

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

2SK2886

HIGH SPEED, HIGH CURRENT SWITCHING APPLICATIONS

CHOPPER REGULATORS, DC-DC CONVERTER AND MOTOR DRIVE APPLICATIONS

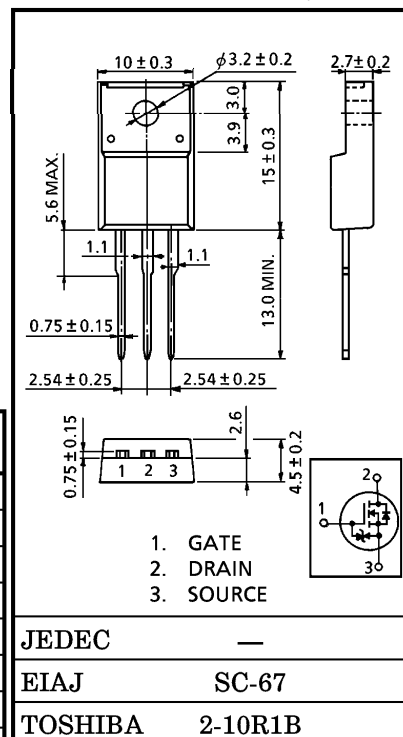
INDUSTRIAL APPLICATIONS

Unit in mm

- Low Drain-Source ON Resistance : $R_{DS(ON)} = 14m\Omega$ (Typ.)
- High Forward Transfer Admittance : $|Y_{fs}| = 31S$ (Typ.)
- Low Leakage Current : $I_{DSS} = 100\mu A$ (Max.) ($V_{DS} = 50V$)
- Enhancement-Mode : $V_{th} = 0.8 \sim 2.0V$ ($V_{DS} = 10V$, $I_D = 1mA$)

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

CHARACTERISTIC		SYMBOL	RATING	UNIT
Drain-Source Voltage		V_{DSS}	50	V
Drain-Gate Voltage ($R_{GS} = 20k\Omega$)		V_{DGR}	50	V
Gate-Source Voltage		V_{GSS}	± 20	V
Drain Current	DC	I_D	45	A
	Pulse	I_{DP}	135	A
Drain Power Dissipation ($T_c = 25^\circ C$)		P_D	40	W
Single Pulse Avalanche Energy**		E_{AS}	350	mJ
Avalanche Current		I_{AR}	45	A
Repetitive Avalanche Energy*		E_{AR}	4	mJ
Channel Temperature		T_{ch}	150	$^\circ C$
Storage Temperature Range		T_{stg}	$-55 \sim 150$	$^\circ C$



Weight : 1.9g (Typ.)

THERMAL CHARACTERISTICS

CHARACTERISTIC	SYMBOL	MAX.	UNIT
Thermal Resistance, Channel to Case	$R_{th(ch-c)}$	3.125	$^\circ C / W$
Thermal Resistance, Channel to Ambient	$R_{th(ch-a)}$	62.5	$^\circ C / W$

Note ;

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

** $V_{DD} = 25V$, Starting $T_{ch} = 25^\circ C$, $L = 213\mu H$, $R_G = 25\Omega$, $I_{AR} = 45A$

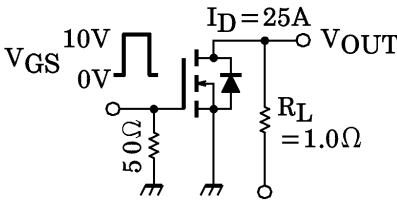
This transistor is an electrostatic sensitive device.

Please handle with caution.

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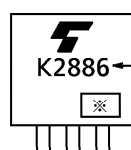
ELECTRICAL CHARACTERISTICS (Ta = 25°C)

