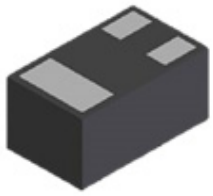
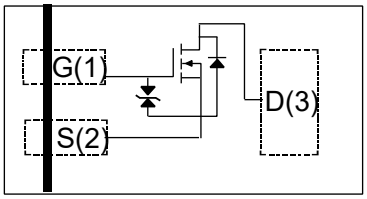
Description

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	200@ V_{GS}=4.5V	±1
	250@ V_{GS}=2.5V	
	310@ V_{GS}=1.8V	

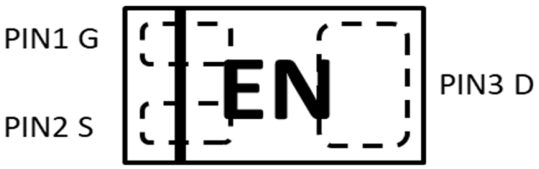


DFN1006-3L
(Bottom View)



Top View

Marking information



Absolute maximum rating@25℃

Parameter		Symbol	Value	Units
Drain-Source Voltage		V_{DS}	20	V
Gate-Source Voltage		V_{GS}	±10	V
Continuous Drain Current	Continuous	I_D	±1	A
	Pulsed	I_{DP}	±4	
Total power dissipation		P_D	300	mW
Channel temperature		T_J	150	℃
Range of storage temperature		T_{STG}	-55 to +150	℃

Thermal resistance

Parameter	Symbol	Limits	Units
Channel to ambient	Rth(ch-a)	420	℃/W

Ordering information

Device	Package	Reel	Shipping
TKM1N20DF3	DFN1006-3L(Pb-Free)	7"	10000 / Tape & Reel

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

Parameter	Symbol	Conditions	Min.	Typ.	Max.	Units
Drain-Source Breakdown Voltage	BV_{DSS}	I_D =1mA,V_{GS}=0V	20	-	-	V
Zero Gate Voltage Drain Current	I_{DSS}	V_{DS} =20V,V_{GS}=0V	-	-	1	μA
Gate-Body Leakage Current	I_{GSS}	V_{DS} =0V,V_{GS}=±8V	-	-	±10	μA
Gate Threshold Voltage	$V_{GS(th)}$	V_{DS} = V_{GS} , I_D =250uA	0.4	-	0.9	V
Static Drain-Source On-Resistance	$R_{DS(ON)}$	V_{GS}=4.5V, I_D =0.65A	-	200	250	mΩ
		V_{GS}=2.5V, I_D =0.45A	-	250	300	mΩ
		V_{GS}=1.8V, I_D =0.25A	-	310	450	mΩ
Forward transfer admittance	g_{FS}	V_{DS}=10V, I_D =300mA	-	1.6	-	s
Input Capacitance	C_{ISS}	V_{GS}=0V, V_{DS} =10V, f=1MHz	-	48	-	pF
Output Capacitance	C_{OSS}		-	13	-	pF
Reverse Transfer Capacitance	C_{RSS}		-	10	-	pF
Total Gate Charge	Q_G	V_{GS}=4.5V, V_{DS} =10V, I_D =0.01A	-	1.0	-	nC
Gate-Source Charge	Q_{GS}		-	0.1	-	nC
Gate-Drain Charge	Q_{GD}		-	0.42	-	nC
Turn-On Delay Time	$t_{d(on)}$	V_{DD}=6V, V_{GS} =4.5V, R_G=50Ω,R_L=12Ω I_D =500mA	-	9	-	ns
Turn-Off Delay Time	$t_{d(off)}$		-	40	-	ns
Turn-On Rise Time	t_r		-	4	-	ns
Turn-On Fall Time	t_f		-	18	-	ns
Drain-Source Diode Forward Voltage	V_{SD}	V_{GS}=0V,Is=100mA	-	0.7	1	V

