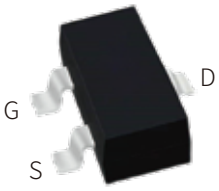
FEATURES

- 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



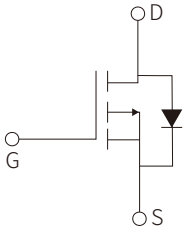
SOT-23



Marking

APPLICATION

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



Schematic Symbol

APPROVALS

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

ABSOLUTE MAXIMUM RATINGS(T_A=25°C unless otherwise noted)

Parameter	Symbol	Value	Unit
Drain-Source Voltage	V_{DS}	-20	V
Maximum Drain Current - Continuous	I_D	-2.5	A
Gate-Source Voltage	V_{GS}	±12	V
Maximum Power Dissipation	P_D	0.9	W
Thermal Resistance From Junction To Ambient (t≤5s)	$R_{\theta JA}$	140	°C/W
Continuous Source-Drain Current(Diode Conduction)	I_S	-0.6	A
Operation Junction And Storage Temperature Range	T_J,T_{STG}	-55 ~ +150	°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			V
Zero gate voltage drain current	I_{DSS}	V_{DS}=-20V,V_{GS}=0V			-1	μA
Gate-body leakage current	I_{GSS1}	V_{GS}=±12V,V_{DS}=0V			±100	nA
On Characteristics						
Gate threshold voltage	$V_{GS(th)}$	V_{DS}=V_{GS},I_D=-250μA	-0.4	-0.65	-1.0	V
Drain-source on-resistance[a]	$R_{DS(on)}$	V_{GS}=-4.5V,I_D=-2A	60	85	105	mΩ
		V_{GS}=-2.5V,I_D=-1A	80	115	155	mΩ
Forward Transconductance[a]	gFS	V_{DS}=-5V,I_D=-2A		4		S
Diode Forward Voltage	V_{SD}	V_{GS}=0V,I_S=-2A			-1.2	V
Dynamic Characteristics						
Input capacitance[b]	C_{iss}	V_{DS}=-10V,V_{GS}=0V,f=1MHz		400		pF
Output capacitance[b]	C_{oss}			90		pF
Reverse transfer capacitance[b]	C_{rss}			70		pF
Switching Characteristics[b]						
Turn-on Delay Time	$t_{d(on)}$	V_{DS}=-10V,I_D=-1A V_{GS}=-4.5V,R_L=10Ω R_g=1Ω		11		nS
Turn-on Rise Time	t_r			35		nS
Turn-Off Delay Time	$t_{d(off)}$			32		nS
Turn-Off Fall Time	t_f			12		nS
Total Gate Charge	Q_g	V_{DS}=-10V,V_{GS}=-4.5V,I_D=-2.0A		5.5	10	nC
Gate-Source Charge	Q_{gs}			0.7		nC
Gate-Drain Charge	Q_{gd}			1.5		nC

Notes :
a. Pulse Test : Pulse width≤300μs, duty cycle ≤2%.
b. These parameters have no way to verify.

