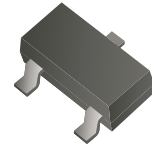


A2N7002H-HF

N-Channel
RoHS Device
Halogen Free



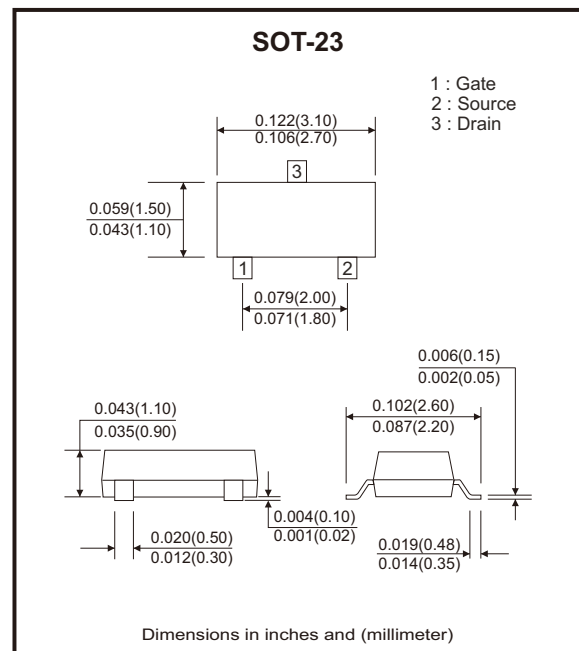
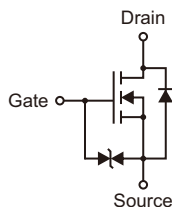
Features

- Low on-resistance.
- ESD protected gate up to 2KV HBM.
- High-speed switching.
- Drive circuits can be simple.
- Parallel use is easy.
- AEC-Q101 Qualified.

Mechanical data

- Case: SOT-23, molded plastic.
- Molding compound, UL flammability classification rating 94V-0.
- Terminals: Matte tin plated leads, solderable per MIL-STD-202, method 208.

Circuit Diagram



Maximum Rating (at $T_A=25^{\circ}\text{C}$ unless otherwise noted)

Parameter	Symbol	Value	Unit
Drain-source voltage	V_{DS}	60	V
Gate-source voltage	V_{GS}	± 20	V
Continuous drain current	I_D	300	mA
Pulsed drain current (Note 4) $t_p = 10\mu\text{s}$	I_{DM}	2000	mA
Power dissipation	P_D	0.35	W
Thermal resistance junction to ambient air	$R_{\theta JA}$	357	$^{\circ}\text{C/W}$
Thermal resistance junction to lead	$R_{\theta JL}$	234	$^{\circ}\text{C/W}$
Thermal resistance junction to case	$R_{\theta JC}$	195	$^{\circ}\text{C/W}$
Operating junction temperature range	T_J	-55 to +150	$^{\circ}\text{C}$
Storage temperature range	T_{STG}	-55 to +150	$^{\circ}\text{C}$

Company reserves the right to improve product design, functions and reliability without notice.

REV:A

Electrical Characteristics (at $T_A=25^{\circ}\text{C}$ unless otherwise noted)

Parameter	Symbol	Conditions	Min	Typ	Max	Unit
Off Characteristics						
Drain-source breakdown voltage	V _{DSS}	V _{GS} = 0V, I _D = 250μA	60			V
Drain-source leakage current	I _{DSS}	V _{DS} = 60V, V _{GS} = 0V			1	μA
Gate-body leakage	I _{GSS}	V _{GS} = ±20V, V _{DS} = 0V			±10	μA
On Characteristics (Note 2)						
Static drain-source on resistance	R _{DS(ON)}	V _{GS} = 5V, I _D = 0.05A V _{GS} = 10V, I _D = 0.5A		1.5 1.45	3 2.5	Ω
Gate threshold voltage	V _{GS(th)}	V _{DS} = V _{GS} , I _D = 250μA	1	1.5	2.5	V
Dynamic Characteristics (Note 3)						
Input capacitance	C _{iss}	V _{GS} = 0V, V _{DS} = 20V, f = 1MHz		41		pF
Output capacitance	C _{oss}			15		
Reverse transfer capacitance	C _{rss}			4		
Switching Characteristics (Note 3)						
Turn-on delay time	t _{d(on)}	V _{DD} = 30V, I _D = 0.2A, V _{GS} = 10V, R _G = 25Ω, R _L = 150Ω		6		nS
Turn-on rise time	t _r			5		
Turn-off delay time	t _{d(off)}			25		
Turn-off fall time	t _f			15		
Drain-Source Diode Characteristics						
Diode forward voltage (Note 1)	V _{SD}	I _S = 0.3A, V _{GS} = 0V		0.85	1.2	V
Diode continuous forward current	I _S	T _C = 25°C			0.3	A

