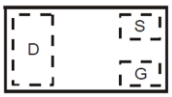
TK2N7002KDF

60V N-Channel MOSFET

Product Summary

$V_{(BR)DSS}$	$R_{DS(on)TYP}$	I_D
60V	1.2Ω@10V	0.41A
	1.3Ω@4.5V	

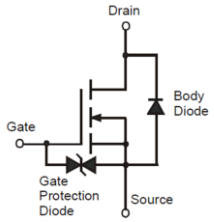
DFN1006-3L



Bottom View

Top View
Internal Schematic

Schematic diagram



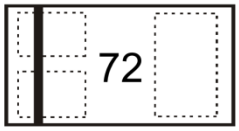
Feature

- Low On-Resistance
- Low Threshold Voltage
- Fast Switching Speed
- ESD Protected Gate

Application

- Load Switch
- Portable Applications
- Power Management Functions

MARKING:



Top View
Bar Denotes Gate
and Source Side

Package Marking and Ordering Information

Device Marking	Device	OUTLINE	Device Package	Reel Size	Reel (PCS)	Per Carton (PCS)
72	**TK2N7002KDF**	TAPING	DFN1006-3L	7inch	10000	400000

ABSOLUTE MAXIMUM RATINGS (T_a=25℃ unless otherwise noted)

Parameter		Symbol	Value	Unit
Drain-Source Voltage		V_{DS}	60	V
Gate-Source Voltage		V_{GS}	±20	V
Continuous Drain Current	T_a=25℃	I_D	0.41	A
	T_a=85℃		0.30	
Pulsed Drain Current		I_{DM}	1.2	A
Power Dissipation		P_D	0.1	W
Thermal Resistance from Junction to Ambient		$R_{\theta JA}$	1250	℃/W
Storage Temperature		T_{STG}	-55~ +150	℃

MOSFET ELECTRICAL CHARACTERISTICS(T_a=25℃ unless otherwise noted)

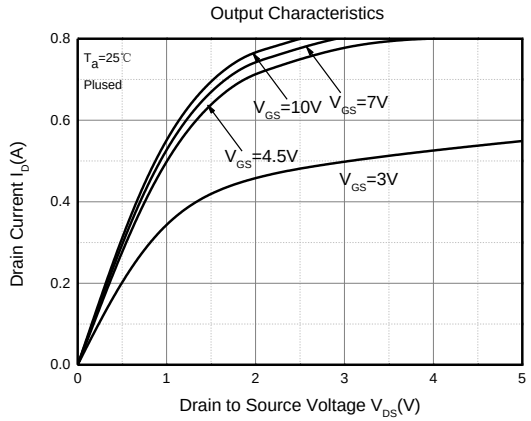
Parameter	Symbol	Test Condition	Min	Type	Max	Unit
Static Characteristics						
Drain-source breakdown voltage	$V_{(BR)DSS}$	V_{GS} = 0V, I_D =250μA	60			V
Zero gate voltage drain current	I_{DSS}	V_{DS} =60V,V_{GS} = 0V			100	nA
Gate-body leakage current	I_{GSS}	V_{GS} =±20V, V_{DS} = 0V			±10	μA
		V_{GS} =±5V, V_{DS} = 0V			±1	
Gate threshold voltage	$V_{GS(th)}$	V_{DS} =V_{GS}, I_D =250μA	1.0	1.4	2.5	V
Drain-source on-resistance[a]	$R_{DS(on)}$	V_{GS} =10V, I_D =40mA		1.2	1.5	Ω
		V_{GS} =4.5V, I_D =35mA		1.3	1.8	
Forward tranconductance[a]	gfs	V_{DS} = 5V, I_D = 40mA	100			mS
Diode forward voltage	V_{SD}	V_{DS} =0V, I_S =300mA		0.84	1.1	V
Dynamic characteristics						
Input Capacitance[b]	C_{iss}	V_{DS} =40V,V_{GS} =0V,f =1MHz		41	80	pF
Output Capacitance[b]	C_{oss}			3.6	7	
Reverse Transfer Capacitance[b]	C_{rss}			2.9	5.6	
Gate resistance	R_g	V_{DS} = 0V, V_{GS} = 0V, f = 1MHz		81	200	Ω
Total Gate Charge	Q_g	V_{GS} =4.5V, V_{DS} = 50V, I_D = 1A		0.72	1.5	nC
		V_{GS} =10V, V_{DS} = 50V, I_D = 1A		1.41	2.8	
Gate-Source Charge	Q_{gs}			0.24	0.4	
Gate-Drain Charge	Q_{gd}			0.24	0.5	
Turn-on delay time[b]	$t_{d(on)}$	V_{DS}=50V,I_D=1A, V_{GS}=10V,RG=6Ω		3.98	10	ns
Turn-on rise time[b]	t_r			4.95	10	
Turn-off delay time[b]	$t_{d(off)}$			18.52	40	
Turn-off fall time[b]	t_f			11.94	25	

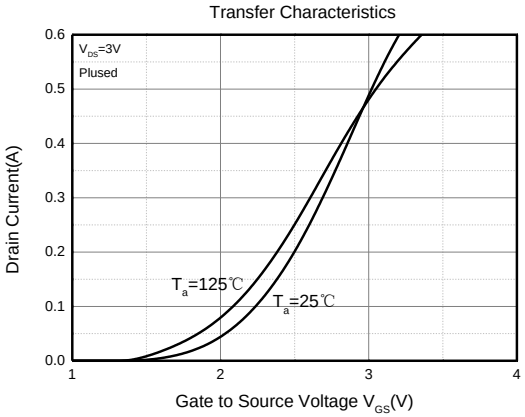
Notes:

