



UNI-SEMICONDUCTOR CO., LTD

宇力半导体有限公司



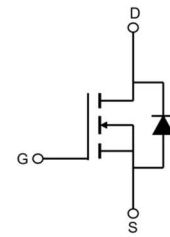
AP30H100KA Data Sheet

V 1.1

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Feature

- 30V,90A
 $R_{DS(ON)} < 5.0\text{ m}\Omega @ V_{GS}=10\text{V}$ (TYP:3.3m Ω)
 $R_{DS(ON)} < 7.0\text{ m}\Omega @ V_{GS}=4.5\text{V}$ (TYP:5.2m Ω)
- Advanced Trench Technology
- Lead free product is acquired
- Excellent $R_{DS(ON)}$ and Low Gate Charge



Schematic Diagram

Application

- PWM applications
- Load Switch
- Power management



Marking and pin assignment

Package Marking and Ordering Information

Device Marking	Device	Device Package	Reel Size	Tape width	Quantity (PCS)
30H100KA	AP30H100KA	TO-252	13 inch	-	2500

ABSOLUTE MAXIMUM RATINGS ($T_a=25^\circ\text{C}$ unless otherwise noted)

Parameter	Symbol	Value	Unit
Drain-Source Voltage	V_{DS}	30	V
Gate-Source Voltage	V_{GS}	± 20	V
Continuous Drain Current ($T_a=25^\circ\text{C}$)	I_D	90	A
Continuous Drain Current ($T_a=100^\circ\text{C}$)	I_D	54	A
Pulsed Drain Current ⁽¹⁾	I_{DM}	320	A
Single Pulsed Avalanche Energy ⁽²⁾	E_{AS}	306	mJ
Power Dissipation	P_D	83	W
Thermal Resistance from Junction to Case ⁽⁴⁾	$R_{\theta JC}$	1.8	$^\circ\text{C}/\text{W}$
Junction Temperature	T_J	150	$^\circ\text{C}$
Storage Temperature	T_{STG}	-55~ +150	$^\circ\text{C}$

MOSFET ELECTRICAL CHARACTERISTICS(T_a=25°C 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	30	-	-	V
Zero gate voltage drain current	I _{DSS}	V _{DS} = 30V, V _{GS} = 0V	-	-	1	μA
Gate-body leakage current	I _{GSS}	V _{GS} = ±20V, V _{DS} = 0V	-	-	±100	nA
Gate threshold voltage ⁽³⁾	V _{GS(th)}	V _{DS} = V _{GS} , I _D = 250μA	1	1.5	2.5	V
Drain-source on-resistance ⁽³⁾	R _{DS(on)}	V _{GS} = 10V, I _D = 30A	-	3.3	5.0	mΩ
		V _{GS} = 4.5V, I _D = 20A	-	5.2	7.0	
Dynamic characteristics						
Input Capacitance	C _{iss}	V _{DS} = 15V, V _{GS} = 0V, f = 1MHz	-	2016	-	pF
Output Capacitance	C _{oss}		-	250	-	
Reverse Transfer Capacitance	C _{rss}		-	230	-	
Switching characteristics						
Turn-on delay time	t _{d(on)}	V _{DD} = 10V, I _D = 30A, V _{GS} = 10V, R _G = 3Ω	-	20	-	ns
Turn-on rise time	t _r		-	15	-	
Turn-off delay time	t _{d(off)}		-	60	-	
Turn-off fall time	t _f		-	10	-	
Total Gate Charge	Q _g	V _{DS} = 10V, I _D = 30A, V _{GS} = 10V	-	60.5	-	nC
Gate-Source Charge	Q _{gs}		-	8.1	-	
Gate-Drain Charge	Q _{gd}		-	7.8	-	
Source-Drain Diode characteristics						
Diode Forward voltage ⁽³⁾	V _{DS}	V _{GS} = 0V, I _S = 1A	-	-	1.2	V
Diode Forward current ⁽⁴⁾	I _S		-	-	90	A

Notes:

1. Repetitive Rating: pulse width limited by maximum junction temperature
2. EAS Condition: T_J = 25°C, V_{DD} = 25V, R_G = 25 Ω, L = 0.5mH
3. Pulse Test: pulse width ≤ 300μs, duty cycle ≤ 2%
4. Surface Mounted on FR4 Board, t ≤ 10 sec

