Micro Commercial Components

Micro Commercial Components
130 W Cochran St, Unit B
Simi Valley, CA 93065
Tel:818-701-4933

2N7002KA

N-Channel MOSFET

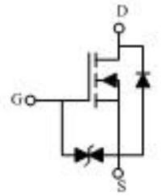
Features

- Epoxy meets UL 94 V-0 flammability rating
- Moisture Sensitivity Level 1
- High density cell design for low $R_{DS(ON)}$
- Voltage controlled small signal switch
- Rugged and reliable
- ESD Protected up to 2.5KV (HBM)
- Halogen free available upon request by adding suffix "-HF"

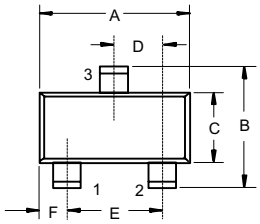
Maximum Ratings @ 25°C Unless Otherwise Specified

Symbol	Rating	Rating	Unit
V_{DS}	Drain-source Voltage	60	V
V_{GS}	Gate-source Voltage	±20	V
I_D	Drain Current	340	mA
P_D	Total Power Dissipation	350	mW
T_J	Operating Junction Temperature	-55 to +150	℃
T_{STG}	Storage Temperature	-55 to +150	℃
RthJA	Thermal Resistance fromJunction to Ambient	357	℃/W

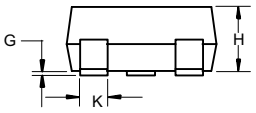
Equivalent circuit

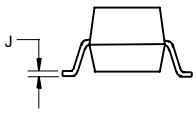


SOT-23



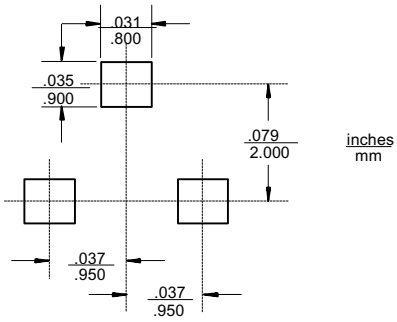
1.GATE
2. SOURCE
3. DRAIN





DIMENSIONS					
	INCHES		MM		
DIM	MIN	MAX	MIN	MAX	NOTE
A	.110	.120	2.80	3.04	
B	.083	.104	2.10	2.64	
C	.047	.055	1.20	1.40	
D	.035	.041	.89	1.03	
E	.070	.081	1.78	2.05	
F	.018	.024	.45	.60	
G	.0005	.0039	.013	.100	
H	.035	.044	.89	1.12	
J	.003	.007	.085	.180	
K	.015	.020	.37	.51	

Suggested Solder Pad Layout



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} =48V,V_{GS} = 0V			1	μA
Gate-body leakage current	I_{GSS1}	V_{GS} =±20V, V_{DS} = 0V			±10	μA
	I_{GSS2}	V_{GS} =±10V, V_{DS} = 0V			±200	nA
	I_{GSS2}	V_{GS} =±5V, V_{DS} = 0V			±100	nA
Gate threshold voltage*	$V_{GS(th)}$	V_{DS} =V_{GS}, I_D =250μA	1	1.4	2.5	V
Drain-source on-resistance*	$R_{DS(on)}$	V_{GS} =10V, I_D =500mA		1.2	5	Ω
		V_{GS} =4.5V, I_D =200mA		1.3	5.3	
Recovered charge	Q_r	V_{GS}=0V,I_S=300mA,V_R=25V, dI_s/d_t=-100A/μS		30		nC
Dynamic characteristics**						
Input Capacitance	C_{iss}	V_{DS}=25V,V_{GS}=0V,f=1MHz		35		pF
Output Capacitance	C_{oss}			13		
Reverse Transfer Capacitance	C_{rss}			8		
Switching Characteristics**						
Turn-on delay time	$t_{d(on)}$	V_{GS}=10 V, V_{DD}=50V, R_G=50Ω			10	ns
Turn-off delay time	$t_{d(off)}$	R_{GS}=50Ω,R_L=250Ω			15	
Reverse recovery Time	t_{rr}	V_{GS}=0V,I_S=300mA,V_R=25V, dI_s/d_t=-100A/μS		30		
Source-Drain Diode characteristics						
Diode Forward voltage	V_{SD}	V_{GS} =0V, I_S=200mA		0.82	1.3	V
GATE-SOURCE ZENER DIODE						
Gate-Source Breakdown Voltage	BV_{GSO}	IGS=±1mA(Open Drain)	±21.5		±30	V

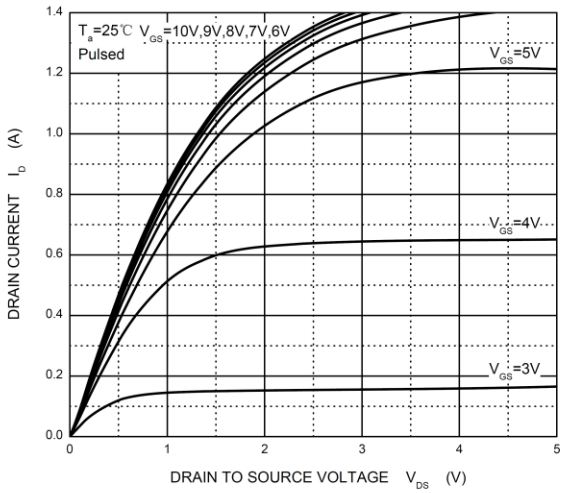
Notes:

*Pulse Test: Pulse Width ≤300μs， Duty Cycle ≤2%.

