

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 LED Lighting and DC/DC Converters.

FEATURES

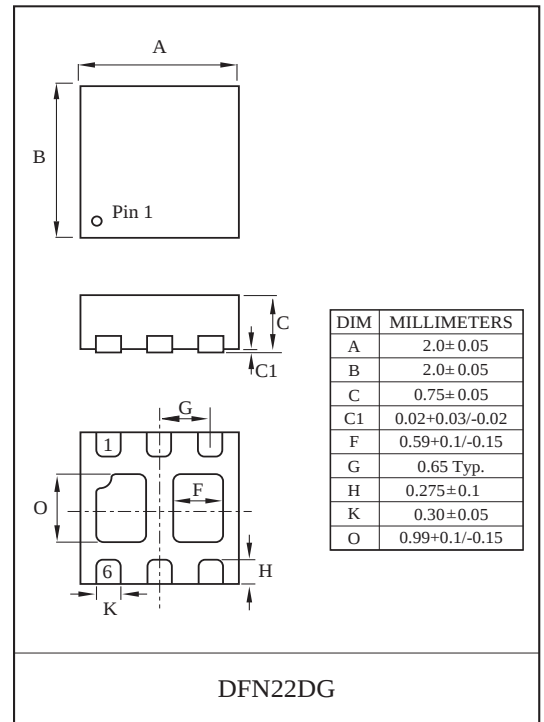
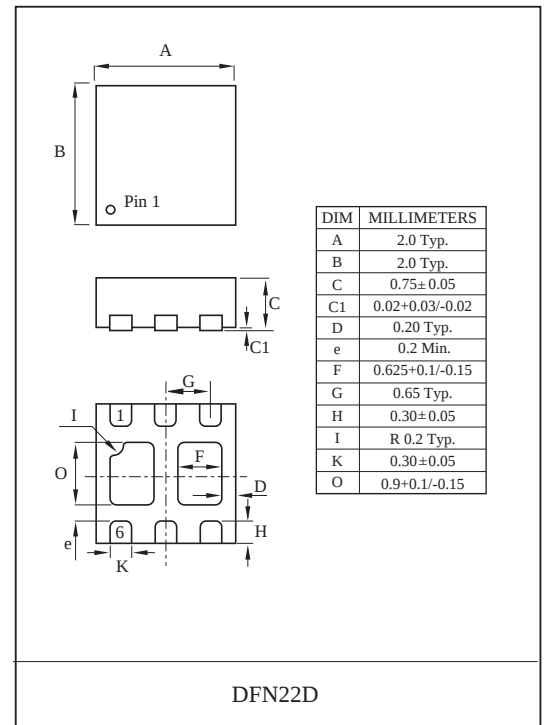
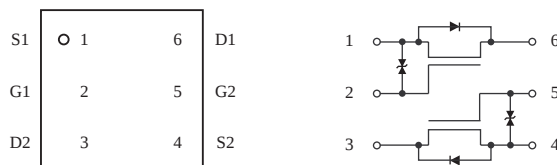
- $V_{DSS(Min.)} = 100V$, $I_D = 0.22A$
- Drain-Source ON Resistance : $R_{DS(ON)} = 6 \Omega (max)$ @ $V_{GS} = 10V$
- $Q_g (typ.) = 0.65nC (@V_{GS} = 10V)$

MAXIMUM RATING (Ta=25 °C)

CHARACTERISTIC		SYMBOL	RATING	UNIT
Drain-Source Voltage		V_{DSS}	100	V
Gate-Source Voltage		V_{GSS}	± 20	V
Drain Current	Ta=25	I_D	0.22	A
	Ta=100		0.14	
	Pulsed (Note1)	I_{DP}	0.88	
Drain Power Dissipation	Ta=25	P_D	0.69	W
Maximum Junction Temperature		T_j	150	
Storage Temperature Range		T_{stg}	-55 ~ 150	
Thermal Characteristics				
Thermal Resistance, Junction-to-Ambient		R_{thJA}	180*	/W

* : Surface Mounted on 25mm × 25mm × 1.6mm FR4 Board Cu 2oz, Steady state

PIN CONNECTION



KU6KDN10MZ

ELECTRICAL CHARACTERISTICS (Ta=25 °C)

