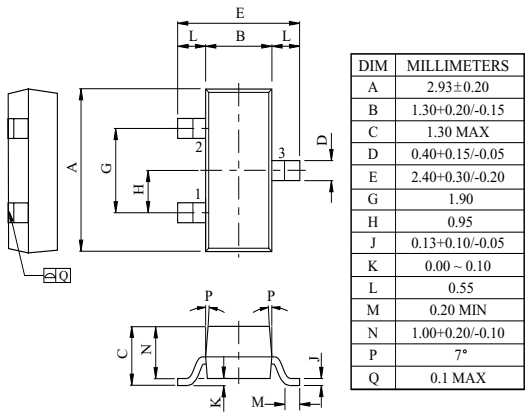
KMB3D0P30SA

P-Ch Trench MOSFET

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.



DIM	MILLIMETERS
A	2.93±0.20
B	1.30+0.20/-0.15
C	1.30 MAX
D	0.40+0.15/-0.05
E	2.40+0.30/-0.20
G	1.90
H	0.95
J	0.13+0.10/-0.05
K	0.00 ~ 0.10
L	0.55
M	0.20 MIN
N	1.00+0.20/-0.10
P	7°
Q	0.1 MAX

SOT-23

FEATURES

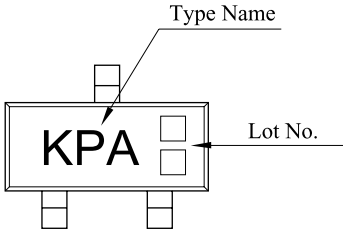
- V_{DSS}=-30V, I_D=-3A
- Drain to Source On-state Resistance.
  $R_{DS(ON)}$=80mΩ(Max.) @ V_{GS}=-10V
  $R_{DS(ON)}$=140mΩ(Max.) @ V_{GS}=-4.5V
- Super High Dense Cell Design

MAXIMUM RATING (Ta=25℃)

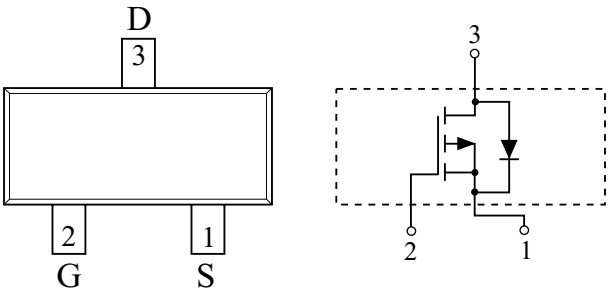
CHARACTERISTIC		SYMBOL	P-Ch	UNIT
Drain to Source Voltage		V_{DSS}	-30	V
Gate to Source Voltage		V_{GSS}	±20	V
Drain Current	DC@T_a=25℃(Note1)	I_D	-3	A
	Pulsed (Note1)	I_{DP}	-12	
Drain Power Dissipation	T_a=25℃ (Note1)	P_D	1.25	W
	T_a=70℃ (Note1)		0.8	
Maximum Junction Temperature		T_j	150	℃
Storage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

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

Marking



PIN CONNECTION (TOP VIEW)



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,	-30	-	-	V
Drain Cut-off Current	I_{DSS}	V_{GS}=0V, V_{DS}=-24V	-	-	-1	μA
		V_{GS}=0V, V_{DS}=-24V, T_j=55℃	-	-	-10	
Gate to Source Leakage Current	I_{GSS}	V_{GS}=±20V, V_{DS}=0V	-	-	±100	nA
Gate to Source Threshold Voltage	V_{th}	V_{DS}=V_{GS}, I_D=250 μA	-1.0	-	-3.0	V
Drain to SourceSource On Resistance	$R_{DS(ON)}$	V_{GS}=-10V, I_D=-3A (Note2)	-	64	80	mΩ
		V_{GS}=-4.5V, I_D=-2.5A (Note2)	-	103	140	
On State Drain Current	$I_{D(ON)}$	V_{GS}=-10V, V_{DS}=-5V (Note2)	-12	-	-	A
Forward Transconductance	g_{fs}	V_{DS}=-10V, I_D=-3A (Note2)	-	4.5	-	S
Dynamic						
Input Capacitance	C_{iss}	V_{DS}=-15V, V_{GS}= 0V, f=1MHz,	-	365	-	pF
Output Capacitance	C_{oss}		-	72	-	
Reverse Transfer Capacitance	C_{rss}		-	37	-	
Total Gate Charge	Q_g	V_{DS}=-15V, V_{GS}=-10V, I_D=-3A (Note2)	-	6.3	-	nC
Gate to Source Charge	Q_{gs}		-	1.1	-	
Gate to Drain Charge	Q_{gd}		-	1.6	-	
Turn-on Delay time	$t_{d(on)}$	V_{DD}=-15V, V_{GS}=-10V, I_D=-1A, R_G=6Ω (Note2)	-	6.9	-	ns
Turn-on Rise time	t_r		-	16	-	
Turn-off Delay time	$t_{d(off)}$		-	18	-	
Turn-off Fall time	t_f		-	15	-	
Source-Drain Diode Ratings						
Continuous Source Current	I_S	-	-	-	-3.0	A
Pulsed Source Current	I_{SP}	- (Note2)	-	-	-12	A
Source to Drain Forward Voltage	V_{SD}	V_{GS}=0V, I_S=-1.25A (Note2)	-	-	-1.2	V
Note2) Pulse Test : Pulse width <300μs , Duty cycle < 2%						

