

FEATURES

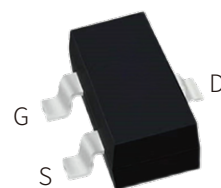
- | High Density Cell Design For Low $R_{DS(On)}$
- | Voltage Controlled Small Signal Switch
- | Rugged and Reliable
- | High Saturation Current Capability
- | Lead free product is acquired

APPLICATION

- | Direct logic-level interface: TTL/CMOS
- | Drivers: relays, solenoids, lamps
- | hammers, display, memories, etc.
- | Battery operated systems
- | Solid-state relays

APPROVALS

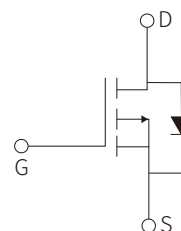
RoHS	Compliance with 2011/65/EU
HF	Compliance with IEC61249-2-21:2003



SOT-23



Marking



Schematic Symbol

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

Parameter	Symbol	Value	Unit
Drain-Source Voltage	V_{DS}	-20	V
Maximum Drain Current - Continuous	I_D	-3	A
Gate-Source Voltage	V_{GS}	± 12	V
Maximum Power Dissipation	P_D	1	W
Thermal Resistance from Junction to Ambient	$R_{\theta JA}$	125	$^{\circ}\text{C/W}$
Junction Temperature	T_J	-55 to 150	$^{\circ}\text{C}$
Storage Temperature Range	T_{STG}	-55 to 150	$^{\circ}\text{C}$

ELECTRICAL CHARACTERISTICS (T_A=25°C unless otherwise noted)

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Off Characteristics						
Drain-source Breakdown Voltage	V _{(BR)DSS}	V _{GS} =0V, I _D =-250μA	-20	-24		V
Zero gate voltage drain current	I _{DSS}	V _{DS} =-20V, V _{GS} =0V			-1	uA
Gate-body leakage current	I _{GSS1}	V _{GS} =±12V, V _{DS} =0V			±100	nA
On Characteristics ^(Note 3)						
Gate threshold voltage	V _{GS(th)}	V _{DS} =V _{GS} , I _D =-250μA	-0.4	-0.7	-1	V
Drain-source on-resistance	R _{DS(on)}	V _{GS} =-4.5V, I _D =-3A		64	110	mΩ
		V _{GS} =-2.5V, I _D =-2A		89	140	mΩ
Forward Transconductance	g _{FS}	V _{DS} =-5V, I _D =-2A	5			S
Dynamic Characteristics ^(Note4)						
Input capacitance	C _{iss}	V _{DS} =-10V, V _{GS} =0V, f=1MHz		405		pF
Output capacitance	C _{oss}			75		pF
Reverse transfer capacitance	C _{rss}			55		pF
Switching Characteristics ^(Note4)						
Turn-on Delay Time	t _{d(on)}	V _{DD} =10V, I _D =-1A V _{GS} =-4.5V, R _{GEN} =10Ω		11		nS
Turn-on Rise Time	t _r			35		nS
Turn-Off Delay Time	t _{d(off)}			30		nS
Turn-Off Fall Time	t _f			10		nS
Total Gate Charge	Q _g	V _{DS} =-10V, I _D =-3A		3.3	12	nC
Gate-Source Charge	Q _{GS}			0.7		nC
Gate-Drain Charge	Q _{gd}			1.3		nC
Drain-Source Diode Characteristics						
Diode Forward Voltage ^(Note 3)	V _{SD}	V _{GS} =0V, I _S =1.3A			-1.2	V
Diode Forward Current ^(Note 2)	I _S				-3	A

Notes:

1. Repetitive Rating: Pulse width limited by maximum junction temperature.
2. Surface Mounted on FR4 Board, t ≤ 10 sec.
3. Pulse Test: Pulse Width ≤ 300μs, Duty Cycle ≤ 2%.
4. Guaranteed by design, not subject to production

