



ZHEJIANG UNIÜ-NE Technology CO., LTD

浙江宇力微新能源科技有限公司



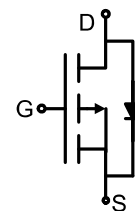
AP3401 Data Sheet

V 1.1

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Feature

- -30V,-4.2A
 $R_{DS(ON)} < 55m\Omega @ V_{GS} = -10V$ TYP: 45 m Ω
 $R_{DS(ON)} < 68m\Omega @ V_{GS} = -4.5V$ TYP: 52 m Ω
 $R_{DS(ON)} < 96m\Omega @ V_{GS} = -2.5V$ TYP: 75 m Ω
- Advanced Trench Technology
- Lead free product is acquired



Schematic diagram

Application

- Interfacing Switching
- Load Switching
- Power management



SOT-23 top view

Package Marking and Ordering Information

Device Marking	Device	Device Package	Reel Size	Tape width	Quantity (PCS)
3401	AP3401	Sot-23	7 inch	-	3000

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}	± 12	V
Continuous Drain Current ($T_a = 25^\circ\text{C}$)	I_D	-4.2	A
Continuous Drain Current ($T_a = 70^\circ\text{C}$)	I_D	-2.7	A
Pulsed Drain Current	I_{DM}	-16.8	A
Power Dissipation	P_D	1.5	W
Thermal Resistance from Junction to Ambient ⁽⁴⁾	$R_{\theta JA}$	83	$^\circ\text{C}/\text{W}$
Junction Temperature	T_J	150	$^\circ\text{C}$
Storage Temperature	T_{STG}	-55~ +150	$^\circ\text{C}$

MOSFET ELECTRICAL CHARACTERISTICS($T_a=25^{\circ}\text{C}$ unless otherwise noted)

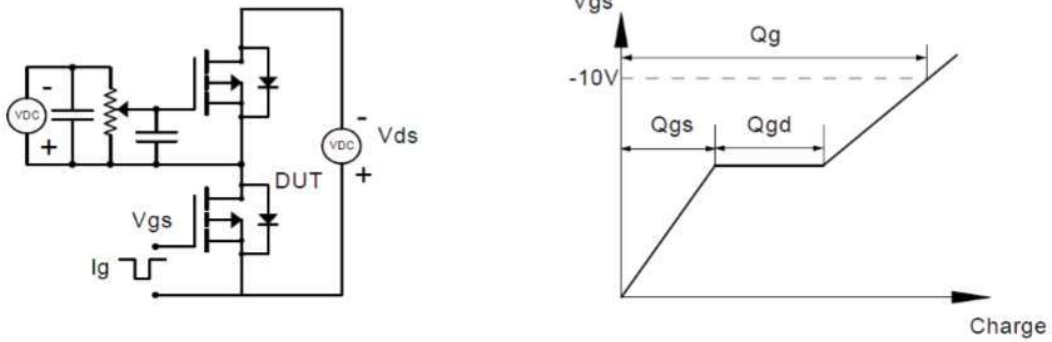
Parameter	Symbol	Test Condition	Min	Type	Max	Unit
Static Characteristics						
Drain-source breakdown voltage	$V_{(BR)DSS}$	$V_{GS} = 0V, I_D = -250\mu A$	-30	-	-	V
Zero gate voltage drain current	I_{DSS}	$V_{DS} = -30V, V_{GS} = 0V$	-	-	1	μA
Gate-body leakage current	I_{GSS}	$V_{GS} = \pm 12V, V_{DS} = 0V$	-	-	± 100	nA
Gate threshold voltage ⁽³⁾	$V_{GS(th)}$	$V_{DS} = V_{GS}, I_D = -250\mu A$	-0.5	-0.9	-1.3	V
Drain-source on-resistance ⁽³⁾	$R_{DS(on)}$	$V_{GS} = -10V, I_D = -4.2A$	-	45	55	m Ω
		$V_{GS} = -4.5V, I_D = -3A$	-	52	68	
		$V_{GS} = -2.5V, I_D = -1A$	-	75	96	
Dynamic characteristics						
Input Capacitance	C_{iss}	$V_{DS} = -15V, V_{GS} = 0V, f = 1MHz$	-	882	-	pF
Output Capacitance	C_{oss}		-	104	-	
Reverse Transfer Capacitance	C_{rss}		-	65	-	
Switching characteristics						
Turn-on delay time	$t_{d(on)}$	$V_{DD} = -15V, I_D = -1A,$ $V_{GS} = -10V, R_G = 2.5\Omega$	-	7	-	ns
Turn-on rise time	t_r		-	3	-	
Turn-off delay time	$t_{d(off)}$		-	20	-	
Turn-off fall time	t_f		-	12	-	
Total Gate Charge	Q_g	$V_{DS} = -15V, I_D = -4.2A,$ $V_{GS} = -10V$	-	8.5	-	nC
Gate-Source Charge	Q_{gs}		-	1.8	-	
Gate-Drain Charge	Q_{gd}		-	2.7	-	
Source-Drain Diode characteristics						
Diode Forward voltage ⁽³⁾	V_{DS}	$V_{GS} = 0V, I_S = -4.2A$	-	-	-1.2	V
Diode Forward current ⁽⁴⁾	I_S		-	-	-4.2	A

