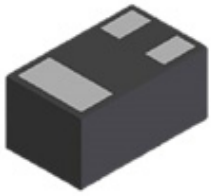
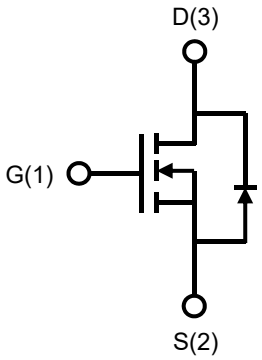
Description

The MOSFET provide the best combination of fast switching , low on-resistance and cost-effectiveness.

MOSFET Product Summary		
V_{DS}(V)	$R_{DS(on)}$(mΩ)	I_D(A)
20	62 @ V_{GS} = 4.5V	2
	70 @ V_{GS} = 2.5V	



DFN1006-3L
(Bottom View)



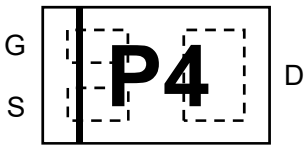
Circuit Diagram

Feature

- High Power and current handing capability
- Lead free product is acquired
- Surface Mount Package

Applications

- PWM applications
- Load switch
- Power management



Marking (Top View)

Absolute maximum rating@25℃

Rating	Symbol	Value	Units
Drain-source Voltage	V_{DS}	20	V
Gate-source Voltage	V_{GS}	±12	V
Drain Current	I_D	2	A
Pulsed Drain Current	I_{DP}	6	A
Total Power Dissipation	P_D	300	mW
Channel to ambient	$R_{th(ch-a)}$	420	℃/W
Junction and Storage Temperature Range	T_J,T_{STG}	-55~+150	℃

Ordering information

Device	Package	Reel	Shipping
TKM2N20DF3	DFN1006-3L(Pb-Free)	7"	10000 / Tape & Reel

Electrical characteristics per line@25℃ (unless otherwise specified)

Parameter	Symbol	Conditions	Min.	Typ.	Max.	Units
Off Characteristics						
Drain-Source Breakdown Voltage	BV_{DSS}	V_{GS}= 0V, I_D= 1mA	20	-	-	V
Zero Gate Voltage Drain Current	I_{DSS}	V_{DS}= 20V,V_{GS}= 0V	-	-	1	μA
Gate-Body Leakage Current	I_{GSS}	V_{GS}= ±12V, V_{DS}= 0V	-	-	±0.1	μA
On Characteristics						
Gate Threshold Voltage	$V_{GS(th)}$	V_{DS}= V_{GS}, I_D= 250μA	0.4	0.6	0.85	V
Static Drain-Source On-Resistance	$R_{DS(ON)}$	V_{GS}= 4.5V, I_D= 1.0A	-	62	75	mΩ
		V_{GS}= 2.5V, I_D= 1.0A	-	70	85	
Dynamic Parameters						
Input Capacitance	C_{iss}	V_{DS}= 10V,V_{GS}= 0V, f= 1MHz	-	196	-	pF
Output Capacitance	C_{oss}		-	24	-	
Reverse Transfer Capacitance	C_{rss}		-	21	-	
Switching Parameters						
Turn-on Delay Time	$t_{d(on)}$	V_{DD} = 6V, V_{GS} = 4.5V, R_G = 50Ω,R_L = 12Ω, I_D = 500mA	-	6.6	-	ns
Turn-on Rise Time	t_r		-	70	-	
Turn-Off Delay Time	$t_{d(off)}$		-	13.5	-	
Turn-Off Fall Time	t_f		-	40	-	
Total Gate Charge	Q_g	V_{DS} = 10V,I_D = 0.01A, V_{GS} = 4.5V	-	2.3	-	nC
Gate-Source Charge	Q_{gs}		-	0.2	-	
Gate-Drain Charge	Q_{gd}		-	0.4	-	
Drain-Source Diode Characteristics						
Diode Forward Voltage	V_{SD}	V_{GS} = 0V,I_S = 100mA	-	0.7	1.0	V

