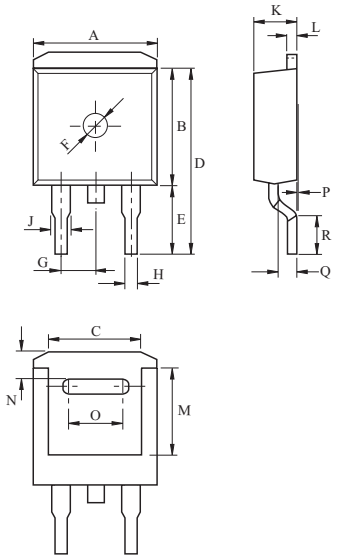
General Description

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 Back-light Inverter and power Supply.



DIM	MILLIMETERS
A	9.95 ± 0.05
B	9.2 ± 0.1
C	8.00
D	15.3 ± 0.2
E	4.9 ± 0.2
F	Φ 1.5
G	2.54 ± 0.05
H	0.80 ± 0.05
J	1.27 ± 0.10
K	4.50
L	1.30
M	6.90
N	1.75
O	4.40
P	$0.1^{+0.15}_{-0.05}$
Q	2.4 ± 0.1
R	2.0 MIN

D^2PAK

FEATURES

- V_{DSS}=40V, I_D=60A.
- Low Drain to Source ON Resistance.
  - : $R_{DS(ON)}$=8.5mΩ(Max.) @ V_{GS}=10V
  - : $R_{DS(ON)}$=11mΩ(Max.) @ V_{GS}=4.5V
- Super High Dense Cell Design.
- High Power and Current Handling Capability.

MAXIMUM RATING (Ta=25℃ Unless otherwise Noted)

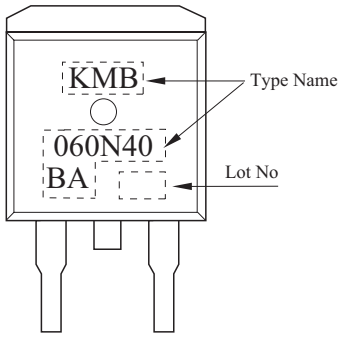
CHARACTERISTIC			SYMBOL	N-Ch	UNIT
Drain to Source Voltage			V_{DSS}	40	V
Gate to Source Voltage			V_{GSS}	±20	V
Drain Current	DC@T_C=25℃	(Note1)	I_D	60	A
	Pulsed	(Note2)	I_{DP}	100	
Drain to Source Diode Forward Current			I_S	100	A
Single Pulsed Avalanche Energy		(Note3)	E_{AS}	153	mJ
Drain Power Dissipation	@T_C=25℃	(Note1)	P_D	69	W
	@Ta=25℃	(Note2)		3.1	
Maximum Junction Temperature			T_j	150	℃
Storage Temperature Range			T_{stg}	-55~150	℃
Thermal Resistance, Junction to Case		(Note1)	R_{thJC}	1.8	℃/W
Thermal Resistance, Junction to Ambient		(Note2)	R_{thJA}	40	℃/W

Note 1) R_{thJC} means that the infinite heat sink is mounted.

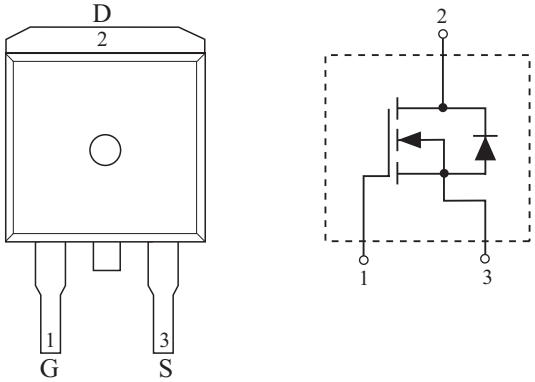
Note 2) Surface Mounted on 1″×1″Pad of 2 oz copper.

