

GENERAL DESCRIPTION

- It is particularly suited for switching such as DC/DC Converters.
- It is driven as low as 4.5V and fast switching, high efficiency.

FEATURES

- $V_{DS} = -30V$, $I_D = -3.5A$.
- Drain-Source ON Resistance.
 $R_{DS(ON)} = 85m\ \Omega$ (Max.) @ $V_{GS} = -10V$
 $R_{DS(ON)} = 180m\ \Omega$ (Max.) @ $V_{GS} = -4.5V$

MOSFET Maximum Ratings ($T_a = 25^\circ C$ Unless otherwise noted)

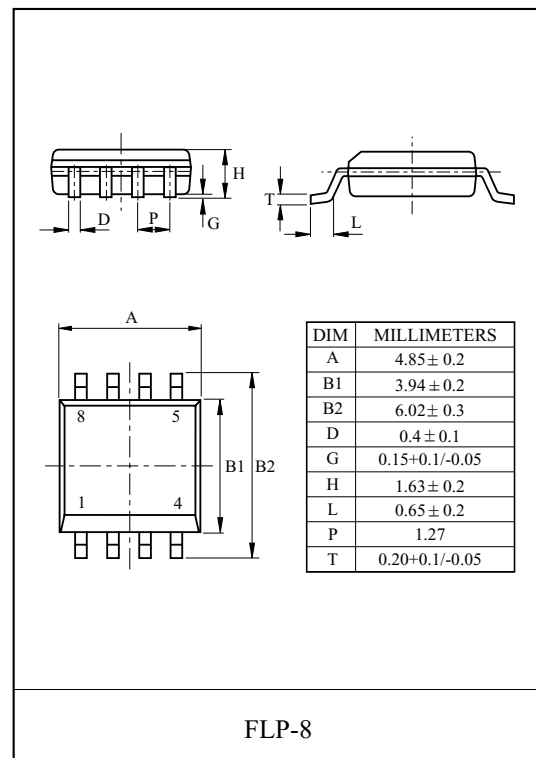
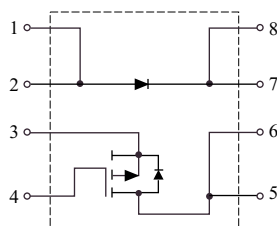
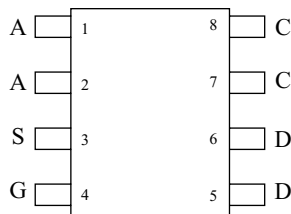
CHARACTERISTIC		SYMBOL	PATING	UNIT
Drain Source Voltage		V_{DS}	-30	V
Gate Source Voltage		V_{GS}	± 20	V
Drain Current	DC	I_D^*	-3.5	A
	Pulsed	I_{DP}	-20	A
Drain Power Dissipation	25 °C	P_D^*	1.4	W
	100 °C		1	W
Maximum Junction Temperature		T_j	150	°C
Storage Temperature Range		T_{stg}	-55~150	°C
Thermal Resistance, Junction to Ambient		R_{thJA}^*	90	°C/W

Note : *Sorface Mounted on FR4 Board

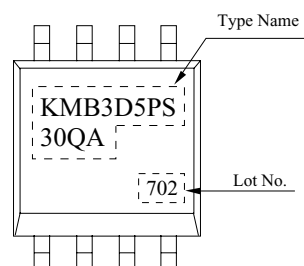
Schottky Diode Maximum Ratings ($T_a = 25^\circ C$ Unless otherwise noted)

CHARACTERISTIC	SYMBOL	PATING	UNIT
Repetitive Peak Reverse Voltage	V_{RRM}	30	V
Average Forward Current	I_F	1.4	A

PIN CONNECTION (TOP VIEW)