CHARACTERISTIC	SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
Gate Leakage Current	I_{GSS}	$V_{GS} = \pm 16V, V_{DS} = 0V$	—	—	± 10	μA
Drain Cut-off Current	I_{DSS}	$V_{DS} = 50V, V_{GS} = 0V$	—	—	100	μA
Drain-Source Breakdown Voltage	$V_{(BR) DSS}$	$I_D = 10mA, V_{GS} = 0V$	50	—	—	V
Gate Threshold Voltage	V_{th}	$V_{DS} = 10V, I_D = 1mA$	0.8	—	2.0	V
Drain-Source ON Resistance	$R_{DS(ON)}$	$V_{GS} = 4V, I_D = 25A$	—	27	36	$m\Omega$
	$R_{DS(ON)}$	$V_{GS} = 10V, I_D = 25A$	—	14	20	
Forward Transfer Admittance	$ Y_{fs} $	$V_{DS} = 10V, I_D = 25A$	18	31	—	S
Input Capacitance	C_{iss}	$V_{DS} = 10V, V_{GS} = 0V, f = 1MHz$	—	2200	—	pF
Reverse Transfer Capacitance	C_{rss}		—	390	—	
Output Capacitance	C_{oss}		—	1090	—	
Switching Time	Rise Time		—	40	—	ns
	Turn-on Time		—	70	—	
	Fall Time		—	130	—	
	Turn-off Time		—	360	—	
Total Gate Charge (Gate-Source Plus Gate-Drain)	Q_g	$V_{DD} \approx 40V, V_{GS} = 10V, I_D = 45A$	—	66	—	nC
Gate-Source Charge	Q_{gs}		—	43	—	
Gate-Drain ("Miller") Charge	Q_{gd}		—	23	—	

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

CHARACTERISTIC	SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
Continuous Drain Reverse Current	I_{DR}	—	—	—	45	A
Pulse Drain Reverse Current	I_{DRP}	—	—	—	135	A
Diode Forward Voltage	V_{DSF}	$I_{DR} = 45A, V_{GS} = 0V$	—	—	-1.7	V
Reverse Recovery Time	t_{rr}	$I_{DR} = 45A, V_{GS} = 0V$	—	78	—	ns
Reverse Recovery Charge	Q_{rr}	$dI_{DR} / dt = 50A / \mu s$	—	90	—	nC

