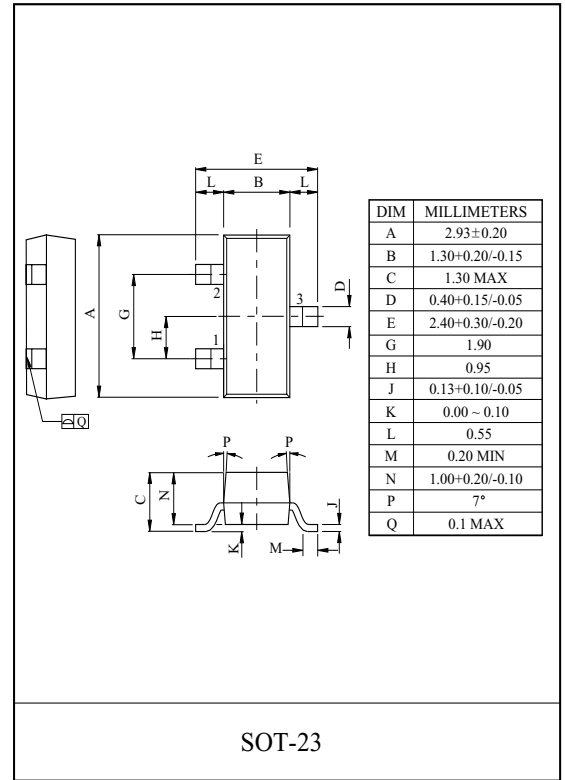


### General Description

This Trench MOSFET has better characteristics, such as fast switching time, low on resistance, low gate charge and excellent avalanche characteristics. It is mainly suitable for portable equipment.

### FEATURES

- $V_{DSS}=20V$ ,  $I_D=3A$
- Drain to Source on-state Resistance  
 $R_{DS(ON)}=55m$  (Max.) @  $V_{GS}=4.5V$   
 $R_{DS(ON)}=110m$  (Max.) @  $V_{GS}=2.5V$
- Super Hige Dense Cell Design

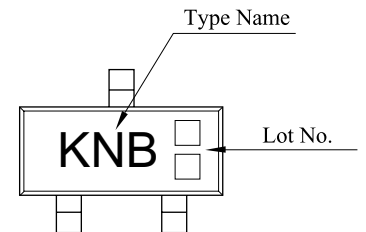


### MAXIMUM RATING (Ta=25 °C)

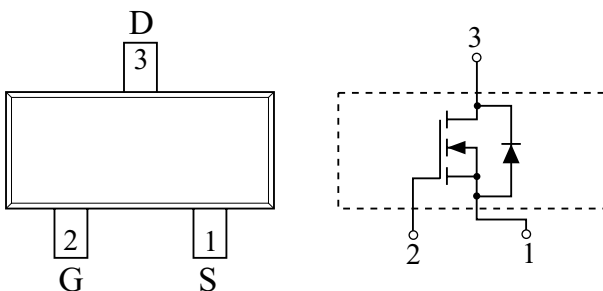
CHARACTERISTIC	SYMBOL	N-Ch	UNIT
Drain to Source Voltage	$V_{DSS}$	20	V
Gate to Source Voltage	$V_{GSS}$	± 12	V
Drain Current	DC@Ta=25 (Note1)	$I_D$	3
	Pulsed (Note1)	$I_{DP}$	12
Drain Power Dissipation	Ta=25 (Note1)	$P_D$	1.25
	Ta=70 (Note1)		0.8
Maximum Junction Temperature	$T_j$	150	
Storage Temperature Range	$T_{stg}$	-55 150	
Thermal Resistance, Junction to Ambient (Note1)	$R_{thJA}$	100	/W

Note1) Surface Mounted on 1 "x 1 "FR4 Board, t = 5sec.

### Marking



### PIN CONNECTION (TOP VIEW)



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## ELECTRICAL CHARACTERISTICS (Ta=25 )

