

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

2SJ464

CHOPPER REGULATOR, DC-DC CONVERTER AND MOTOR DRIVE APPLICATIONS

- 4V Gate Drive
- Low Drain-Source ON Resistance : $R_{DS(ON)} = 64m\Omega$ (Typ.)
- High Forward Transfer Admittance : $|Y_{fs}| = 15S$ (Typ.)
- Low Leakage Current : $I_{DSS} = -100\mu A$ (Max.) ($V_{DS} = -100V$)
- 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}	-100	V
Drain-Gate Voltage ($R_{GS} = 20 k\Omega$)		V_{DGR}	-100	V
Gate-Source Voltage		V_{GSS}	± 20	V
Drain Current	DC (Note 1)	I_D	-18	A
	Pulse (Note 1)	I_{DP}	-72	
Drain Power Dissipation ($T_c = 25^\circ C$)		P_D	45	W
Single Pulse Avalanche Energy (Note 2)		E_{AS}	937	mJ
Avalanche Current		I_{AR}	-18	A
Repetitive Avalanche Energy (Note 3)		E_{AR}	4.5	mJ
Channel Temperature		T_{ch}	150	°C
Storage Temperature Range		T_{stg}	-55~150	°C

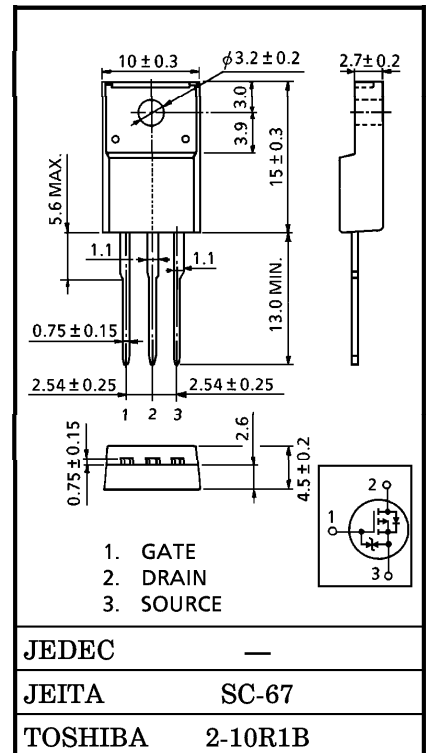
THERMAL CHARACTERISTICS

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

- (Note 1) : Please use devices on condition that the channel temperature is below 150°C.
 (Note 2) : $V_{DD} = -50V, T_{ch} = 25^\circ C$ (initial), $L = 3.56mH, R_G = 25\Omega, I_{AR} = -12A$
 (Note 3) : Repetitive rating ; Pulse Width Limited by maximum junction temperature.

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

Unit in mm



Weight : 1.9g (Typ.)

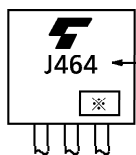
ELECTRICAL CHARACTERISTICS (Ta = 25°C)

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} = -100V, V _{GS} = 0V	—	—	-100	μA	
Drain-Source Breakdown Voltage	V _{(BR) DSS}	I _D = -10mA, V _{GS} = 0V	-100	—	—	V	
Gate Threshold Voltage	V _{th}	V _{DS} = -10V, I _D = -1mA	-0.8	—	-2.0	V	
Drain-Source ON Resistance	R _{D(S) ON}	V _{GS} = -10V, I _D = -9A	—	64	90	mΩ	
		V _{GS} = -4V, I _D = -9A	—	85	120		
Forward Transfer Admittance	Y _{fs}	V _{DS} = -10V, I _D = -9A	7	15	—	S	
Input Capacitance	C _{iss}	V _{DS} = -10V, V _{GS} = 0V, f = 1MHz	—	2900	—	pF	
Reverse Transfer Capacitance	C _{rss}		—	480	—		
Output Capacitance	C _{oss}		—	1000	—		
Switching Time	Rise Time	t _r		—	25	—	ns
	Turn-on Time	t _{on}		—	45	—	
	Fall Time	t _f		—	25	—	
	Turn-off Time	t _{off}		—	170	—	
Total Gate Charge (Gate-Source Plus Gate-Drain)	Q _g	V _{DD} = -80V, V _{GS} = -10V, I _D = -18A	—	140	—	nC	
Gate-Source Charge	Q _{gs}		—	90	—		
Gate-Drain ("Miller") Charge	Q _{gd}		—	50	—		

