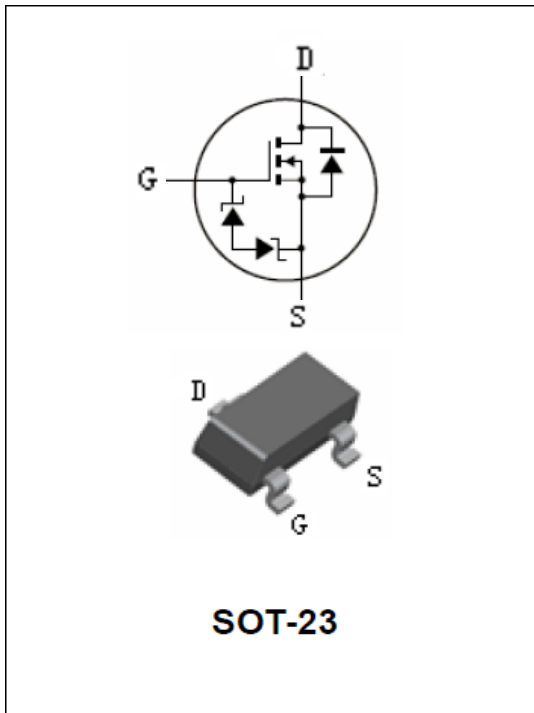


N-Channel MOSFET



FEATURE

- Epoxy meets UL 94 V-0 flammability rating
- Moisture Sensitivity Level1
- High density cell design for low $R_{DS(ON)}$
- Voltage controlled small signal switch
- Rugged and reliable
- ESD Protected up to 2.5KV(HBM)

■MAXIMUM RATINGS (Ta=25°C unless otherwise noted)

Symbol	Parameter	Value	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
$R_{\theta JA}$	Thermal Resistance From Junction To Ambient	357	°C/W
T_J	Operation Junction Temperature	-55~+150	°C
T_{STG}	Storage Temperature	-55~+150	°C

■Ordering Information (Example)

PREFERRED P/N	PACKING CODE	Marking	MINIMUM PACKAGE(pcs)	INNER BOX QUANTITY(pcs)	OUTER CARTON QUANTITY(pcs)	DELIVERY MODE
2N7002K	F2	72K	3000	30000	120000	7" reel



2N7002K

■ ELECTRICAL CHARACTERISTICS (Ta=25°C unless otherwise specified)

Parameter	Symbol	Test conditions	Min	Typ	Max	Unit
Static Characteristics						
Drain-source breakdown voltage	$V_{(BR)DSS}$	$V_{GS}=0V, I_D=250\mu A$	60			V
Zero gate voltage drain current	I_{DSS}	$V_{DS}=48V, V_{GS}=0V$			1	μA
Gate-body leakage current	I_{GSS1}	$V_{GS}= \pm 20V, V_{DS}=0V$			± 10	μA
	I_{GSS2}	$V_{GS}= \pm 10V, V_{DS}=0V$			± 200	nA
	I_{GSS3}	$V_{GS}= \pm 5V, V_{DS}=0V$			± 100	nA
Gate threshold voltage*	$V_{GS(th)}$	$V_{DS}= V_{GS}, I_D=250\mu A$	1	1.4	2.5	V
Drain-source on-resistance*	$R_{DS(ON)}$	$V_{GS}= 10V, I_D=500mA$			5	Ω
		$V_{GS}= 4.5V, I_D=200mA$			5.3	
Recovered charge	Q_r	$V_{GS}= 0V, I_D=300mA, V_R=25V, di_S/dt=-100A/\mu s$		30		nC
Dynamic characteristics**						
Input Capacitance	C_{iss}	$V_{DS}=10V, V_{GS}=0V, f=1MHz$			40	pF
Output Capacitance	C_{oss}				30	
Reverse Transfer Capacitance	C_{rss}				10	
Switching Characteristics**						
Turn-on delay time	$t_{d(on)}$	$V_{GS}=10V, V_{DD}=50V, R_G=50\Omega, R_{GS}=50\Omega, R_L=250\Omega$			10	ns
Turn-off delay time	$t_{d(off)}$				15	
Reverse recovery Time	t_{rr}	$V_{GS}=0V, I_S=300mA, V_R=25V, di_S/dt=-100A/\mu s$		30		
Source-Drain Diode characteristics						
Diode Forward voltage	V_{SD}	$V_{GS}=0V, I_S=300mA$			1.5	V
Gate-Source Zener Diode						
Gate-Source Breakdown Voltage	BV_{GSO}	$I_{GS}= \pm 1Ma(Open Drain)$	± 21.5		± 30	V

