

**TOSHIBA**

**2SK2883**

TOSHIBA FIELD EFFECT TRANSISTOR SILICON N CHANNEL MOS TYPE (L<sup>2</sup>-π-MOSV)

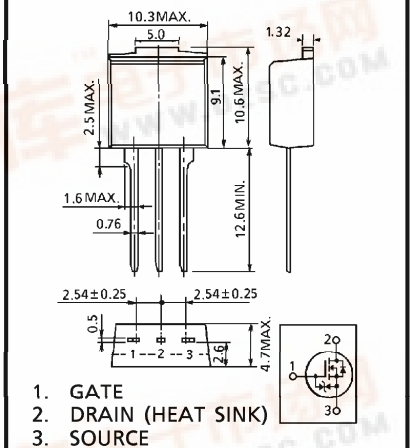
# 2SK2883

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

INDUSTRIAL APPLICATIONS

TO-220FL Unit in mm

- Low Drain-Source ON Resistance :  $R_{DS(ON)} = 3.0\Omega$  (Typ.)
- High Forward Transfer Admittance :  $|Y_{fs}| = 2.6S$  (Typ.)
- Low Leakage Current :  $I_{DSS} = 100\mu A$  (Max.) ( $V_{DS} = 640V$ )
- Enhancement-Mode :  $V_{th} = 2.0 \sim 4.0V$  ( $V_{DS} = 10V, I_D = 1mA$ )



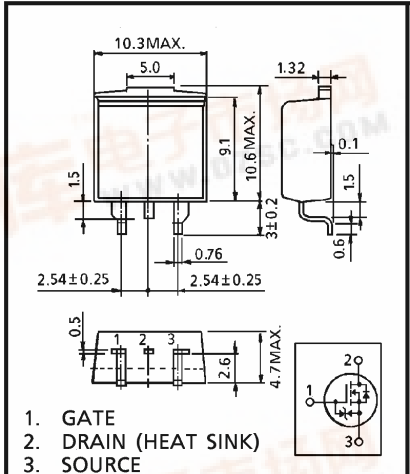
MAXIMUM RATINGS (Ta = 25°C)

CHARACTERISTIC		SYMBOL	RATING	UNIT
Drain-Source Voltage		$V_{DSS}$	800	V
Drain-Gate Voltage ( $R_{GS} = 20k\Omega$ )		$V_{DGR}$	800	V
Gate-Source Voltage		$V_{GSS}$	$\pm 30$	V
Drain Current	DC	$I_D$	3	A
	Pulse	$I_{DP}$	9	A
Drain Power Dissipation (Tc = 25°C)		$P_D$	75	W
Single Pulse Avalanche Energy**		$E_{AS}$	300	mJ
Avalanche Current		$I_{AR}$	3	A
Repetitive Avalanche Energy*		$E_{AR}$	7.5	mJ
Channel Temperature		$T_{ch}$	150	°C
Storage Temperature Range		$T_{stg}$	-55~150	°C

JEDEC	—
EIAJ	—
TOSHIBA	2-10S1B

Weight : 1.5g (Typ.)

TO-220SM



JEDEC	—
EIAJ	—
TOSHIBA	2-10S2B

Weight : 1.5g (Typ.)

THERMAL CHARACTERISTICS

CHARACTERISTIC	SYMBOL	MAX.	UNIT
Thermal Resistance, Channel to Case	$R_{th(ch-c)}$	1.67	°C/W
Thermal Resistance, Channel to Ambient	$R_{th(ch-a)}$	83.3	°C/W

Note ;

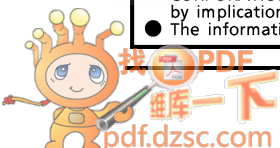
\* Repetitive rating ; Pulse Width Limited by Max. junction temperature.