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

CHARACTERISTIC	SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
Continuous Drain Reverse Current (Note 1)	I _{DR}	—	—	—	-18	A
Pulse Drain Reverse Current (Note 1)	I _{DRP}	—	—	—	-72	A
Forward Voltage (Diode)	V _{DSF}	I _{DR} = -18A, V _{GS} = 0V	—	—	1.7	V
Reverse Recovery Time	t _{rr}	I _{DR} = -18A, V _{GS} = 0V	—	220	—	ns
Reverse Recovery Charge	Q _{rr}	dI _{DR} / dt = 50A / μs	—	0.97	—	μC

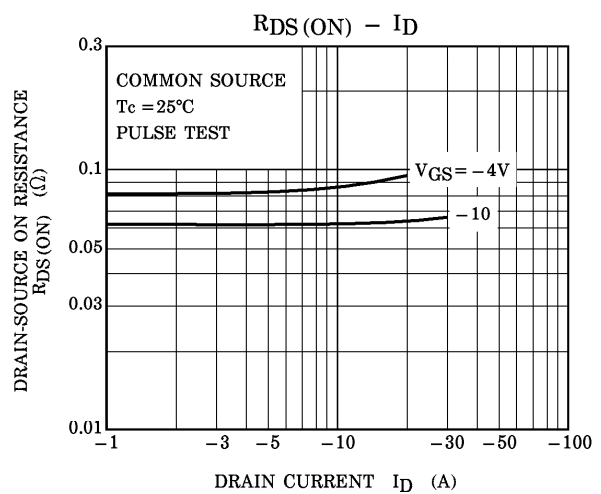
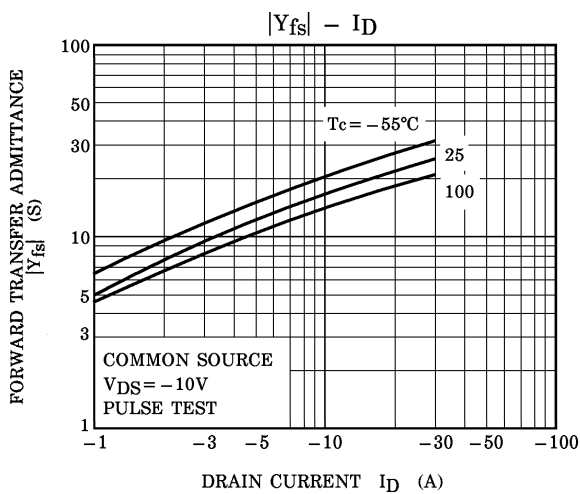
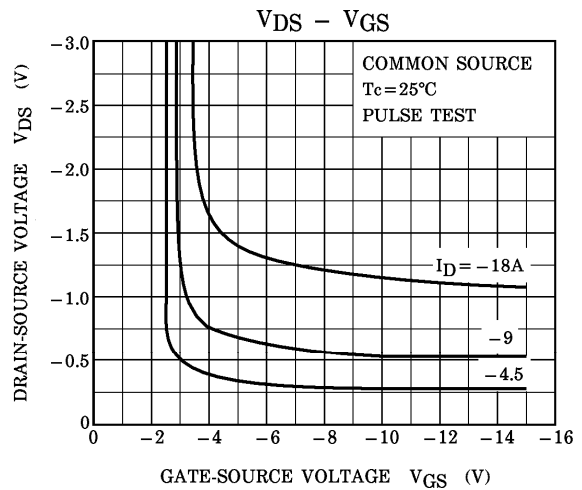
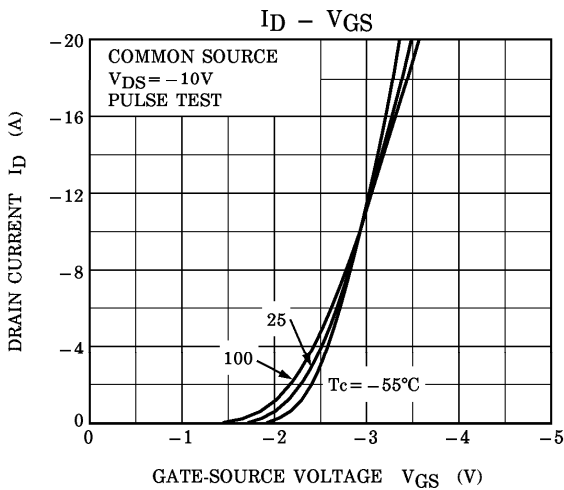
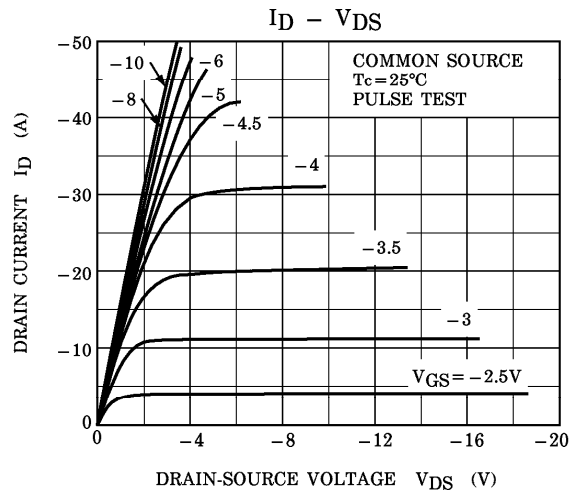
