

TOSHIBA

2SK2882

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

2SK2882

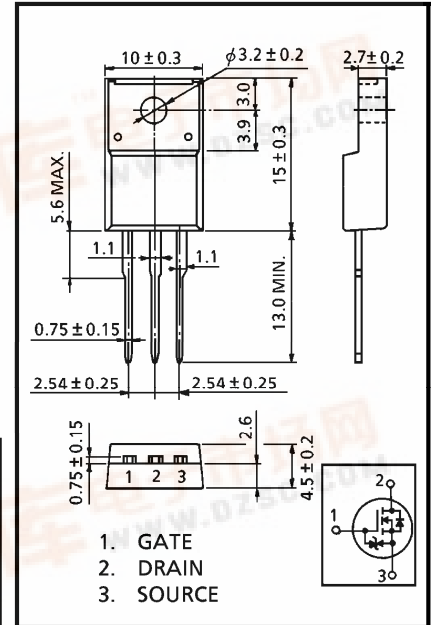
HIGH SPEED, HIGH VOLTAGE SWITCHING APPLICATIONS

CHOPPER REGULATOR, DC-DC CONVERTER AND MOTOR DRIVE APPLICATIONS

INDUSTRIAL APPLICATIONS

Unit in mm

- 4 V Gate Drive
- Low Drain-Source On Resistance : $R_{DS(ON)} = 0.08 \Omega$ (Typ.)
- High Forward Transfer Admittance : $|Y_{fs}| = 17 S$ (Typ.)
- Low Leakage Current : $I_{DSS} = 100 \mu A$ (Max.) ($V_{DS} = 150 V$)
- Enhancement-Mode : $V_{th} = 0.8 \sim 2.0 V$
($V_{DS} = 10 V, I_D = 1 mA$)



MAXIMUM RATINGS (Ta = 25°C)

CHARACTERISTIC	SYMBOL	RATING	UNIT
Drain-Source Voltage	V_{DSS}	150	V
Drain-Gate Voltage ($R_{GS} = 20 k\Omega$)	V_{DGR}	150	V
Gate-Source Voltage	V_{GSS}	± 20	V
Drain Current	DC	I_D	18
	Pulse	I_{DP}	54
Drain Power Dissipation ($T_c = 25^\circ C$)	P_D	45	W
Single Pulse Avalanche Energy**	E_{AS}	176	mJ
Avalanche Current	I_{AR}	18	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 : 1.9 g (Typ.)

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.

** $V_{DD} = 50 V, T_{ch} = 25^\circ C$ (initial), $L = 0.8 mH, R_G = 25 \Omega, I_{AR} = 18 A$

This transistor is an electrostatic sensitive device.

Please handle with caution.

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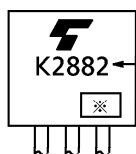
ELECTRICAL CHARACTERISTICS (Ta = 25°C)

CHARACTERISTIC	SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNIT	
Gate Leakage Current	I _{GSS}	V _{GS} = ±16 V, V _{DS} = 0 V	—	—	±10	μA	
Drain Cut-off Current	I _{DSS}	V _{DS} = 150 V, V _{GS} = 0 V	—	—	100	μA	
Drain-Source Breakdown Voltage	V _{(BR) DSS}	I _D = 10 mA, V _{GS} = 0 V	150	—	—	V	
Gate Threshold Voltage	V _{th}	V _{DS} = 10 V, I _D = 1 mA	0.8	—	2.0	V	
Drain-Source ON Resistance	R _{D(S) ON}	V _{GS} = 4 V, I _D = 9 A	—	0.09	0.18	Ω	
		V _{DS} = 10 V, I _D = 9 A	—	0.08	0.12		
Forward Transfer Admittance	Y _{fs}	V _{DS} = 10 V, I _D = 9 A	10	17	—	S	
Input Capacitance	C _{iss}	V _{DS} = 10 V, V _{GS} = 0 V, f = 1 MHz	—	1380	—	pF	
Reverse Transfer Capacitance	C _{rss}		—	200	—		
Output Capacitance	C _{oss}		—	610	—		
Switching Time	Rise Time	t _r		—	12	—	ns
	Turn-on Time	t _{on}		—	24	—	
	Fall Time	t _f		—	56	—	
	Turn-off Time	t _{off}		V _{IN} : t _r , t _f < 5 ns, Duty ≤ 1%, t _w = 10 μs	—	130	
Total Gate Charge (Gate-Source Plus Gate-Drain)	Q _g	V _{DD} ≐ 120 V, V _{GS} = 10 V, I _D = 18 A	—	57	—	nC	
Gate-Source Charge	Q _{gs}		—	43	—		
Gate-Drain ("Miller") Charge	Q _{gd}		—	14	—		

