

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

2SK2266

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

INDUSTRIAL APPLICATIONS
 Unit in mm

- 4V Gate Drive
- Low Drain-Source ON Resistance : $R_{DS(ON)} = 22m\Omega$ (Typ.)
- High Forward Transfer Admittance : $|Y_{fs}| = 27S$ (Typ.)
- Low Leakage Current : $I_{DSS} = 100\mu A$ (Max.) ($V_{DS} = 60V$)
- 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}	60	V
Drain-Gate Voltage ($R_{GS} = 20k\Omega$)	V_{DGR}	60	V
Gate-Source Voltage	V_{GSS}	±20	V
Drain Current	DC	I_D	45
	Pulse	I_{DP}	180
Drain Power Dissipation (Tc = 25°C)	P_D	65	W
Single Pulse Avalanche Energy**	E_{AS}	246	mJ
Avalanche Current	I_{AR}	45	A
Repetitive Avalanche Energy*	E_{AR}	6.5	mJ
Channel Temperature	T_{ch}	150	°C
Storage Temperature Range	T_{stg}	-55~150	°C

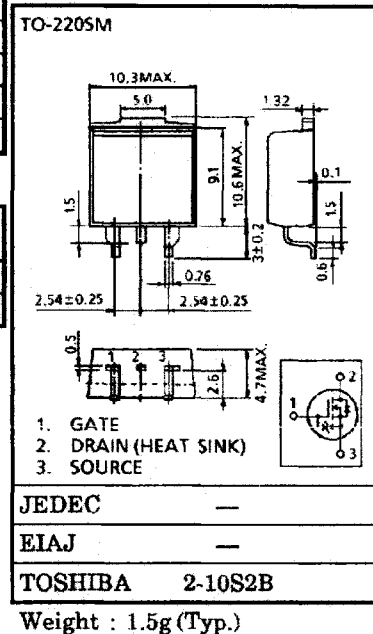
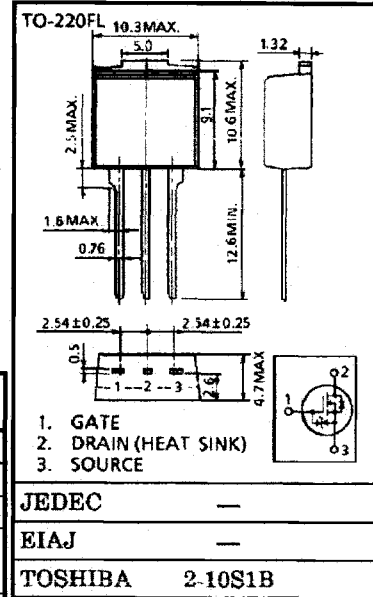
THERMAL CHARACTERISTICS

CHARACTERISTIC	SYMBOL	MAX.	UNIT
Thermal Resistance, Channel to Case	$R_{th(ch-c)}$	1.92	°C/W
Thermal Resistance, Channel to Ambient	$R_{th(ch-a)}$	83.3	°C/W

Note ;

- * Repetitive rating ; Pulse Width Limited by Max. junction temperature.
- ** $V_{DD} = 90V, T_{ch} = 25°C, L = 4.8mH, I_{AR} = 18A, R_G = 25\Omega$

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



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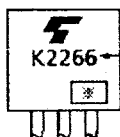
ELECTRICAL CHARACTERISTICS (Ta = 25°C)

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}	$V_{DS} = 60V, V_{GS} = 0V$	—	—	100	μA	
Drain-Source Breakdown Voltage	$V_{(BR) DSS}$	$I_D = 10mA, V_{GS} = 0V$	60	—	—	V	
Gate Threshold Voltage	V_{th}	$V_{DS} = 10V, I_D = 1mA$	0.8	—	2.0	V	
Drain-Source ON Resistance	$R_{DS(ON)}$	$V_{GS} = 4V, I_D = 15A$	—	40	55	m Ω	
		$V_{GS} = 10V, I_D = 25A$	—	22	30		
Forward Transfer Admittance	$ Y_{fs} $	$V_{DS} = 10V, I_D = 25A$	15	27	—	S	
Input Capacitance	C_{iss}	$V_{DS} = 10V, V_{GS} = 0V, f = 1MHz$	—	1800	—	pF	
Reverse Transfer Capacitance	C_{rss}		—	350	—		
Output Capacitance	C_{oss}		—	900	—		
Switching Time	Rise Time	t_r		—	20	—	ns
	Turn-on Time	t_{on}		—	30	—	
	Fall Time	t_f		—	40	—	
	Turn-off Time	t_{off}		$V_{IN} : t_r, t_f < 5ns$ $Duty \leq 1\%, t_w = 10\mu s$	—	130	
Total Gate Charge (Gate-Source Plus Gate-Drain)	Q_g	$V_{DD} \approx 48V, V_{GS} = 10V$	—	60	—	nC	
Gate-Source Charge	Q_{gs}	$I_D = 45A$	—	40	—		
Gate-Drain ("Miller") Charge	Q_{gd}		—	20	—		