Typical Characteristics

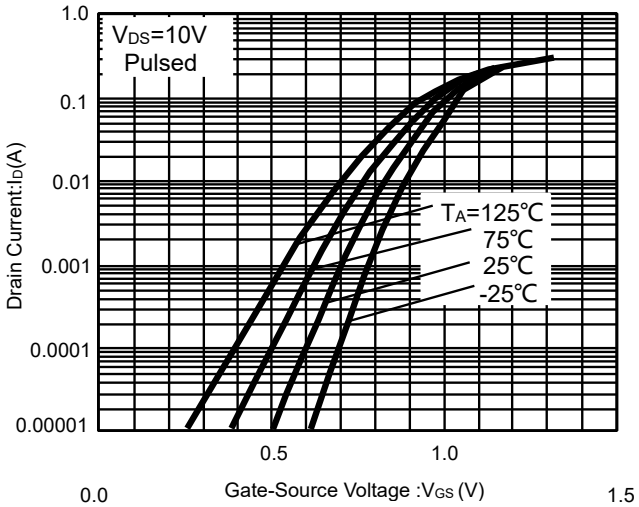


Fig 1. Typical transfer Characteristics

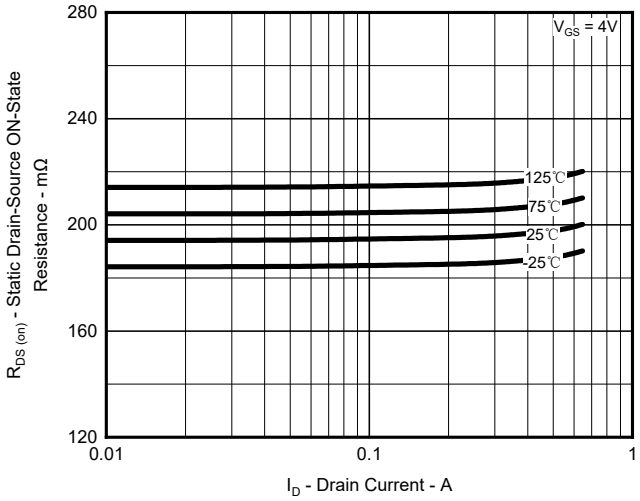


Fig 2. Static drain-source on-state resistance vs. drain current(Ⅰ)

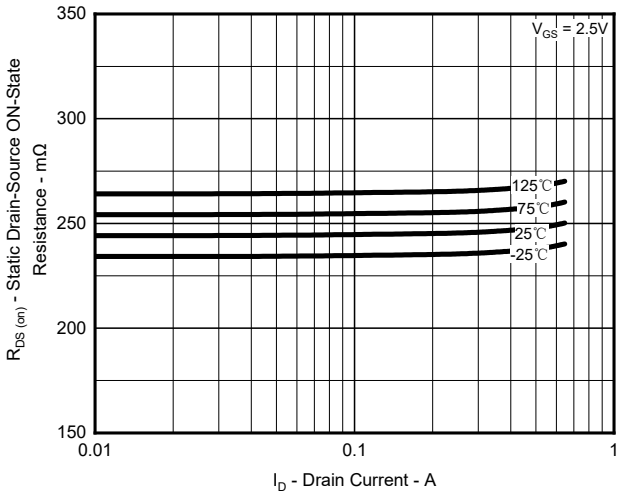


Fig 3. Static drain-source on-state resistance Vs. drain current (Ⅱ)

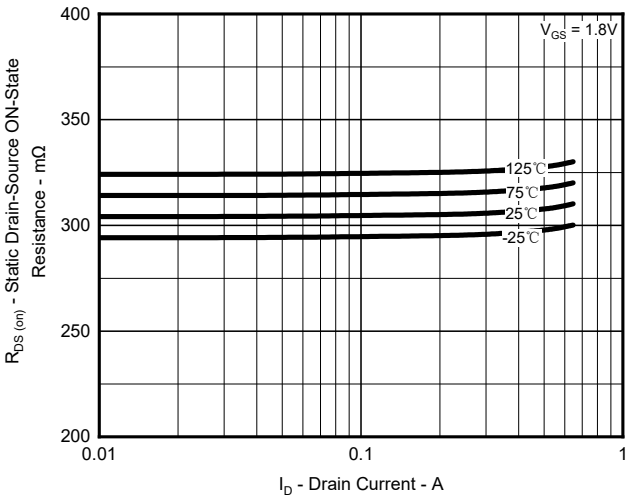


Fig 4. Static drain-source on-state resistance vs. drain current (Ⅲ)

