

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

2SK2917

HIGH SPEED, HIGH CURRENT SWITCHING APPLICATIONS

CHOPPER REGULATOR, DC-DC CONVERTER AND MOTOR DRIVE APPLICATIONS

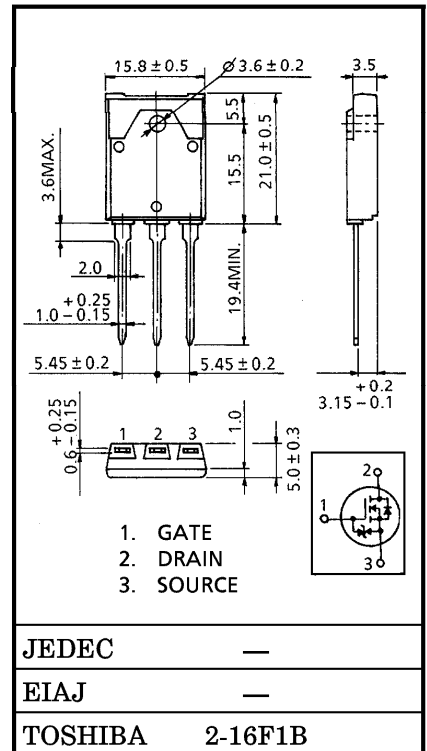
INDUSTRIAL APPLICATIONS

Unit in mm

- Low Drain-Source ON Resistance : $R_{DS(ON)} = 0.21 \Omega$ (Typ.)
- High Forward Transfer Admittance : $|Y_{fs}| = 17 S$ (Typ.)
- Low Leakage Current : $I_{DSS} = 100 \mu A$ (Max.) ($V_{DS} = 500 V$)
- Enhancement-Mode : $t_h = 2.0 \sim 4.0 V$
($V_{DS} = 10 V, I_D = 1 mA$)

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

CHARACTERISTIC		SYMBOL	RATING	UNIT
Drain-Source Voltage		V_{DSS}	500	V
Drain-Gate Voltage ($R_{GS} = 20 k\Omega$)		V_{DGR}	500	V
Gate-Source Voltage		V_{GSS}	± 30	V
Drain Current	DC	I_D	18	A
	Pulse	I_{DP}	72	
Drain Power Dissipation ($T_c = 25^\circ C$)		P_D	90	W
Single Pulse Avalanche Energy**		E_{AS}	915	mJ
Avalanche Current		I_{AR}	18	A
Repetitive Avalanche Energy*		E_{AR}	9	mJ
Channel Temperature		T_{ch}	150	$^\circ C$
Storage Temperature Range		T_{stg}	$-55 \sim 150$	$^\circ C$



Weight : 5.8 g (Typ.)

THERMAL CHARACTERISTICS

CHARACTERISTIC	SYMBOL	MAX.	UNIT
Thermal Resistance, Channel to Case	$R_{th(ch-c)}$	1.39	$^\circ C / W$
Thermal Resistance, Channel to Ambient	$R_{th(ch-a)}$	41.6	$^\circ C / W$

Note ;

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

** $V_{DD} = 90 V, T_{ch} = 25^\circ C$ (initial), $L = 4.8 mH, R_G = 25 \Omega, I_{AR} = 18 A$

This transistor is an electrostatic sensitive device.

Please handle with caution.

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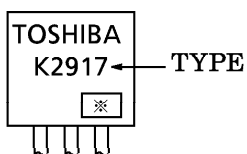
ELECTRICAL CHARACTERISTICS (Ta = 25°C)

CHARACTERISTIC		SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
Gate Leakage Current		IGSS	VGS = ±25 V, VDS = 0 V	—	—	±10	μA
Gate-Source Breakdown Voltage		V(BR)GSS	IG = ±10 μA, VDS = 0 V	±30	—	—	V
Drain Cut-off Current		IDSS	VDS = 500 V, VGS = 0 V	—	—	100	μA
Drain-Source Breakdown Voltage		V(BR)DSS	ID = 10 mA, VGS = 0 V	500	—	—	V
Gate Threshold Voltage		Vth	VDS = 10 V, ID = 1 mA	2.0	—	4.0	V
Drain-Source ON Resistance		RDS(ON)	VGS = 10 V, ID = 10 A	—	0.21	0.27	Ω
Forward Transfer Admittance		Yfs	VDS = 10 V, ID = 10 A	10	17	—	S
Input Capacitance		Ciss	VDS = 10 V, VGS = 0 V, f = 1 MHz	—	3720	—	pF
Reverse Transfer Capacitance		Crss		—	340	—	
Output Capacitance		Coss		—	1165	—	
Switching Time	Rise Time	tr		—	30	—	ns
	Turn-on Time	ton		—	70	—	
	Fall Time	tf		—	50	—	
	Turn-off Time	toff		VIN : tr, tf < 5 ns, Duty ≤ 1%, tw = 10 μs	—	290	
Total Gate Charge (Gate-Source Plus Gate-Drain)		Qg	VDD ≐ 400 V, VGS = 10 V, ID = 18 A	—	80	—	nC
Gate-Source Charge		Qgs		—	48	—	
Gate-Drain ("Miller") Charge		Qgd		—	32	—	

