

### General Description

Switching regulator and DC-DC Converter applications.  
It is mainly suitable for power management in PC, portable equipment and battery powered systems.

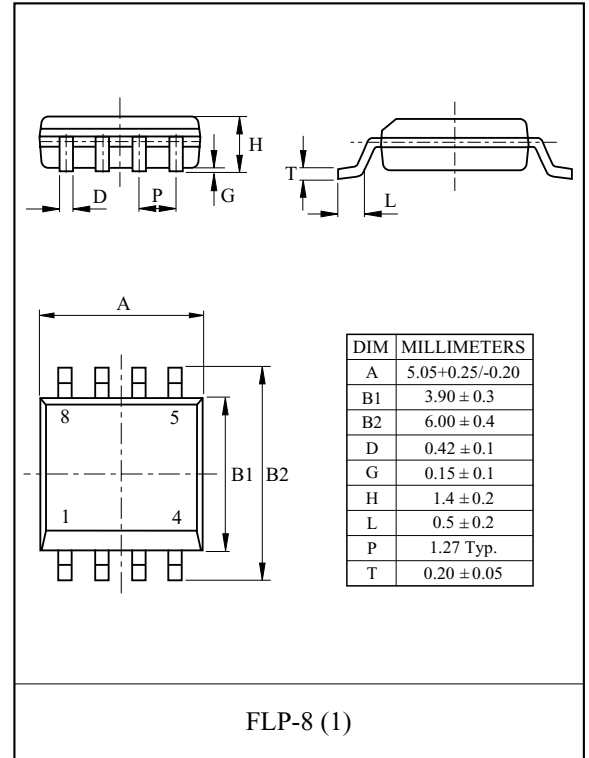
### FEATURES

- $V_{DSS}=30V$ ,  $I_D=6.6A$ .
- Low Drain-Source ON Resistance.
  - :  $R_{DS(ON)}=28m\ \Omega$  (typ.) @  $V_{GS}=10V$
  - :  $R_{DS(ON)}=56m\ \Omega$  (typ.) @  $V_{GS}=4.5V$
- Super High Dense Cell Design.
- High Power and Current Handling Capability.

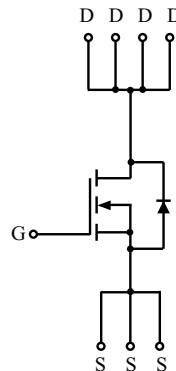
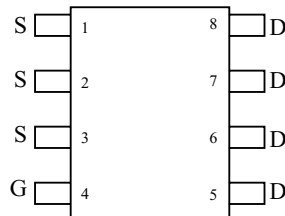
### MAXIMUM RATING (Ta=25 °C)

CHARACTERISTIC		SYMBOL	RATING	UNIT
Drain-Source Voltage		$V_{DSS}$	30	V
Gate-Source Voltage		$V_{GSS}$	$\pm 20$	V
Drain Current	DC	$I_D^*$	6.6	A
	Pulsed (note1)	$I_{DP}^*$	26	
Source-Drain Diode Current		$I_S$	1.7	A
Drain Power Dissipation		$P_D^*$	2.5	W
Maximum Junction Temperature		$T_j$	150	°C
Storage Temperature Range		$T_{stg}$	-55 ~ 150	°C
Thermal Resistance, Junction to Ambient		$R_{thJA}^*$	50	°C/W

\* : Surface Mounted on FR4 Board,  $t \leq 10sec$ .