Marking



KMB3D5PS30QA

ELECTRICAL CHARACTERISTICS (Ta=25℃) UNLESS OTHERWISE NOTED

CHARACTERISTIC	SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
Static						
Drain-Source Breakdown Voltage	BV _{DSS}	I _D =-250μA, V _{GS} =0V	-30	-	-	V
Drain Cut-off Current	I _{DSS}	V _{DS} =-30V, V _{GS} =0V	-	-	-1	μA
Gate Leakage Current	I _{GSS}	V _{GS} =±20V, V _{DS} =0V	-	-	±100	nA
Gate Threshold Voltage	V _{th}	V _{DS} =V _{GS} , I _D =-250μA	-1.0	-	-3.0	V
Drain-Source ON Resistance	R _{DS(ON)}	V _{GS} =-10.0V, I _D =-2.5A	-	66	85.0	m Ω
		V _{GS} =-4.5V, I _D =-1.8A	-	125	180.0	
Forward Transconductance	G _{fs}	V _{DS} =-10V, I _D =-2.5A	-	5.0	-	S
Dynamic (Note 3)						
Input Capacitance	C _{iss}	V _{DS} =-10V, f=1MHz	-	550	-	pF
Ouput Capacitance	C _{oss}		-	210	-	
Reverse Transfer Capacitance	C _{rss}		-	50	-	
Total Gate Charge	Q _g	V _{DS} =-10V, V _{GS} =-10V, I _D =-2.5A	-	8.7	-	nC
Gate-Source Charge	Q _{gs}		-	1.9	-	
Gate-Drain Charge	Q _{gd}		-	1.3	-	
Turn-On Delat Time	t _{d(on)}	V _{DD} =-10V, V _{GS} =-10V I _D =10 Ω, R _G =50 Ω (Note 1)	-	7	-	ns
Turn-On Rise Time	t _r		-	9	-	
Turn-On Deley Time	t _{d(off)}		-	14	-	
Turn-On Fall Time	t _r		-	8	-	
Source-Drain Diode Ratings						
Source-Drain Forward Voltage	V _{SDF}	I _{DR} =-1.7A, V _{GS} =0V	-	-	-1.2	V
Note						
1. Pulse Test : Pulse width ≤ 10μs , Duty cycle ≤ 1%						

SHOTTKY DIODE ELECTRICAL CHARACTERISTICS

CHARACTERISTIC	SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
Forward Voltage Drop	V_F	$I_F = 1.0A$	-	0.45	0.5	V
Reverse Leakage Current	I_R	$V_R = 30V$	-	0.004	0.1	mA
Junction Capacitance	C_T	$V_R = 10V$	-	62	-	PF