PARAMETER CHARACTERISTIC CURVE

Figure 1: Power Dissipation

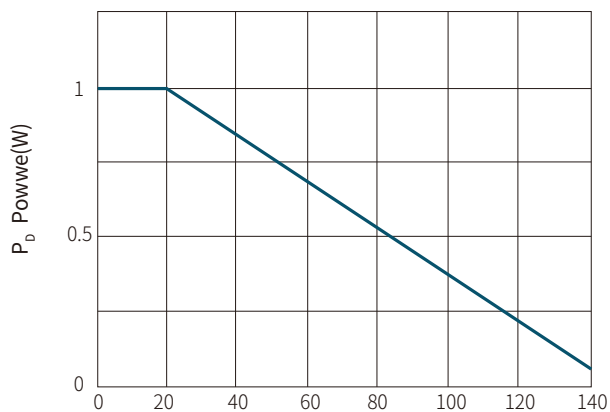


Figure 2: Drain Current

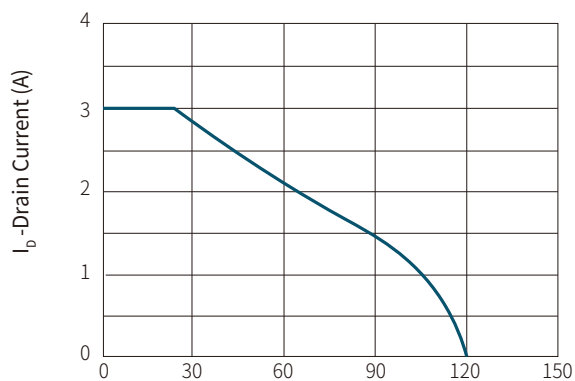


Figure 3: Output Characteristics

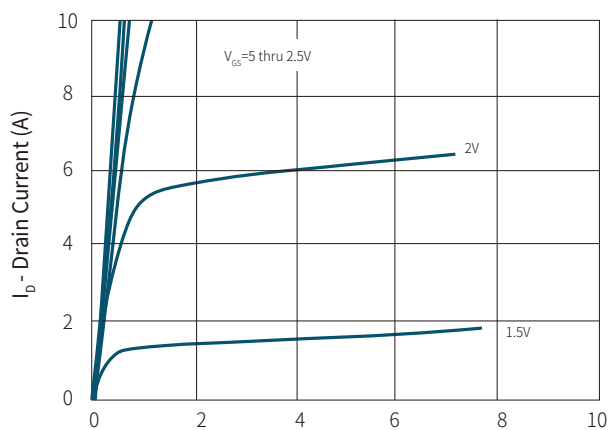


Figure 4: Drain-Source On-Resistance

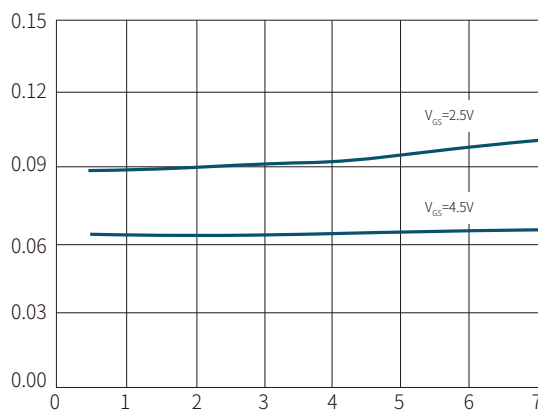