### PIN CONNECTION (TOP VIEW)



# KMB6D6N30Q

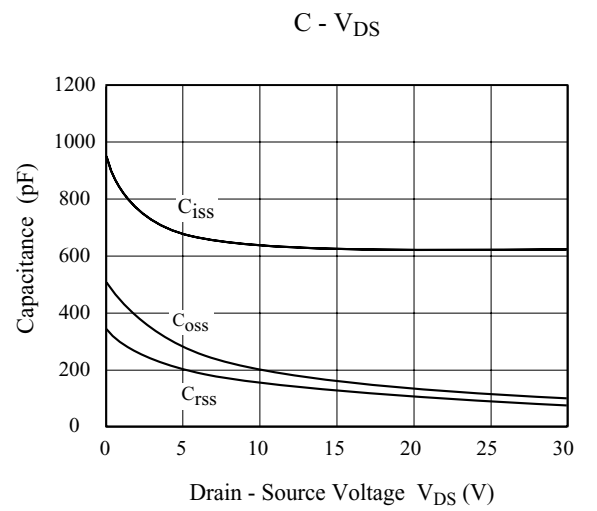
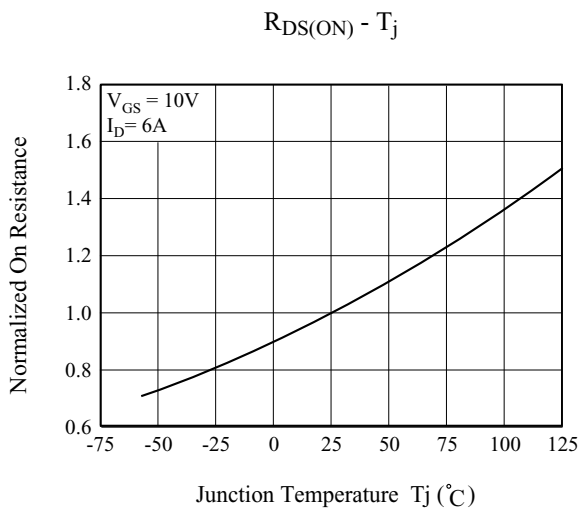
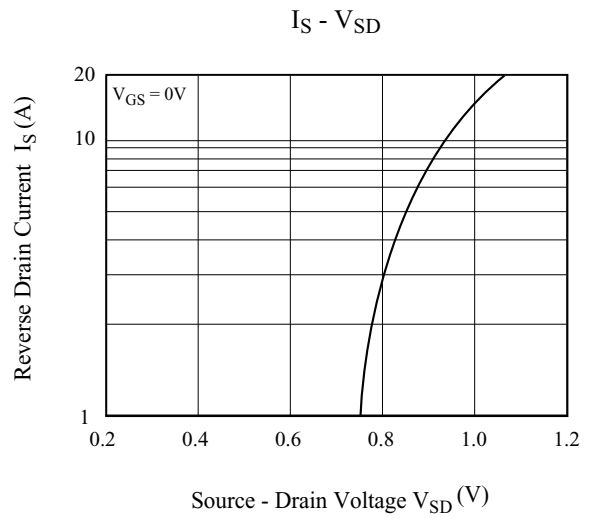
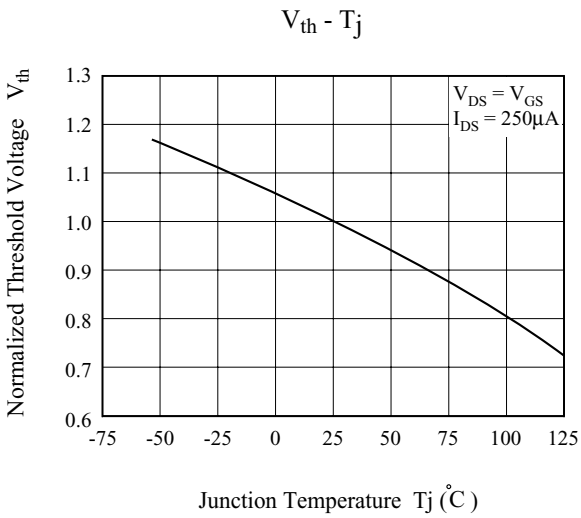
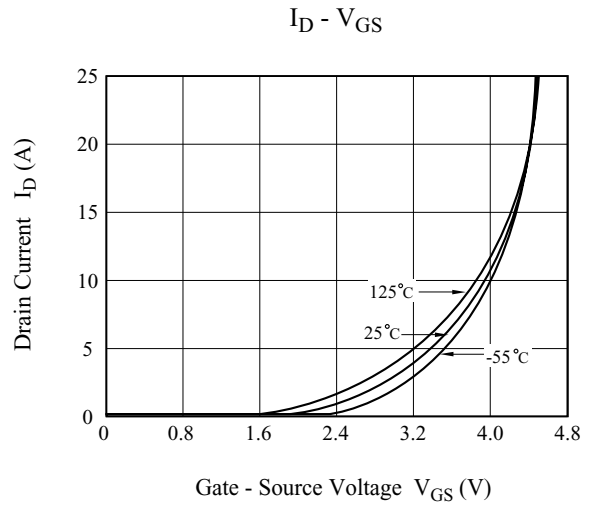
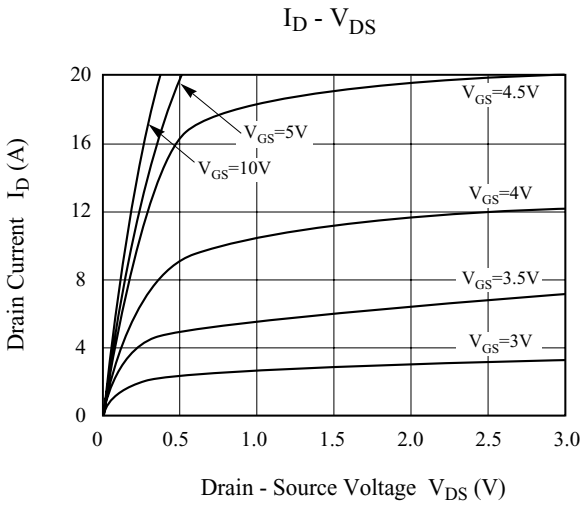
## ELECTRICAL CHARACTERISTICS (Ta=25°C)