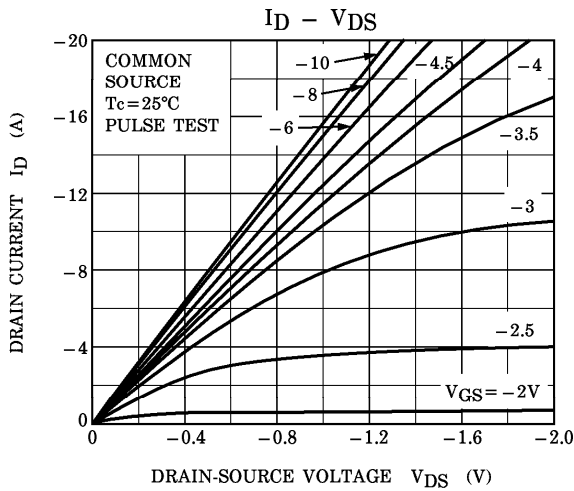
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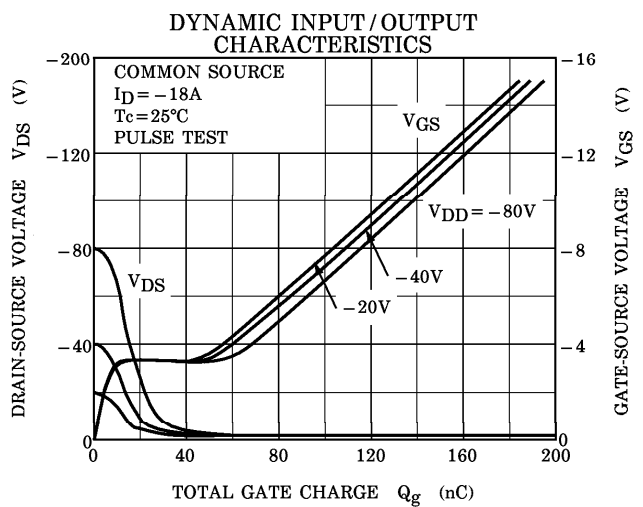
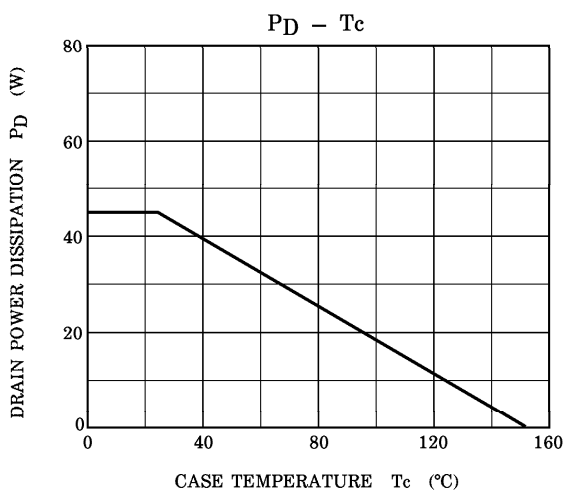
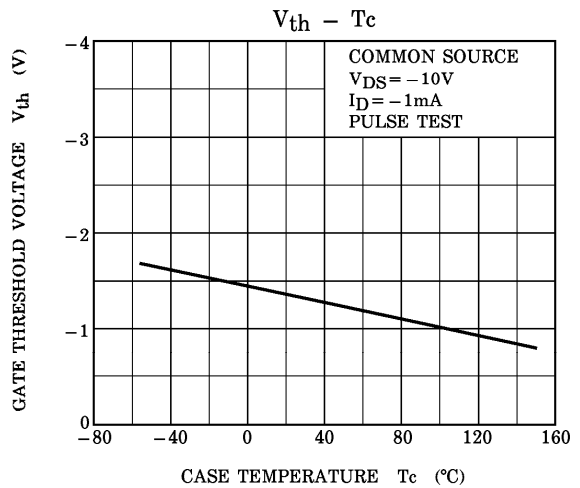
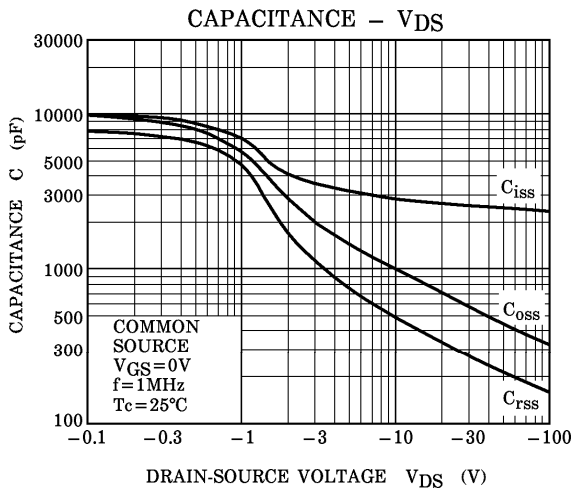
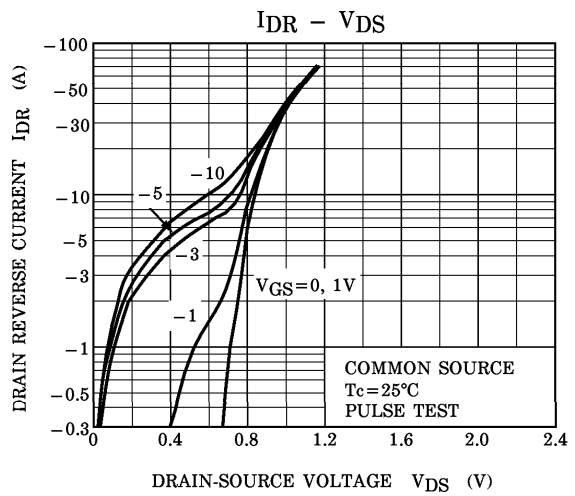
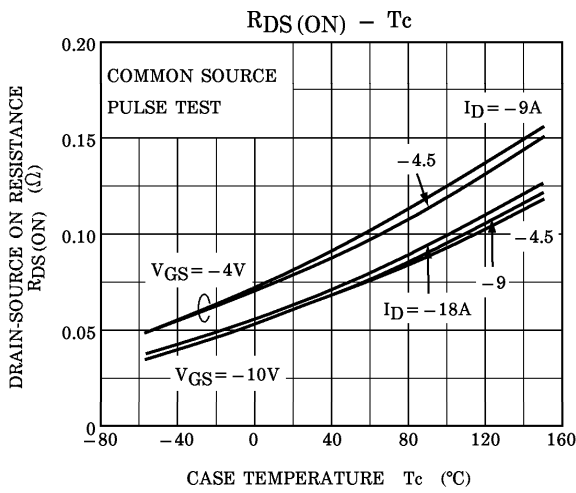


