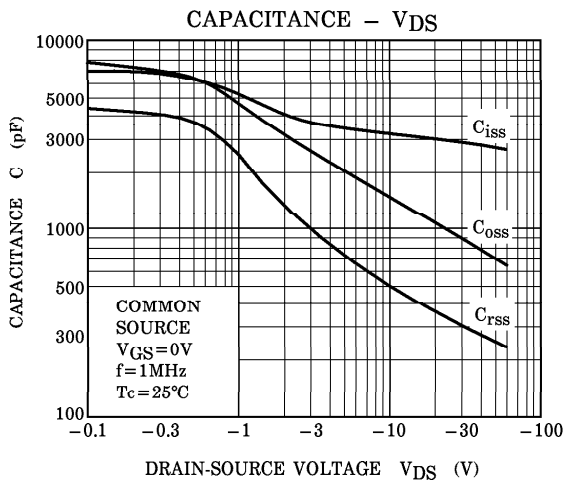
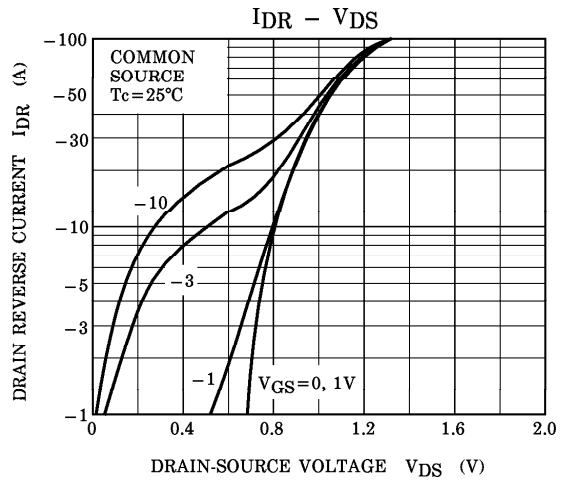
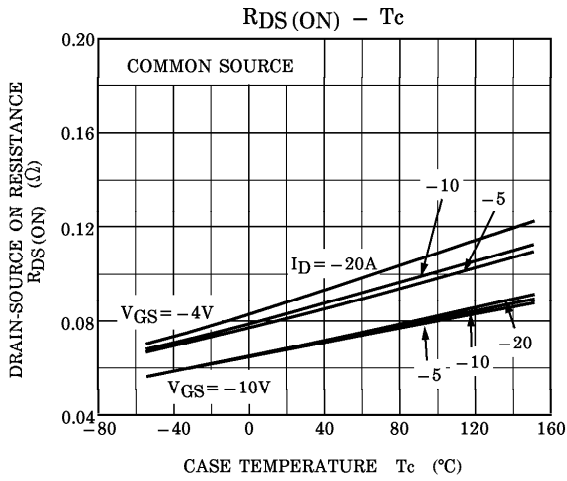


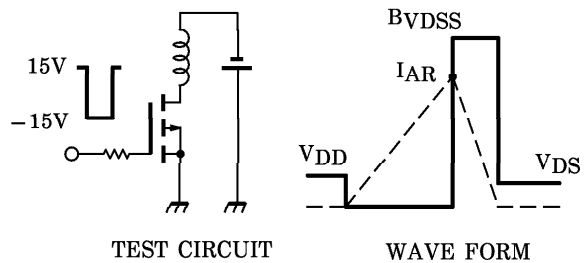
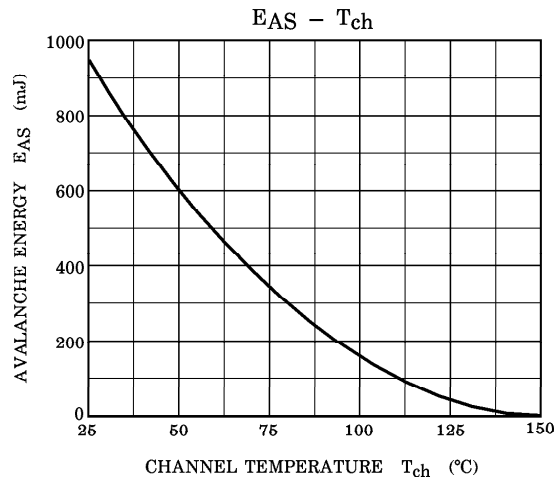
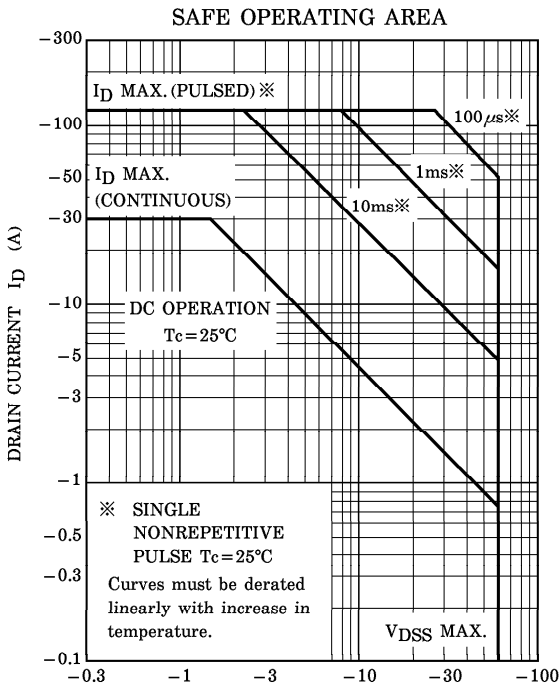
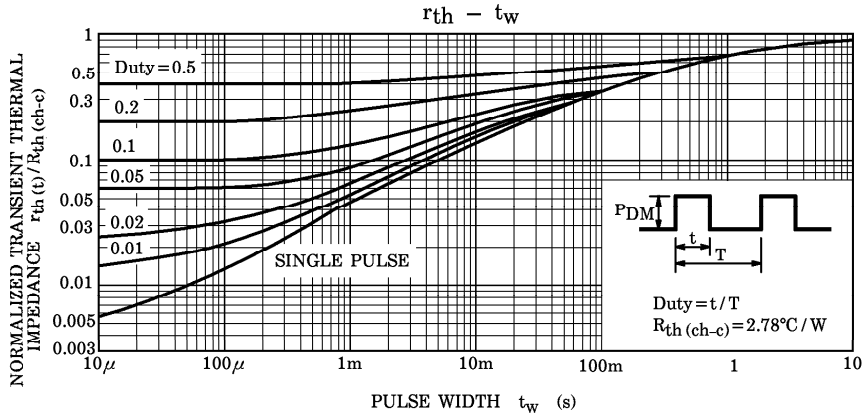
Month (Starting from Alphabet A)

Year (Last Number of the Christian Era)

TYPE







Peak $I_{AR} = -30A$, $R_G = 25\Omega$, $V_{DD} = -50V$, $L = 747\mu H$

$$E_{AS} = \frac{1}{2} \cdot L \cdot I^2 \cdot \left(\frac{BVDSS}{BVDSS - V_{DD}} \right)$$