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Fig1. $I_D - V_{GS}$

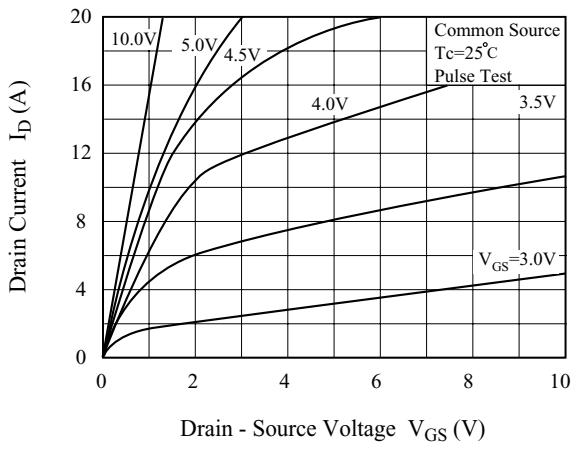


Fig2. $R_{DS(on)} - I_D$

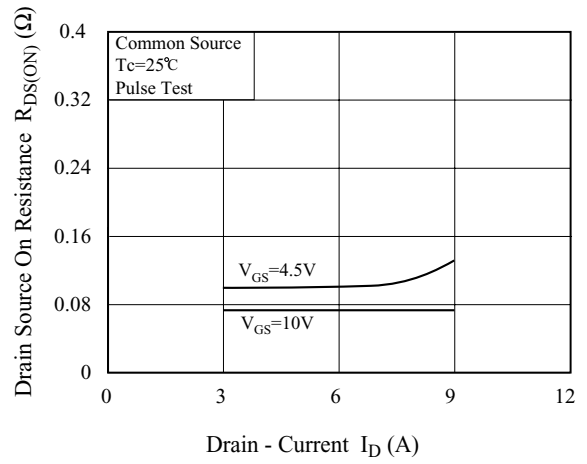


Fig3. $I_D - V_{GS}$

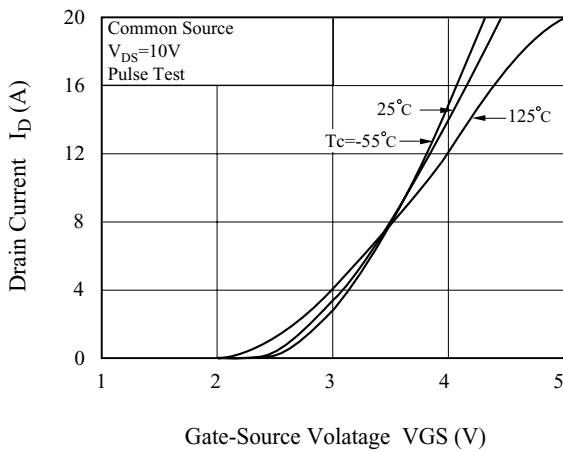


Fig4. $R_{DS(on)} - T_j$

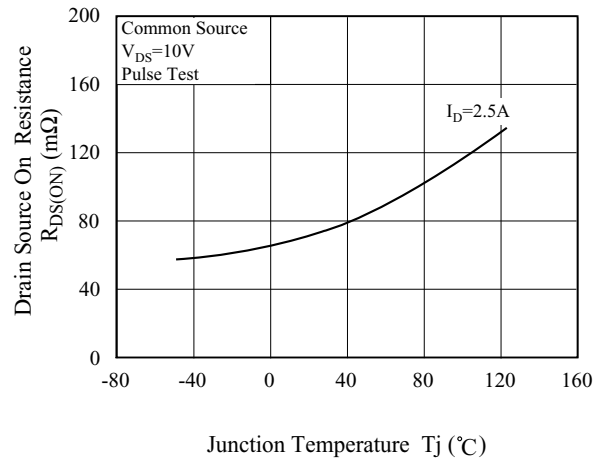


Fig5. $V_{th} - T_j$

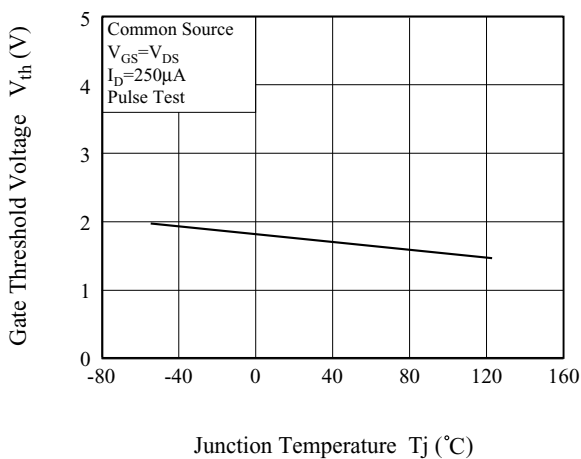
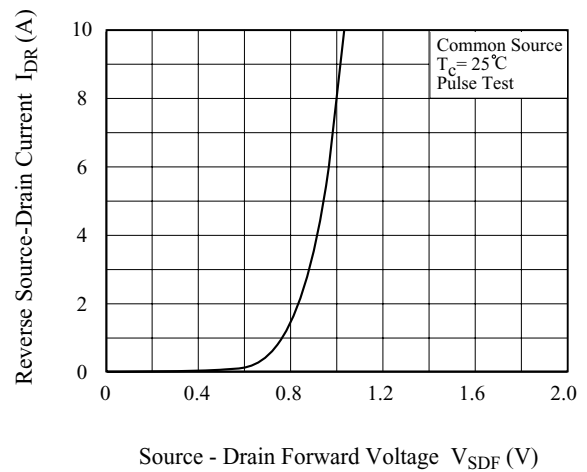


