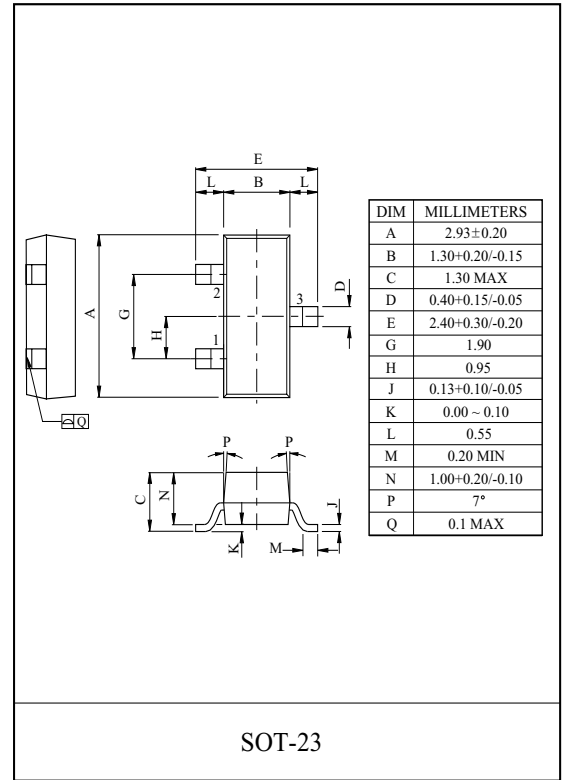


### General Description

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

- $V_{DSS}=60V$ ,  $I_D=2A$
- Drain-Source ON Resistance  
 $R_{DS(ON)}=160m$  (Max.) @  $V_{GS}=10V$   
 $R_{DS(ON)}=220m$  (Max.) @  $V_{GS}=4.5V$
- Super High Dense Cell Design

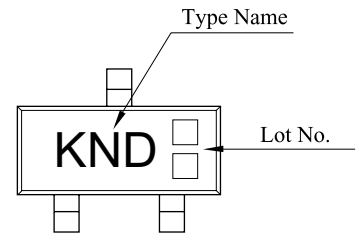


### MAXIMUM RATING (Ta=25 °C)

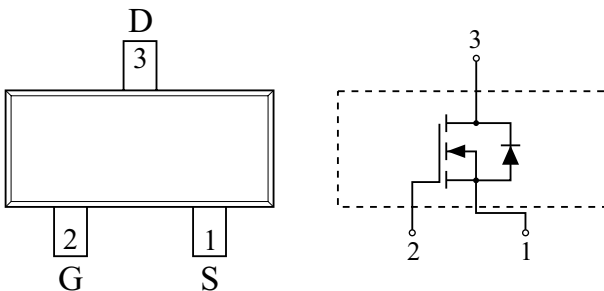
CHARACTERISTIC		SYMBOL	N-Ch	UNIT
Drain-Source Voltage		$V_{DSS}$	60	V
Gate-Source Voltage		$V_{GSS}$	± 20	V
Drain Current	DC@Ta=25	$I_D$	2.0	A
	DC@Ta=70		1.6	
	Pulsed	$I_{DP}$	10	
Drain-Source-Diode Forward Current		$I_S$	1.0	A
Drain Power Dissipation	Ta=25	$P_D$	1.25	W
	Ta=70		0.8	
Maximum Junction Temperature		$T_j$	150	
Storage Temperature Range		$T_{stg}$	-55 150	
Thermal Resistance, Junction to Ambient		$R_{thJA}$	100	/W