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

CHARACTERISTIC	SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
Continuous Drain Reverse Current	IDR	—	—	—	18	A
Pulse Drain Reverse Current	IDRP	—	—	—	72	A
Diode Forward Voltage	VDSF	IDR = 18 A, VGS = 0 V	—	—	-2.0	V
Reverse Recovery Time	trr	IDR = 18 A, VGS = 0 V	—	540	—	ns
Reverse Recovery Charge	Qrr	dIDR / dt = 100 A / μs	—	5.4	—	μC

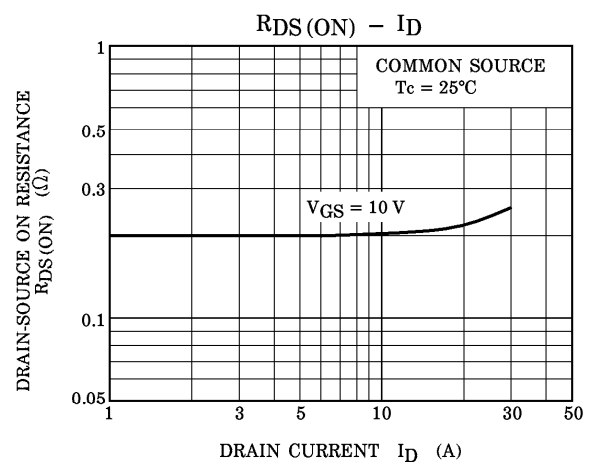
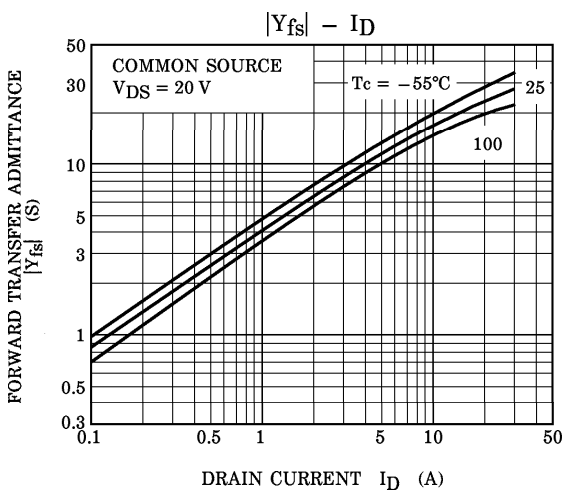
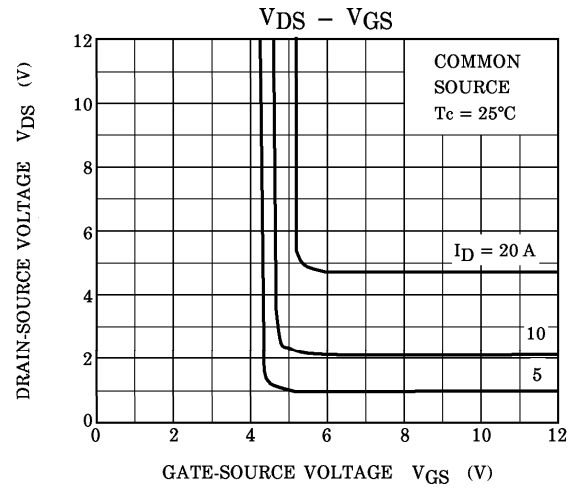
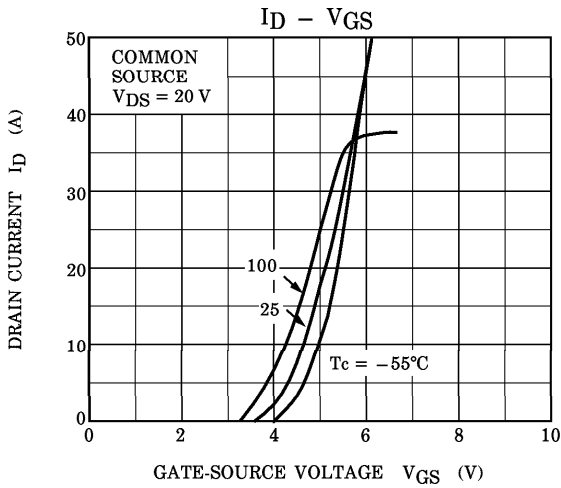
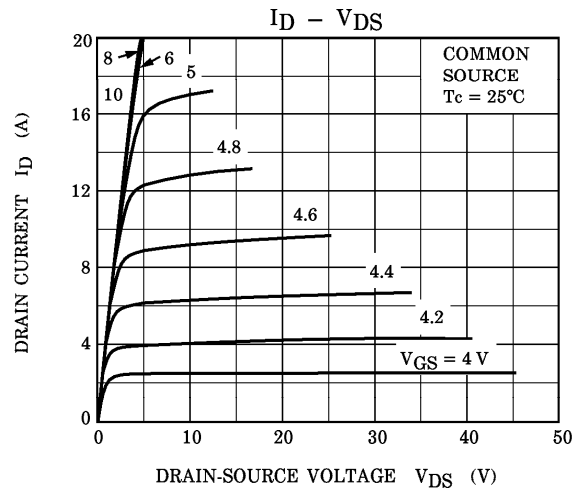
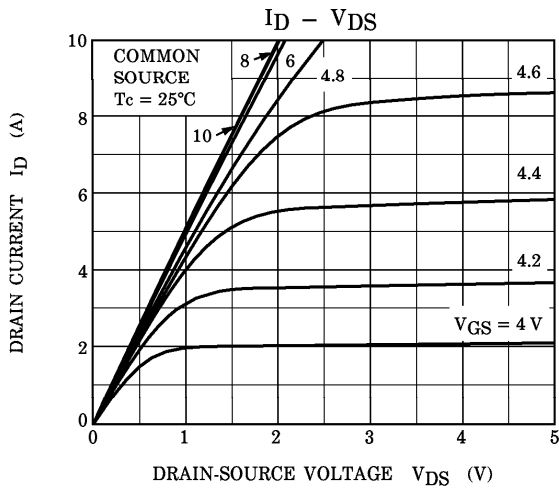
MARKING

