



2N7002KWA

Features

- High density cell design for Low $R_{DS(ON)}$
- Voltage controlled small signal switch
- Rugged and reliable
- High saturation current capability
- Low Input/Output Leakage
- Epoxy meets UL 94 V-0 flammability rating
- Moisture Sensitivity Level 1
- Halogen free available upon request by adding suffix "-HF"

Mechanical Data

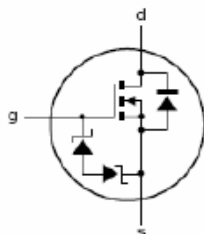
- Case: SOT-323, Molded Plastic
- Terminals: Solderable per MIL-STD-202, Method 208
- Terminal Connections: See Diagram

Maximum Ratings

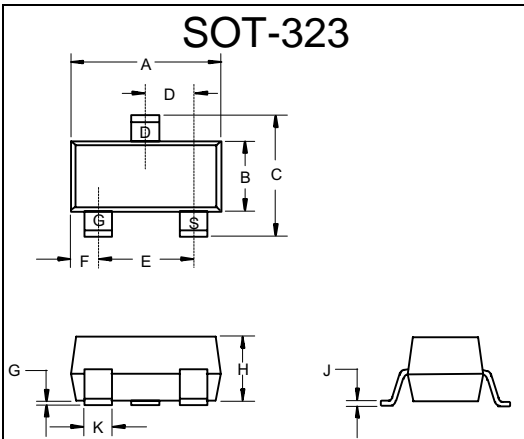
- Operating Temperature: -55°C to $+150^{\circ}\text{C}$
- Storage Temperature: -55°C to $+150^{\circ}\text{C}$
- Maximum Thermal Resistance; 625K/W Junction To Ambient

Parameter	Symbol	Value	Unit
Drain-Source-Voltage	V_{DSS}	60	V
Gate-Source-Voltage	V_{GS}	± 20	V
Drain Current	I_D	340	mA
Total Power Dissipation	P_D	200	mW

Equivalent circuit

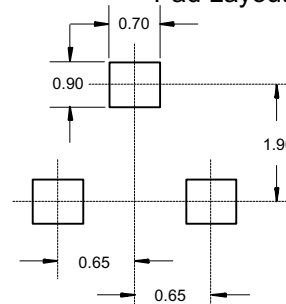


N-Channel Enhancement Mode Field Effect Transistor



DIM	DIMENSIONS				NOTE
	INCHES		MM		
	MIN	MAX	MIN	MAX	
A	.071	.087	1.80	2.20	
B	.045	.053	1.15	1.35	
C	.083	.096	2.10	2.45	
D	.026 Nominal		0.65Nominal		
E	.047	.055	1.20	1.40	
F	.012	.016	.30	.40	
G	.000	.004	.000	.100	
H	.035	.039	.90	1.00	
J	.004	.010	.100	.250	
K	.006	.016	.15	.40	

Suggested Solder Pad Layout



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

Parameter	Symbol	Test Condition	Min	Typ	Max	Units
Static Characteristics						
Drain-Source Breakdown Voltage	V _{DS}	V _{GS} = 0V, I _D = 250μA	60			V
Gate Threshold Voltage*	V _{GS(th)}	V _{DS} = V _{GS} , I _D = 250μA	1	1.4	2	V
Zero Gate Voltage Drain Current	I _{DSS}	V _{DS} = 48V, V _{GS} = 0V			1	μA
Gate –Source leakage current	I _{GSS}	V _{GS} = ±20V, V _{DS} = 0V			±10	μA
Drain-Source On-Resistance*	R _{DS(on)}	V _{GS} = 4.5V, I _D = 200mA			5.3	Ω
		V _{GS} = 10V, I _D = 500mA			5	Ω
Diode Forward Voltage	V _{SD}	V _{GS} = 0V, I _S = 300mA			1.5	V
Recovered charge	Q _r	V _{GS} = 0V, I _S = 300mA, V _R = 25V, di/dt = -100A/μs		30		nC
Dynamic Characteristics**						
Input Capacitance	C _{iss}	V _{DS} = 10V, V _{GS} = 0V, f = 1MHz			40	pF
Output Capacitance	C _{oss}				30	pF
Reverse Transfer Capacitance	C _{rss}				10	pF
Switching Characteristics**						
Turn-On Delay Time	t _{d(on)}	V _{GS} = 10V, V _{DD} = 50V, R _G = 50Ω, R _{GS} = 50Ω, R _L = 250Ω			10	ns
Turn-Off Delay Time	t _{d(off)}				15	ns
Reverse recovery Time	t _{rr}	V _{GS} = 0V, I _S = 300mA, V _R = 25V, di/dt = -100A/μs		30		ns
GATE-SOURCE ZENER DIODE						
Gate-Source Breakdown Voltage	BV _{GSO}	I _{GS} = ±1mA (Open Drain)	±21.5		±30	V

Notes:

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

**These parameters have no way to verify.



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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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