Note>\*Surface Mounted on 1 × 1 FR4 Board, t 5sec

### Marking



### PIN CONNECTION (TOP VIEW)



# KMB2D0N60SA

## ELECTRICAL CHARACTERISTICS (Ta=25 )

CHARACTERISTIC	SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
<b>Static</b>						
Drain-Source Breakdown Voltage	$BV_{DSS}$	$I_{DS}=250\ \mu A, V_{GS}=0V,$	60	-	-	V
Drain Cut-off Current	$I_{DSS}$	$V_{GS}=0V, V_{DS}=60V$	-	-	0.5	$\mu A$
		$V_{GS}=0V, V_{DS}=60V, T_j=55$	-	-	10	
Gate Leakage Current	$I_{GSS}$	$V_{GS}=\pm 20V, V_{DS}=0V$	-	-	$\pm 100$	nA
Gate Threshold Voltage	$V_{th}$	$V_{DS}=V_{GS}, I_D=250\ \mu A$	1.5	-	-	V
Drain-Source ON Resistance	$R_{DS(ON)}^*$	$V_{GS}=10V, I_D=2A$	-	125	160	m
		$V_{GS}=4.5V, I_D=1.7A$	-	155	220	
On-State Drain Current	$I_{D(ON)}^*$	$V_{GS}=10V, V_{DS}=4.5V$	6	-	-	A
		$V_{GS}=4.5V, V_{DS}=4.5V$	4	-	-	
Forward Transconductance	$g_{fs}^*$	$V_{DS}=4.5V, I_D=2.0A$	-	4.6	-	S
<b>Dynamic</b>						
Input Capacitance	$C_{iss}$	$V_{DS}=30V, f=1MHz, V_{GS}=0V$	-	240	-	$\mu F$
Output Capacitance	$C_{oss}$		-	30	-	
Reverse Transfer Capacitance	$C_{rss}$		-	16	-	
Total Gate Charge	$Q_g^*$	$V_{DS}=30V, V_{GS}=10V, I_D=2A$	-	4.8	10	nC
Gate-Source Charge	$Q_{gs}^*$		-	0.8	-	
Gate-Drain Charge	$Q_{gd}^*$		-	1.0	-	
Turn-On Delay Time	$t_{d(on)}^*$	$V_{DD}=30V, V_{GS}=4.5V$ $I_D=1A, R_G=6$	-	7	15	ns
Turn-On Rise Time	$t_r^*$		-	10	20	
Turn-Off Delay Time	$t_{d(off)}^*$		-	17	35	
Turn-Off Fall Time	$t_f^*$		-	6	15	
<b>Source-Drain Diode Ratings</b>						
Source-Drain Forward Voltage	$V_{SDF}^*$	$V_{GS}=0V, I_S=1A$	-	0.77	1.2	V
NOTE 1) * Pulse Test : Pulse width <300 $\mu s$ , Duty cycle < 2%						