Figure 5: Transfer Characteristics

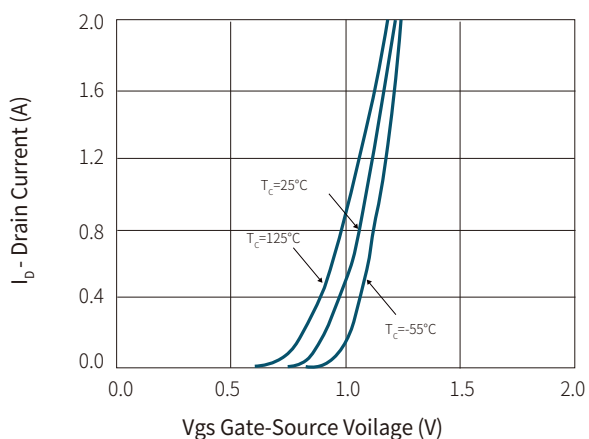


Figure 6: Drain-Source On-Resistance

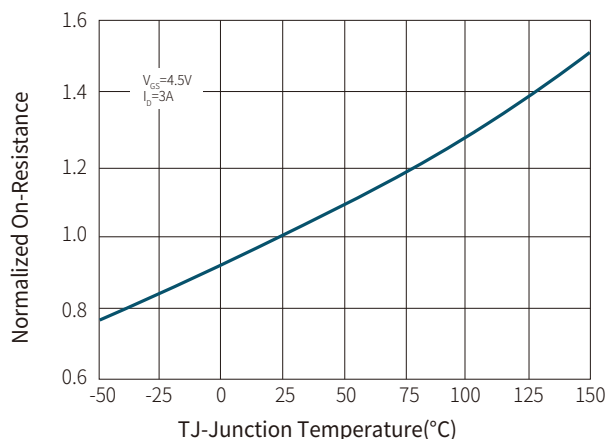
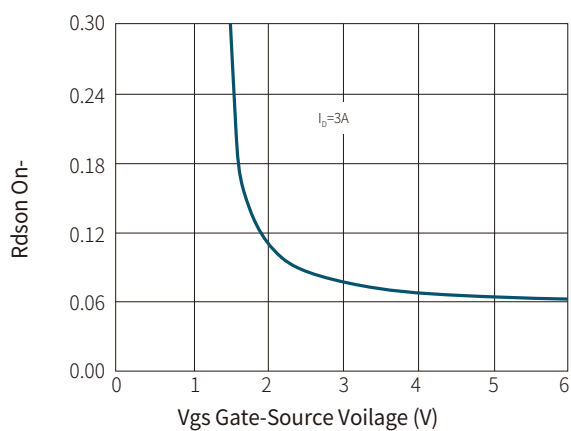
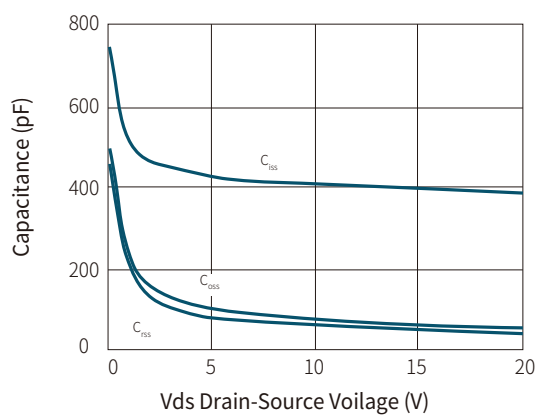
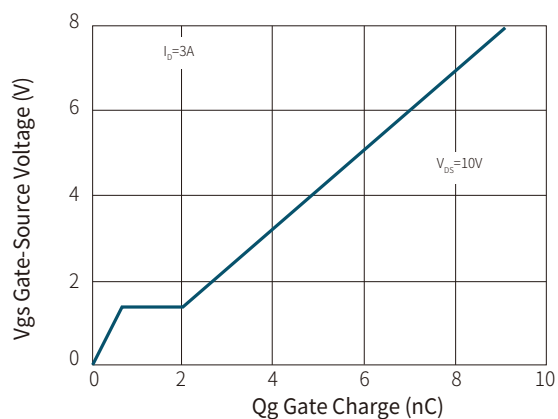
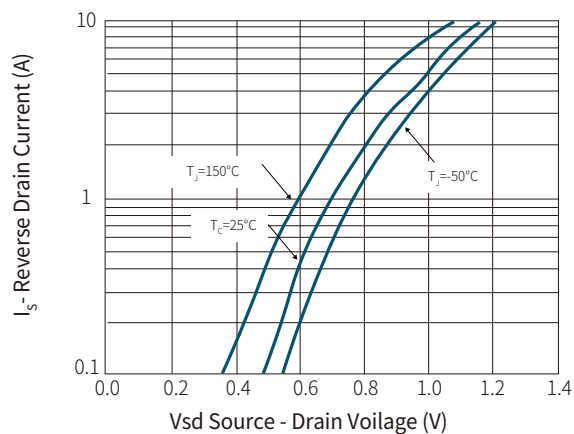
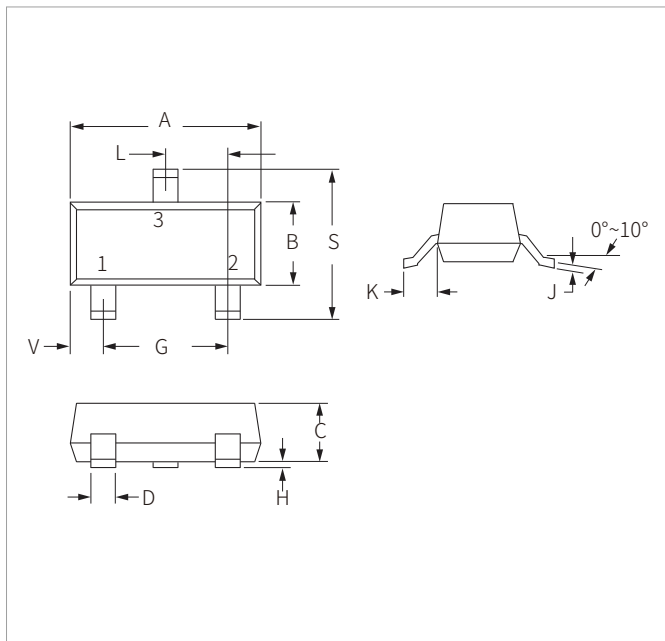