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

CHARACTERISTIC	SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
Continuous Drain Reverse	I _{DR}	—	—	—	18	A
Pulse Drain Reverse Current	I _{DRP}	—	—	—	54	A
Diode Forward Voltage	V _{D(S)F}	I _{DR} = 18 A, V _{GS} = 0 V	—	—	-1.7	V
Reverse Recovery Time	t _{rr}	I _{DR} = 18 A, V _{GS} = 0 V	—	185	—	ns
Reverse Recovery Charge	Q _{rr}	dI _{DR} / dt = 100 A / μs	—	1.3	—	μC

MARKING

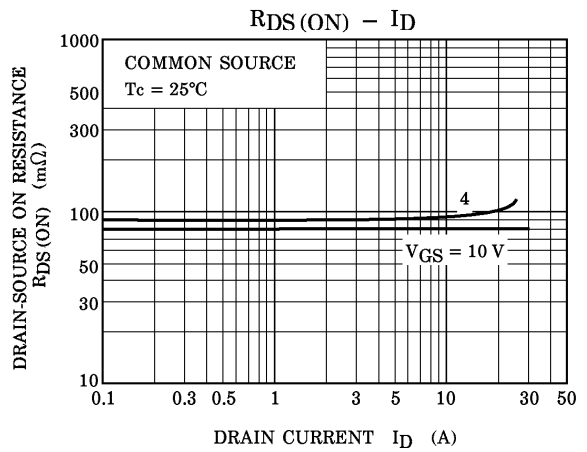
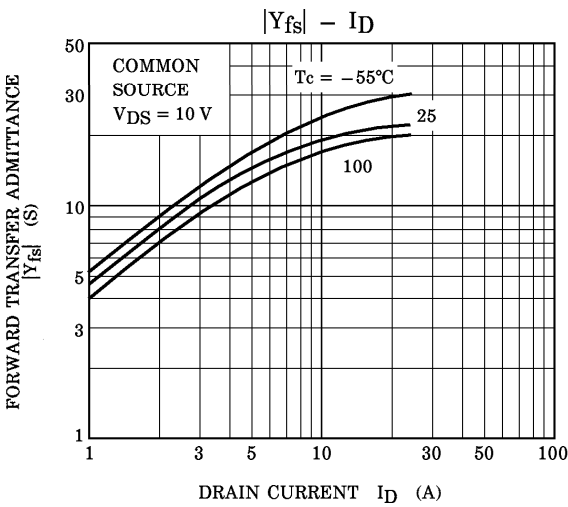
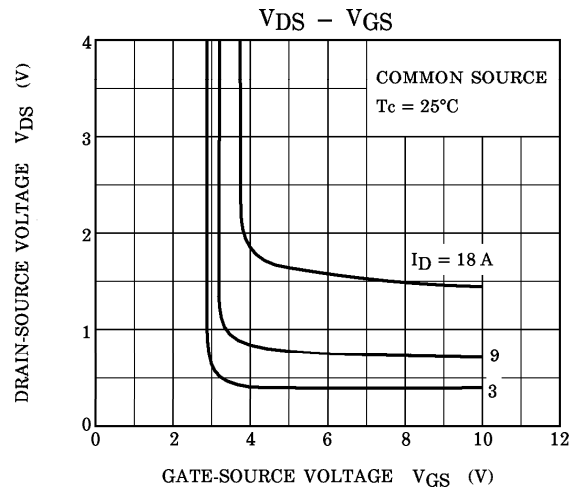
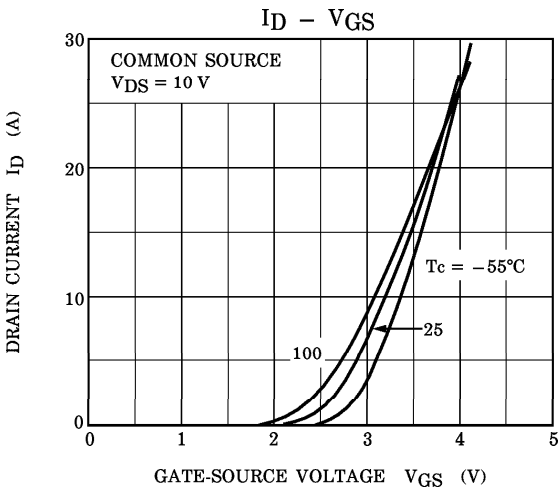
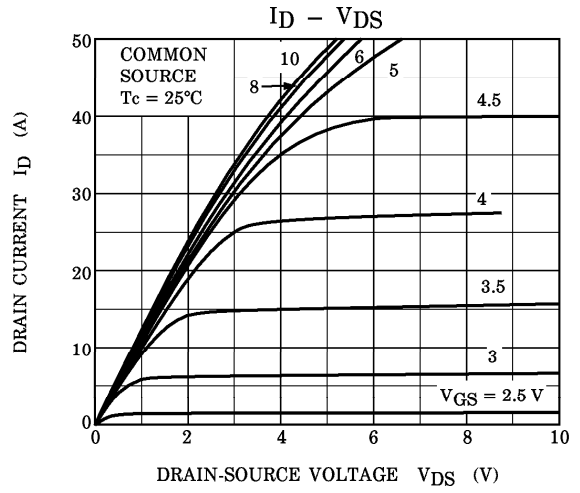
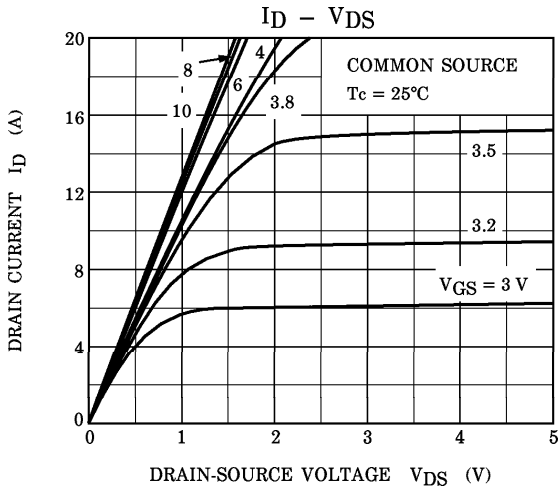