CHARACTERISTIC		SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
Static							
Drain-Source Breakdown Voltage		BV _{DSS}	I _D =250 μA, V _{GS} =0V	100	-	-	V
Breakdown Voltage Temperature Coefficient		Δ BV _{DSS} / Δ T _j	I _D =250 μA , Referenced to 25	-	0.1	-	V/
Drain Cut-off Current		I _{DSS}	V _{DS} =100V, V _{GS} =0V,	-	-	10	μA
Gate Threshold Voltage		V _{th}	V _{DS} =V _{GS} , I _D =250 μA	1.0	-	2.5	V
Gate Leakage Current		I _{GSS}	V _{GS} = ± 20V, V _{DS} =0V	-	-	± 10	μA
Drain-Source ON Resistance		R _{DS(ON)}	V _{GS} =10V, I _D =0.11A	-	2.3	6	Ω
			V _{GS} =4.5V, I _D =0.11A	-	-	10	
Dynamic							
Total Gate Charge	V _{GS} =10V	Q _g	V _{DS} =50V, I _D =0.22A V _{GS} =10V (Note2,3)	-	0.65	-	nC
	V _{GS} =4.5V			-	0.32	-	
Gate-Source Charge		Q _{gs}		-	0.04	-	
Gate-Drain Charge		Q _{gd}		-	0.23	-	
Turn-on Delay time		t _{d(on)}	V _{DD} =50V, I _D =0.22A V _{GS} =10V (Note2,3)	-	5.5	-	ns
Turn-on Rise time		t _r		-	6.5	-	
Turn-off Delay time		t _{d(off)}		-	39	-	
Turn-off Fall time		t _f		-	10	-	
Input Capacitance		C _{iss}	V _{DS} =25V, V _{GS} =0V, f=1.0MHz	-	20	-	pF
Output Capacitance		C _{oss}		-	7.5	-	
Reverse Transfer Capacitance		C _{rss}		-	3	-	
Source-Drain Diode Ratings							
Continuous Source Current		I _S	V _{GS} <V _{th}	-	-	0.22	A
Pulsed Source Current		I _{SP}		-	-	0.88	
Diode Forward Voltage		V _{SD}	I _S =0.22A, V _{GS} =0V	-	-	1.2	V
Reverse Recovery Time		t _{rr}	I _S =0.22A, V _{GS} =0V,	-	13	-	ns
Reverse Recovery Charge		Q _{rr}	dI _S /dt=85A/μs	-	6	-	nC

Note 1) Repetivity rating : Pulse width limited by junction temperature.

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

Note 3) Essentially independent of operating temperature.