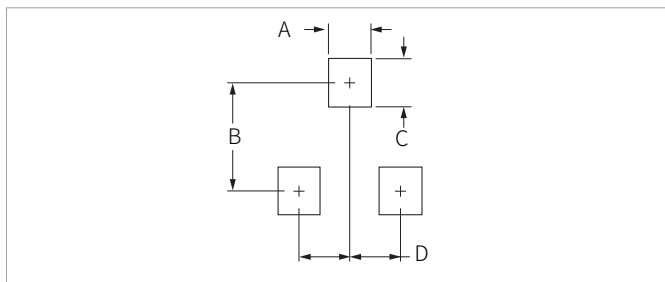
Figure 7: Rdson vs Vgs

Figure 8: Capacitance vs Vds

Figure 9: Gate Charge

Figure 10: Source- Drain Diode Forward


SOT-23 PACKAGE INFORMATION



Ref.	Millimeters		Inches	
	Min.	Max.	Min.	Max.
A	2.80	3.05	0.110	0.120
B	1.20	1.40	0.047	0.055
C	0.90	1.15	0.035	0.045
D	0.37	0.50	0.015	0.020
G	1.75	2.05	0.069	0.081
H	0.01	0.100	0.001	0.004
J	0.085	0.180	0.003	0.007
K	0.35	0.69	0.014	0.029
L	0.89	1.02	0.035	0.040
S	2.10	2.65	0.083	0.104
V	0.45	0.60	0.018	0.024

RECOMMENDED PAD LAYOUT DIMENSIONS



Ref.	Millimeters		Inches	
	Min	Max	Min	Max
A	0.71	0.97	0.028	0.038
B	1.88	2.13	0.074	0.084
C	0.71	0.97	0.028	0.038
D	0.81	1.07	0.032	0.042

ORDERING INFORMATION

Part Number	Component Package	QTY/Reel	Reel Size
AO3401C	SOT-23	3000PCS	7"

To find your local partner within Semiwell' s website : www.semiwell.com.cn
© 2023 Semiwell Microelectronics Co.,Ltd.

The content of this document has been carefully checked and understood. However, neither Semiwell nor its subsidiaries assume any liability whatsoever for any errors or inaccuracies of this document and the consequences thereof. Published specifications are subject to change without notice. Product suitability for any area of application must ultimately be determined by the customer. In all cases, products must never be operated outside their published specifications. Semiwell does not guarantee the availability of all published products. This disclaimer shall be governed by substantive Chinese law and resulting disputes shall be settled by the courts at the place of business of Semiwell. Latest publications and a complete disclaimer can be downloaded from the Semiwell website. All trademarks recognized.