CHARACTERISTIC	SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
<b>Static</b>						
Drain-Source Breakdown Voltage	$BV_{DSS}$	$I_D=250\mu A, V_{GS}=0V,$	30	-	-	V
Drain Cut-off Current	$I_{DSS}$	$V_{GS}=0V, V_{DS}=24V$	-	-	1	$\mu A$
Gate Leakage Current	$I_{GSS}$	$V_{GS}=\pm 20V, V_{DS}=0V$	-	-	$\pm 100$	nA
Gate Threshold Voltage	$V_{th}$	$V_{DS}=V_{GS}, I_D=250\mu A$	1.0	1.7	2.5	V
Drain-Source ON Resistance	$R_{DS(ON)}$	$V_{GS}=10V, I_D=6A$ (Note 1)	-	20	28	m $\Omega$
		$V_{GS}=4.5V, I_D=3A$ (Note 1)	-	42	56	
ON State Drain Current	$I_{D(ON)}$	$V_{GS}=10V, V_{DS}=5V$ (Note 1)	20	-	-	A
Forward Transconductance	$g_{fs}$	$V_{DS}=5V, I_D=6A$ (Note 1)	-	8	-	S
Source-Drain Diode Forward Voltage	$V_{SD}$	$I_S=1.7A, V_{GS}=0V$ (Note 1)	-	0.79	1.2	V
<b>Dynamic (Note 2)</b>						
Total Gate Charge	$Q_g$	$V_{DS}=15V, I_D=6A, V_{GS}=10V$ (Fig.1)	-	13.5	-	nC
		$V_{DS}=15V, I_D=6A, V_{GS}=4.5V$ (Fig.1)	-	7.1	-	
Gate-Source Charge	$Q_{gs}$	$V_{DS}=15V, I_D=6A, V_{GS}=4.5V$ (Fig.1)	-	3	-	nC
Gate-Drain Charge	$Q_{gd}$		-	2.8	-	
Turn-on Delay time	$t_{d(on)}$	$V_{DD}=15V, I_D=1A,$ $V_{GS}=10V, R_G=10\Omega$ (Fig.2)	-	12.7	-	ns
Turn-on Rise time	$t_r$		-	4.1	-	
Turn-off Delay time	$t_{d(off)}$		-	19.4	-	
Turn-off Fall time	$t_f$		-	12.9	-	
Input Capacitance	$C_{iss}$	$V_{DS}=15V, V_{GS}=0V, f=1.0MHz$	-	630	-	pF
Output Capacitance	$C_{oss}$		-	170	-	
Reverse transfer Capacitance	$C_{rss}$		-	110	-	