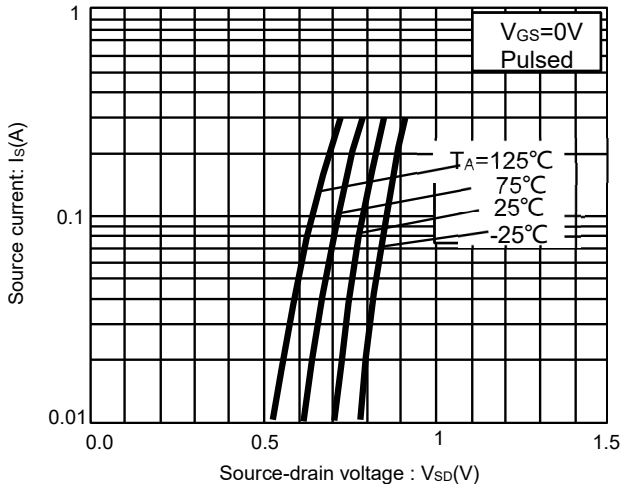


Fig 5. Source current vs. source-drain voltage

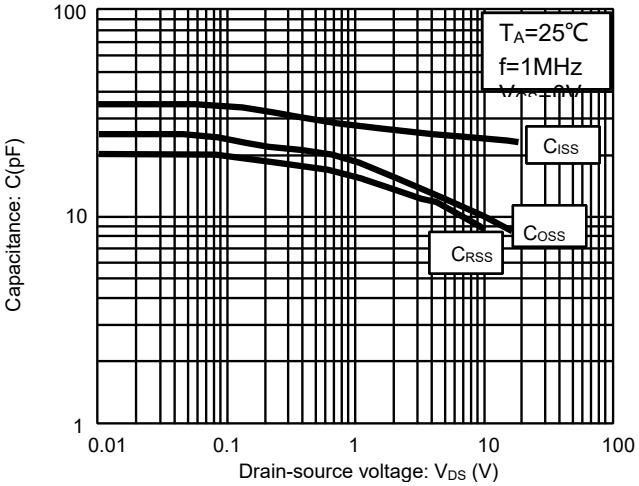


Fig 6. Typical capacitance vs. drain-source voltage

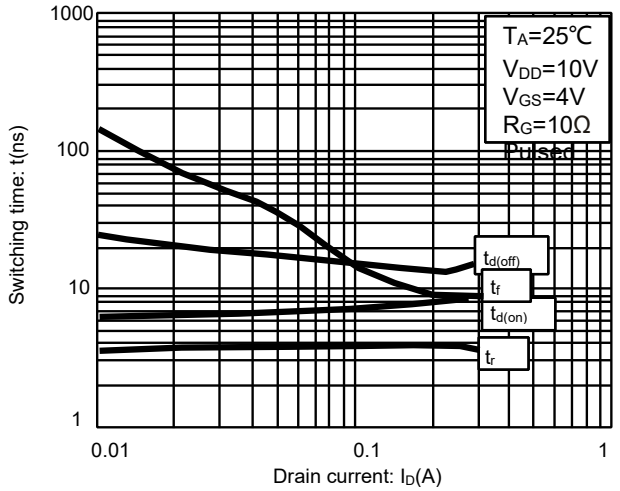


Fig 7. Switching characteristics

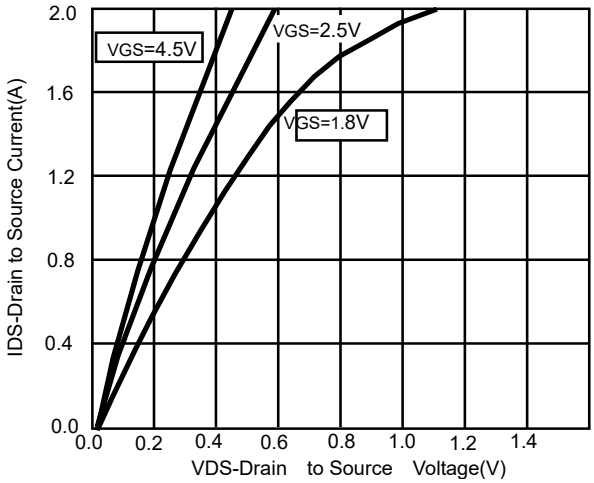


Fig 8. Output characteristics

Switching characteristics measurement circuit

