CCX3401A

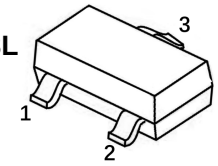
30V P-Channel MOSFETs

Product data sheet

1. General description

P-channel MOS Field Effect Transistor encapsulated in a small SOT-23-3L Surface-Mounted Device (SMD) plastic package

SOT-23-3L



2. Features

- High dense cell design for extremely low $R_{DS(ON)}$
- Exceptional on-resistance and maximum DC current capability

3. Applications

- Load Switch for Portable Devices
- DC/DC Converter
- Motor control and drive
- Battery management

4. Quick reference data

Table 1. Quick reference data

$V_{(BR)DSS}$	$R_{DS(on)}$ MAX	I_D
-30V	60mΩ@-10V	-4.2A
	70mΩ@-4.5V	
	85mΩ@-2.5V	

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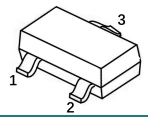
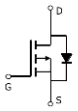
5. Pinning information

Table 2. Pinning information

Pin	Name	SOT-23-3L Simplified outline	Graphic symbol
1	Gate		
2	Source		
3	Drain		

6. Ordering information

Table 3. Ordering information

Part number	Package	Material	Packing	Quantity per reel	Flammability rating	Reel size
CCX3401A	SOT-23-3L	halogen free	tape & reel	3,000pcs	UL 94V-0	7 inches

7. Marking

Table 4. Marking codes

Part number	Marking code	
CCX3401A	A19T	A1LA

8. Limiting values and electrical Characteristics

Table 5. Limiting values

Ta=25℃

Parameter	Symbol	Value	Unit
Drain-Source Voltage	V_{DS}	-30	V
Gate-Source Voltage	V_{GS}	±12	V
Continuous Drain Current	I_D	-4.2	A
Power Dissipation	P_D	450	mW
Thermal Resistance from Junction to Ambient (t<5s)	$R_{\theta JA}$	277	℃/W
Operation Junction and Storage Temperature Range	T_J,T_{STG}	-55~+150	℃

