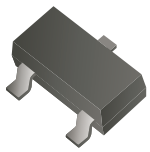
MOSFET

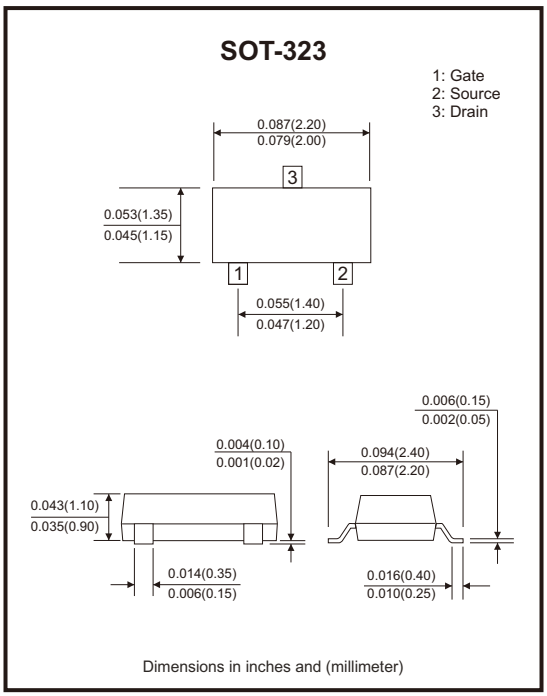
A2N7002HW-HF

N-Channel
RoHS Device
Halogen Free



Features

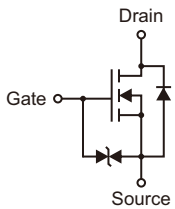
- Low on-resistance.
- ESD protected gate up to 2KV HBM.
- High-speed switching.
- Drive circuits can be simple.
- Parallel use is easy.
- AEC-Q101 Qualified.



Mechanical data

- Case: SOT-323, 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°C unless otherwise noted)

Parameter	Symbol	Value	Unit
Drain-source voltage	V_{DSS}	60	V
Gate-source voltage	V_{GSS}	±20	V
Continuous drain current	I_D	300	mA
Pulsed drain current (Note 4) tp = 10μs	I_{DM}	2000	mA
Power dissipation	P_D	0.25	W
Thermal resistance junction to ambient air	$R_{\theta JA}$	500	°C/W
Thermal resistance junction to lead	$R_{\theta JL}$	313	°C/W
Thermal resistance junction to case	$R_{\theta JC}$	261	°C/W
Operating junction temperature range	T_J	-55 to +150	°C
Storage temperature range	T_{STG}	-55 to +150	°C

Electrical Characteristics (at T_A=25°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 ≤ 10 sec.
2. Pulse width ≤ 300μs, duty cycle ≤ 2%.
3. Guaranteed by design, not subject to production.
4. Pulse width limited by maximum junction temperature.

Rating and Characteristic Curves (A2N7002HW-HF)