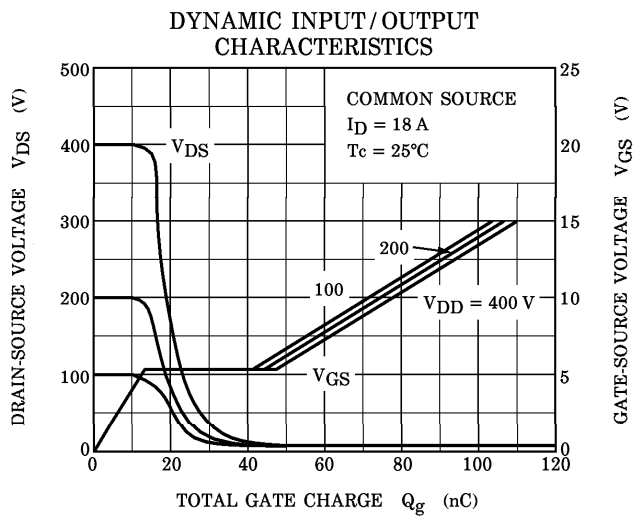
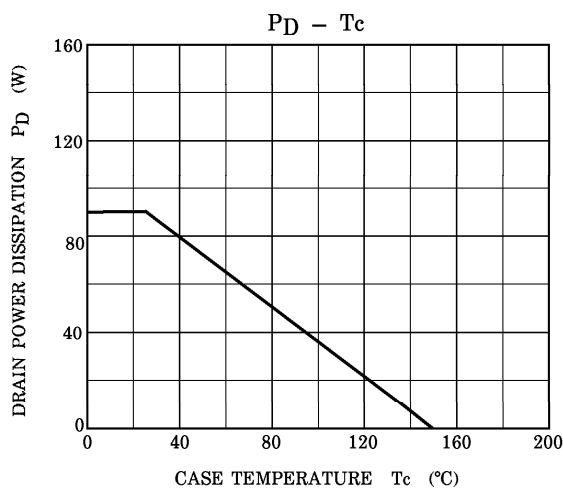
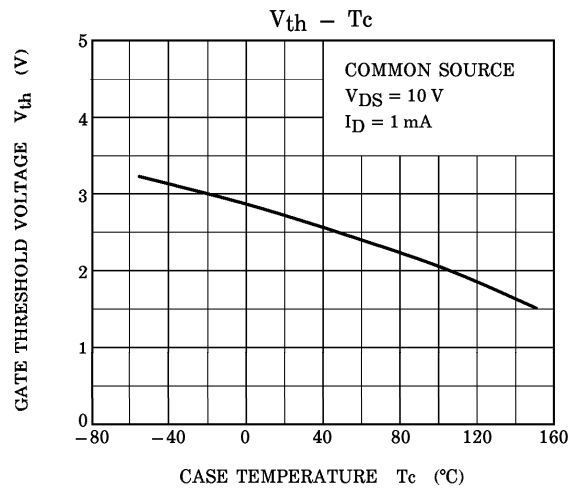
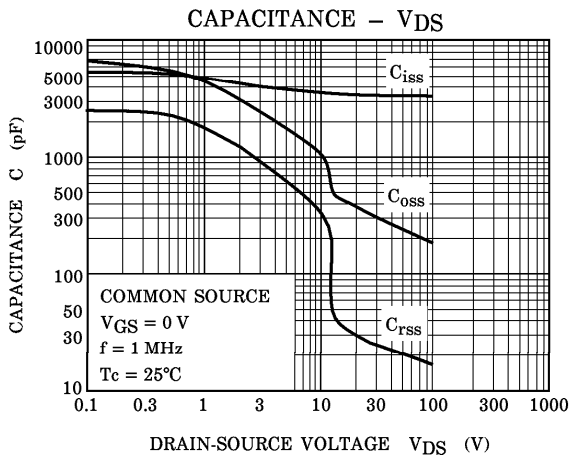
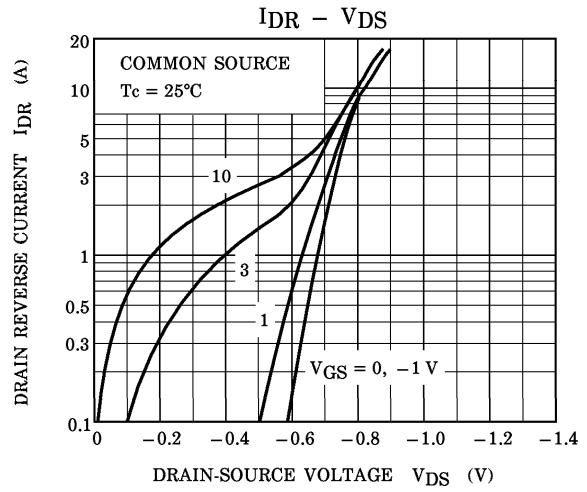
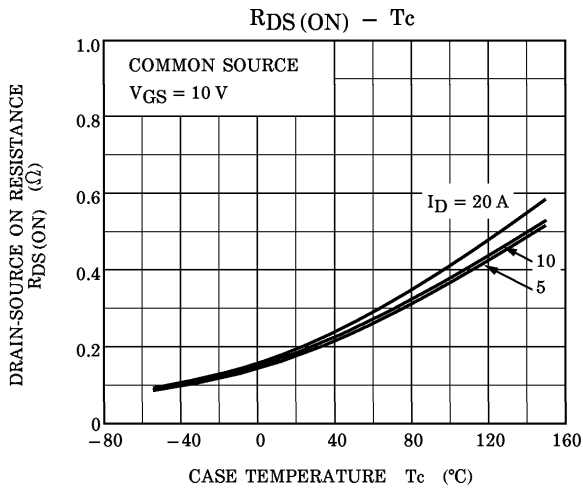