CHARACTERISTIC	SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
<b>Static</b>						
Drain to Source Breakdown Voltage	$BV_{DSS}$	$I_{DS}=250\ \mu A, V_{GS}=0V,$	20	-	-	V
Drain Cut-off Current	$I_{DSS}$	$V_{GS}=0V, V_{DS}=16V$	-	-	1	$\mu A$
Gate to Source Leakage Current	$I_{GSS}$	$V_{GS}=\pm 10V, V_{DS}=0V$	-	-	$\pm 100$	nA
Gate to Source Threshold Voltage	$V_{th}$	$V_{DS}=V_{GS}, I_D=250\ \mu A$	0.5	0.8	1.5	V
Drain to Source On Resistance	$R_{DS(ON)}$	$V_{GS}=4.5V, I_D=2.5A$ (Note2)	-	38	55	m
		$V_{GS}=2.5V, I_D=1A$ (Note2)	-	55	110	
On State Drain Current	$I_{D(ON)}$	$V_{GS}=4.5V, V_{DS}=5V$ (Note2)	12	-	-	A
Forward Transconductance	$g_{fs}$	$V_{DS}=5V, I_D=2.5A$ (Note2)	-	6	-	S
<b>Dynamic</b>						
Input Capacitance	$C_{iss}$	$V_{DS}=10V, V_{GS}=0V, f=1MHz$	-	280	-	pF
Output Capacitance	$C_{oss}$		-	64	-	
Reverse Transfer Capacitance	$C_{rss}$		-	34	-	
Total Gate Charge	$Q_g$	$V_{DS}=10V, V_{GS}=4.5V, I_D=2.5A$ (Note2)	-	4.0	-	nC
Gate to Source Charge	$Q_{gs}$		-	0.9	-	
Gate to Drain Charge	$Q_{gd}$		-	0.9	-	
Turn-On Delay Time	$t_{d(on)}$	$V_{DD}=10V, V_{GS}=4.5V, I_D=1A, R_G=6$ (Note2)	-	6.3	-	ns
Turn-On Rise Time	$t_r$		-	7.0	-	
Turn-Off Delay Time	$t_{d(off)}$		-	7.3	-	
Turn-Off Fall Time	$t_f$		-	6.2	-	
<b>Source-Drain Diode Ratings</b>						
Continuous Source Current	$I_S$	-	-	-	3.0	A
Pulsed Source Current	$I_{SP}$	-	-	-	12	A
Source to Drain Forward Voltage	$V_{SDF}$	$V_{GS}=0V, I_S=1.25A$	-	-	1.2	V
NOTE 2) Pulse Test : Pulse width <300 $\mu s$ , Duty cycle < 2%						