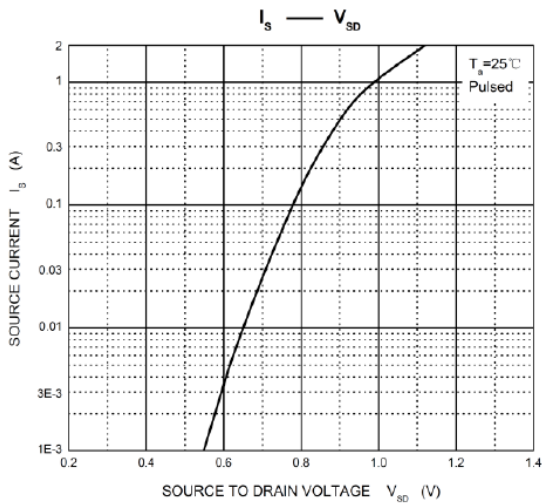
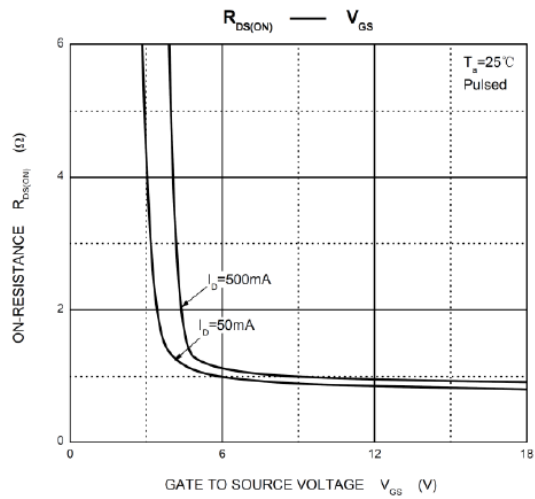
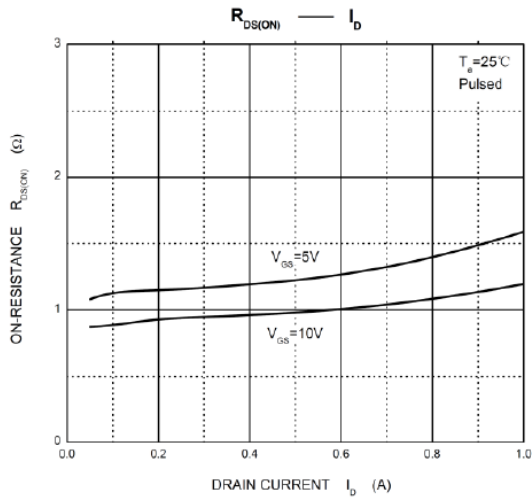
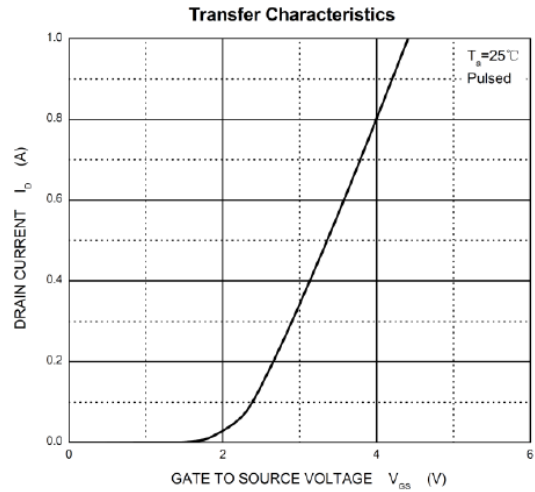
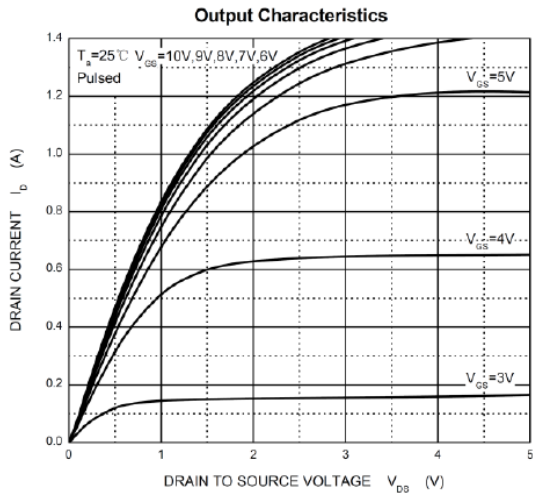
Notes:

