

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

2SK2350

HIGH SPEED, HIGH VOLTAGE SWITCHING APPLICATIONS
SWITCHING REGULATOR, DC-DC CONVERTER AND MOTOR DRIVE APPLICATIONS

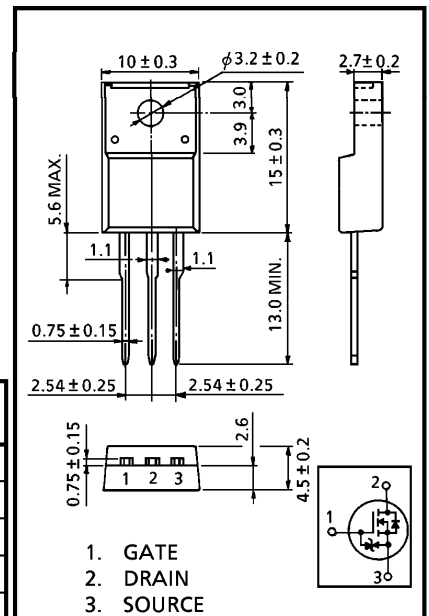
INDUSTRIAL APPLICATIONS

Unit in mm

- Low Drain-Source ON Resistance : $R_{DS(ON)} = 0.26\Omega$ (Typ.)
- High Forward Transfer Admittance : $|Y_{fs}| = 8S$ (Typ.)
- Low Leakage Current : $I_{DSS} = 100\mu A$ (Max.) ($V_{DS} = 200V$)
- Enhancement-Mode : $V_{th} = 1.5 \sim 3.5V$ ($V_{DS} = 10V, I_D = 1mA$)

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

CHARACTERISTIC	SYMBOL	RATING	UNIT
Drain-Source Voltage	V_{DSS}	200	V
Drain-Gate Voltage ($R_{GS} = 20k\Omega$)	V_{DGR}	200	V
Gate-Source Voltage	V_{GSS}	± 20	V
Drain Current	DC	I_D	8.5
	Pulse	I_{DP}	34
Drain Power Dissipation ($T_c = 25^\circ C$)	P_D	30	W
Single Pulse Avalanche Energy**	E_{AS}	110	mJ
Avalanche Current	I_{AR}	8.5	A
Repetitive Avalanche Energy*	E_{AR}	3	mJ
Channel Temperature	T_{ch}	150	$^\circ C$
Storage Temperature Range	T_{stg}	$-55 \sim 150$	$^\circ C$



JEDEC	—
EIAJ	SC-67
TOSHIBA	2-10R1B

Weight : 1.9g

HERMAL CHARACTERISTICS

CHARACTERISTIC	SYMBOL	MAX.	UNIT
Thermal Resistance, Channel to Case	$R_{th(ch-c)}$	4.16	$^\circ C/W$
Thermal Resistance, Channel to Ambient	$R_{th(ch-a)}$	62.5	$^\circ C/W$

Note ;

- * Repetitive rating ; Pulse Width Limited by Max. junction temperature.
- ** $V_{DD} = 50V, T_{ch} = 25^\circ C$ (initial), $L = 2.47mH, R_G = 25\Omega, I_{AR} = 8.5A$

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

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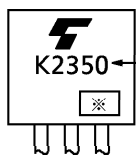
ELECTRICAL CHARACTERISTICS (Ta = 25°C)

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} = 200V, V _{GS} = 0V	—	—	100	μA
Gate-Source Breakdown Voltage		V (BR) DSS	I _D = 10mA, V _{GS} = 0V	200	—	—	V
Gate Threshold Voltage		V _{th}	V _{DS} = 10V, I _D = 1mA	1.5	—	3.5	V
Drain-Source ON Resistance		R _{DS(ON)}	V _{GS} = 10V, I _D = 5A	—	0.26	0.4	Ω
Forward Transfer Admittance		Y _{fs}	V _{DS} = 10V, I _D = 5A	4	8	—	S
Input Capacitance		C _{iss}	V _{DS} = 10V, V _{GS} = 0V f = 1MHz	—	700	—	pF
Reverse Transfer Capacitance		C _{rss}		—	80	—	
Output Capacitance		C _{oss}		—	270	—	
Switching Time	Rise Time	t _r	<p>V_{GS} 10V 0V 15Ω I_D = 5A V_{OUT} R_L = 20Ω V_{DD} ≐ 100V</p>	—	15	—	ns
	Turn-on Time	t _{on}		—	25	—	
	Fall Time	t _f		—	15	—	
	Turn-off Time	t _{off}		V _{IN} : t _r , t _f < 5ns, Duty ≤ 1%, t _w = 10μs	—	70	
Total Gate Charge (Gate-Source Plus Gate-Drain)		Q _g	V _{DD} ≐ 160V, V _{GS} = 10V I _D = 10A	—	17	—	nC
Gate-Source Charge		Q _{gs}		—	10	—	
Gate-Drain ("Miller") Charge		Q _{gd}		—	7	—	