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}	—	—	—	180	A
Diode Forward Voltage	V_{DSF}	$I_{DR} = 45A, V_{GS} = 0V$	—	—	-1.8	V
Reverse Recovery Time	t_{rr}	$I_{DR} = 45A, V_{GS} = 0V$	—	90	—	ns
Reverse Recovery Charge	Q_{rr}	$dI_{DR}/dt = 50A/\mu s$	—	0.1	—	μC

MARKING

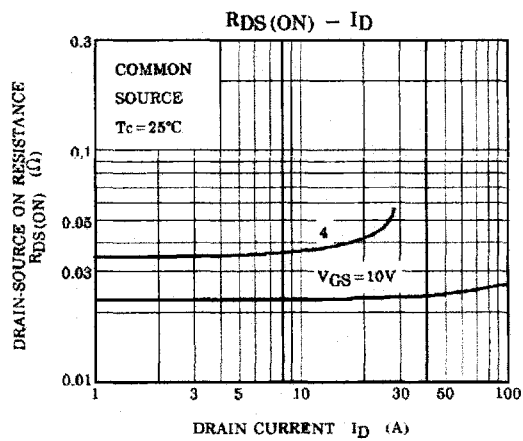
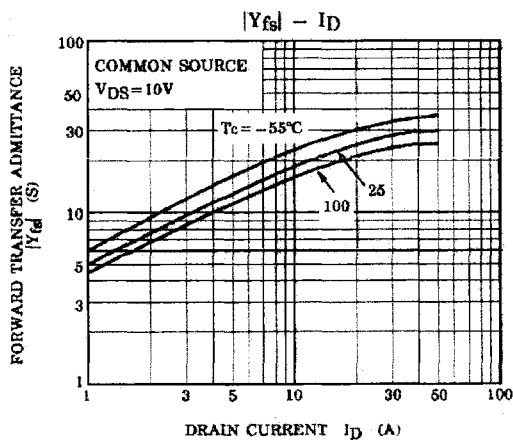
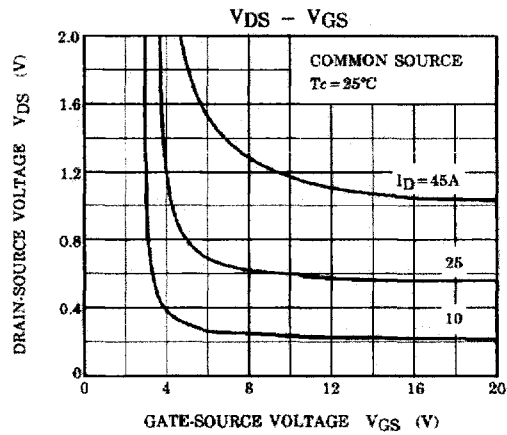
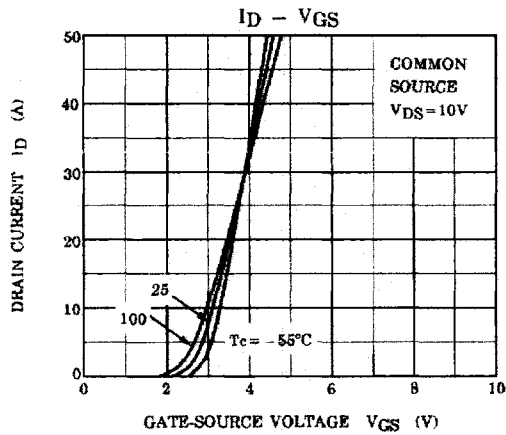
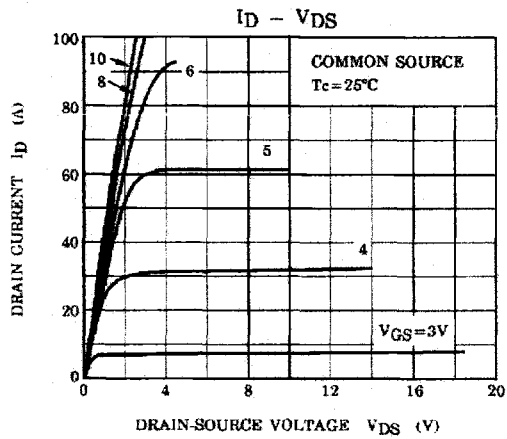
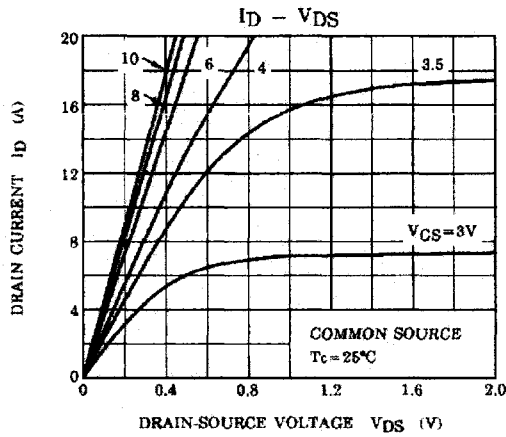


