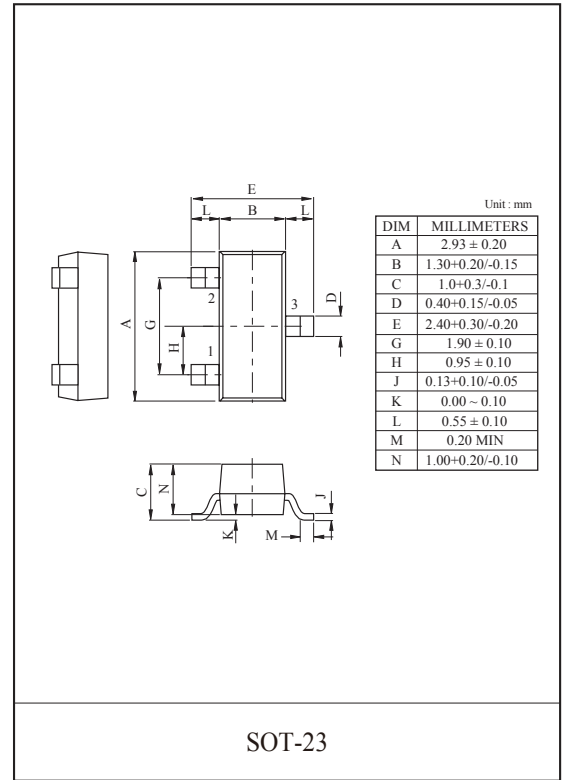


### General Description

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

- $V_{DSS} = -30V$ ,  $I_D = -3A$
- Drain to Source On-state Resistance.  
 $R_{DS(ON)} = 80m\Omega$  (Max.) @  $V_{GS} = -10V$   
 $R_{DS(ON)} = 140m\Omega$  (Max.) @  $V_{GS} = -4.5V$
- Super High Dense Cell Design

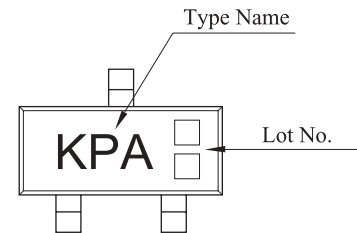


### MAXIMUM RATING (Ta=25°C)

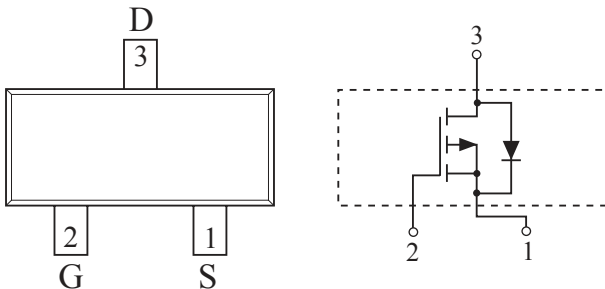
CHARACTERISTIC		SYMBOL	P-Ch	UNIT
Drain to Source Voltage		$V_{DSS}$	-30	V
Gate to Source Voltage		$V_{GSS}$	± 20	V
Drain Current	DC @ $T_a = 25^\circ C$ (Note1)	$I_D$	-3	A
	Pulsed (Note1)	$I_{DP}$	-12	
Drain Power Dissipation	$T_a = 25^\circ C$ (Note1)	$P_D$	1.25	W
	$T_a = 70^\circ C$ (Note1)		0.8	
Maximum Junction Temperature		$T_j$	150	°C
Storage Temperature Range		$T_{stg}$	-55 ~ 150	°C
Thermal Resistance, Junction to Ambient (Note1)		$R_{thJA}$	100	°C/W

Note1) Surface Mounted on 1" × 1" FR4 Board, t ≤ 5sec.