Marking

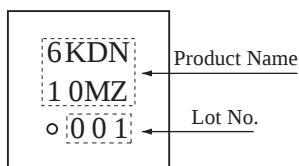


Fig1. $V_{DS} - I_D$

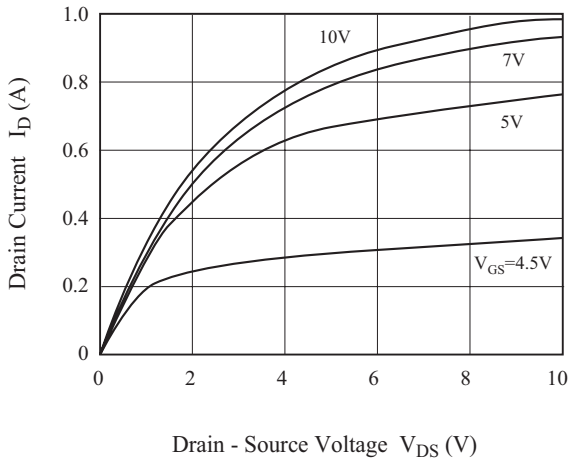


Fig2. $R_{DS(ON)} - I_D$

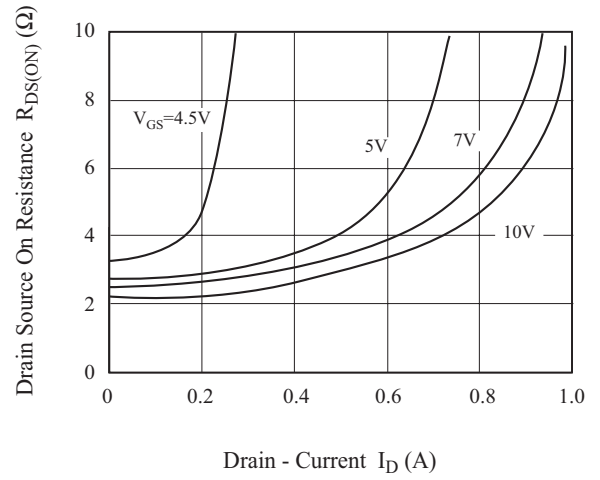


Fig3. $I_D - V_{GS}$

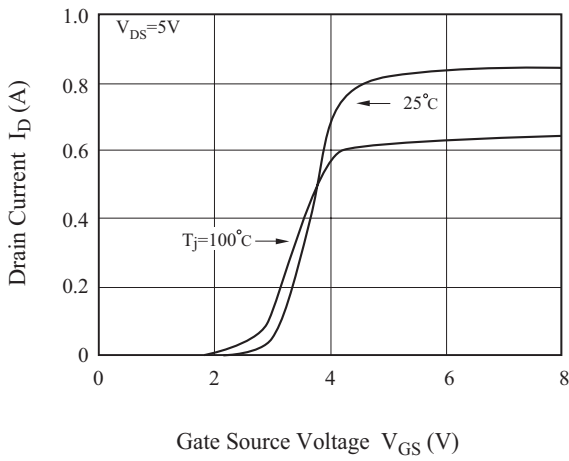


Fig4. $R_{DS(ON)} - T_J$