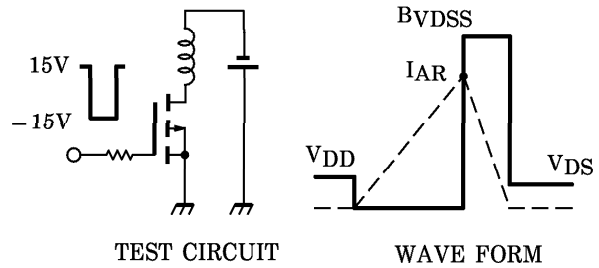
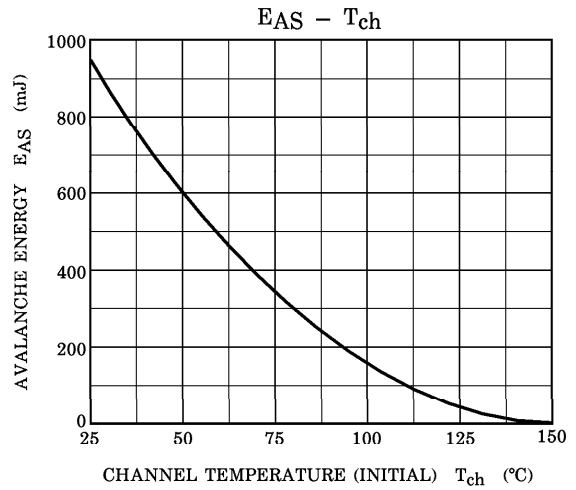
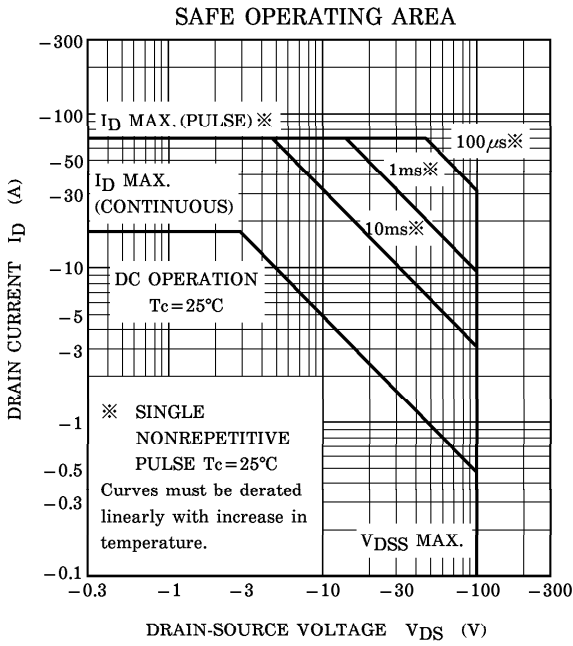
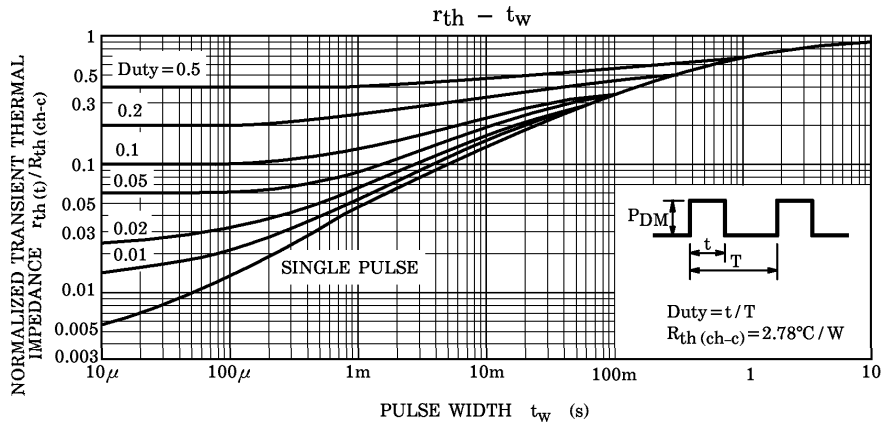
※ Lot Number

□ □ — Month (Starting from Alphabet A)

— Year (Last Number of the Christian Era)







$R_G = 25\Omega$
 $V_{DD} = -50V, L = 3.56mH$

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

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