Fig.1 - On-Region Characteristics

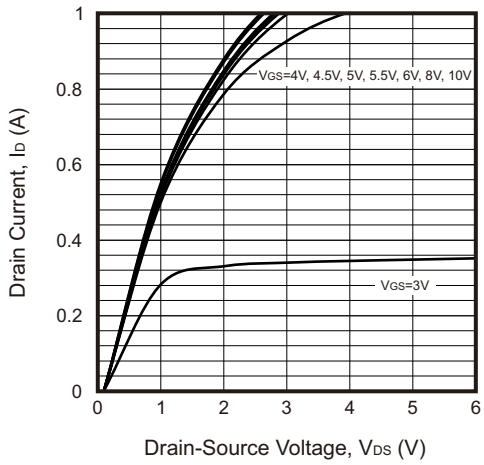


Fig.2 - On-Resistance vs. Drain Current and Gate Voltage

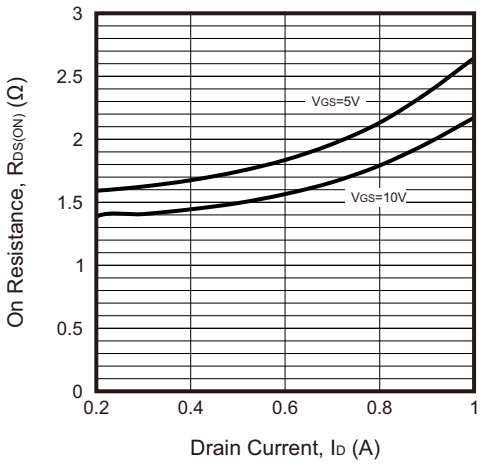


Fig.3 - On-Resistance vs. Gate-Source Voltage

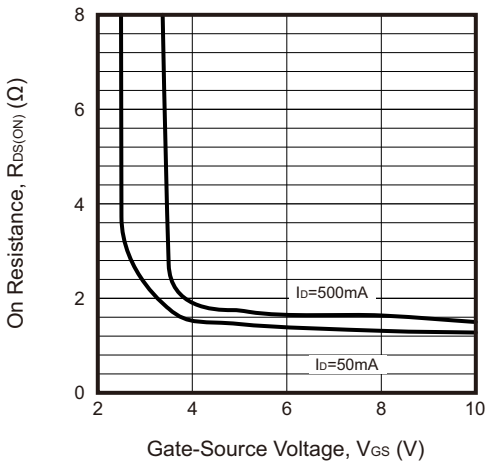


Fig.4 - Gate Voltage vs. Junction Temperature

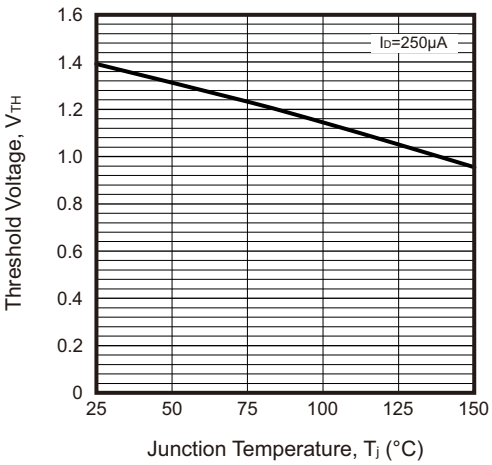


Fig.5 - On Resistance vs. Junction Temperature

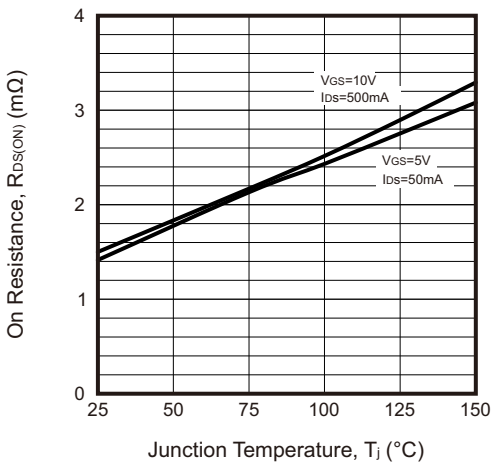
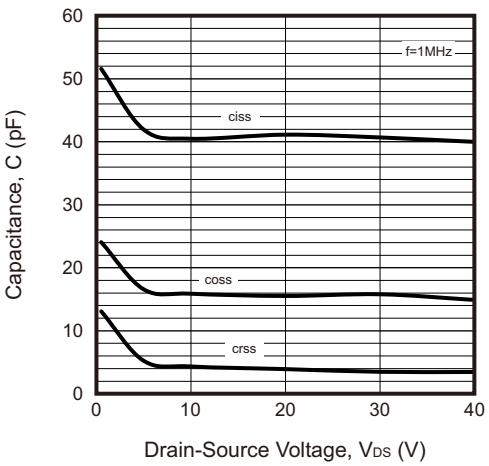
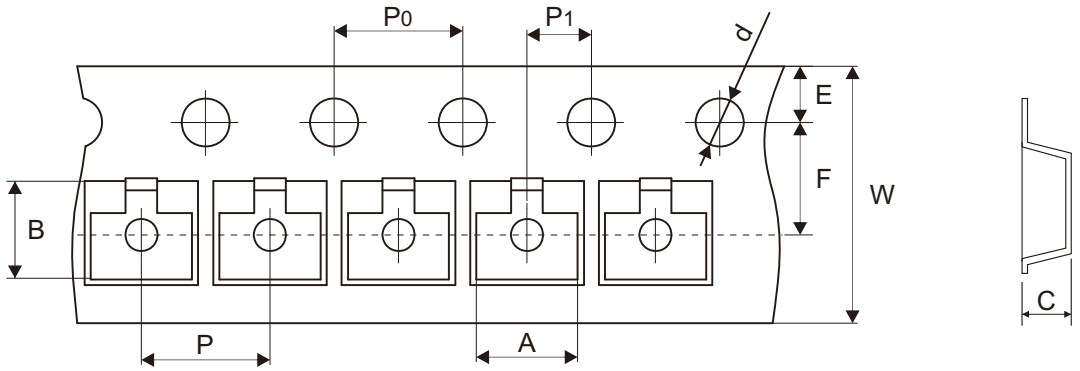