MARKING

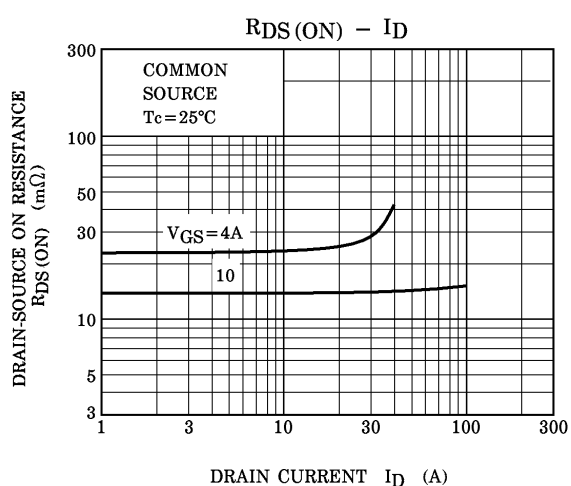
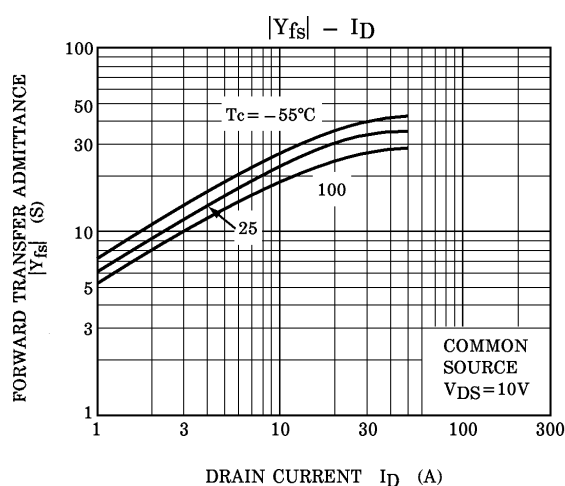
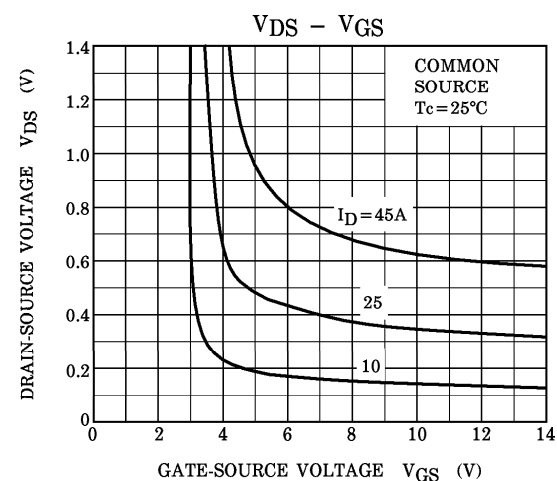
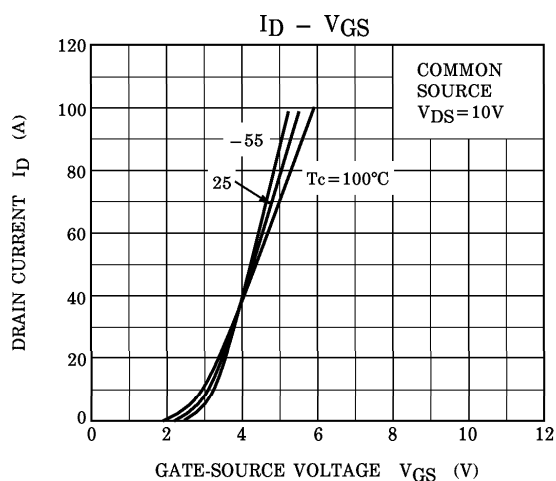
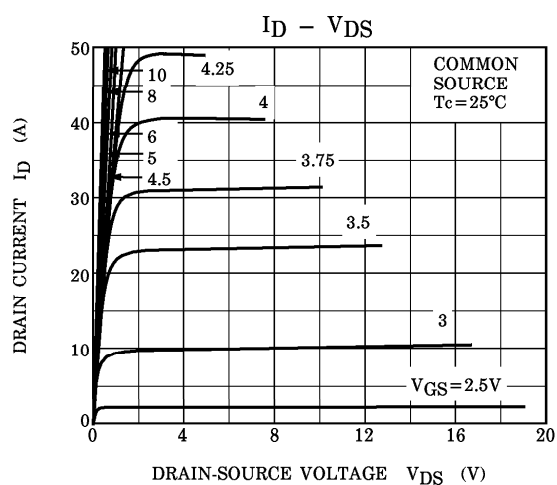
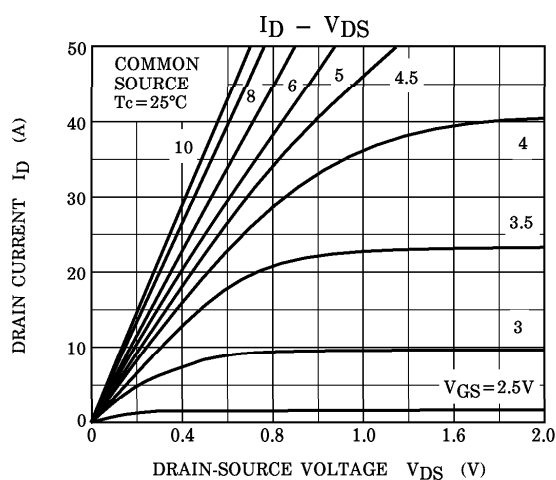