Note 3) L=42.5㎌, I_{AS}=60A, V_{DD}=20V, V_{GS}=10V, Starting T_j=25℃

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}	V_{GS}=0V, I_D=250㎂	40	-	-	V
Drain Cut-off Current		I_{DSS}	V_{GS}=0V, V_{DS}=24V	-	-	1	㎂
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㎂	1	1.8	3	V
Drain to Source ON Resistance		$R_{DS(ON)*}$	V_{GS}=10V, I_D=14A (Note4)	-	5.7	8.5	mΩ
			V_{GS}=4.5V, I_D=11A (Note4)	-	7.5	11	
Forward Transconductance		g_{fs*}	V_{DS}=5V, I_D=14A (Note4)	-	58	-	S
Dynamic							
Input Capacitance		C_{iss}	V_{DS}=20V, f=1MHz, V_{GS}=0V	-	1280	-	pF
Ouput Capacitance		C_{oss}		-	250	-	
Reverse Transfer Capacitance		C_{rss}		-	125	-	
Gate Resistance		R_g	f=1MHz	-	1.5	-	Ω
Total Gate Charge	V_{GS}=10V	Q_g*	V_{DS}=20V, V_{GS}=10V, I_D=14A (Note4)	-	25.4	-	nC
	V_{GS}=5V	Q_g*		-	13.8	-	
Gate to Source Charge		Q_{gs}*		-	5.7	-	
Gate to Drain Charge		Q_{gd}*		-	5.4	-	
Turn-On Delay Time		$t_{d(on)}$*	V_{DD}=20V, V_{GS}=10V, I_D=1A, R_G=6Ω (Note4)	-	16	-	ns
Turn-On Rise Time		t_r*		-	14	-	
Turn-Off Delay Time		$t_{d(off)}$*		-	55	-	
Turn-Off Fall Time		t_f*		-	14	-	
Source to **Drain Diode Ratings**							
Source to Drain Forward Voltage		V_{SD}*	V_{GS}=0V, I_S=14A (Note4)	-	0.8	1.2	V