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Fig1.  $I_D - V_{DS}$

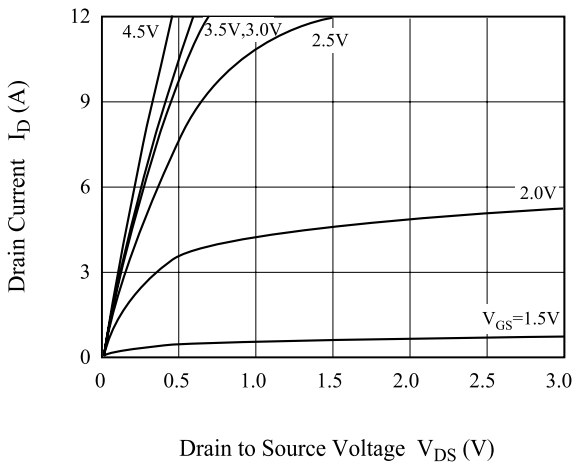


Fig2.  $R_{DS(on)} - I_D$

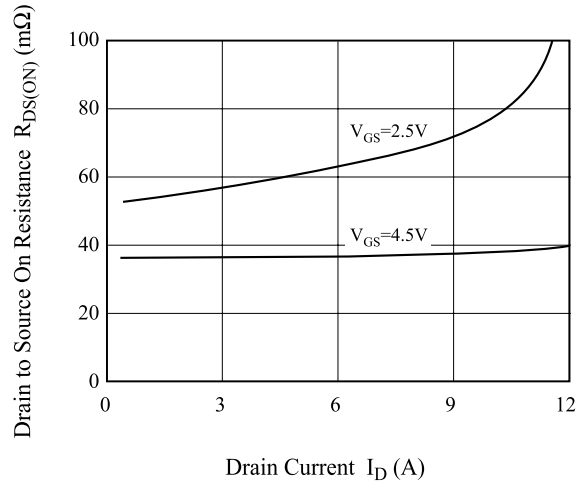


Fig3.  $I_D - V_{GS}$

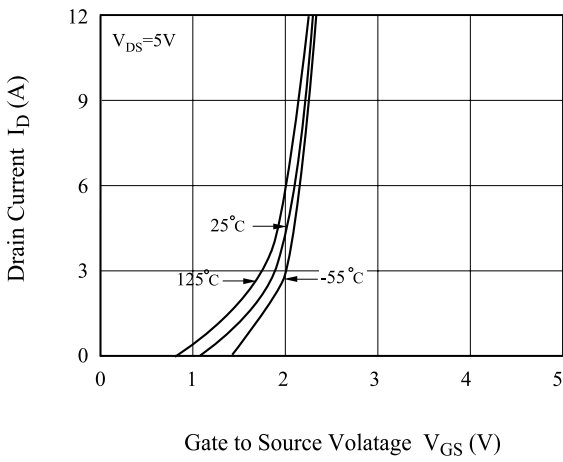


Fig4.  $R_{DS(on)} - T_j$

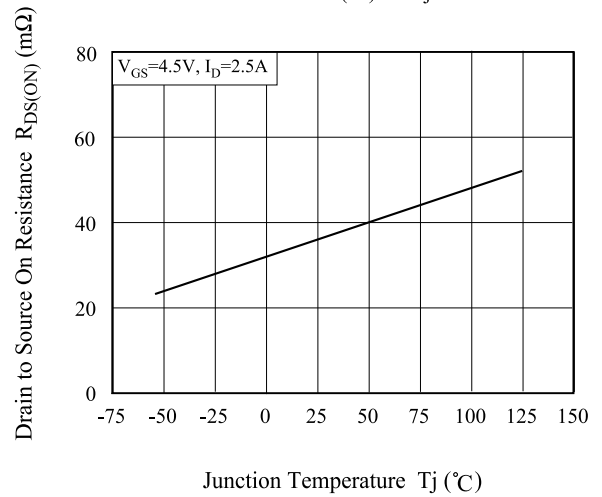


Fig5.  $V_{th} - T_j$

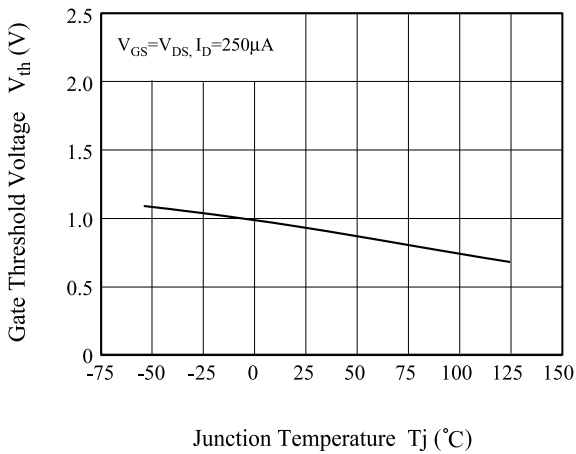
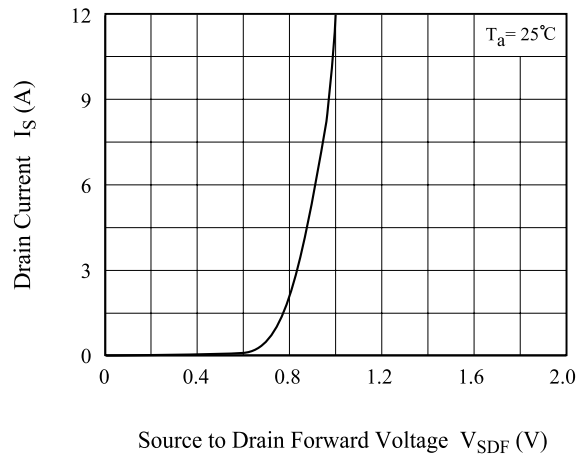


Fig6.  $I_S - V_{SDF}$



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Fig7. C -  $V_{DS}$

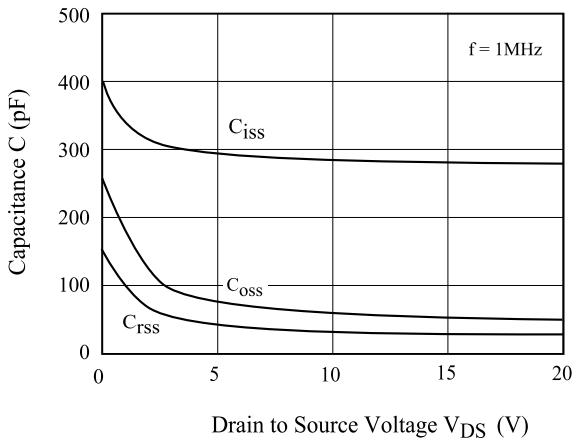


Fig8.  $Q_g$  -  $V_{GS}$

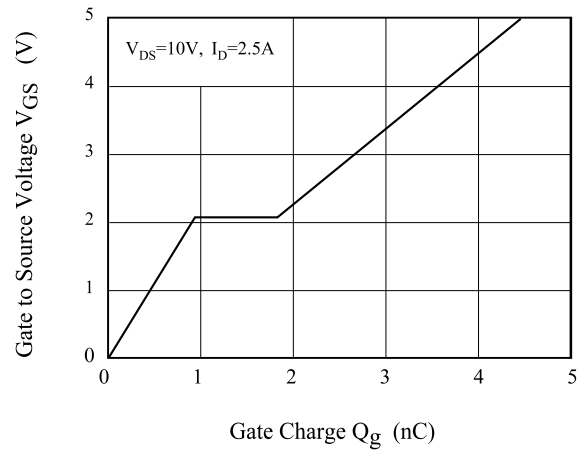


Fig9. Safe Operation Area

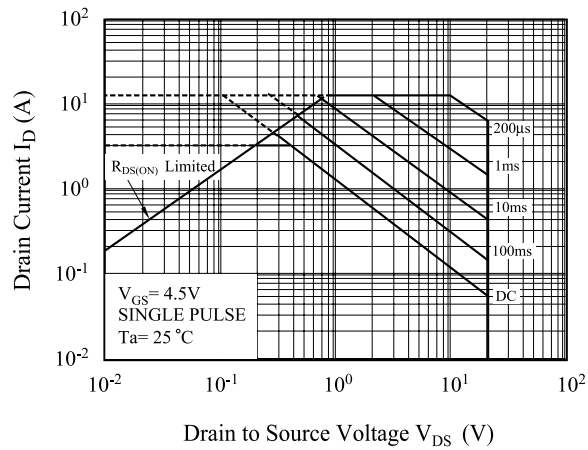


Fig10. Transient Thermal Response Curve

