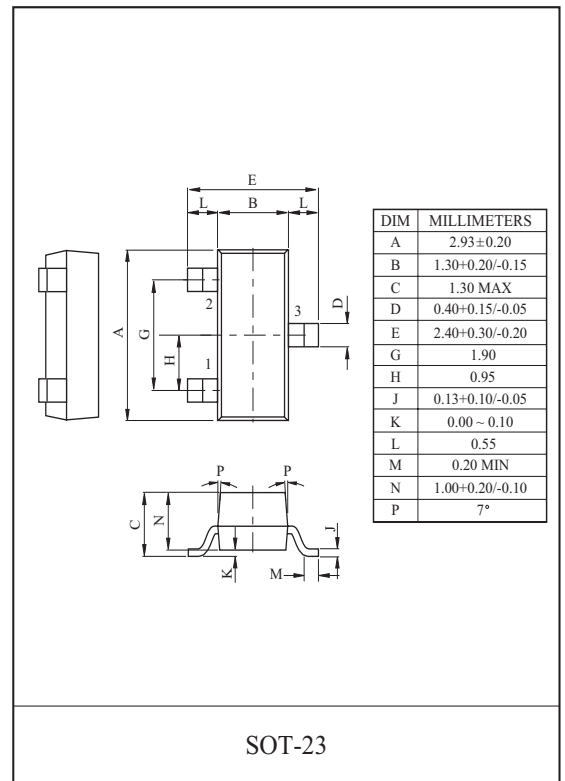


General Description

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

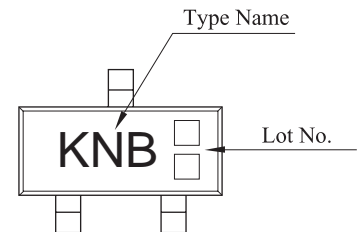
- $V_{DSS}=20V$, $I_D=3A$
- Drain to Source on-state Resistance
 $R_{DS(ON)}=55m$ (Max.) @ $V_{GS}=4.5V$
 $R_{DS(ON)}=110m$ (Max.) @ $V_{GS}=2.5V$
- Super Hige Dense Cell Design



MAXIMUM RATING (Ta=25 °C)

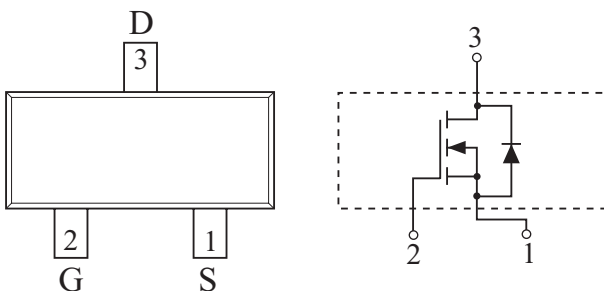
CHARACTERISTIC	SYMBOL	N-Ch	UNIT
Drain to Source Voltage	V_{DSS}	20	V
Gate to Source Voltage	V_{GSS}	± 12	V
Drain Current	DC @ $T_a=25$ (Note1)	I_D	3
	Pulsed (Note1)	I_{DP}	12
Drain Power Dissipation	$T_a=25$ (Note1)	P_D	1.25
	$T_a=70$ (Note1)		0.8
Maximum Junction Temperature	T_j	150	
Storage Temperature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

Marking



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

PIN CONNECTION (TOP VIEW)



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ELECTRICAL CHARACTERISTICS (Ta=25)

CHARACTERISTIC	SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
Static						
Drain to Source Breakdown Voltage	BV _{DSS}	I _{DS} =250 μA, V _{GS} =0V,	20	-	-	V
Drain Cut-off Current	I _{DSS}	V _{GS} =0V, V _{DS} =16V	-	-	1	μA
Gate to Source Leakage Current	I _{GSS}	V _{GS} = ± 10V, V _{DS} =0V	-	-	± 100	nA
Gate to Source Threshold Voltage	V _{th}	V _{DS} =V _{GS} , I _D =250 μA	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
Dynamic						
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	-	
Source-Drain Diode Ratings						
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 <300μs , Duty cycle < 2%						