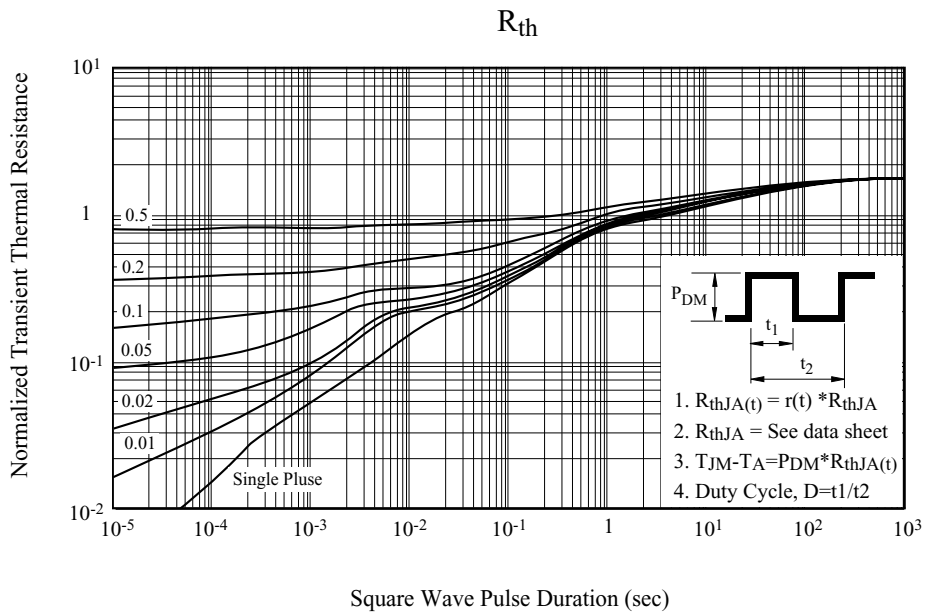
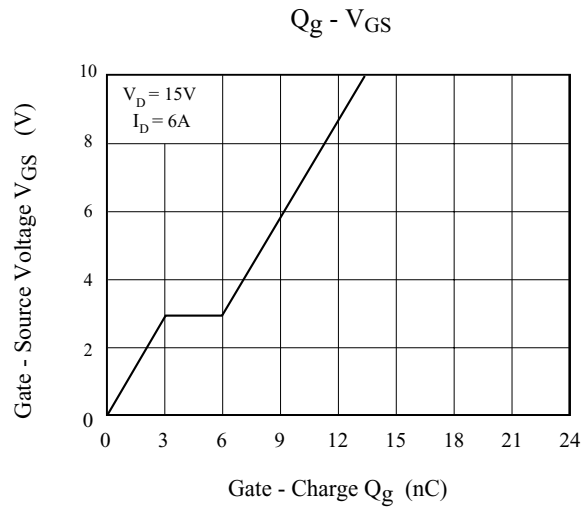
Note 1) Pulse test : Pulse width  $\leq 300\mu s$ , Duty Cycle  $\leq 2\%$ .

Note 2) Guaranteed by design. Not subject to production testing.

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Fig. 1 Gate Charge

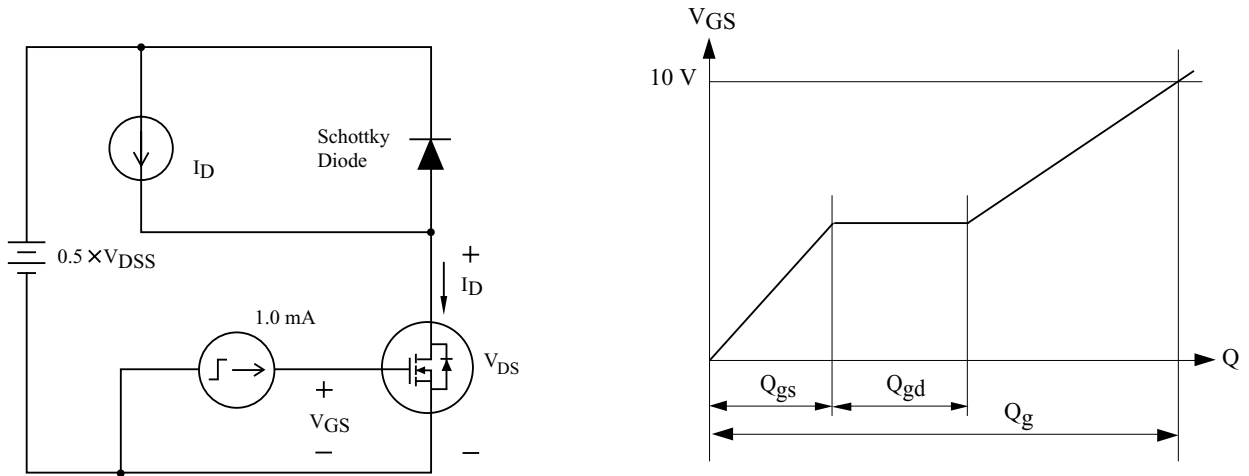


Fig. 2 Resistive Load Switching