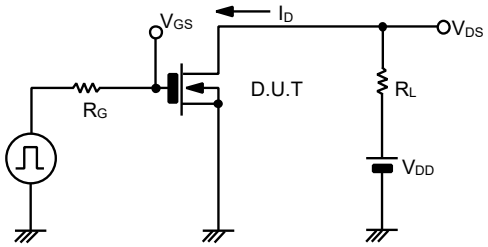


Fig.8 Switching time measurement circuit

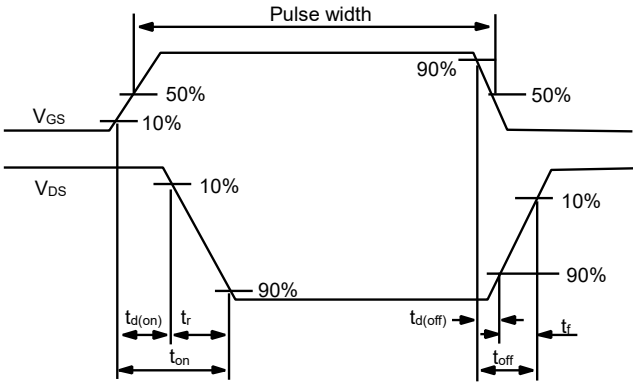
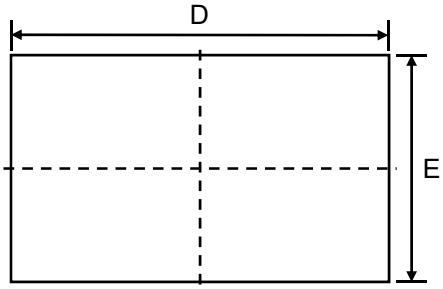
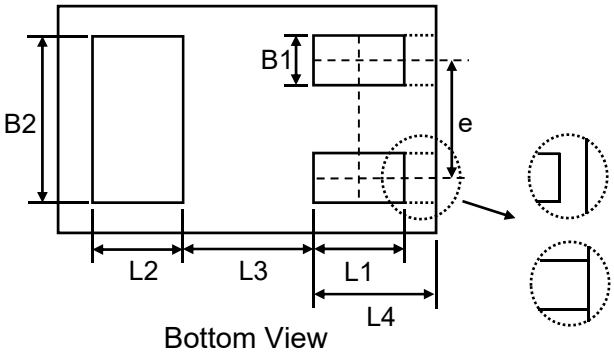


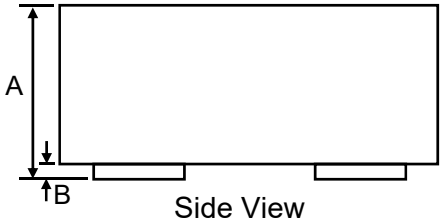
Fig.9 Switching time waveforms



Top View

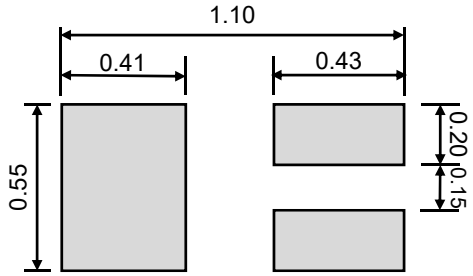


Bottom View



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