*Pulse Test:Pulse Width $\leq 300\mu A$, Duty Cycle $\leq 2\%$.

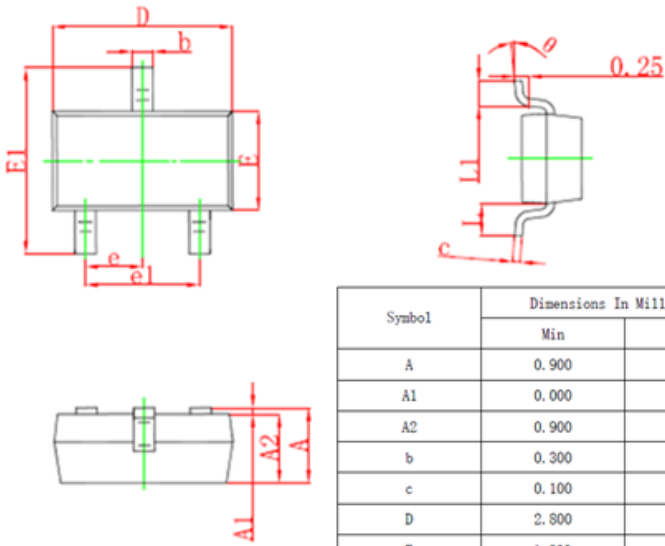
**These parameters have no way to verify.



■ Characteristics(Typical)

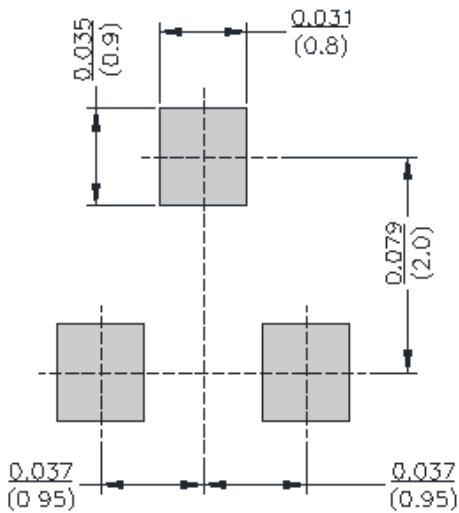


■SOT-23 Package Outline Dimensions



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min	Max	Min	Max
A	0.900	1.150	0.035	0.045
A1	0.000	0.100	0.000	0.004
A2	0.900	1.050	0.035	0.041
b	0.300	0.500	0.012	0.020
c	0.100	0.200	0.004	0.008
D	2.800	3.000	0.110	0.118
E	1.200	1.400	0.047	0.055
E1	2.250	2.550	0.089	0.100
e	0.950TYP		0.037TYP	
e1	1.800	2.000	0.071	0.079
L	0.550REF		0.022REF	
L1	0.300	0.500	0.012	0.020
θ	0°	8°	0°	8°

■SOT-23Suggested Pad Layout





Disclaimer

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The product listed herein is designed to be used with ordinary electronic equipment or devices, and not designed to be used with equipment or devices which require high level of reliability and the malfunction of which would directly endanger human life (such as medical instruments, transportation equipment, aerospace machinery, nuclear-reactor controllers, fuel controllers and other safety devices), Yangjie or anyone on its behalf, assumes no responsibility or liability for any damages resulting from such improper use of sale.

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