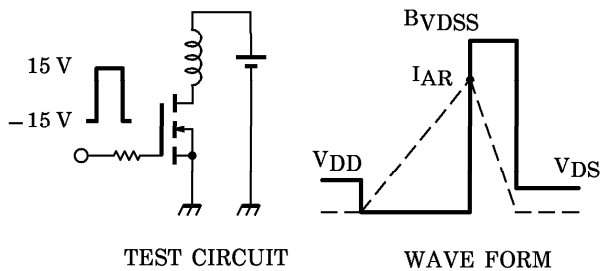
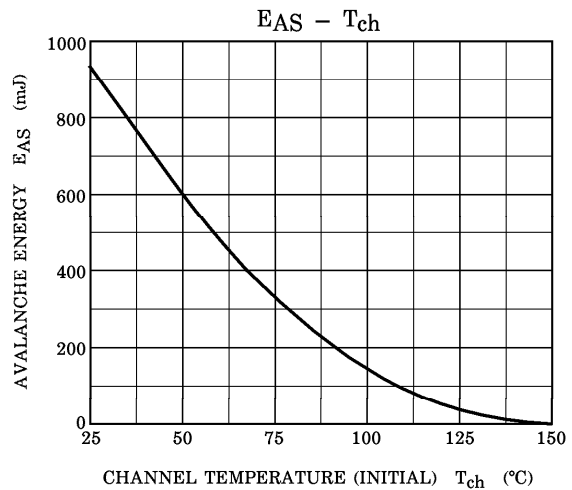
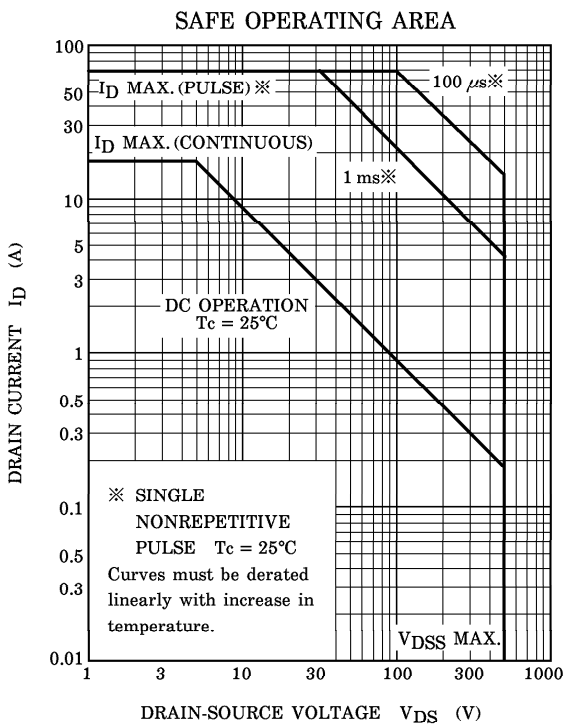
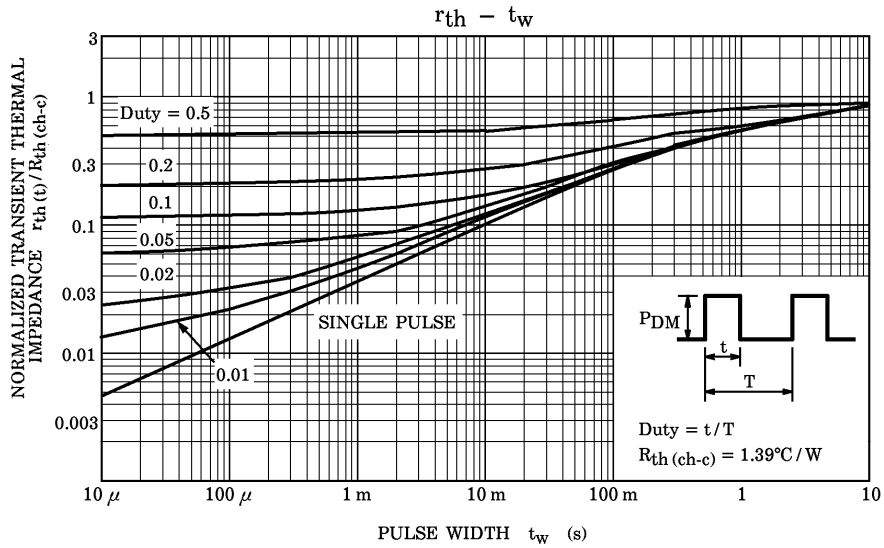
※ Lot Number

□ □ — Month (Starting from Alphabet A)

— Year (Last Number of the Christian Era)







Peak $I_{AR} = 18 \text{ A}$, $R_G = 25 \Omega$
 $V_{DD} = 90 \text{ V}$, $L = 4.8 \text{ mH}$ $E_{AS} = \frac{1}{2} \cdot L \cdot I^2 \cdot \left(\frac{B_{VDSS}}{B_{VDSS} - V_{DD}} \right)$