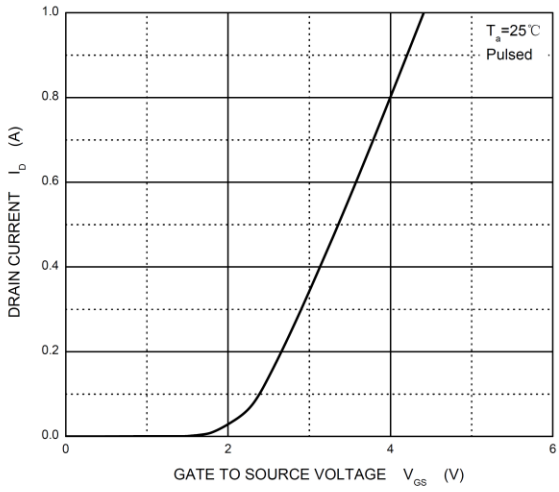
**These parameters have no way to verify.

Typical Characteristics

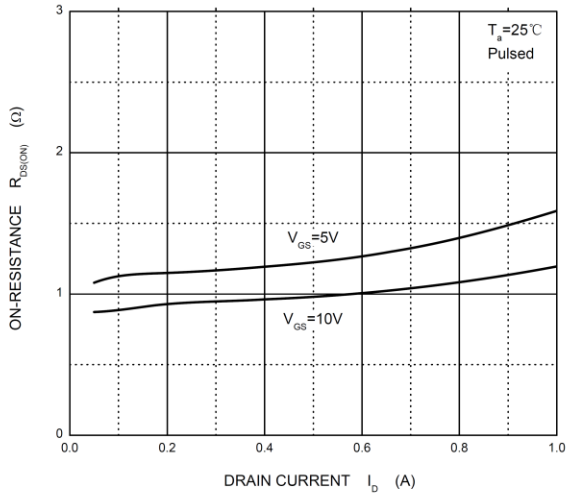
Output Characteristics



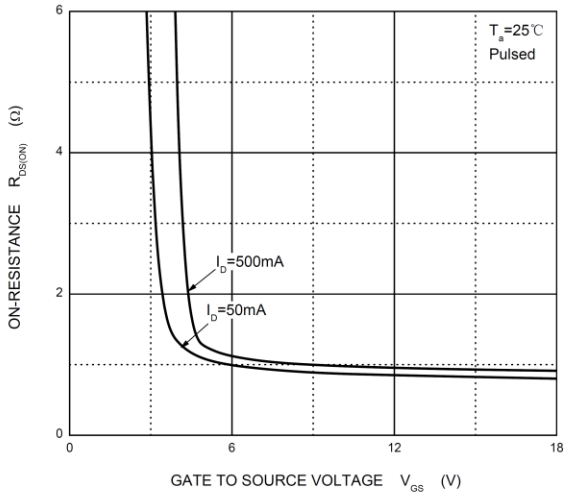
Transfer Characteristics



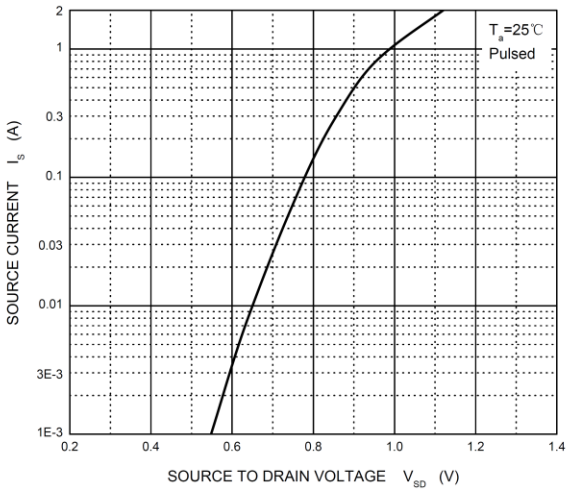
$R_{DS(ON)}$ — I_D



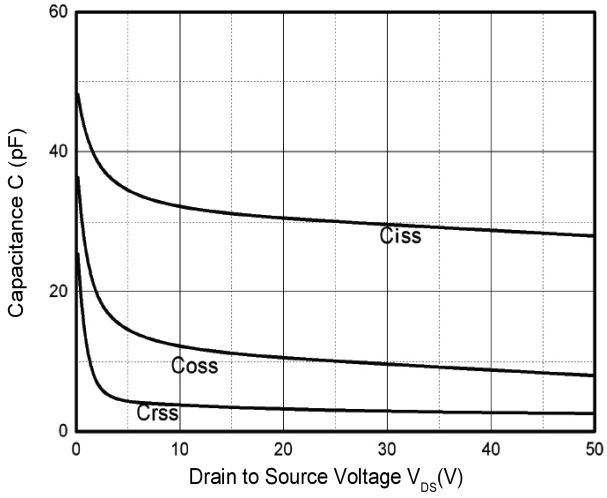
$R_{DS(ON)}$ — V_{GS}



I_S — V_{SD}



C — V_{DS}



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Ordering Information :

Device	Packing
Part Number-TP	Tape&Reel: 3Kpcs/Reel

Note : Adding "-HF" suffix for halogen free, eg. Part Number-TP-HF

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