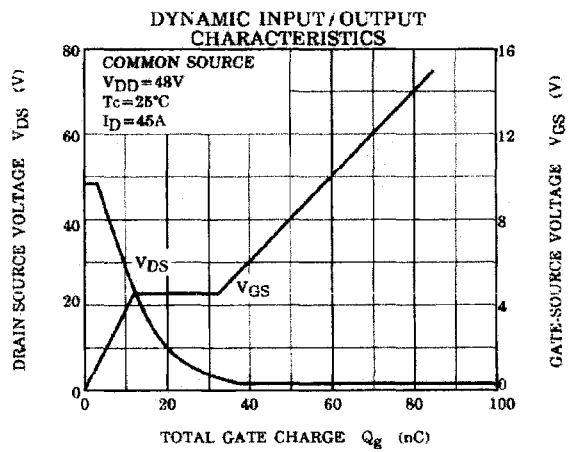
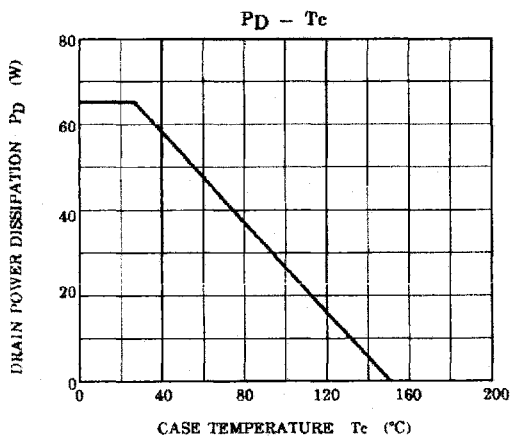
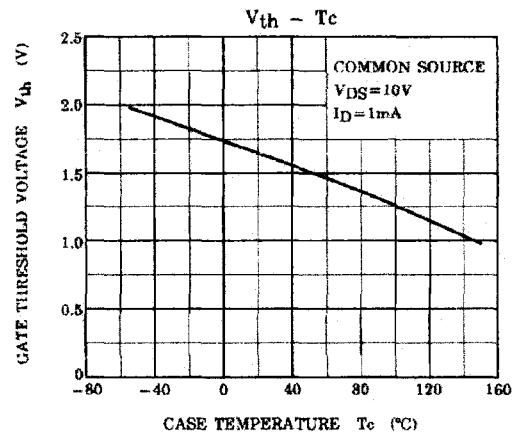
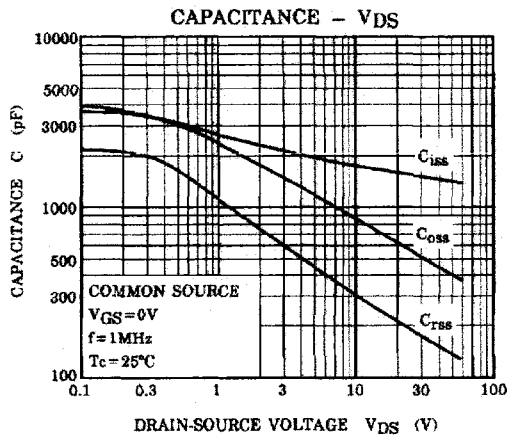
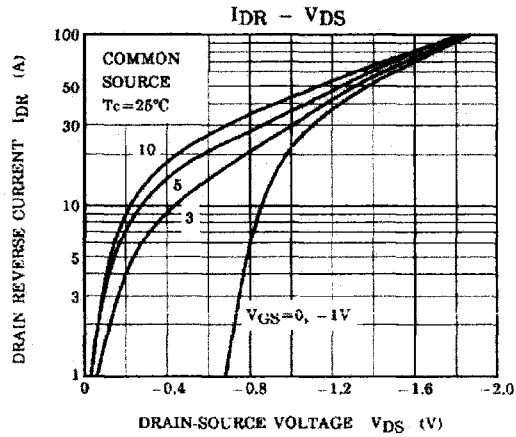
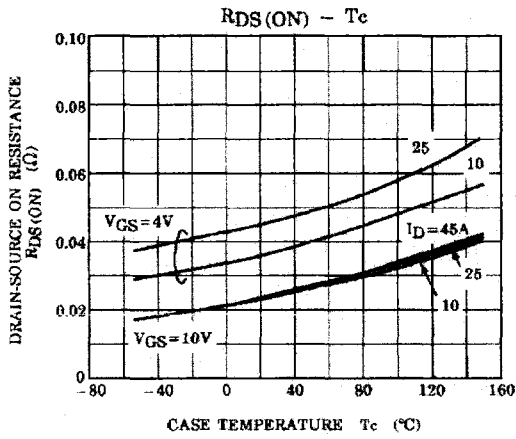
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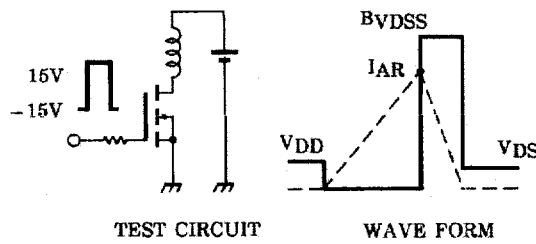