PARAMETER CHARACTERISTIC CURVE

Figure 1: Output Characteristics

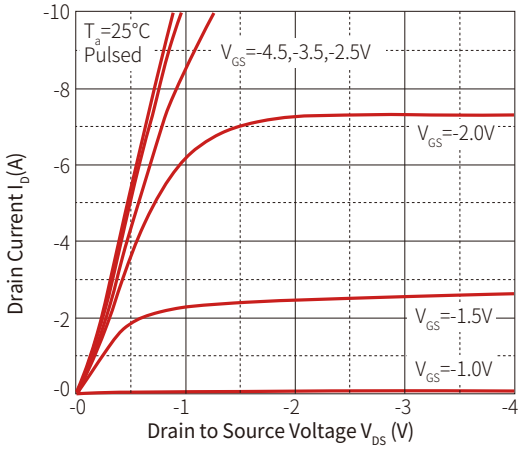


Figure 2: Transfer Characteristics

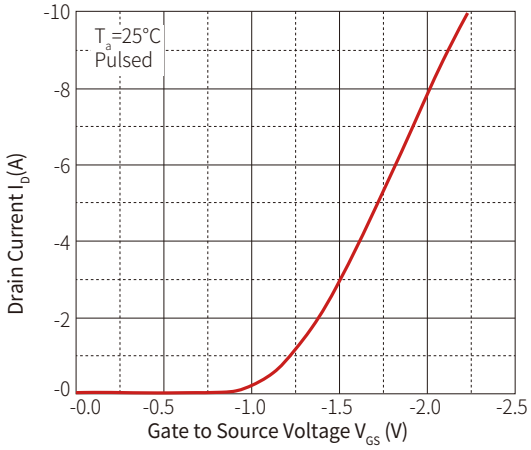


Figure 3: $R_{DS(ON)}$ ——— I_D

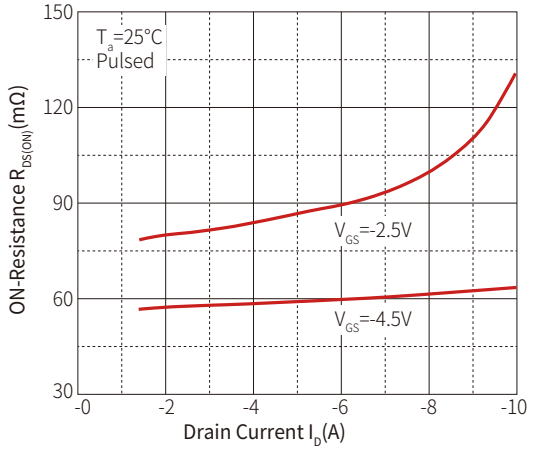


Figure 4: $R_{DS(ON)}$ ———V_{GS}

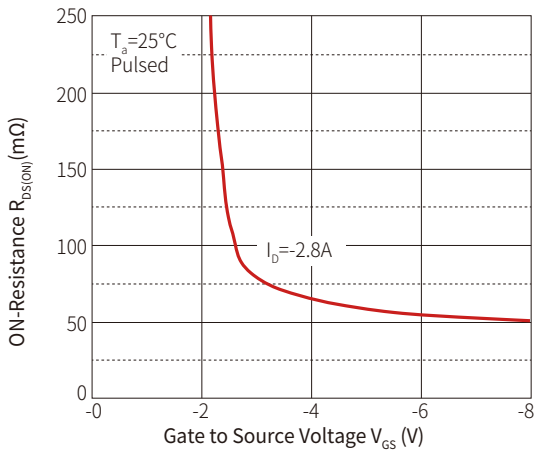
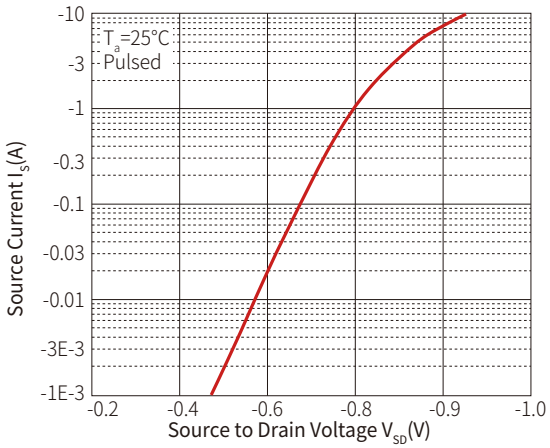
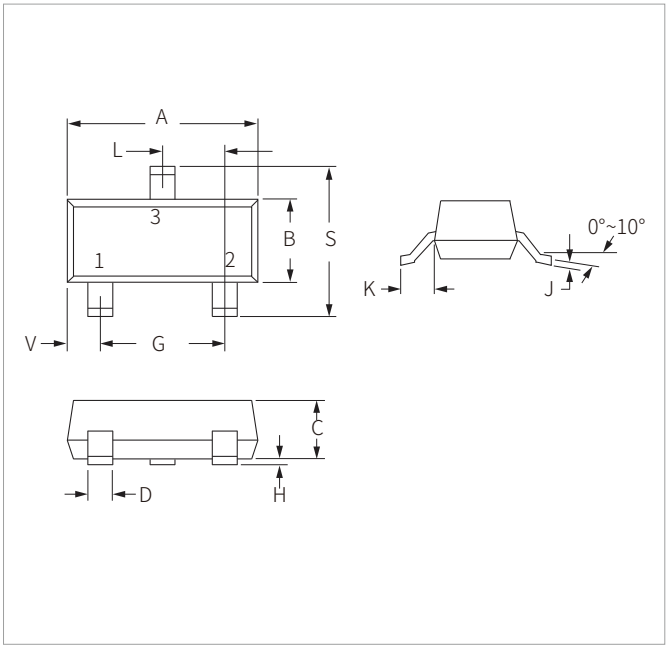


Figure 5: I_S ———V_{SD}

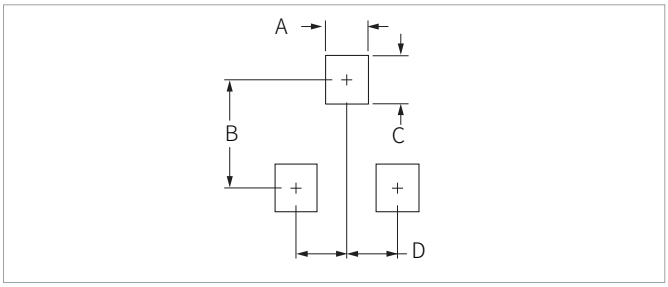


SOT-23 PACKAGE INFORMATION



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
SPM2301AS	SOT-23	3000PCS	7”

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Minhang Shanghai China
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