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

CHARACTERISTIC	SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
Continuous Drain Reverse Current	I _{DR}	—	—	—	8.5	A
Pulse Drain Reverse Current	I _{DRP}	—	—	—	34	A
Diode Forward Voltage	V _{DSF}	I _{DR} = 10A, V _{GS} = 0V	—	—	-2.0	V
Reverse Recovery Time	t _{rr}	I _{DR} = 10A, V _{GS} = 0V dI _{DR} / dt = 100A / μs	—	150	—	ns
Reverse Recovery Charge	Q _{rr}		—	0.8	—	μC

MARKING

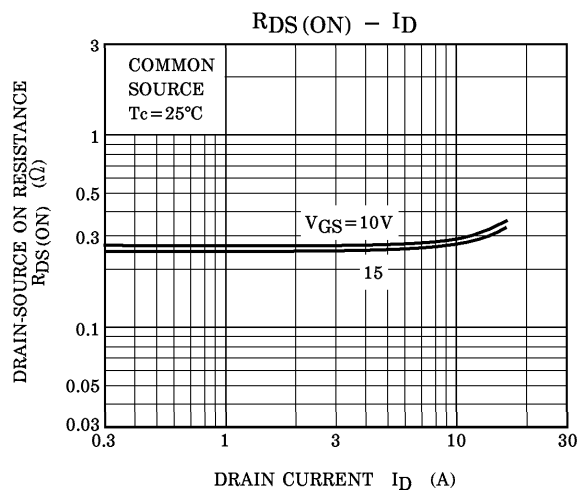
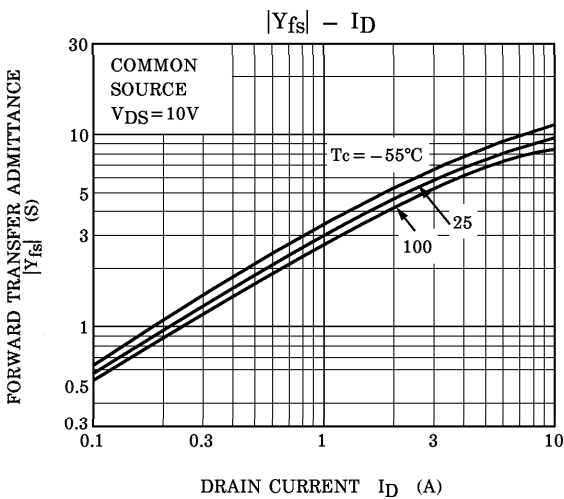
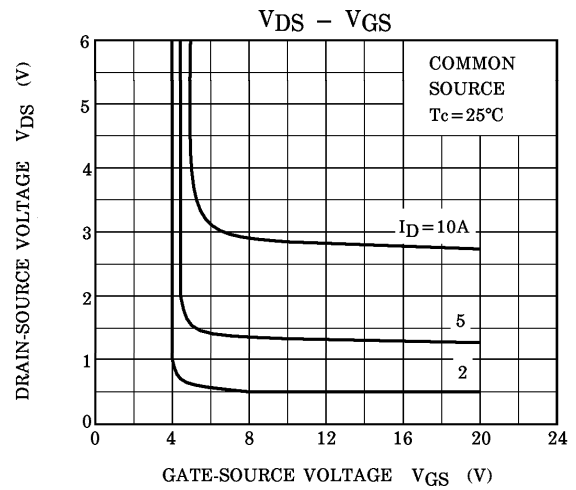
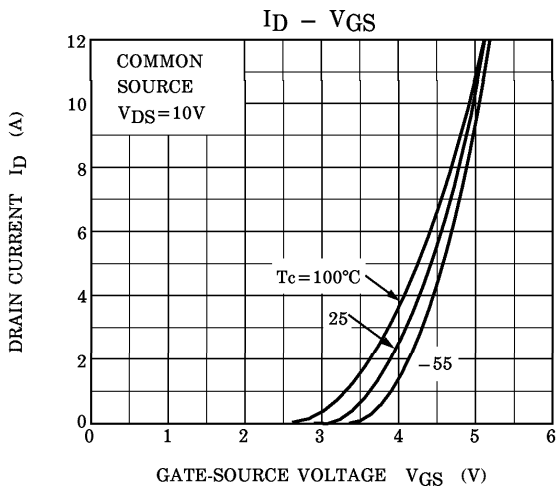
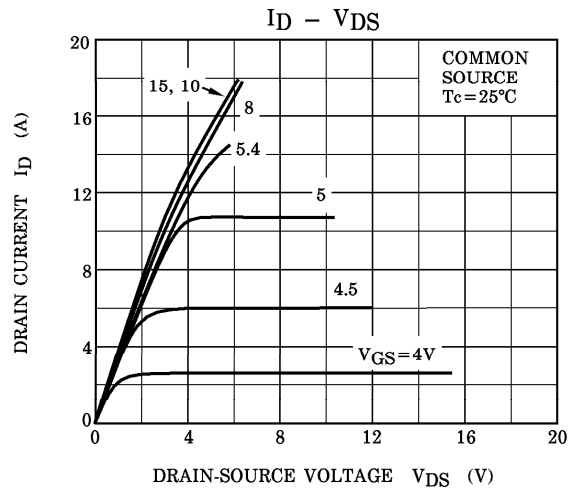
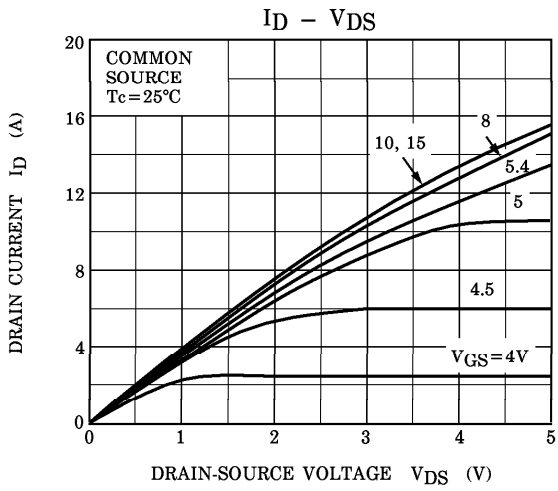