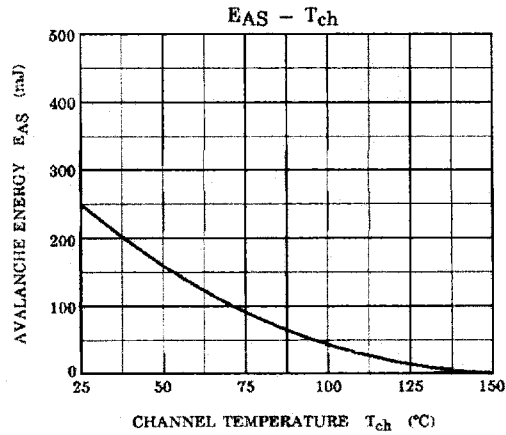
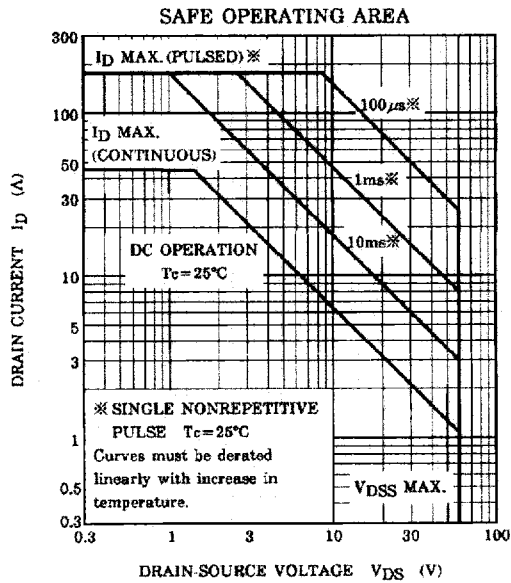
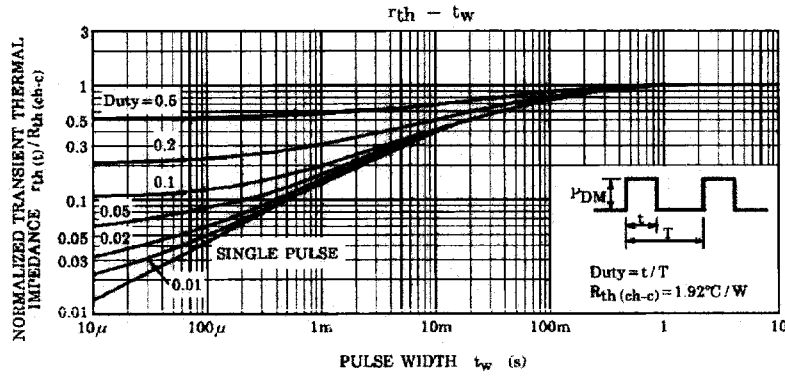
※ Lot Number

□ □ — Month (Starting from Alphabet A)

— Year (Last Number of the Christian Era)







Peak $I_{AR} = 45A$, $R_G = 25\Omega$, $V_{DD} = 25V$, $L = 165\mu H$

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