\*\*  $V_{DD} = 90V$ , Starting  $T_{ch} = 25°C$ ,  $L = 60.0mH$ ,  $R_G = 25\Omega$ ,  $I_{AR} = 3A$

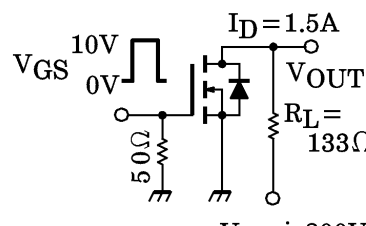
**This transistor is an electrostatic sensitive device. Please handle with caution.**

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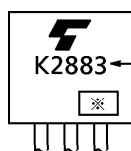
ELECTRICAL CHARACTERISTICS (Ta = 25°C)

CHARACTERISTIC		SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
Gate Leakage Current		$I_{GSS}$	$V_{GS} = \pm 30V, V_{DS} = 0V$	—	—	$\pm 10$	$\mu A$
Gate-Source Breakdown Voltage		$V_{(BR)GSS}$	$I_G = \pm 10\mu A, V_{DS} = 0V$	$\pm 30$	—	—	V
Drain Cut-Off Current		$I_{DSS}$	$V_{DS} = 640V, V_{GS} = 0V$	—	—	100	$\mu A$
Drain-Source Breakdown Voltage		$V_{(BR)DSS}$	$I_D = 10mA, V_{GS} = 0V$	800	—	—	V
Gate Threshold Voltage		$V_{th}$	$V_{DS} = 10V, I_D = 1mA$	2.0	—	4.0	V
Drain-Source ON Resistance		$R_{DS(ON)}$	$V_{GS} = 10V, I_D = 1.5A$	—	3.0	3.6	$\Omega$
Forward Transfer Admittance		$ Y_{fs} $	$V_{DS} = 20V, I_D = 1.5A$	0.65	2.6	—	S
Input Capacitance		$C_{iss}$	$V_{DS} = 25V, V_{GS} = 0V, f = 1MHz$	—	750	—	pF
Reverse Transfer Capacitance		$C_{rss}$		—	10	—	
Output Capacitance		$C_{oss}$		—	70	—	
Switching Time	Rise Time	$t_r$	 <p><math>I_D = 1.5A</math> <math>V_{GS} = 10V, 0V</math> <math>V_{OUT}</math> <math>R_L = 133\Omega</math> <math>V_{DD} \doteq 200V</math></p>	—	15	—	ns
	Turn-On Time	$t_{on}$		—	55	—	
	Fall Time	$t_f$		—	30	—	
	Turn-Off Time	$t_{off}$		$V_{IN} : t_r, t_f < 5ns,$ $Duty \leq 1\%, t_w = 10\mu s$	—	110	
Total Gate Charge (Gate-Source Plus Gate-Drain)		$Q_g$	$V_{DD} \doteq 400V, V_{GS} = 10V, I_D = 3A$	—	25	—	nC
Gate-Source Charge		$Q_{gs}$		—	13	—	
Gate-Drain ("Miller") Charge		$Q_{gd}$		—	12	—	