Typical Characteristics

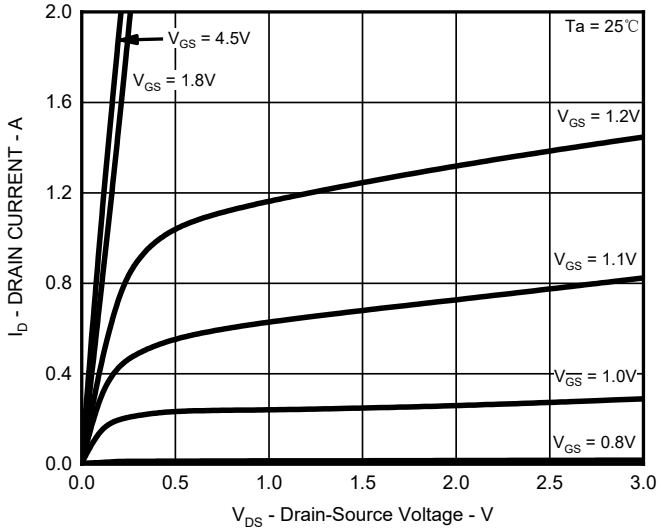


Fig.1 Output Characteristics

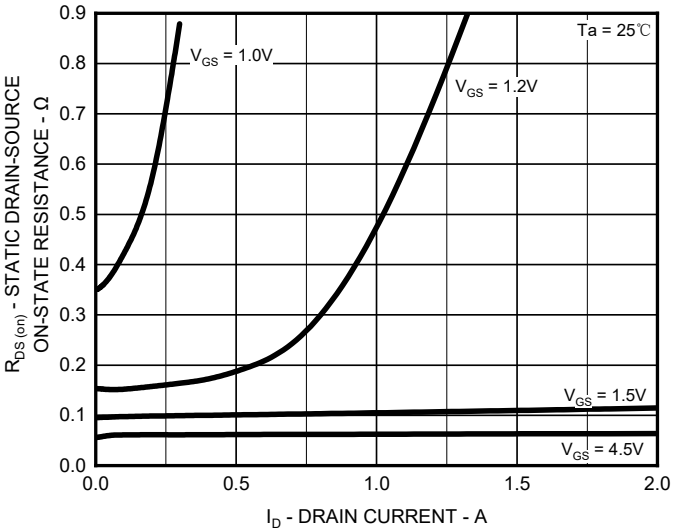


Fig.2 On-Resistance vs. Drain Current (I)

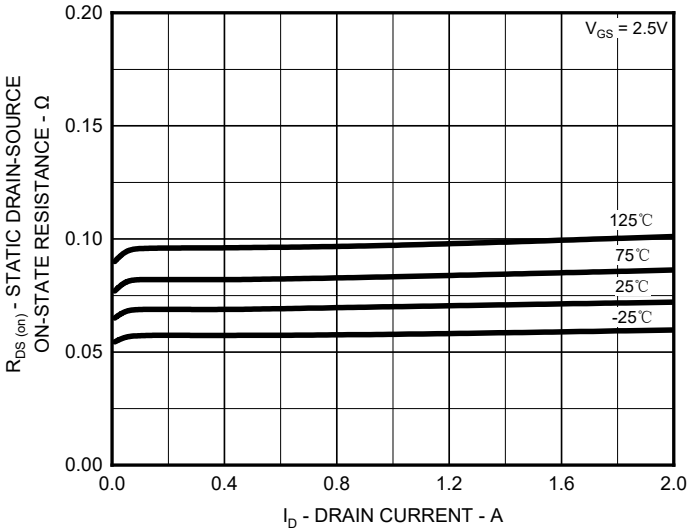


Fig.3 On-Resistance vs. Drain Current (II)