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Fig1. $I_D - V_{DS}$

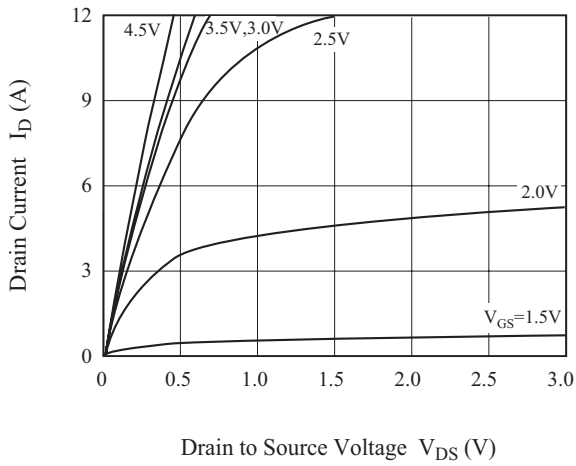


Fig2. $R_{DS(on)} - I_D$

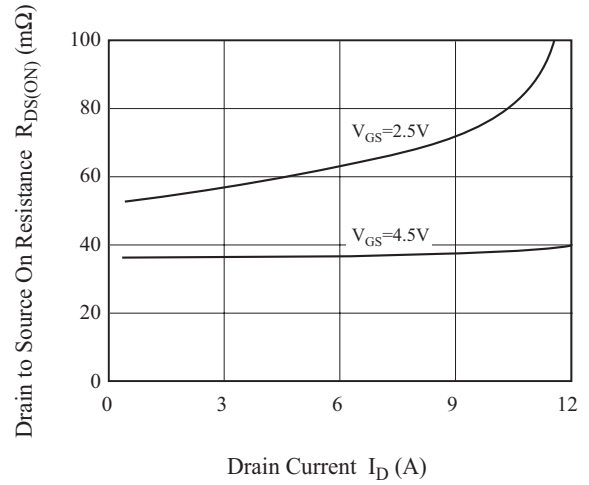


Fig3. $I_D - V_{GS}$

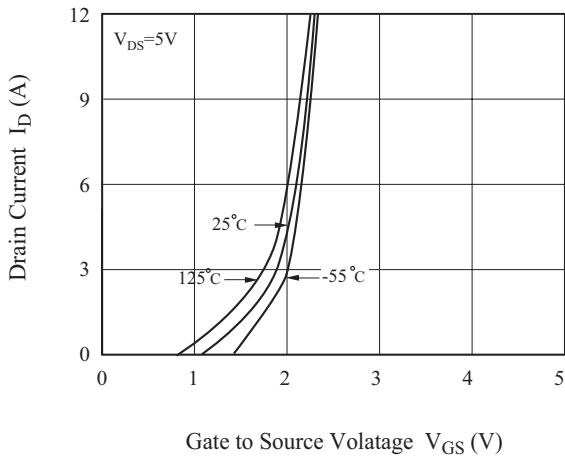


Fig4. $R_{DS(on)} - T_j$

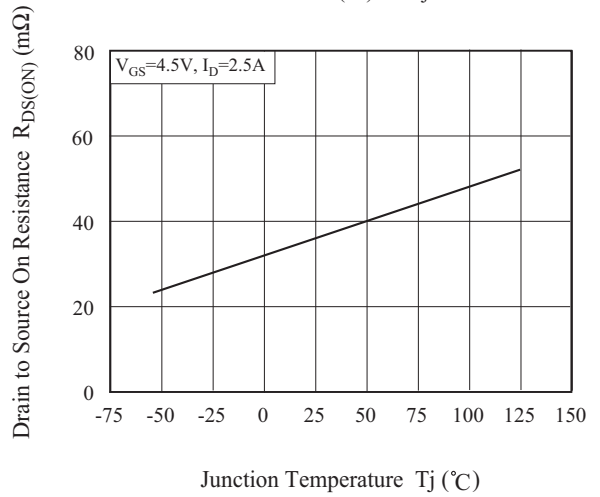


Fig5. $V_{th} - T_j$

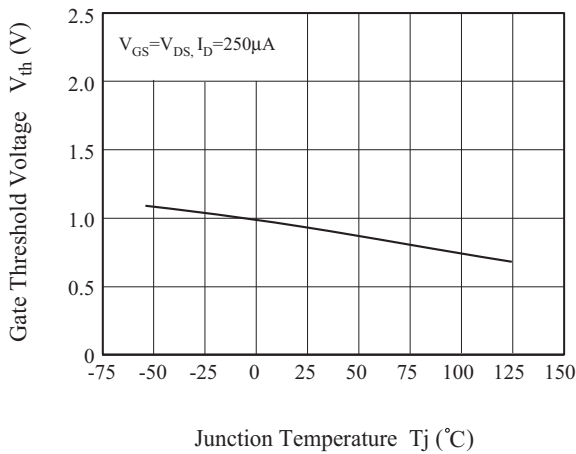