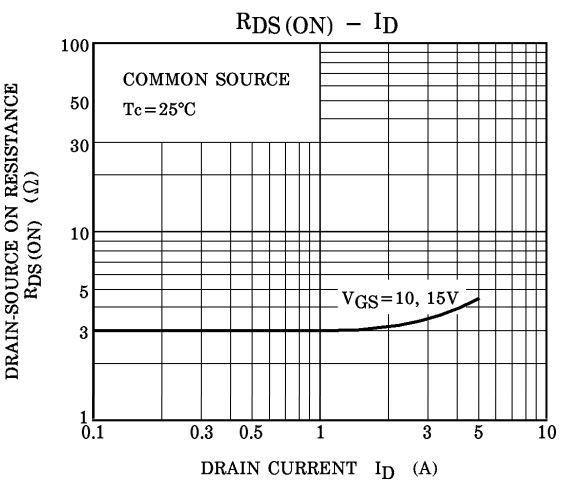
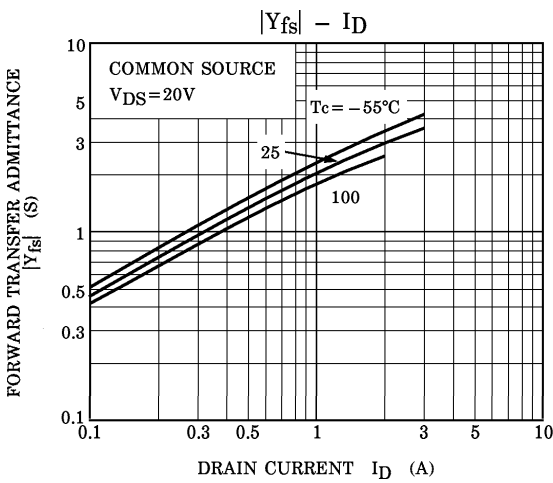
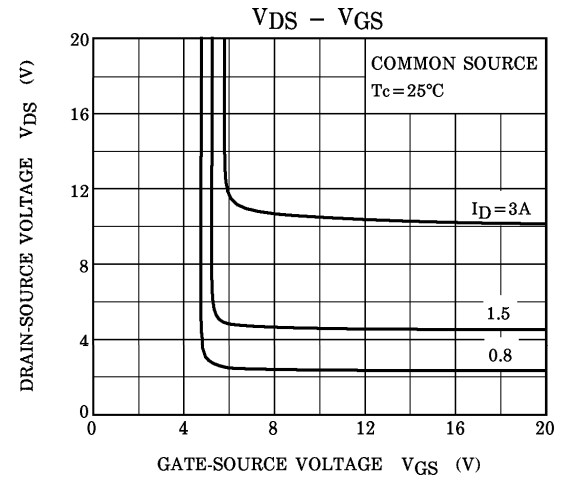
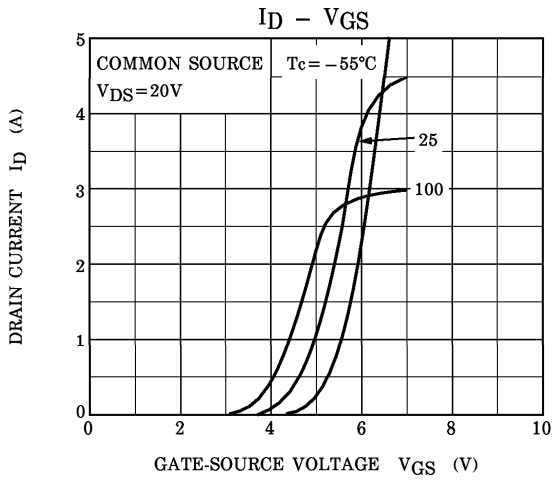
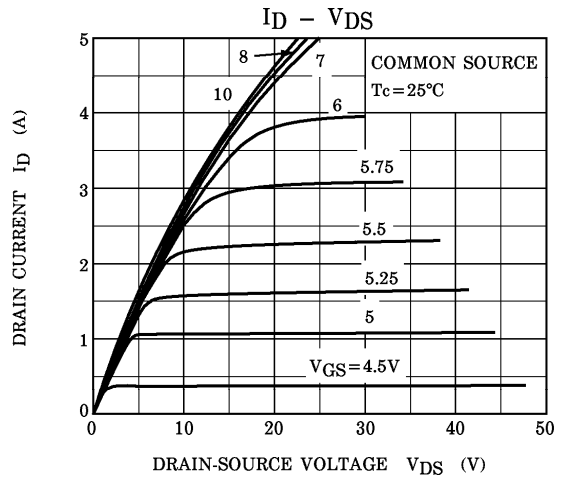
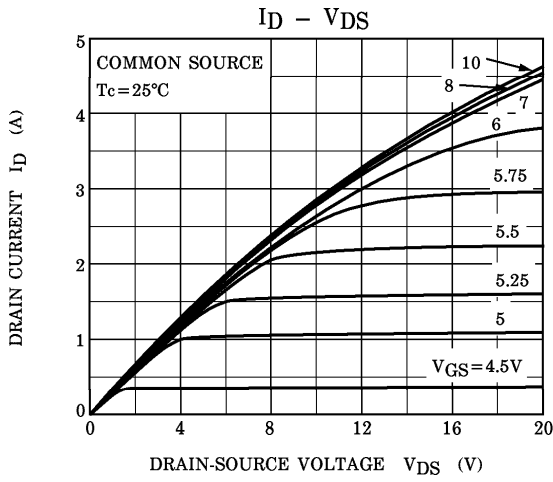
SOURCE-DRAIN DIODE RATINGS AND CHARACTERISTICS (Ta = 25°C)