Fig6. $I_{DR} - V_{SDF}$



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Fig7. Forward Voltage Drop

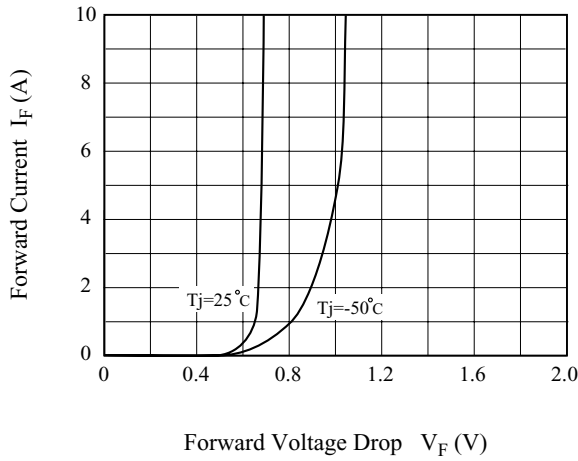


Fig8. Safe Operation Area

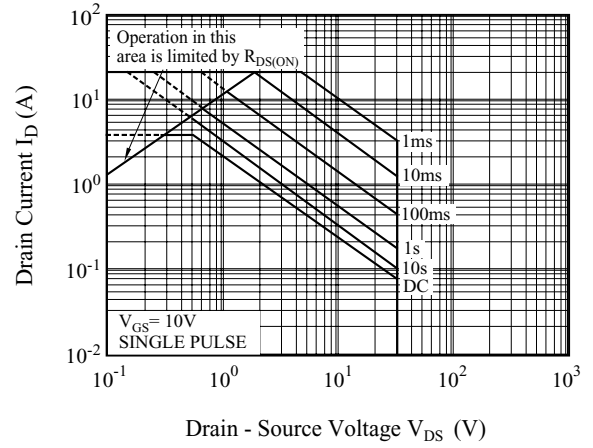


Fig9. Transient Thermal Response Curve

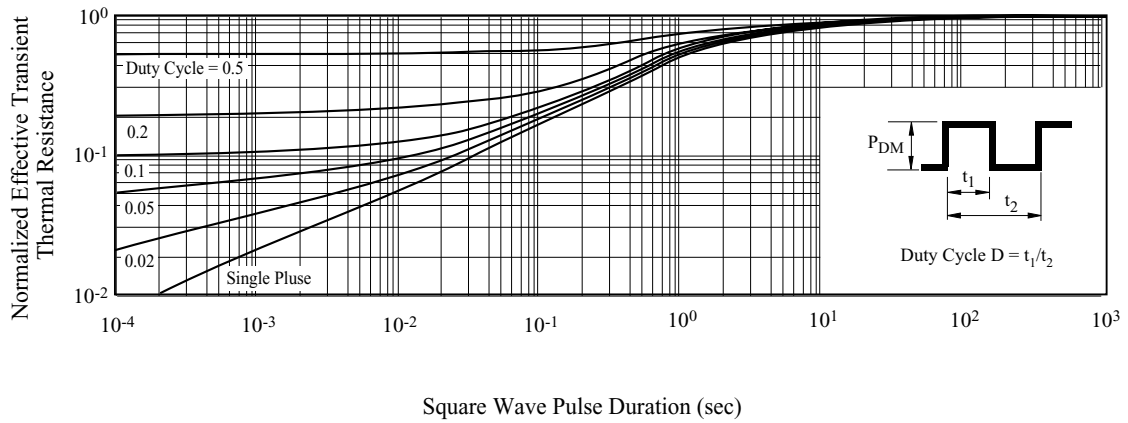


Fig10. Gate Charge Circuit and Wave Form

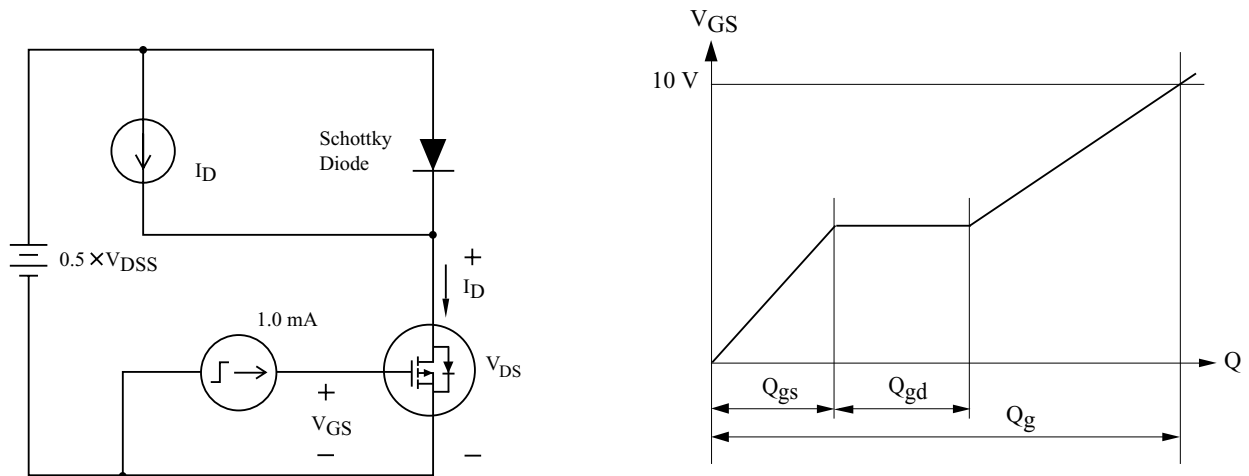


Fig11. Resistive Load Switching