- Notes: 1. Surface mounted on FR4 board, $t \leq 10$ sec.
 2. Pulse width $\leq 300\mu\text{s}$, duty cycle $\leq 2\%$.
 3. Guaranteed by design, not subject to production.
 4. Pulse width limited by maximum junction temperature.

Rating and Characteristic Curves (A2N7002H-HF)

Fig.1 - On-Region Characteristics

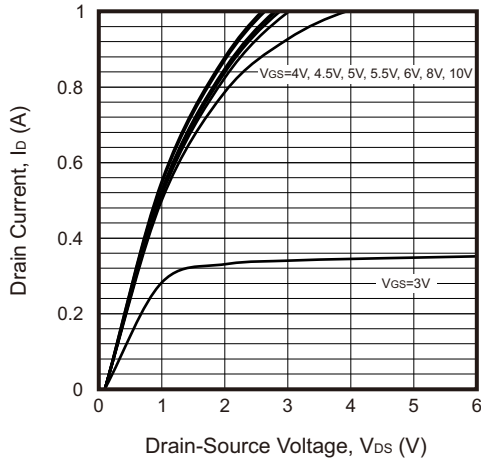


Fig.2 - On-Resistance vs. Drain Current and Gate Voltage

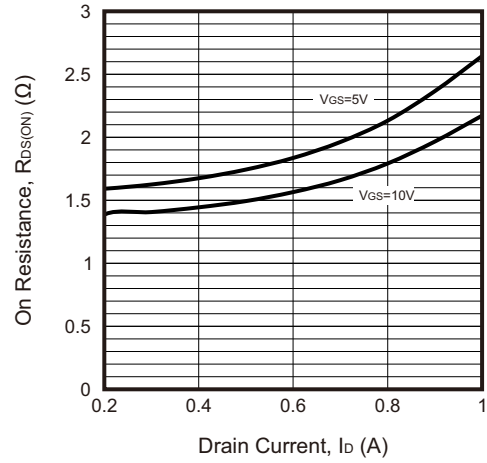


Fig.3 - On-Resistance vs. Gate-Source Voltage

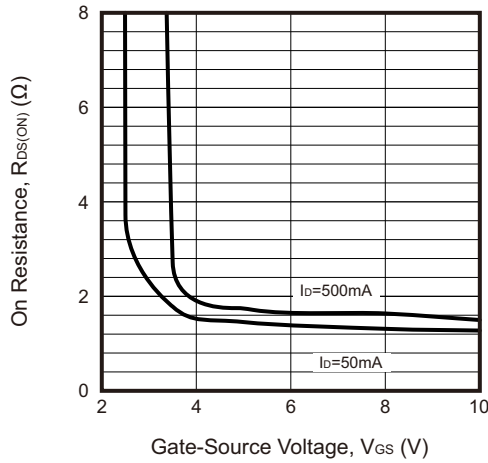


Fig.4 - Gate Voltage vs. Junction Temperature

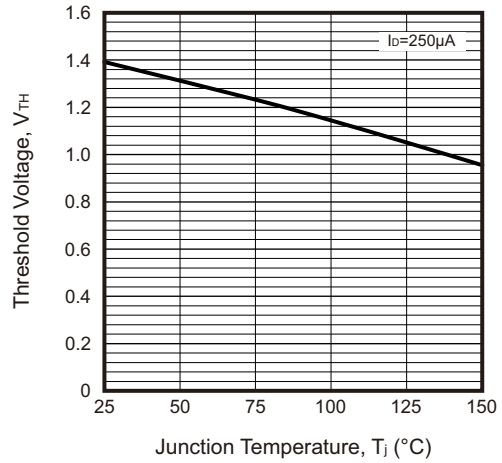


Fig.5 - On Resistance vs. Junction Temperature

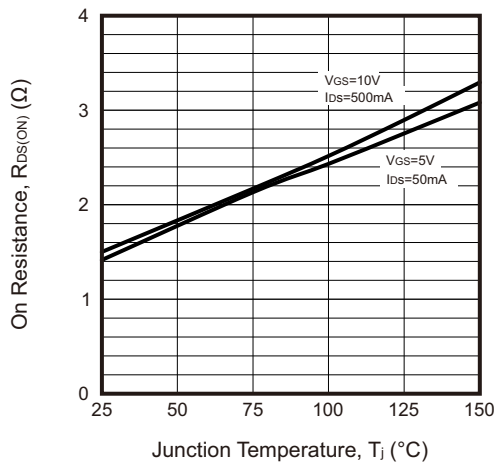
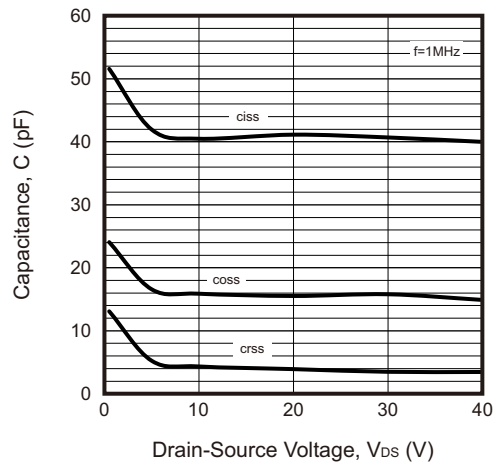
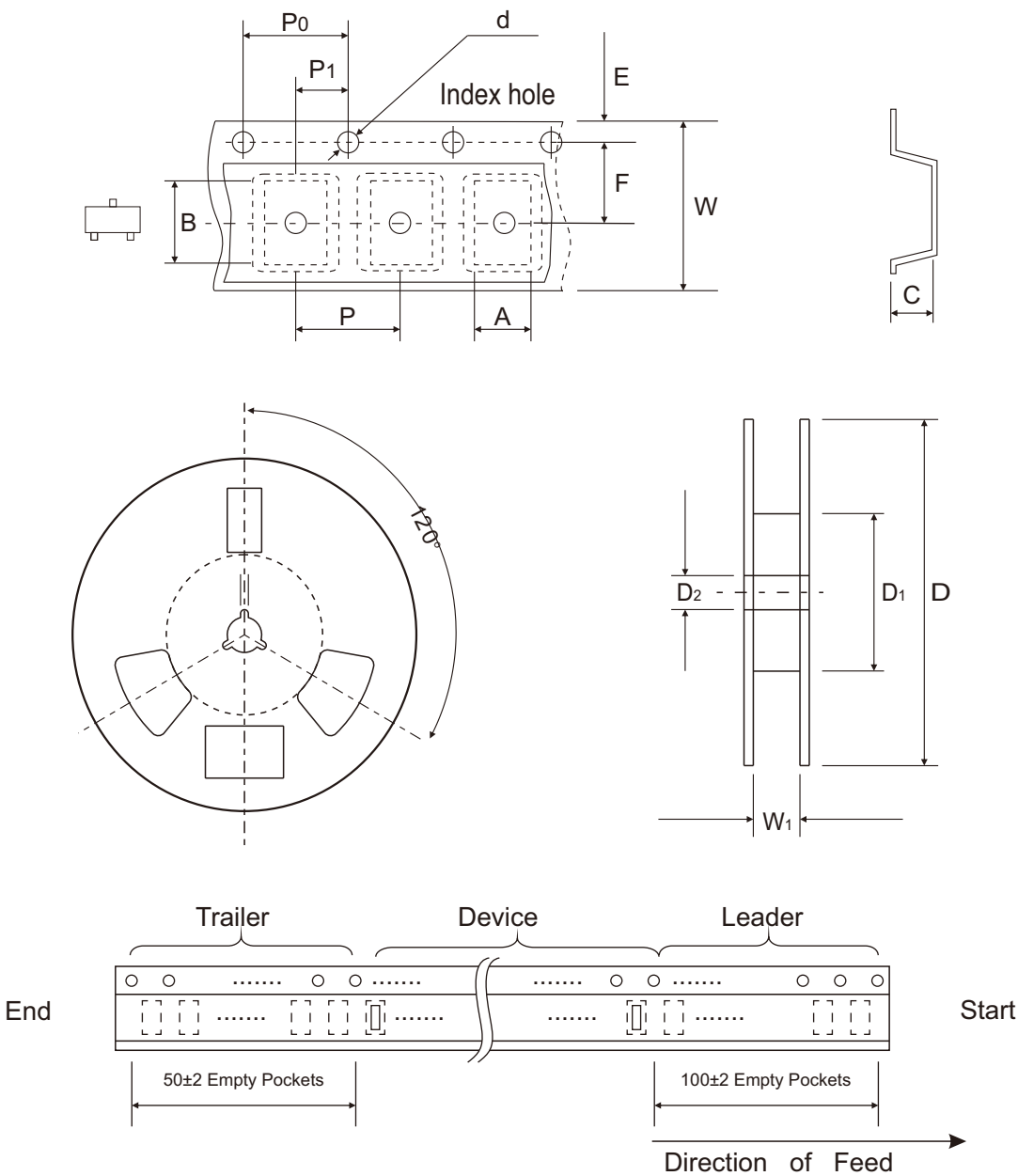