# KMB2D0N60SA

Fig1.  $I_D - V_{DS}$

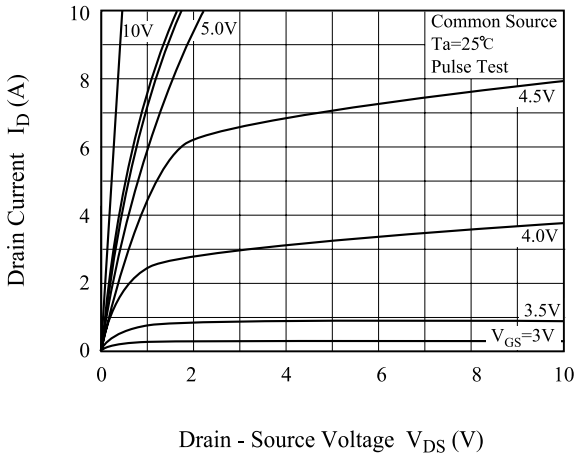


Fig2.  $R_{DS(ON)} - I_D$

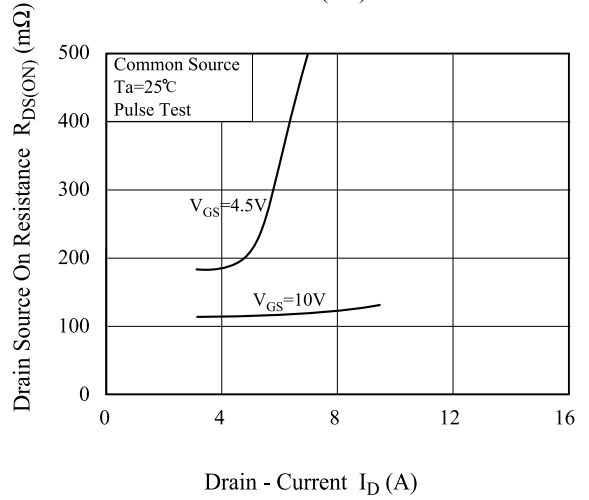


Fig3.  $I_D - V_{GS}$

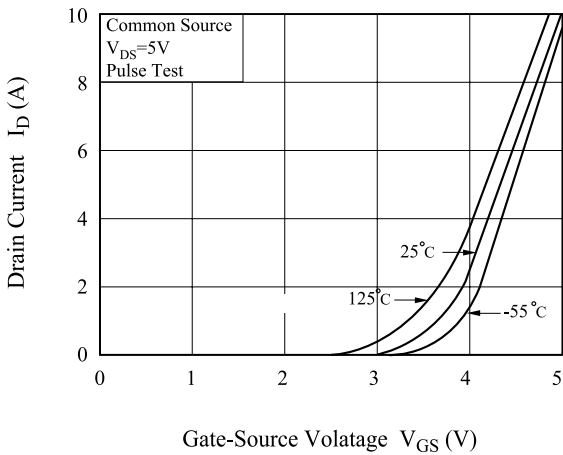


Fig4.  $R_{DS(ON)} - T_j$

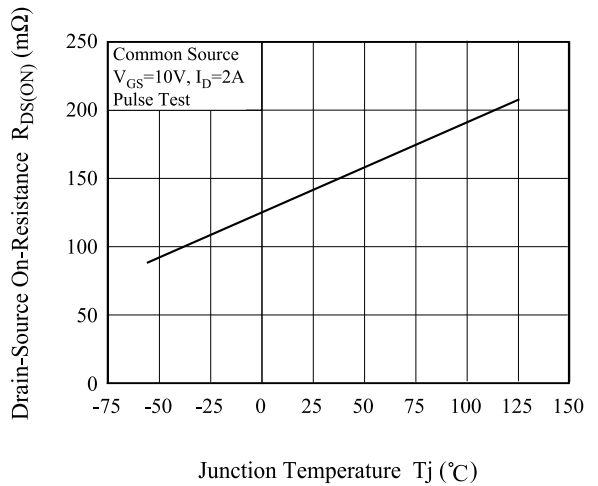


Fig5.  $V_{th} - T_j$

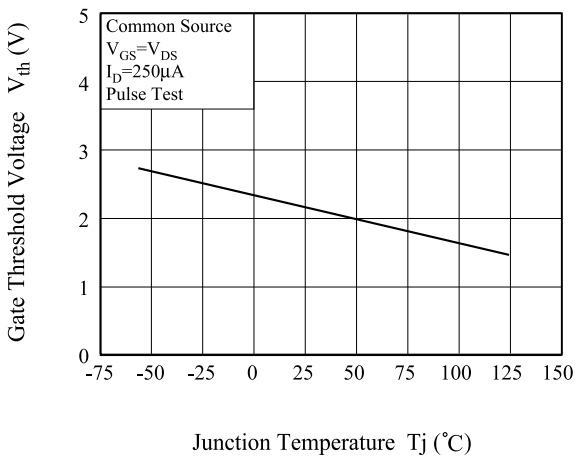
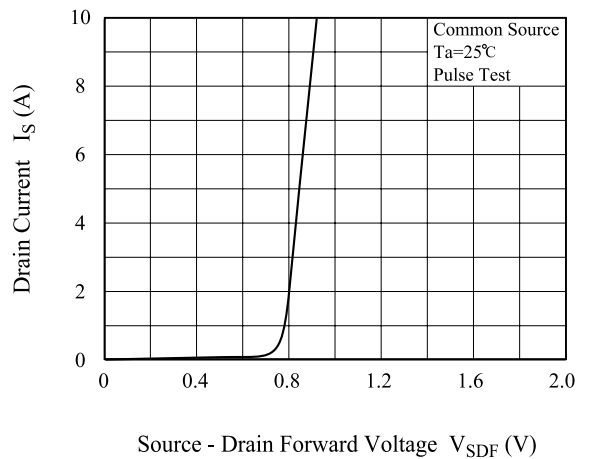