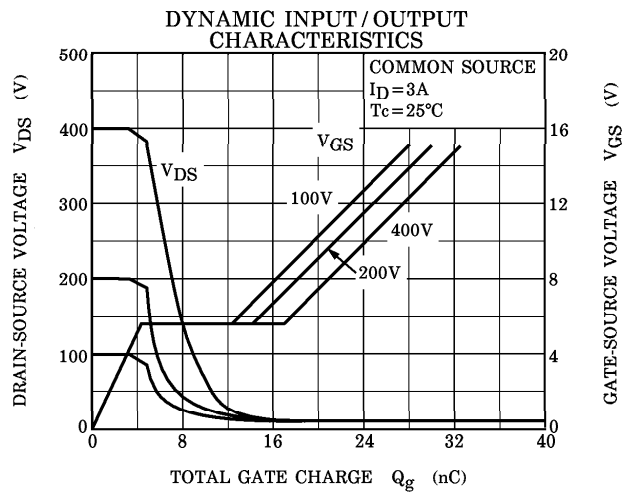
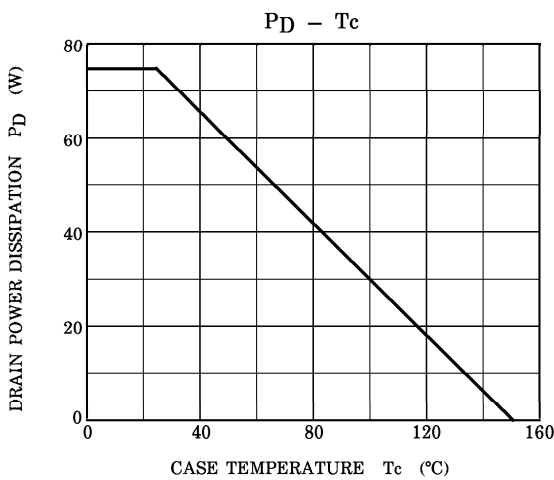
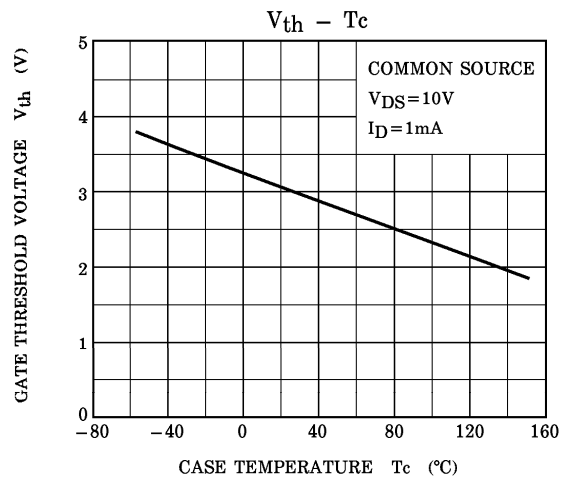
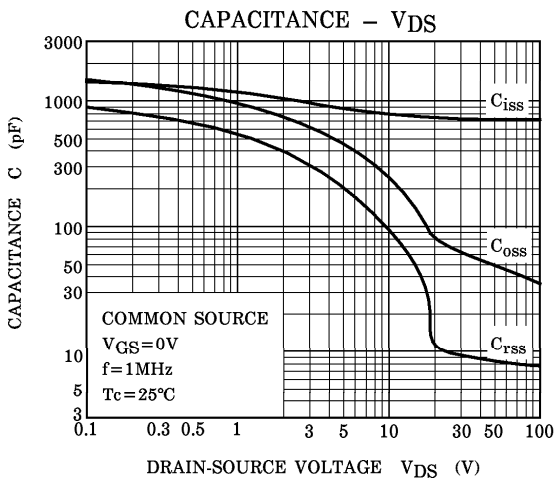
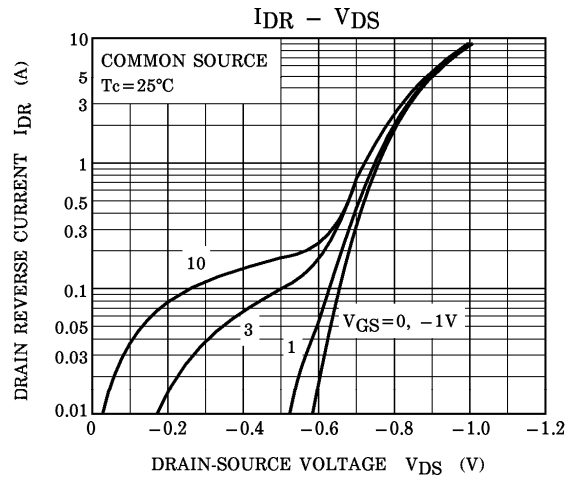
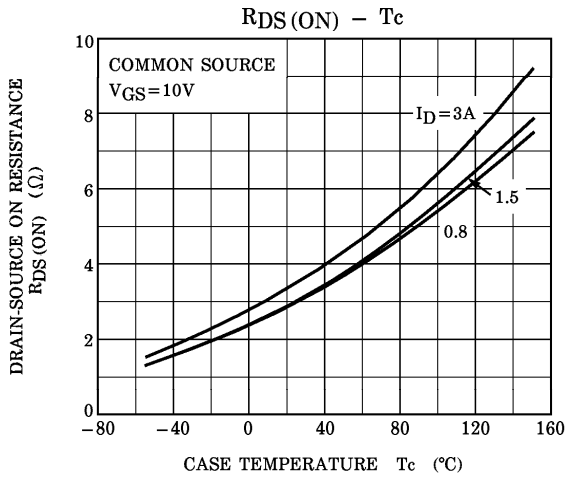
CHARACTERISTIC	SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
Continuous Drain Reverse Current	$I_{DR}$	—	—	—	3	A
Pulse Drain Reverse Current	$I_{DRP}$	—	—	—	9	A
Diode Forward Voltage	$V_{DSF}$	$I_{DR} = 3A, V_{GS} = 0V$	—	—	-1.9	V
Reverse Recovery Time	$t_{rr}$	$I_{DR} = 3A, V_{GS} = 0V$	—	900	—	ns
Reverse Recovery Charge	$Q_{rr}$	$dI_{DR} / dt = 100A / \mu s$	—	6	—	$\mu C$