Fig.6 - Capacitance Characteristics



Reel Taping Specification

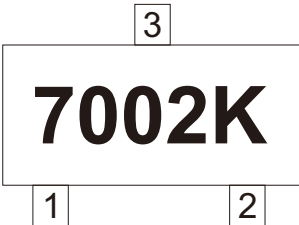


SOT-23	SYMBOL	A	B	C	d	D	D1	D2
	(mm)	3.15 ± 0.10	2.77 ± 0.10	1.22 ± 0.10	1.50 ± 0.10	178.00 ± 1.00	54.00 ± 0.50	13.00 ± 0.50
	(inch)	0.124 ± 0.004	0.109 ± 0.004	0.048 ± 0.004	0.059 ± 0.004	7.008 ± 0.039	2.126 ± 0.020	0.512 ± 0.020

SOT-23	SYMBOL	E	F	P	P0	P1	W	W1
	(mm)	1.75 ± 0.10	3.50 ± 0.05	4.00 ± 0.10	4.00 ± 0.10	2.00 ± 0.05	8.00 + 0.30 - 0.10	9.50 ± 1.00
	(inch)	0.069 ± 0.004	0.138 ± 0.002	0.157 ± 0.004	0.157 ± 0.004	0.079 ± 0.002	0.315 + 0.012 - 0.004	0.374 ± 0.039

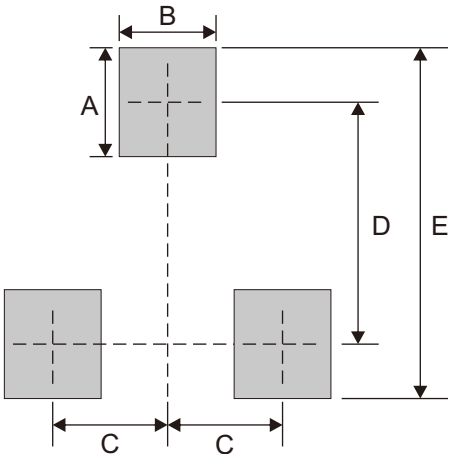
Marking Code

Part Number	Marking Code
A2N7002H-HF	7002K



Suggested PAD Layout

SIZE	SOT-23	
	(mm)	(inch)
A	0.90	0.035
B	0.80	0.031
C	0.95	0.037
D	2.00	0.079
E	2.90	0.114



Note: 1. The pad layout is for reference purposes only.

Standard Packaging

Case Type	REEL PACK	
	REEL (pcs)	Reel Size (inch)
SOT-23	3,000	7