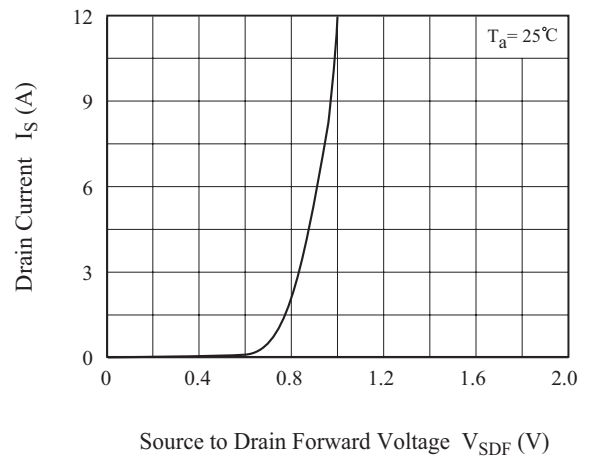


Fig6. $I_S - V_{SDF}$



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Fig7. C - V_{DS}

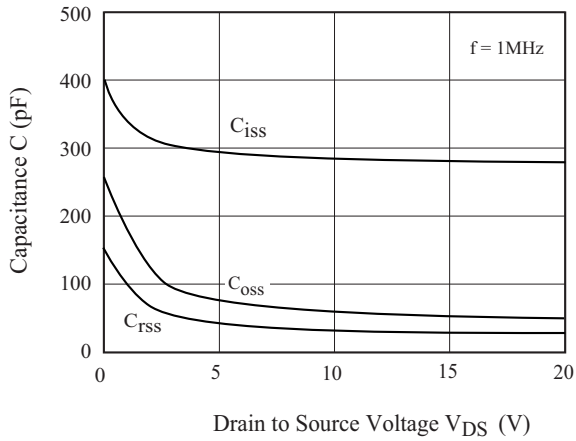


Fig8. Q_g - V_{GS}

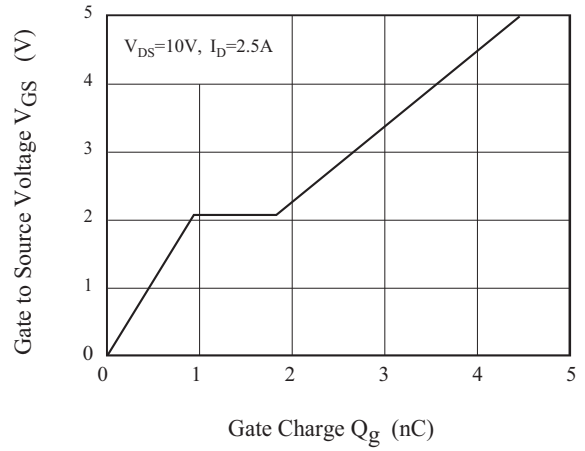


Fig9. Safe Operation Area

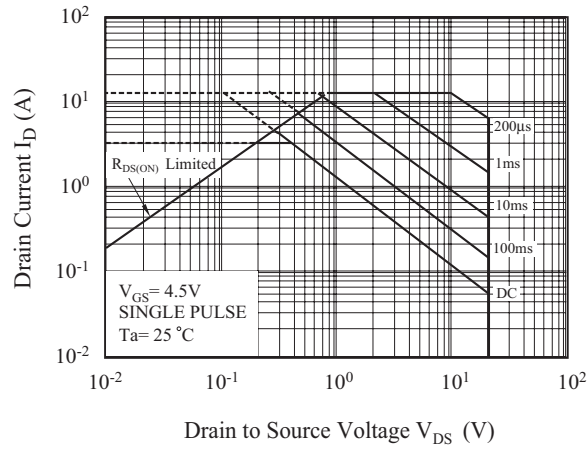


Fig10. Transient Thermal Response Curve