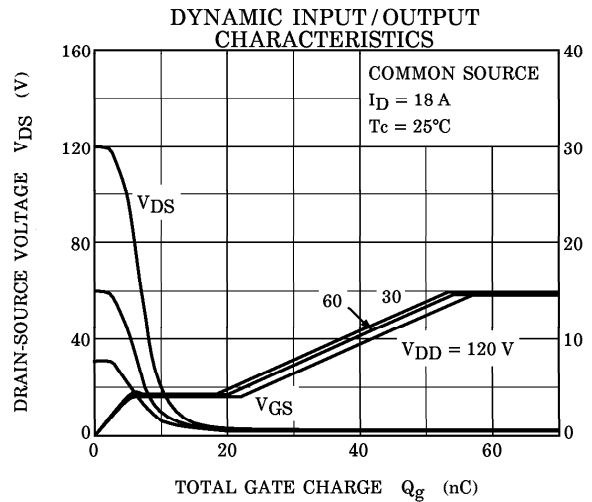
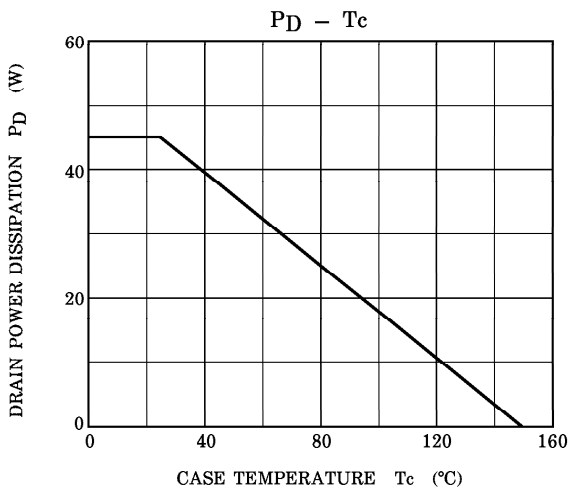
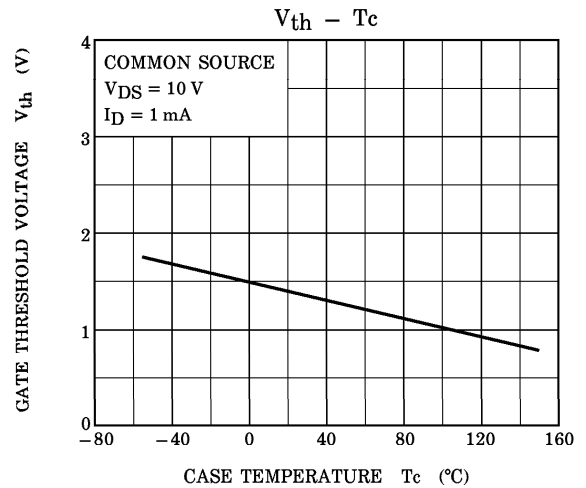
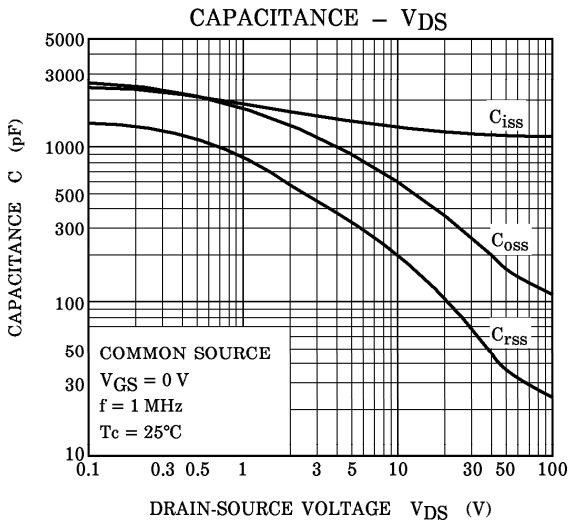
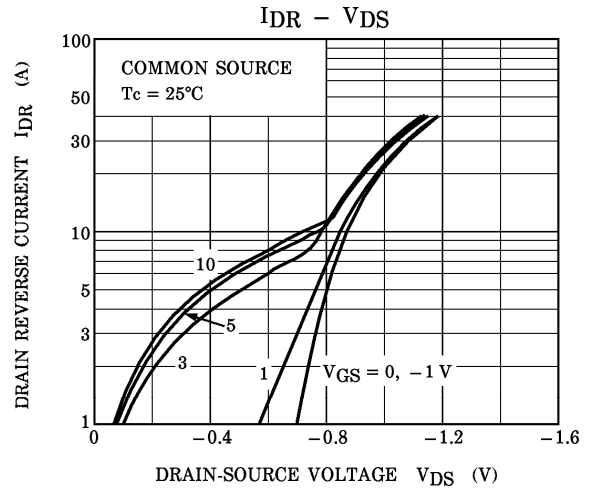
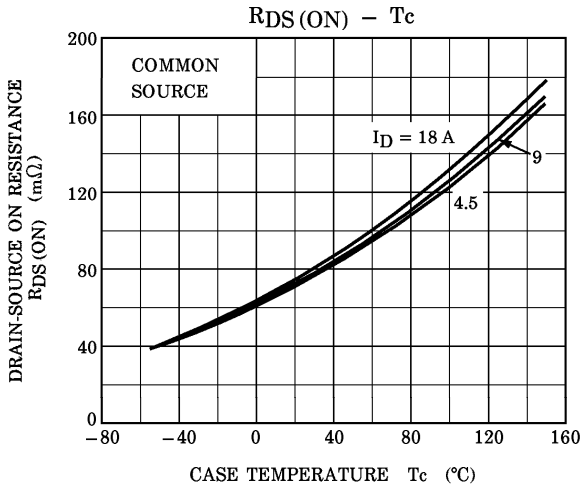
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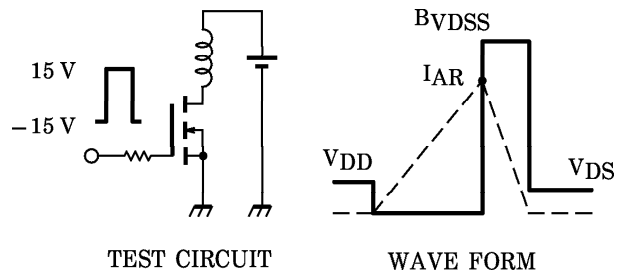