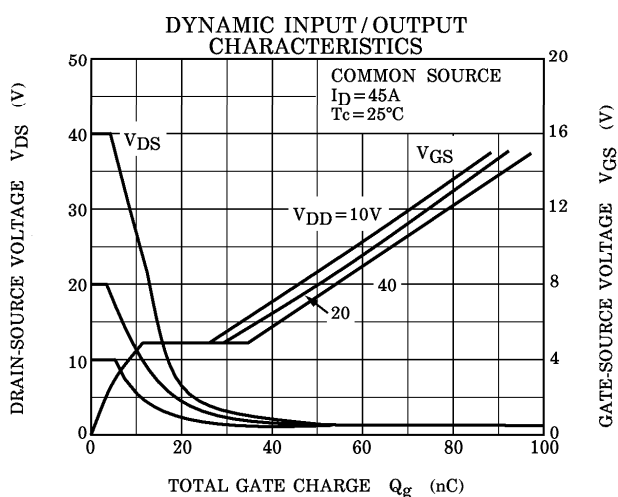
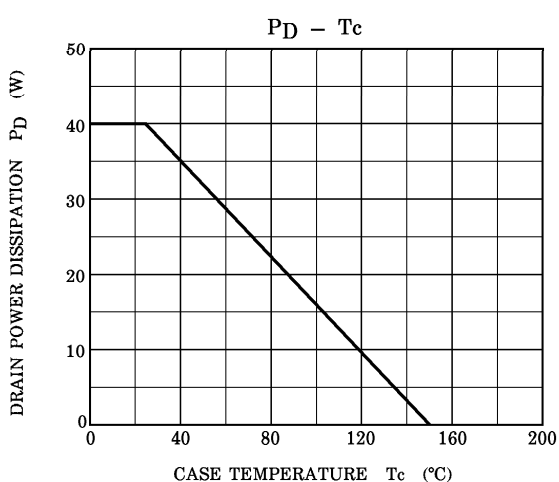
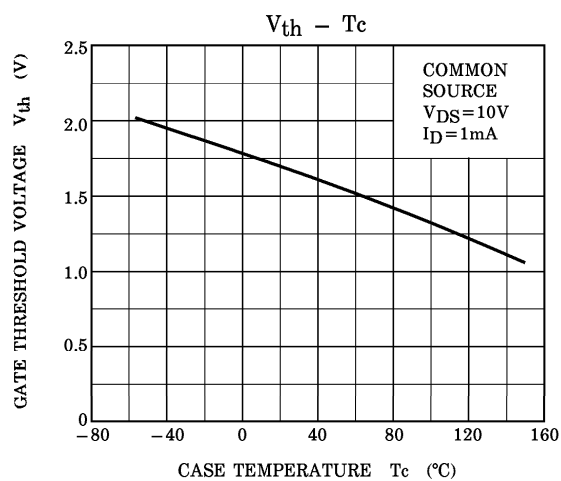
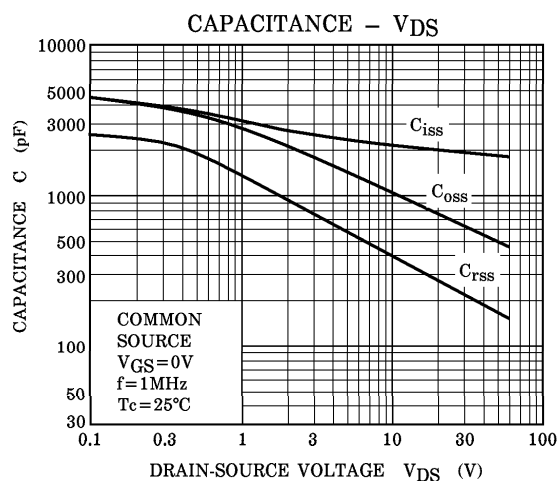
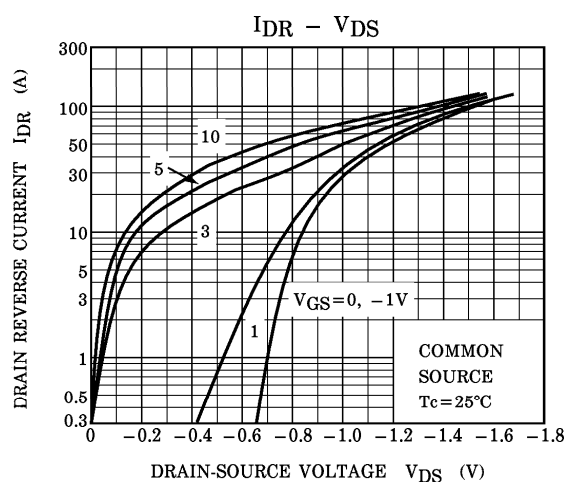
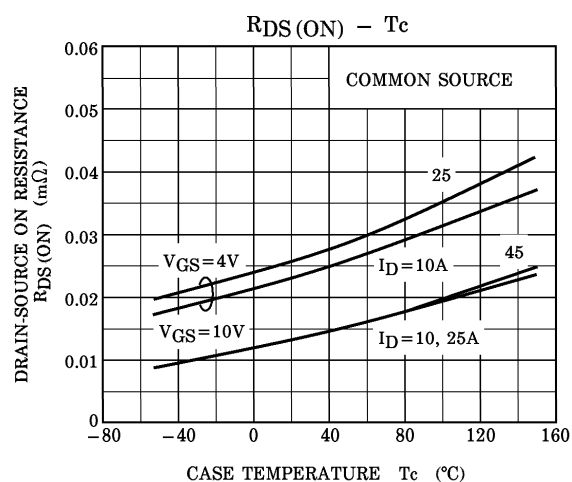
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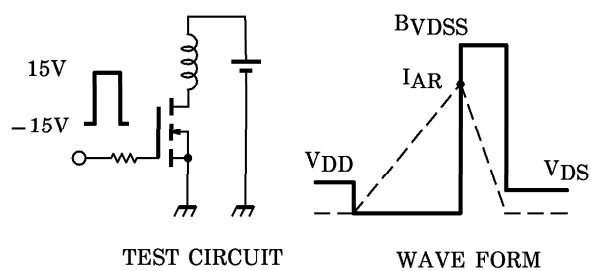