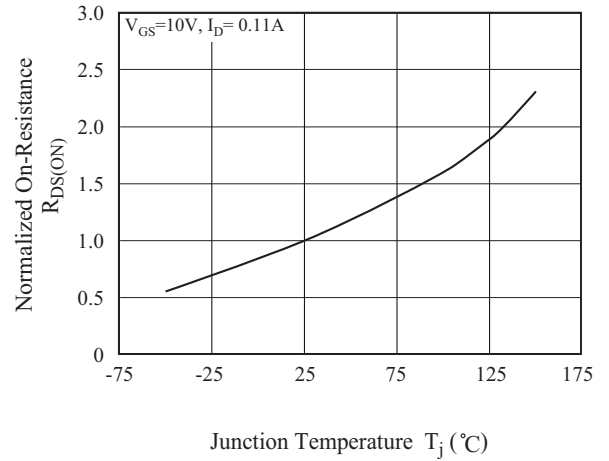


Fig5. $V_{th} - T_J$

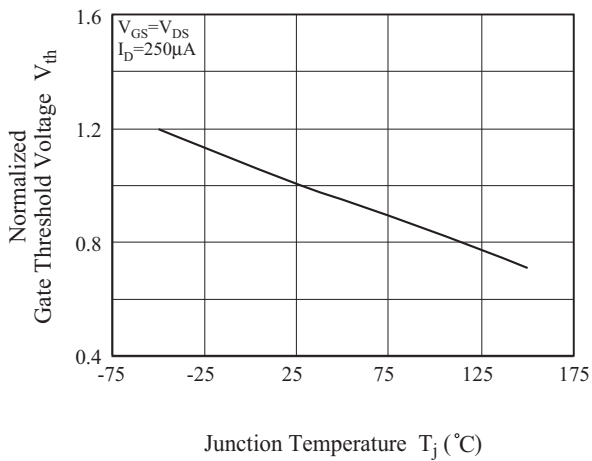


Fig6. $I_S - V_{SDF}$

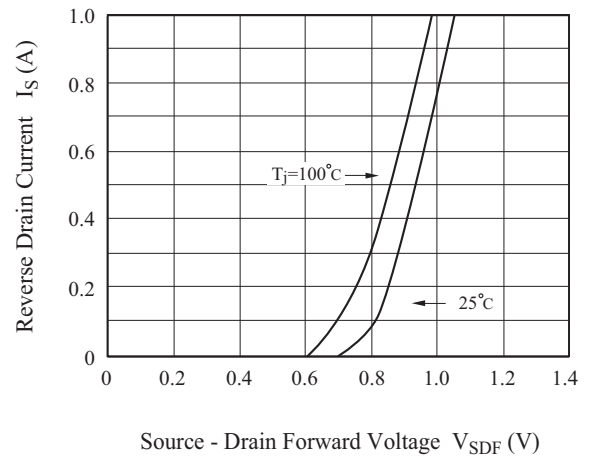


Fig7. $BV_{DSS} - T_j$

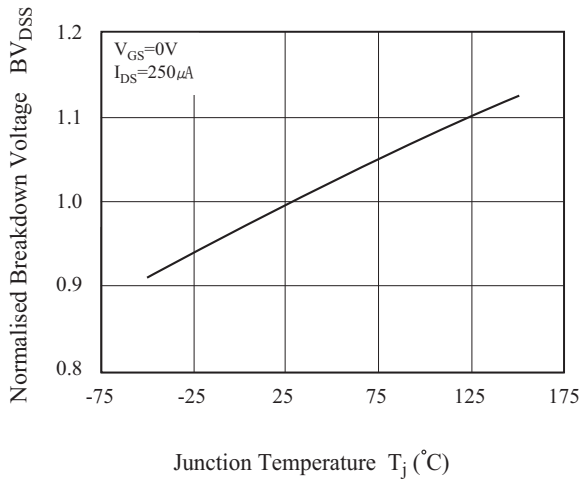


Fig8. $C - V_{DS}$