Fig6.  $I_S - V_{SDF}$



# KMB2D0N60SA

Fig7.  $V_{GS} - Q_g$

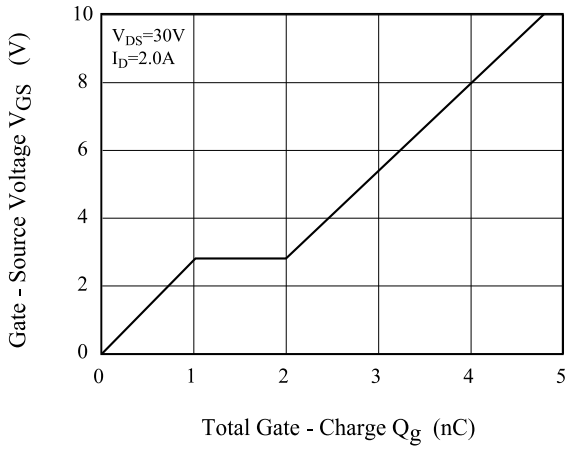


Fig8.  $C - V_{DS}$

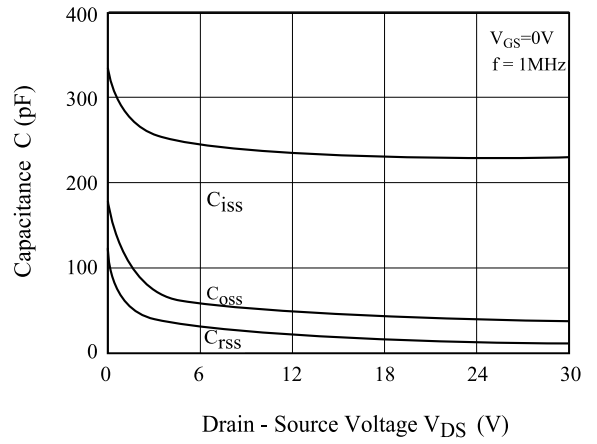


Fig9. Safe Operation Area

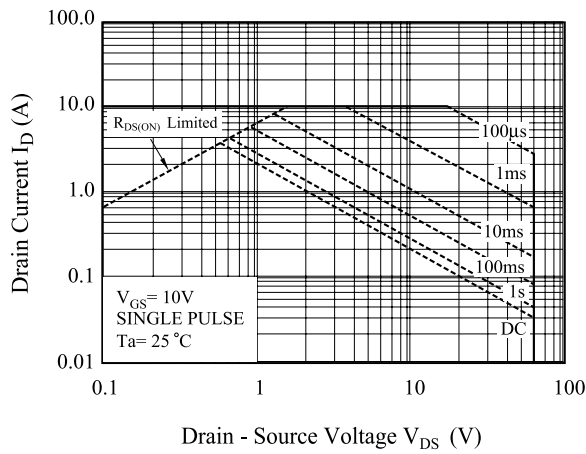
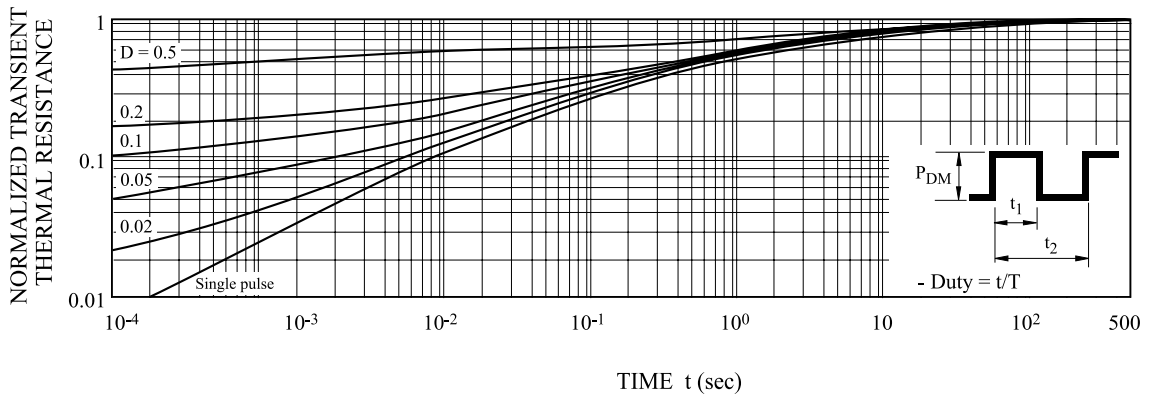


Fig10. Transient Thermal Response Curve



# KMB2D0N60SA

Fig11. Gate Charge Circuit and Wave Form

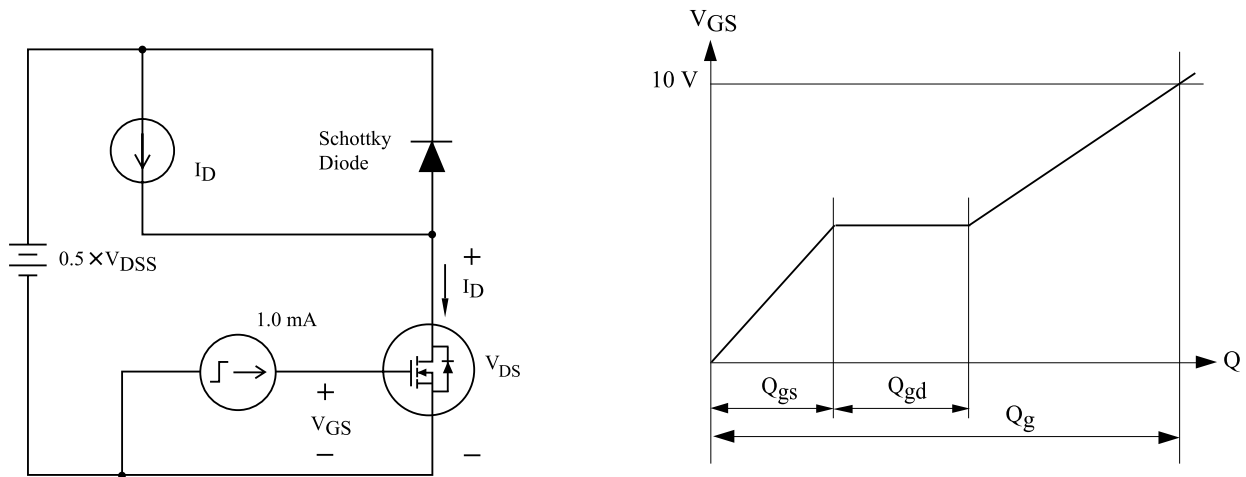


Fig12. Resistive Load Switching