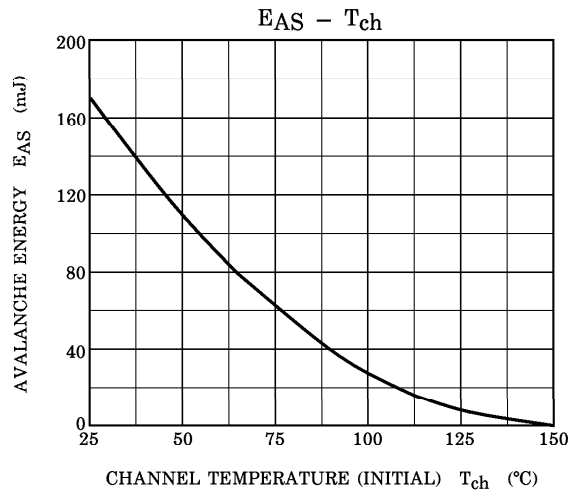
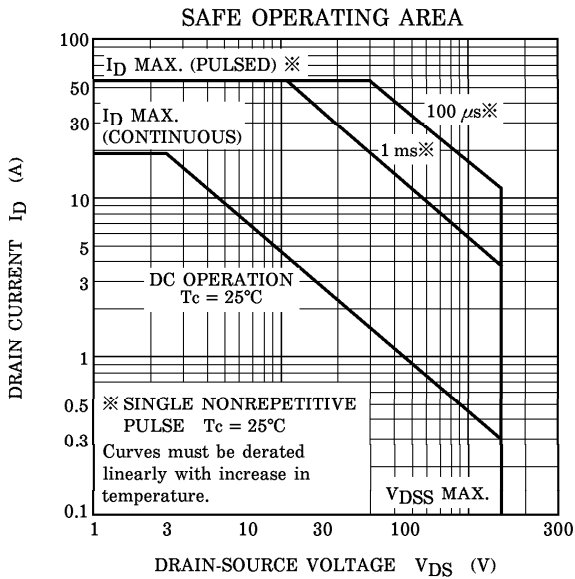
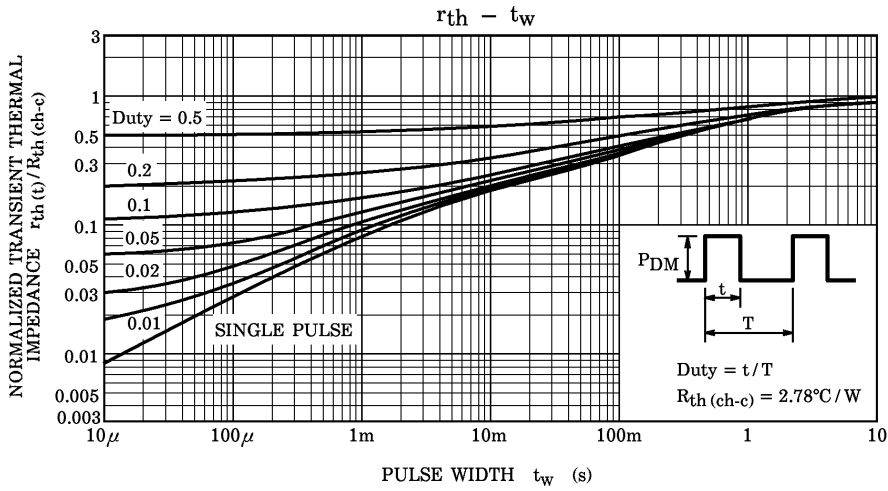
※ Lot Number

□ □ — Month (Starting from Alphabet A)

— Year (Last Number of the Christian Era)







Peak $I_{AR} = 18 \text{ A}$, $R_G = 25 \Omega$
 $V_{DD} = 50 \text{ V}$, $L = 0.8 \text{ mH}$

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