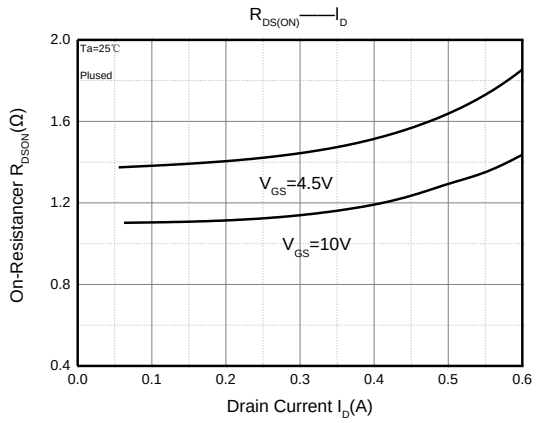
a. Pulse Test : Pulse width≤300μs, duty cycle ≤2%.

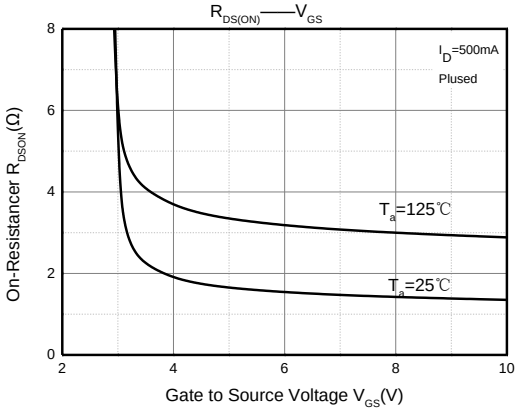
b. These parameters have no way to verify.

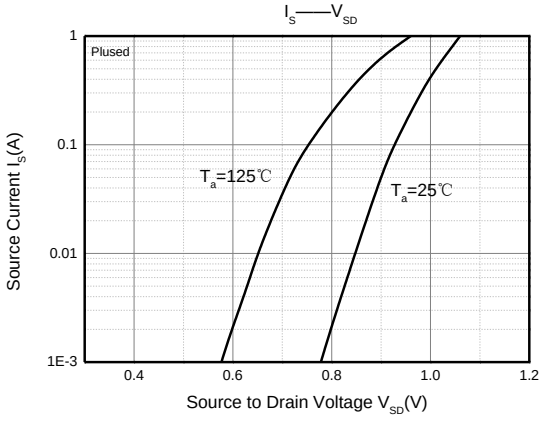
Typical Electrical and Thermal Characteristics

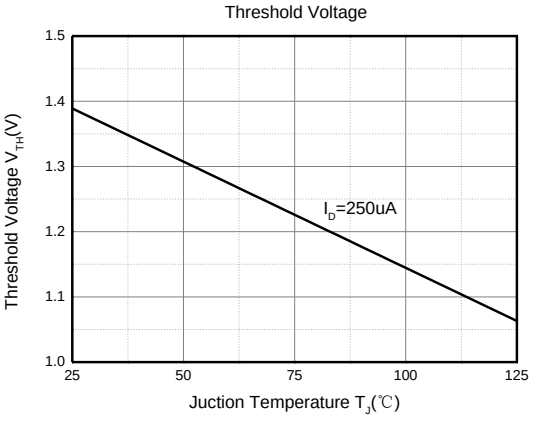


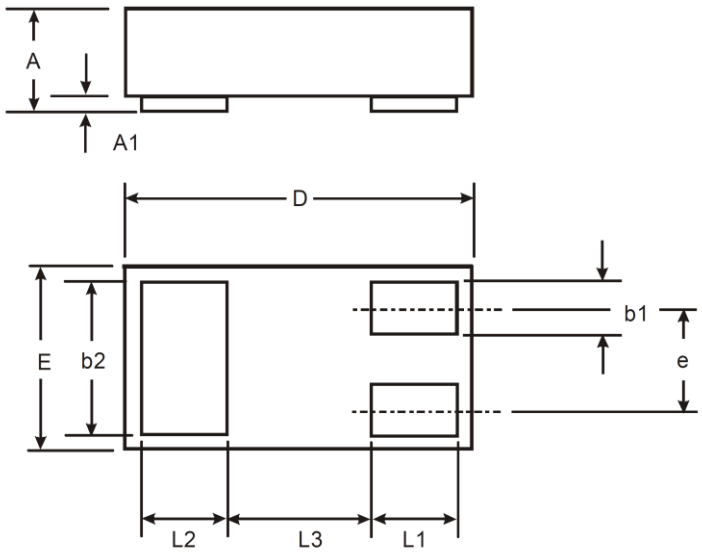












X1-DFN1006-3			
Dim	Min	Max	Typ
A	0.47	0.53	0.50
A1	0	0.05	0.03
b1	0.10	0.20	0.15
b2	0.45	0.55	0.50
D	0.95	1.075	1.00
E	0.55	0.675	0.60
e	—	—	0.35
L1	0.20	0.30	0.25
L2	0.20	0.30	0.25
L3	—	—	0.40
All Dimensions in mm			