### Marking



### PIN CONNECTION (TOP VIEW)



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## ELECTRICAL CHARACTERISTICS (Ta=25°C)

CHARACTERISTIC	SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
<b>Static</b>						
Drain to Source Breakdown Voltage	BV <sub>DSS</sub>	I <sub>DS</sub> =-250μA, V <sub>GS</sub> =0V,	-30	-	-	V
Drain Cut-off Current	I <sub>DSS</sub>	V <sub>GS</sub> =0V, V <sub>DS</sub> =-24V	-	-	-1	μA
		V <sub>GS</sub> =0V, V <sub>DS</sub> =-24V, T <sub>j</sub> =55°C	-	-	-10	
Gate to Source Leakage Current	I <sub>GSS</sub>	V <sub>GS</sub> =±20V, V <sub>DS</sub> =0V	-	-	±100	nA
Gate to Source Threshold Voltage	V <sub>th</sub>	V <sub>DS</sub> =V <sub>GS</sub> , I <sub>D</sub> =-250μA	-1.0	-	-3.0	V
Drain to SourceSource On Resistance	R <sub>DS(ON)</sub>	V <sub>GS</sub> =-10V, I <sub>D</sub> =-3A (Note2)	-	64	80	mΩ
		V <sub>GS</sub> =-4.5V, I <sub>D</sub> =-2.5A (Note2)	-	103	140	
On State Drain Current	I <sub>D(ON)</sub>	V <sub>GS</sub> =-10V, V <sub>DS</sub> =-5V (Note2)	-12	-	-	A
Forward Transconductance	g <sub>fs</sub>	V <sub>DS</sub> =-10V, I <sub>D</sub> =-3A (Note2)	-	4.5	-	S
<b>Dynamic</b>						
Input Capacitance	C <sub>iss</sub>	V <sub>DS</sub> =-15V, V <sub>GS</sub> = 0V, f=1MHz,	-	365	-	pF
Output Capacitance	C <sub>oss</sub>		-	72	-	
Reverse Transfer Capacitance	C <sub>rss</sub>		-	37	-	
Total Gate Charge	Q <sub>g</sub>	V <sub>DS</sub> =-15V, V <sub>GS</sub> =-10V, I <sub>D</sub> =-3A (Note2)	-	6.3	-	nC
Gate to Source Charge	Q <sub>gs</sub>		-	1.1	-	
Gate to Drain Charge	Q <sub>gd</sub>		-	1.6	-	
Turn-on Delay time	t <sub>d(on)</sub>	V <sub>DD</sub> =-15V, V <sub>GS</sub> =-10V I <sub>D</sub> =-1A, R <sub>G</sub> =6Ω (Note2)	-	6.9	-	ns
Turn-on Rise time	t <sub>r</sub>		-	16	-	
Turn-off Delay time	t <sub>d(off)</sub>		-	18	-	
Turn-off Fall time	t <sub>f</sub>		-	15	-	
<b>Source-Drain Diode Ratings</b>						
Continuous Source Current	I <sub>S</sub>	-	-	-	-3.0	A
Pulsed Source Current	I <sub>SP</sub>	- (Note2)	-	-	-12	A
Source to Drain Forward Voltage	V <sub>SD</sub>	V <sub>GS</sub> =0V, I <sub>S</sub> =-1.25A (Note2)	-	-	-1.2	V
Note2) Pulse Test : Pulse width <300μA, Duty cycle < 2%						