Note 4) Pulse Test : Pulse width <300㎲, Duty cycle < 2%

Fig1. I_D - V_{DS}

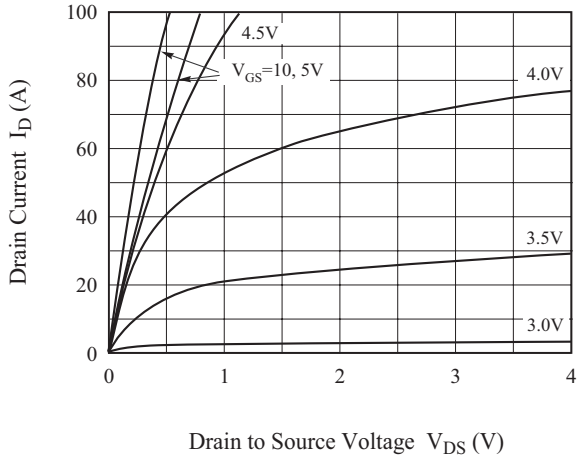


Fig2. $R_{DS(ON)}$-I_D

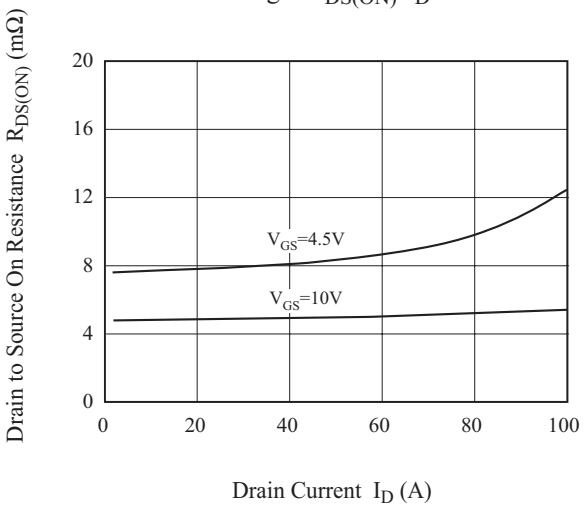


Fig3. I_D - V_{GS}

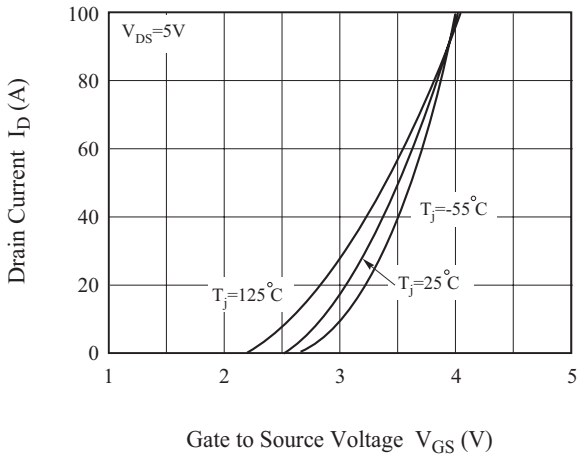


Fig4. $R_{DS(on)}$ - T_j

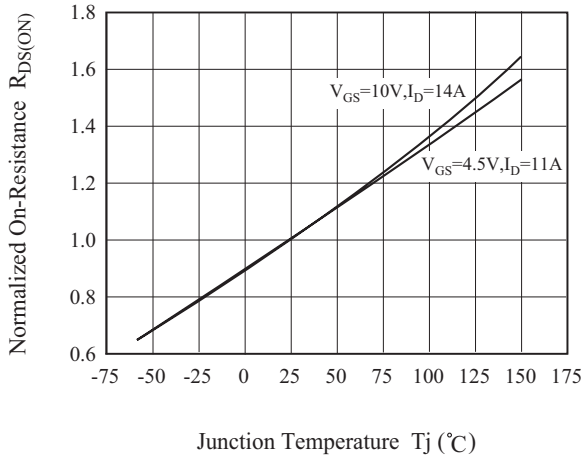


Fig5. V_{th} - T_j

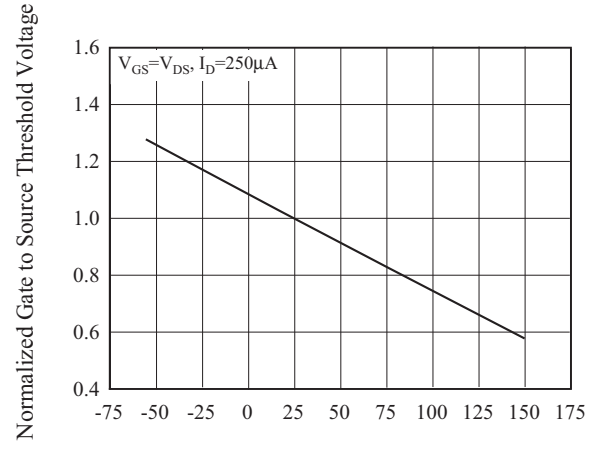


Fig6. $R_{DS(on)}$ - V_{GS}

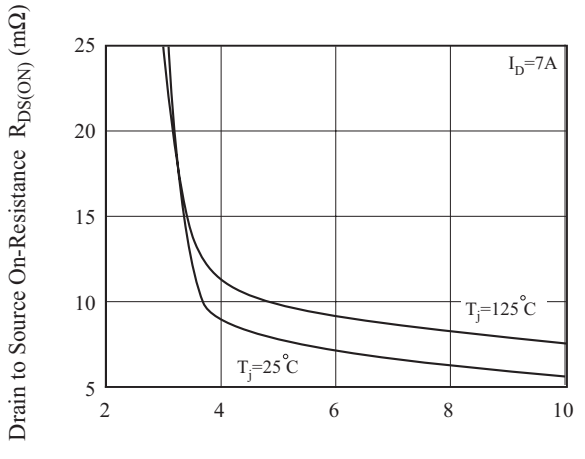


Fig7. I_D - V_{SD}

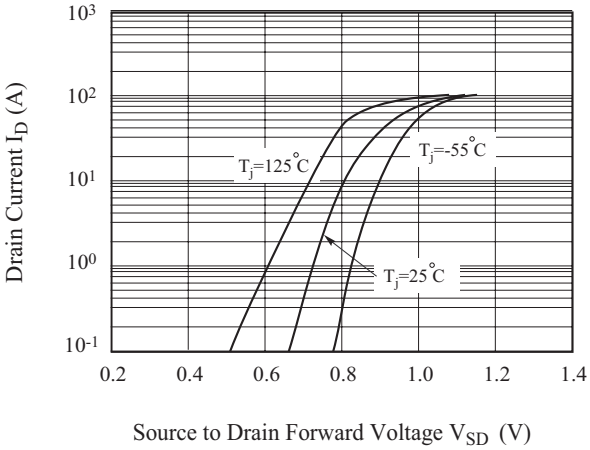


Fig 8. C - V_{DS}

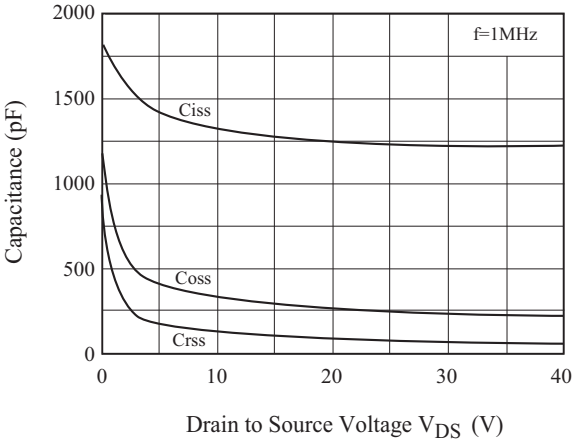


Fig9. Safe Operation Area

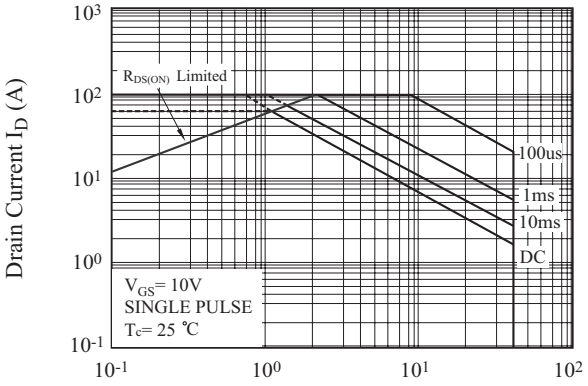


Fig10. Transient Thermal Response Curve