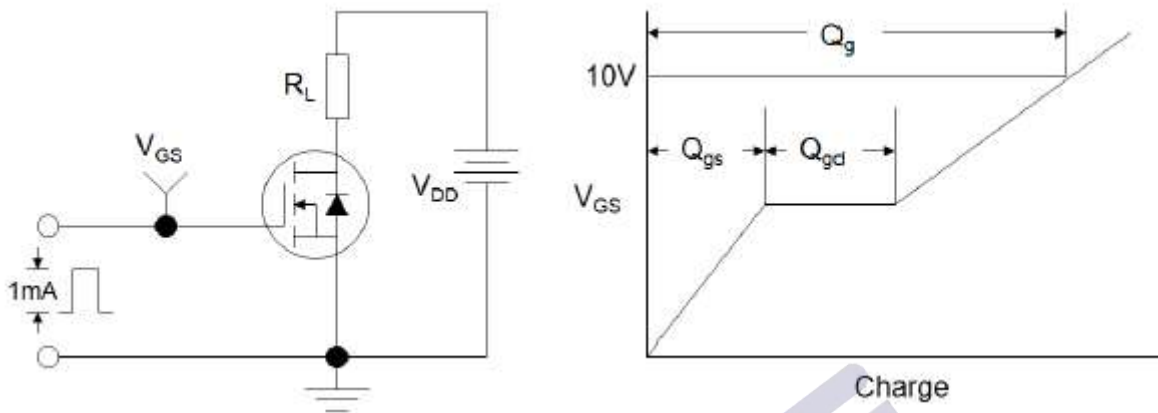


Figure 1: Gate Charge Test Circuit & Waveform

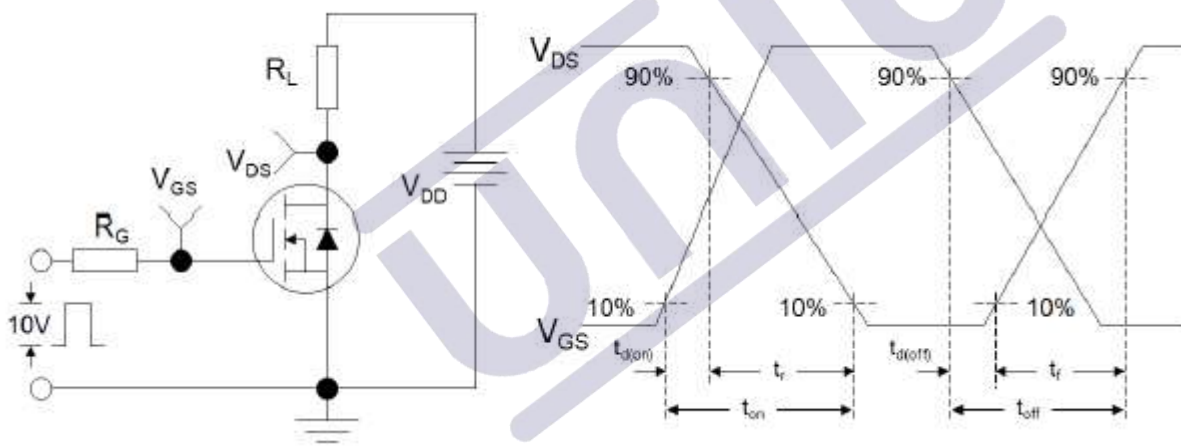


Figure 2: Resistive Switching Test Circuit & Waveforms

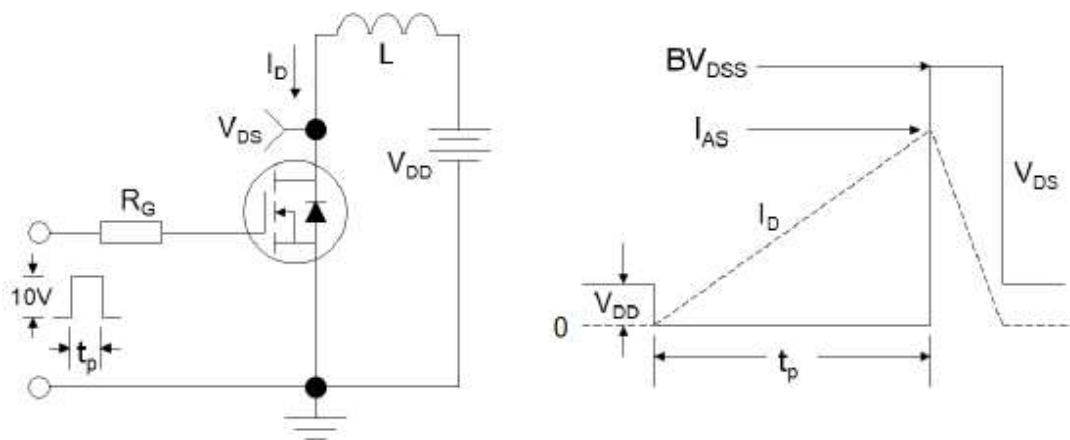


Figure 3: Unclamped Inductive Switching Test Circuit & Waveforms

1.版本记录

DATE	REV.	DESCRIPTION
2018/04/19	1.0	First Release
2021/12/21	1.1	Layout adjustment

2.免责声明

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