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Fig1.  $I_D - V_{DS}$

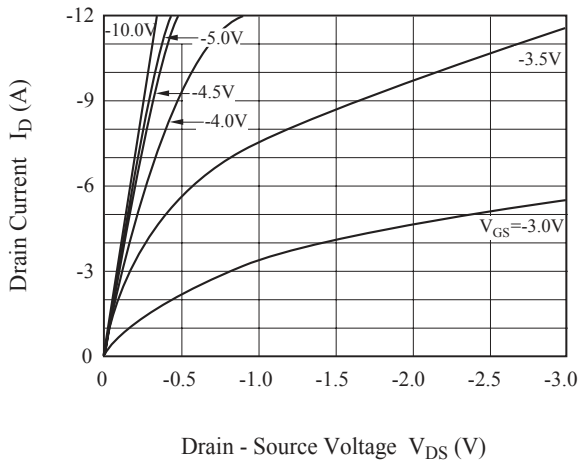


Fig2.  $R_{DS(ON)} - I_D$

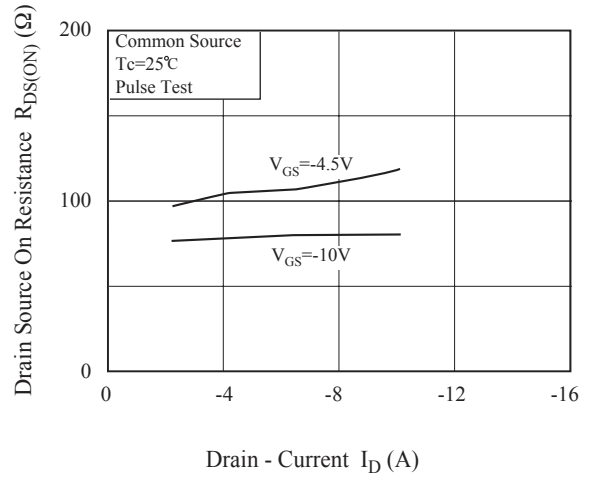


Fig3.  $I_D - V_{GS}$

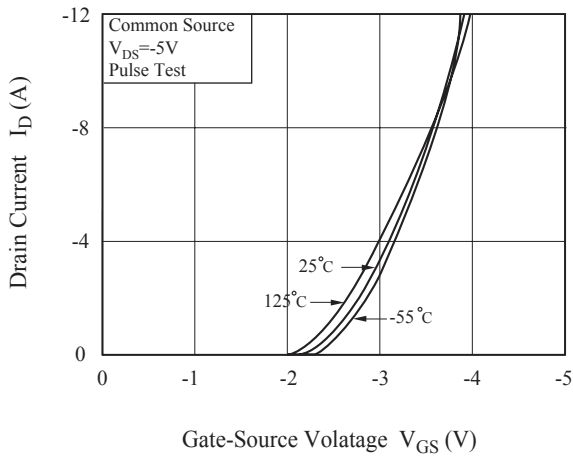


Fig4.  $R_{DS(on)} - T_j$

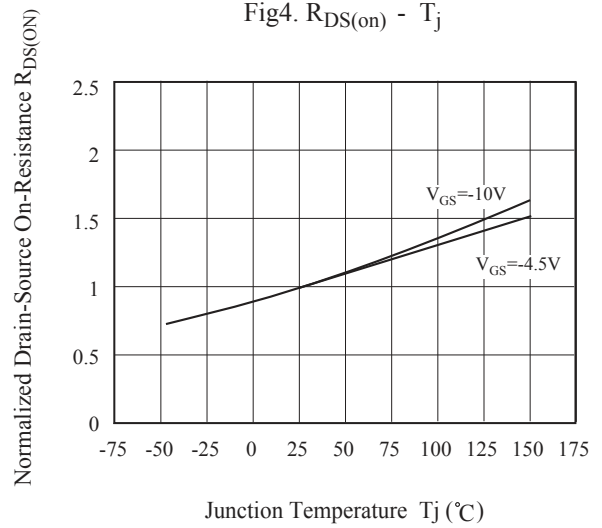


Fig5.  $V_{th} - T_j$

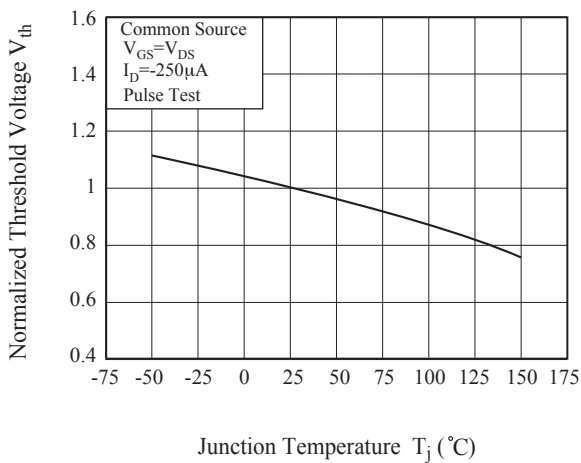
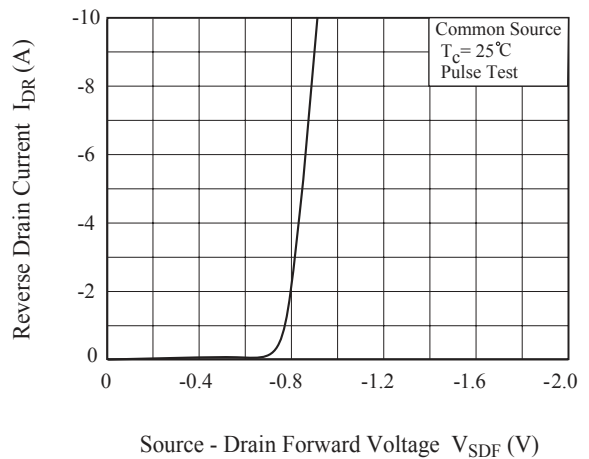