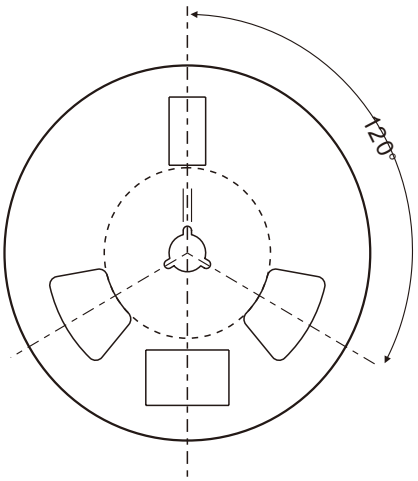
Fig.6 - Capacitance Characteristics

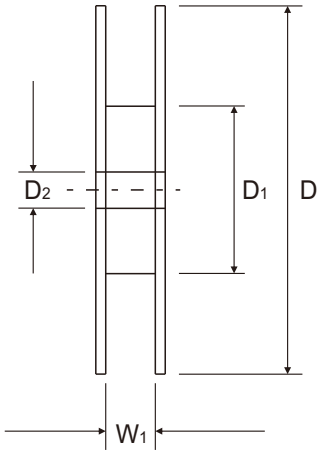


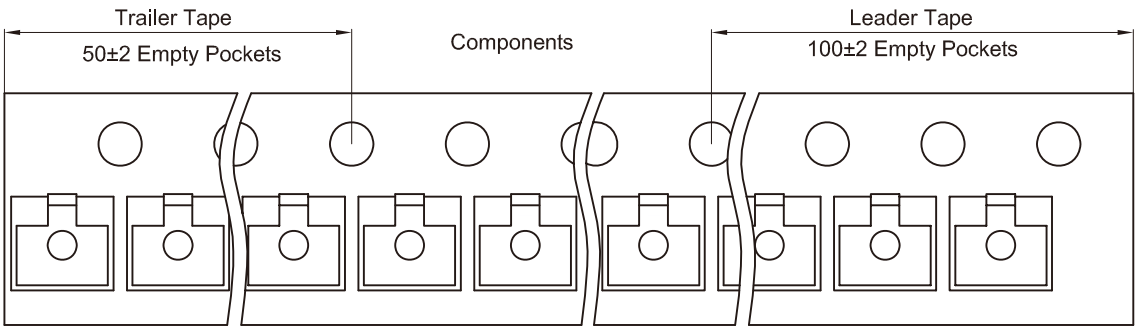
Company reserves the right to improve product design , functions and reliability without notice.

Reel Taping Specification







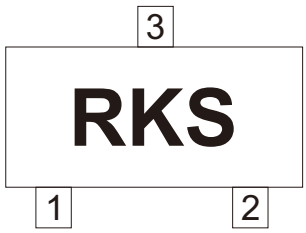


	SYMBOL	A	B	C	d	D	D_1	D_2
SOT-323	(mm)	2.25 ± 0.10	2.55 ± 0.10	1.20 ± 0.10	1.50 ± 0.10	178.00 ± 1.00	54.00 ± 0.50	13.00 ± 0.50
	(inch)	0.089 ± 0.004	0.100 ± 0.004	0.047 ± 0.004	0.059 ± 0.004	7.008 ± 0.039	2.126 ± 0.020	0.512 ± 0.020

	SYMBOL	E	F	P	P_0	P_1	W	W_1
SOT-323	(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

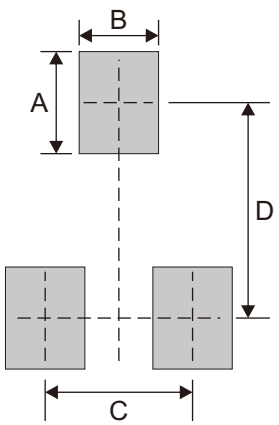
Part Number	Marking Code
A2N7002HW-HF	RKS



Suggested PAD Layout

SIZE	SOT-323	
	(mm)	(inch)
A	0.90	0.035
B	0.70	0.028
C	1.30	0.051
D	1.90	0.075

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



Standard Packaging

Case Type	REEL PACK	
	REEL (pcs)	Reel Size (inch)
SOT-323	3,000	7

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