Notes:

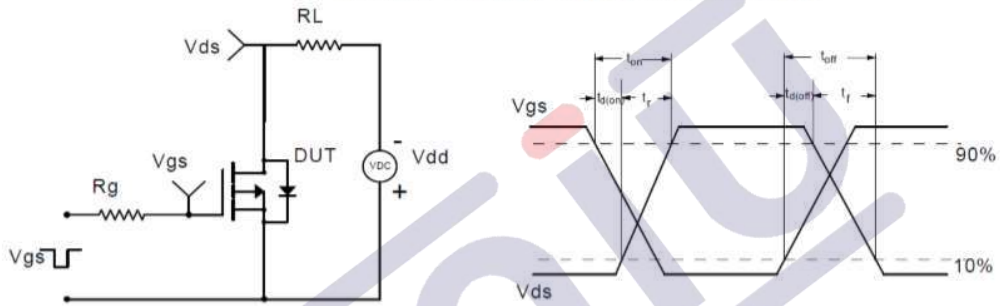
1. Repetitive Rating: pulse width limited by maximum junction temperature
2. Pulse Test: pulse width $\leq 300\mu s$, duty cycle $\leq 2\%$
3. Surface Mounted on FR4 Board, $t \leq 10$ sec

Test Circuit

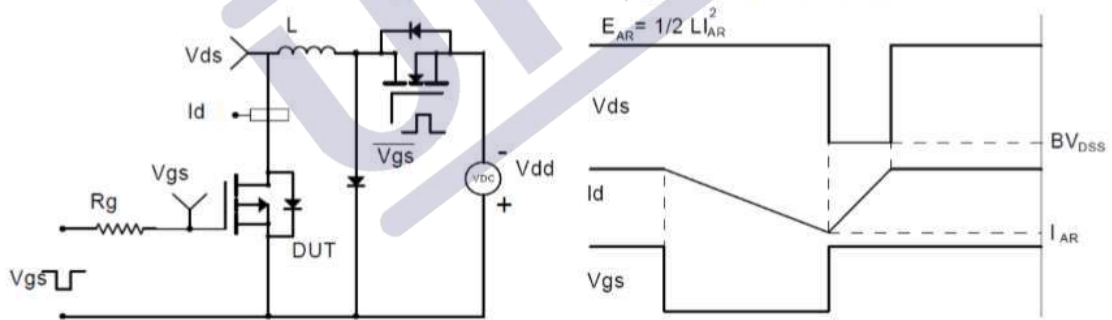
Gate Charge Test Circuit & Waveform



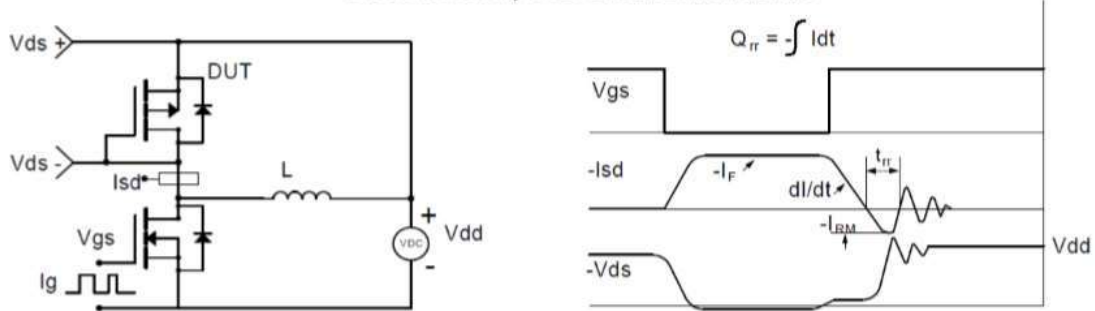
Resistive Switching Test Circuit & Waveforms



Unclamped Inductive Switching (UIS) Test Circuit & Waveforms



Diode Recovery Test Circuit & Waveforms



1.版本记录

DATE	REV.	DESCRIPTION
2018/04/19	1.0	First Release
2021/11/12	1.1	Layout adjustment

2.免责声明

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