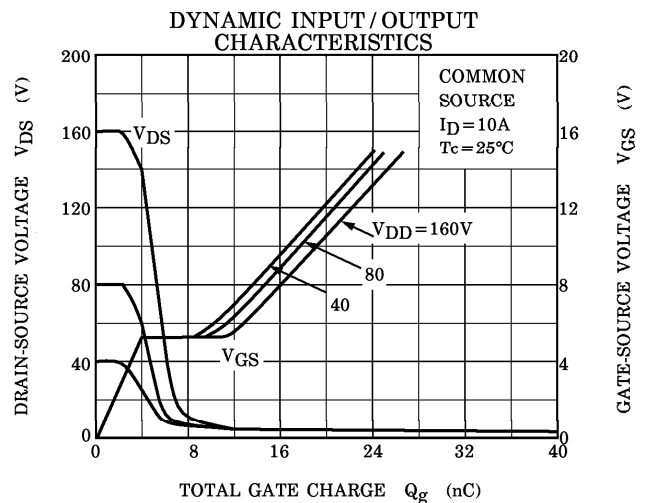
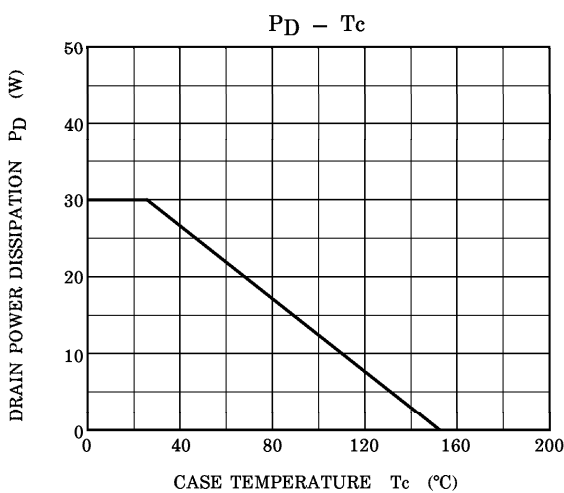
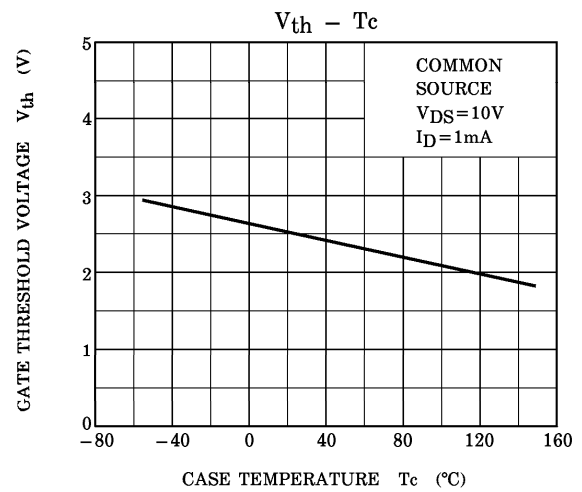
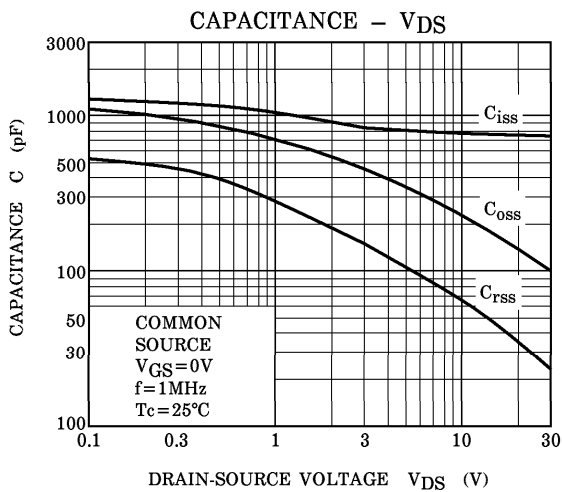
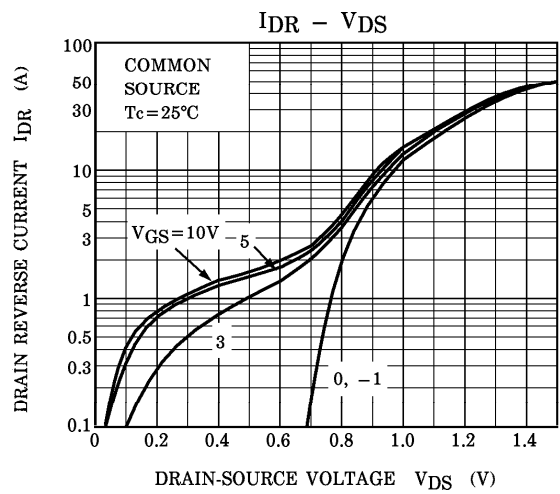
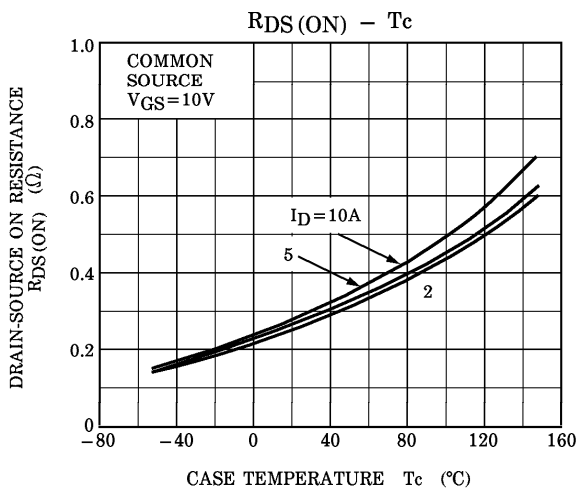
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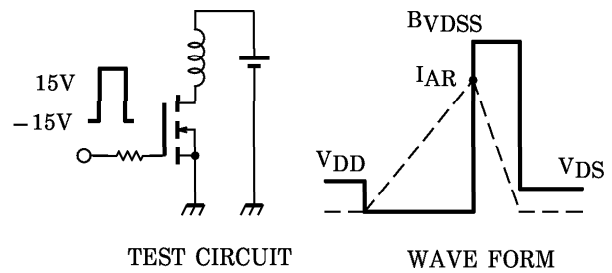
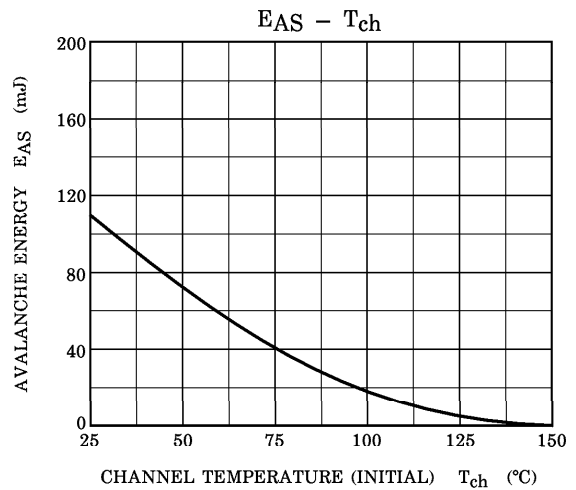