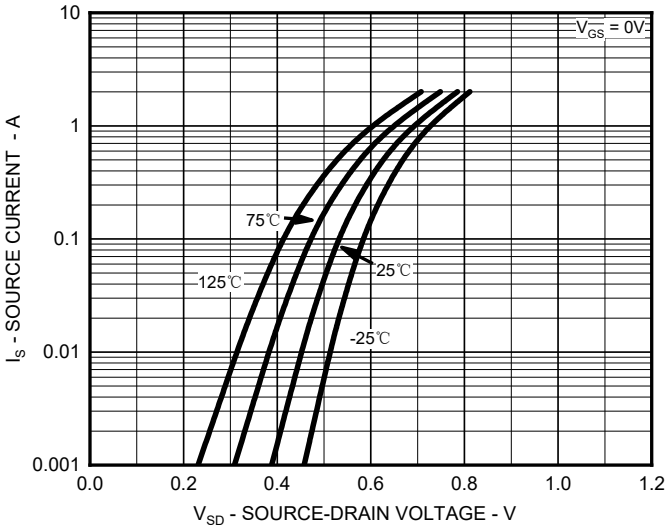


Fig.4 Diode Forward Voltage vs. Current

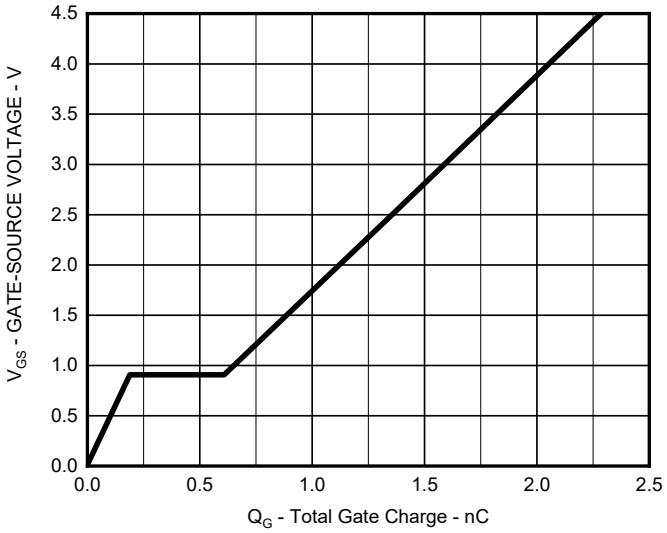


Fig.5 Gate Charge Characteristics

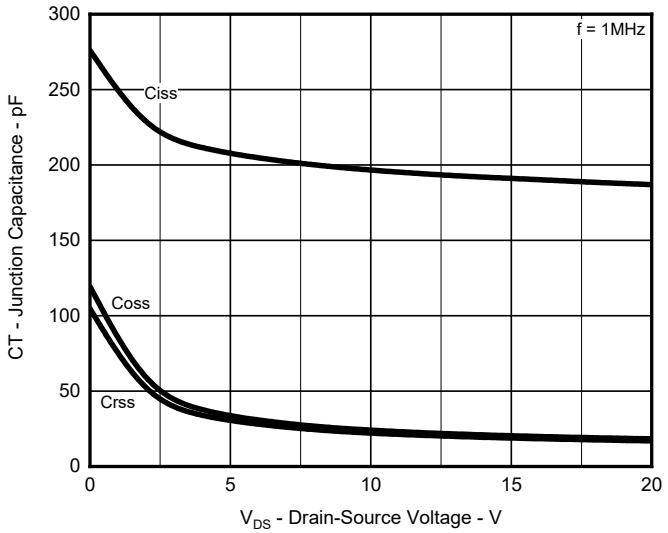
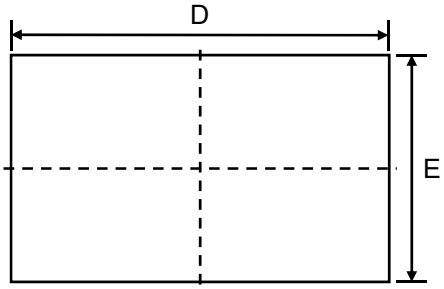
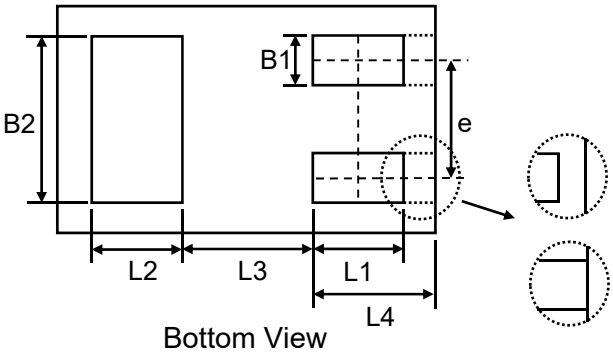


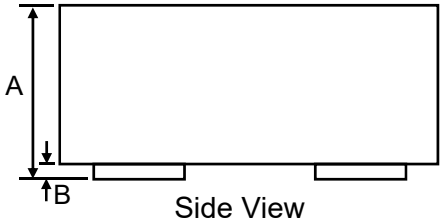
Fig.6 Typical Junction Capacitance



Top View

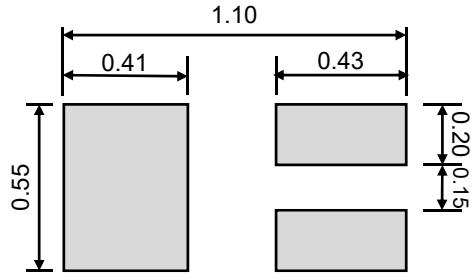


Bottom View



Side View

Dim	Millimeters		Inches	
	Min	Max	Min	Max
A	0.33	0.498	0.013	0.020
B	0.00	0.05	0.000	0.002
B1	0.10	0.20	0.004	0.008
B2	0.45	0.55	0.018	0.022
D	0.90	1.05	0.035	0.041
E	0.50	0.65	0.020	0.026
e	0.35		0.014	
L1	0.20	0.30	0.008	0.012
L2	0.20	0.30	0.008	0.012
L3	0.39		0.015	
L4	0.25	0.35	0.010	0.014



Suggested PCB Layout

Unit:mm