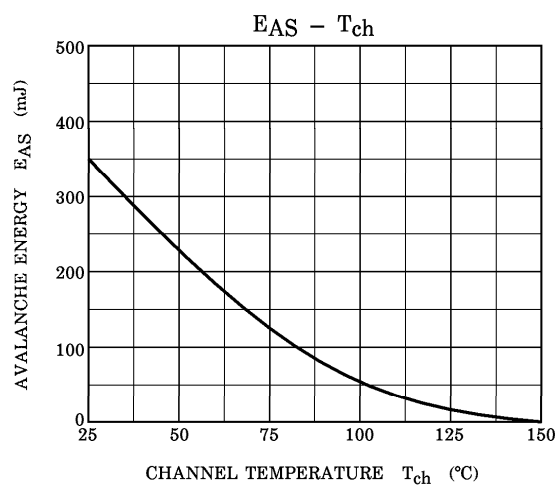
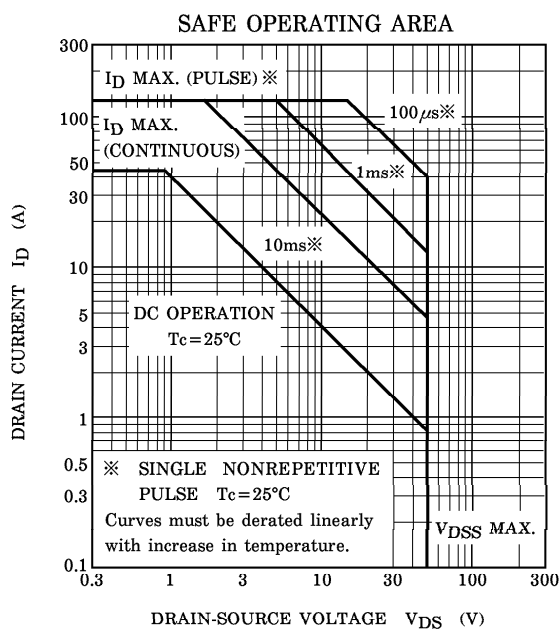
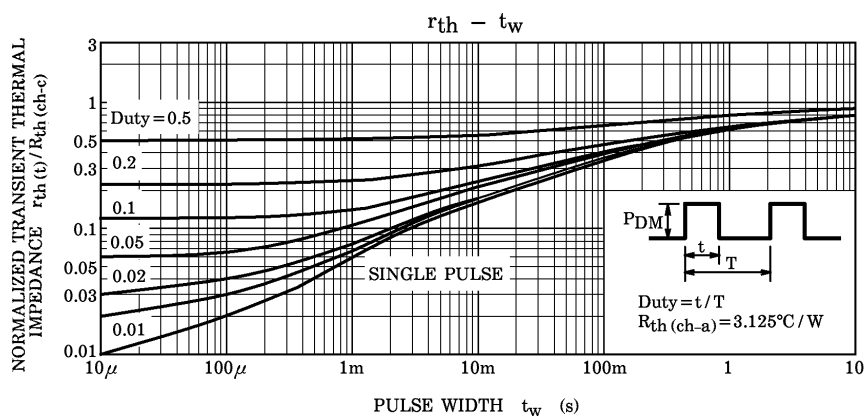


Month (Starting from Alphabet A)

Year (Last Number of the Christian Era)







Peak $I_{AR} = 45A$, $R_G = 25\Omega$ $E_{AS} = \frac{1}{2} \cdot L \cdot I^2 \cdot \left(\frac{BVDSS}{BVDSS - V_{DD}} \right)$
 $V_{DD} = 25V$, $L = 213\mu H$