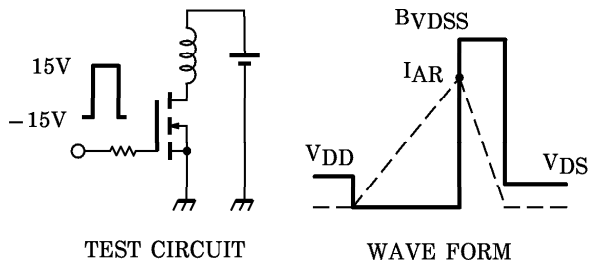
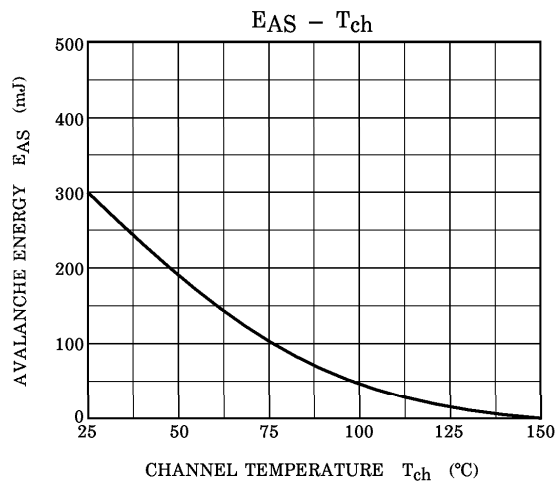
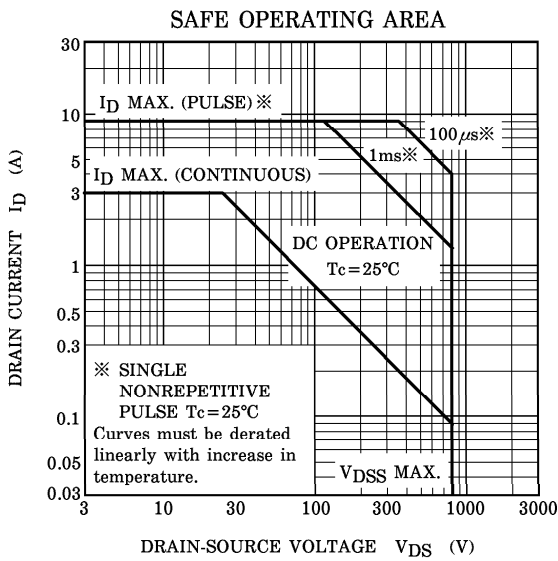
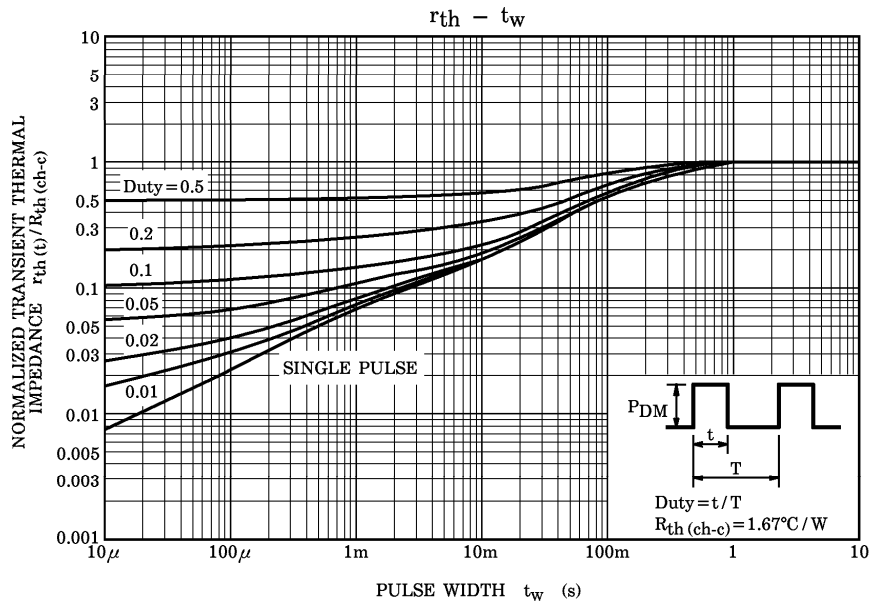
MARKING



TYPE ← K2883  
 ※ Lot Number  
 □ □ — Month (Starting from Alphabet A)  
 — Year (Last Number of the Christian Era)







Peak  $I_{AR} = 3\text{A}$ ,  $R_G = 25\Omega$   
 $V_{DD} = 90\text{V}$ ,  $L = 60\text{mH}$

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