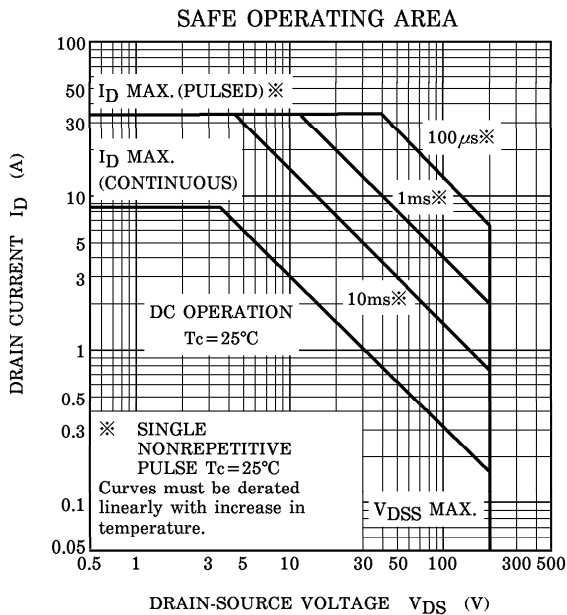
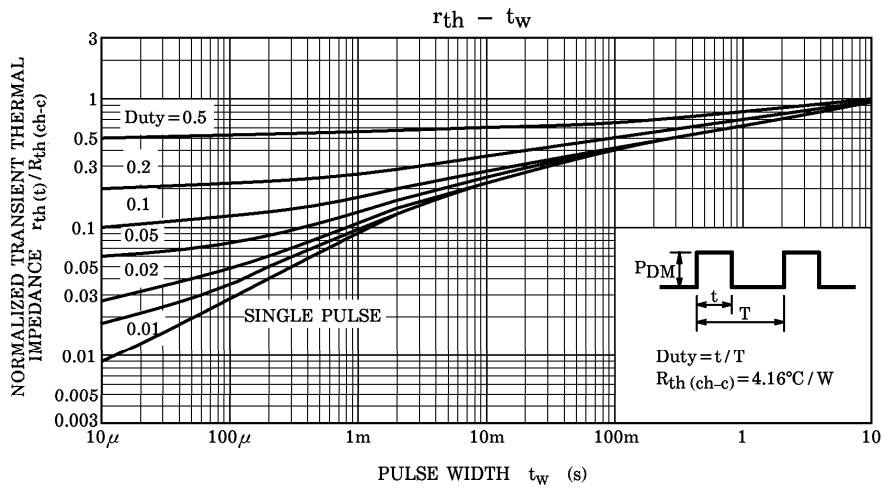
※ Lot Number

□ □ — Month (Starting from Alphabet A)

— Year (Last Number of the Christian Era)







Peak $I_{AR} = 8.5A$, $R_G = 25\Omega$ $E_{AS} = \frac{1}{2} \cdot L \cdot I^2 \cdot \left(\frac{B_{VDSS}}{B_{VDSS} - V_{DD}} \right)$
 $V_{DD} = 50V$, $L = 2.47mH$