Fig1. I_D - V_{DS}

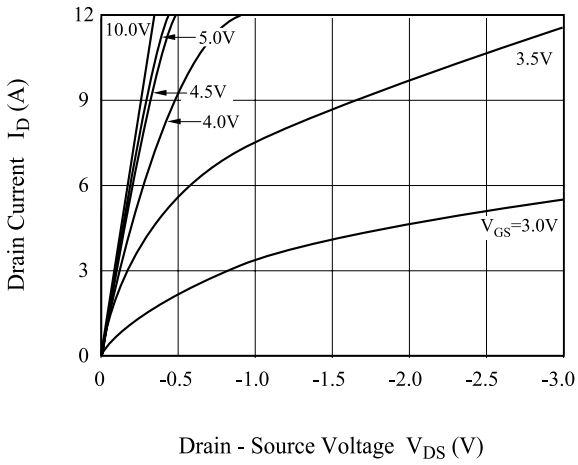


Fig2. R_{DS}-I_D

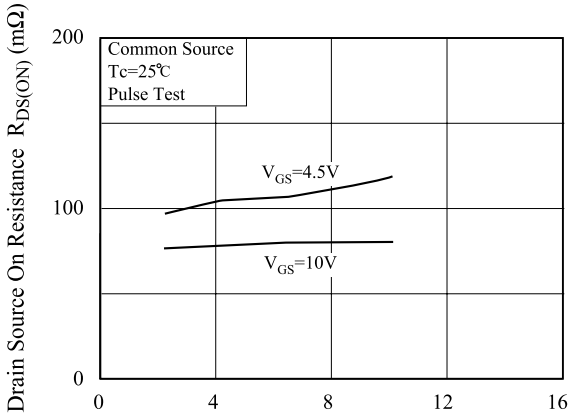


Fig3. I_D - V_{GS}

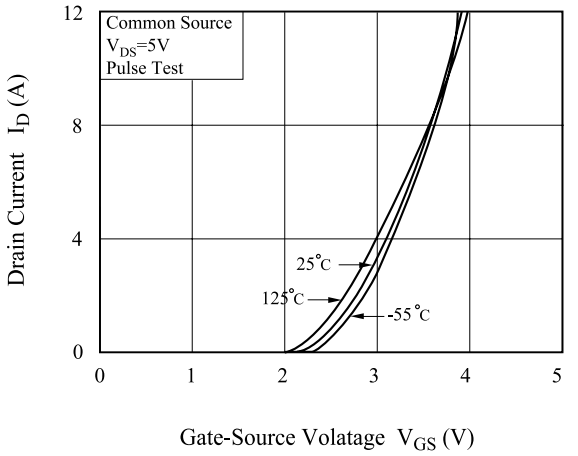


Fig4. $R_{DS(on)}$ - T_j

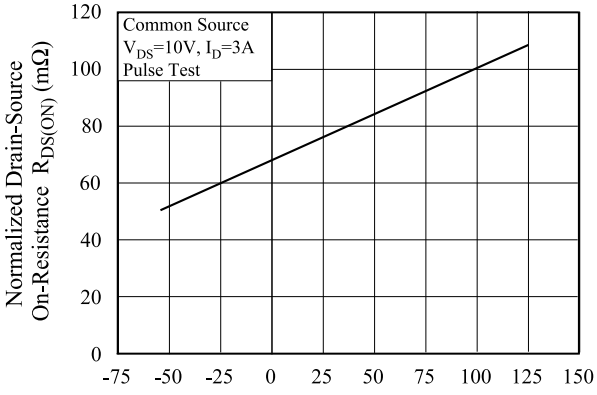


Fig5. V_{th} - T_j

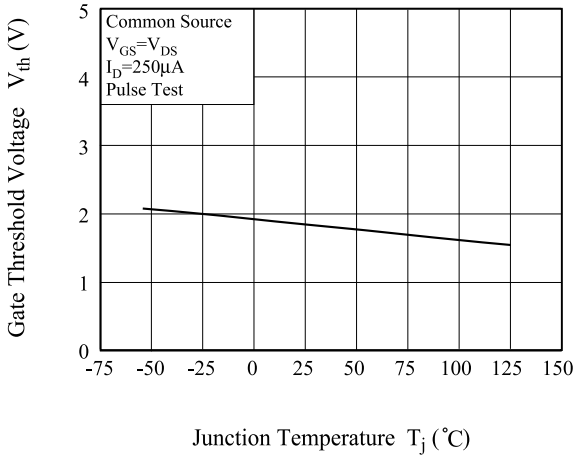


Fig6. I_{DR} - V_{SDF}