Fig6.  $I_{DR} - V_{SDF}$



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Fig7.  $R_{DS(ON)} - V_{GS}$

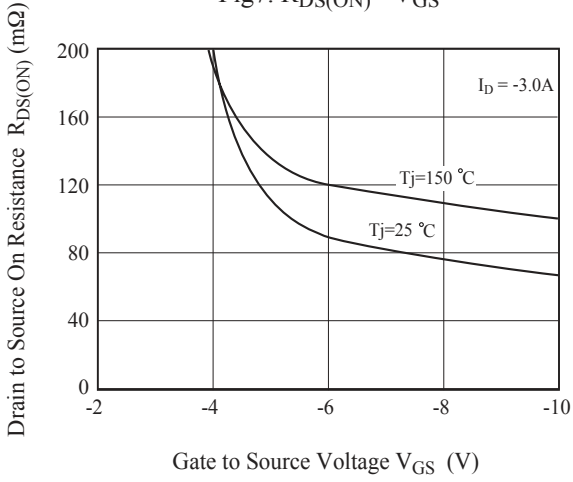


Fig8.  $C - V_{DS}$

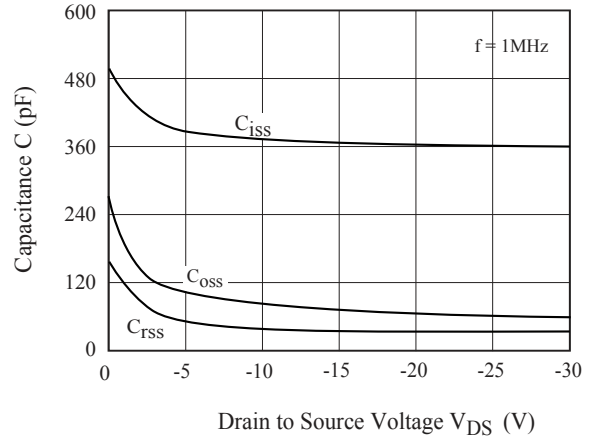


Fig9.  $Q_g - V_{GS}$

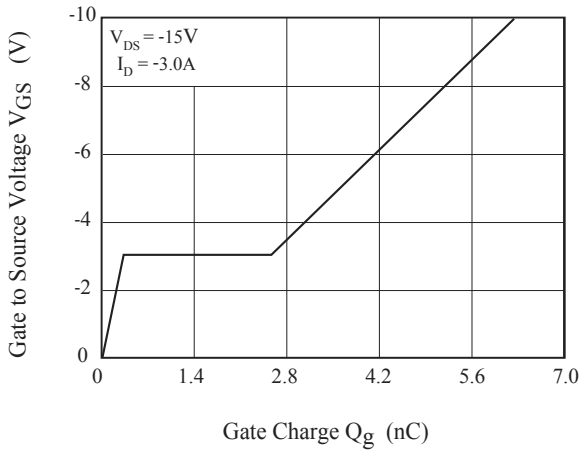


Fig10. Safe Operation Area

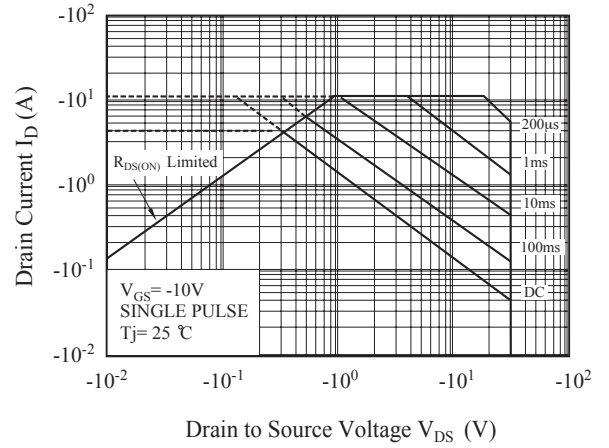


Fig11 . Transient Thermal Response Curve