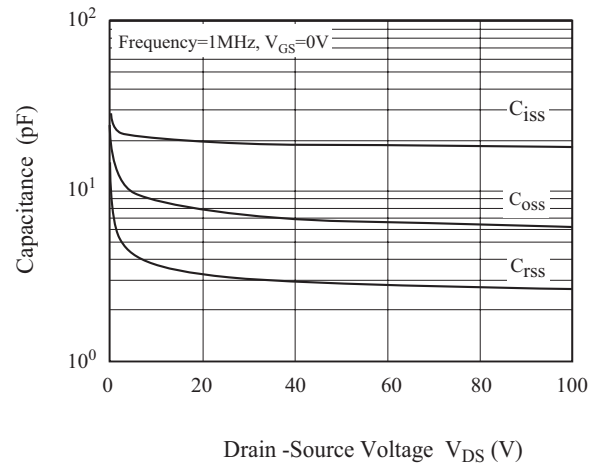


Fig9. $Q_g - V_{GS}$

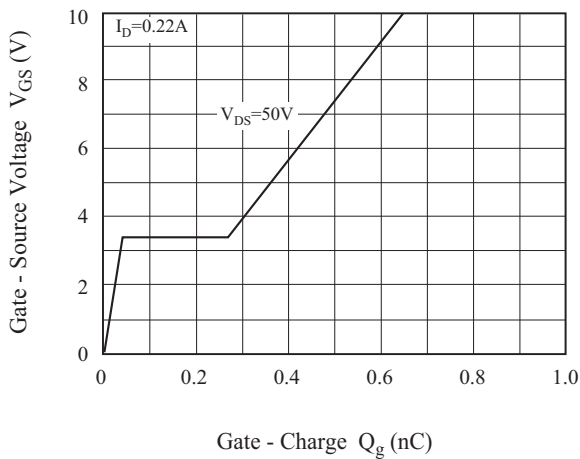


Fig10. Safe Operation Area

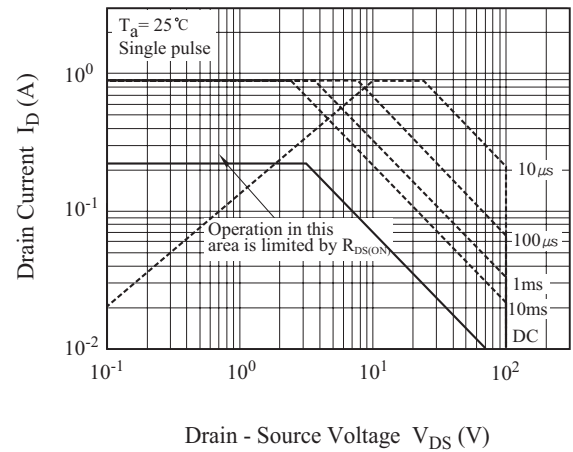


Fig11. Transient Thermal Response Curve

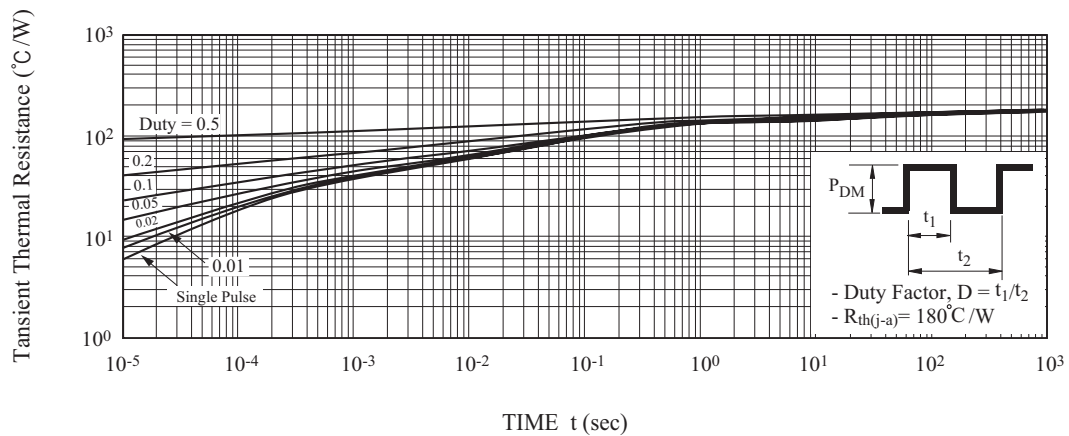