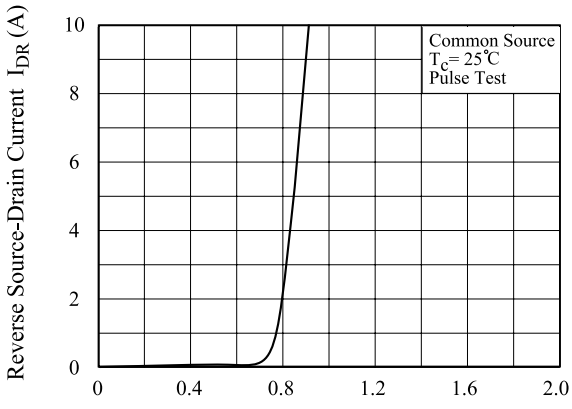


Fig7. $R_{DS(ON)}$ - V_{GS}

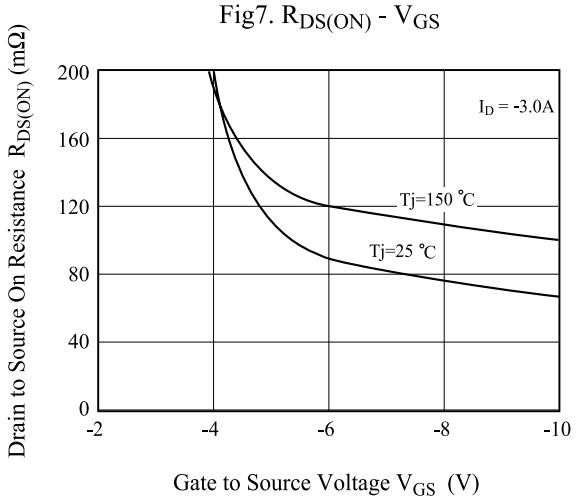


Fig8. C - V_{DS}

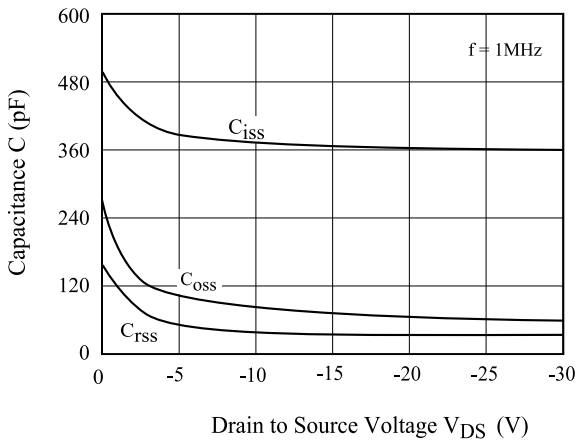


Fig9. Q_g - V_{GS}

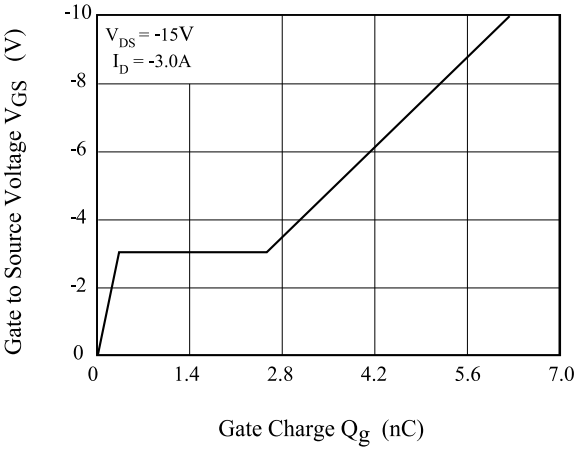


Fig10. Safe Operation Area

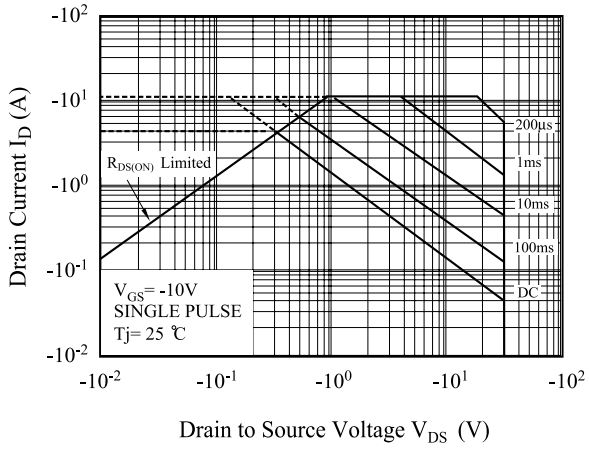


Fig11 . Transient Thermal Response Curve