Fig12. Gate Charge

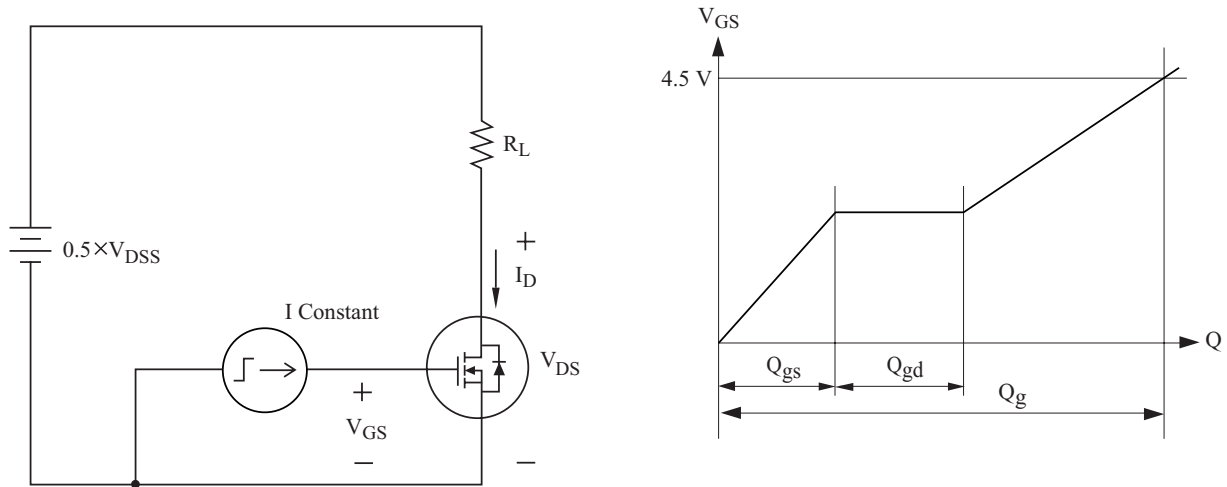


Fig13. Resistive Load Switching

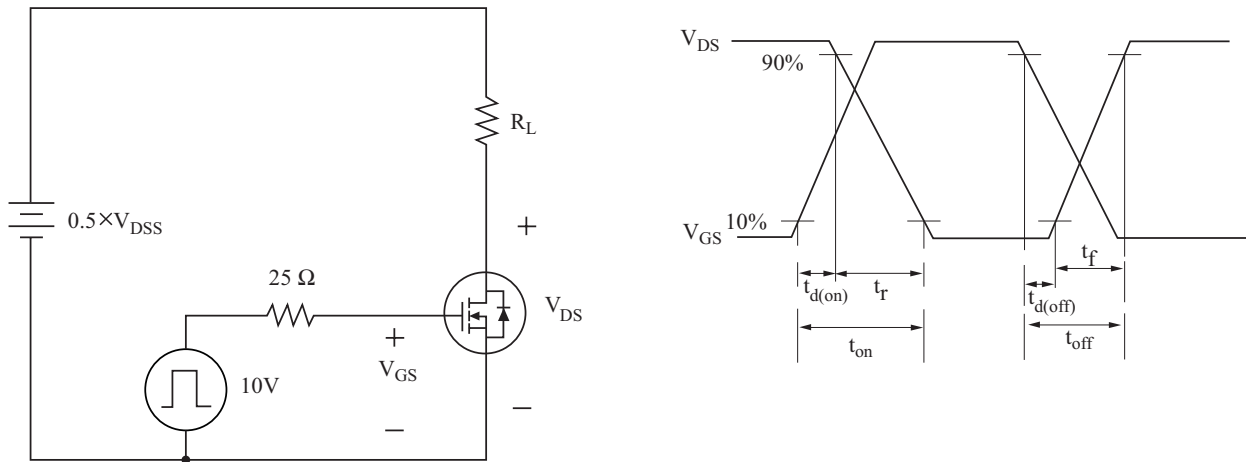


Fig14. Source - Drain Diode Reverse Recovery and dv/dt

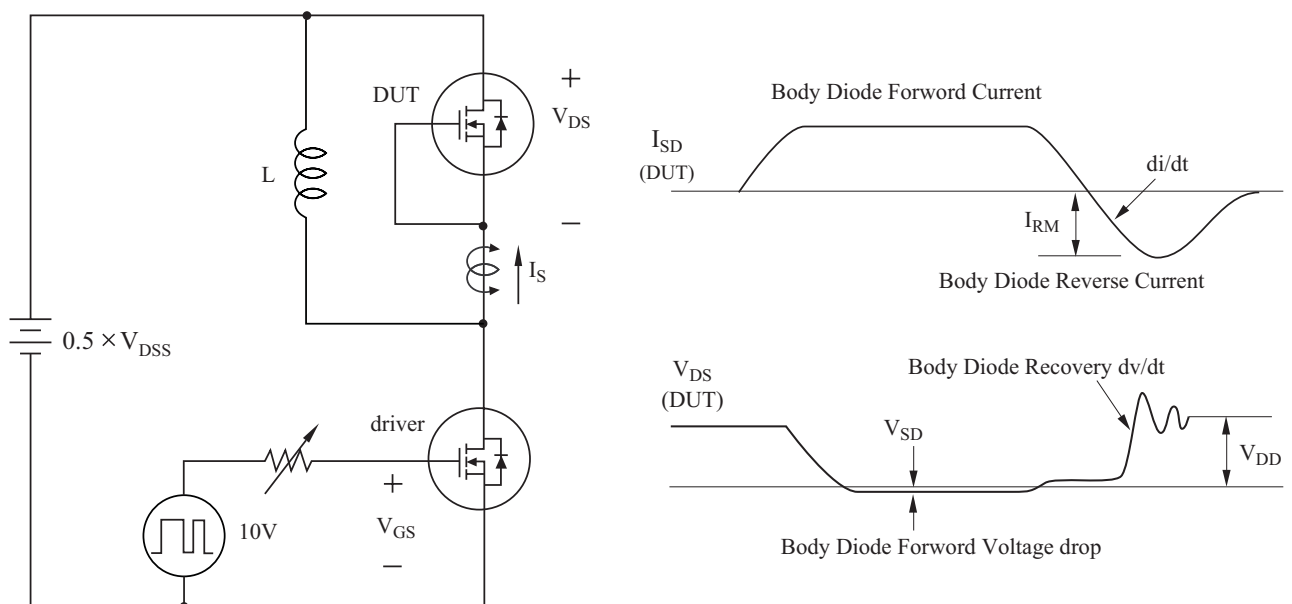


Fig15. Recommended Pad Dimension