Table 6. Electrical characteristics

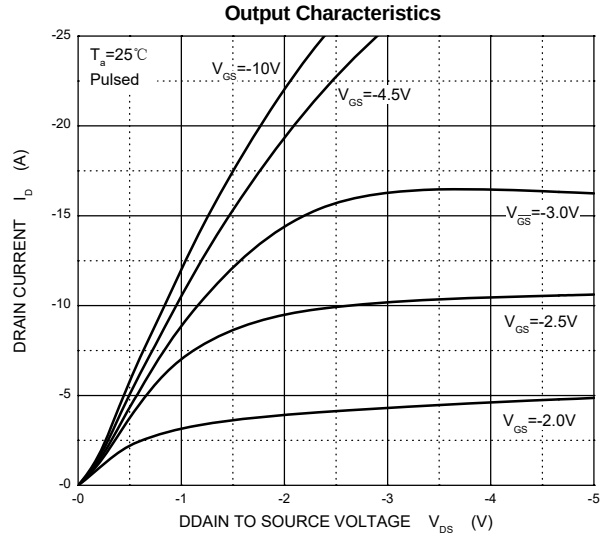
Ta=25℃

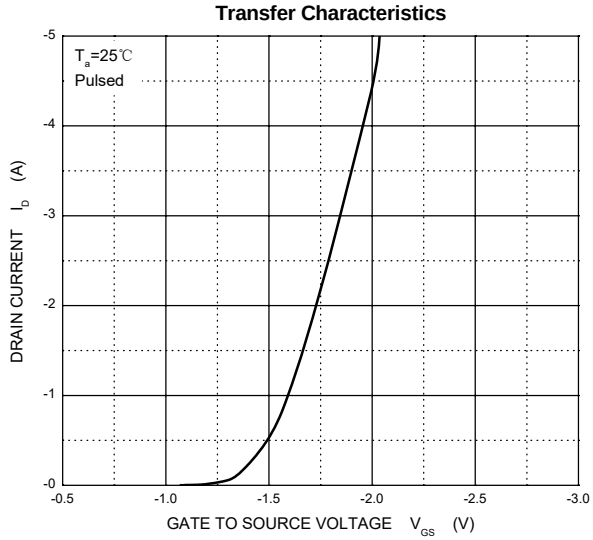
Parameter	Symbol	Condition	Min	Typ	Max	Unit
Off characteristics						
Drain-source breakdown voltage	$V_{(BR)DSS}$	V_{GS} = 0V, I_D =-250μA	-30			V
Zero gate voltage drain current	I_{DSS}	V_{DS} =-24V,V_{GS} = 0V			-1	μA
Gate-source leakage current	I_{GSS}	V_{GS} =±12V, V_{DS} = 0V			±100	nA
On characteristics						
Drain-source on-resistance (note 1)	$R_{DS(on)}$	V_{GS} =-10V, I_D =-4.2A		44	60	mΩ
		V_{GS} =-4.5V, I_D =-4A		50	70	mΩ
		V_{GS} =-2.5V,I_D=-1A		63	85	mΩ
Forward tranconductance (note 1)	g_{FS}	V_{DS} =-5V, I_D =-5A	7			S
Gate threshold voltage	$V_{GS(th)}$	V_{DS} =V_{GS}, I_D =-250μA	-0.6		-1.3	V
Dynamic characteristics (note 2)						
Input capacitance	C_{iss}	V_{DS} =-15V,V_{GS} =0V,f =1MHz		1050		pF
Output capacitance	C_{oss}			127		pF
Reverse transfer capacitance	C_{rss}			85		pF
Switching characteristics (note 2)						
Turn-on delay time	$t_{d(on)}$	V_{GS}=-10V,V_{DS}=-15V, R_L=3.6Ω,R_{GEN}=6Ω			6.5	ns
Turn-on rise time	t_r				3.5	ns
Turn-off delay time	$t_{d(off)}$				40	ns
Turn-off fall Time	t_f				13	ns
Drain-source diode characteristics and maximum ratings						
Diode forward voltage (note 1)	V_{SD}	I_S=-1A,V_{GS}=0V			-1	V

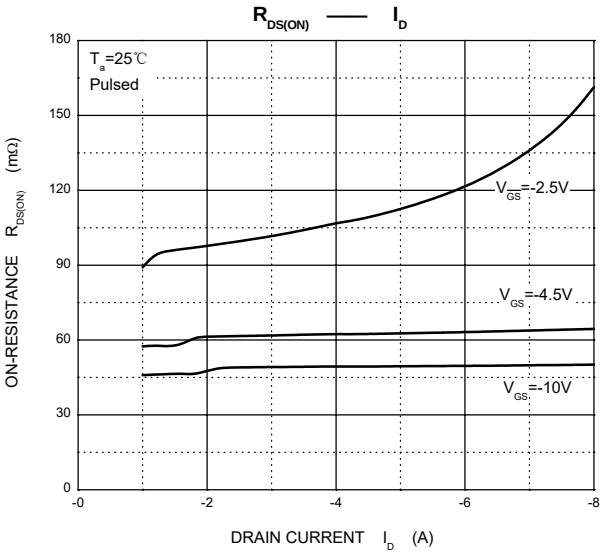
Note :

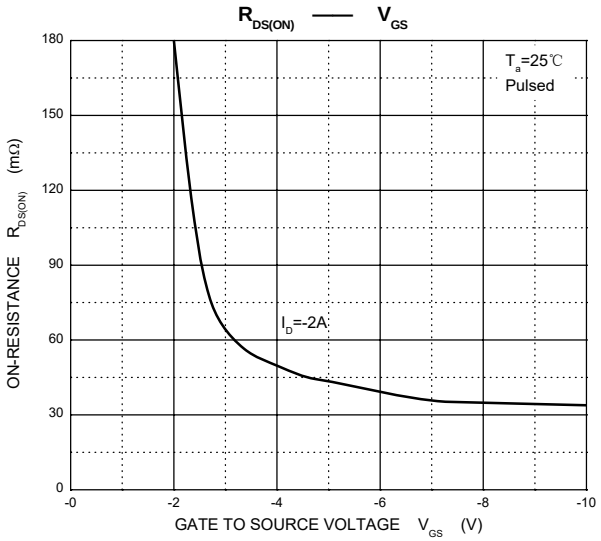
1. Pulse Test : Pulse width≤300μs, duty cycle≤2%.
2. These parameters have no way to verify.

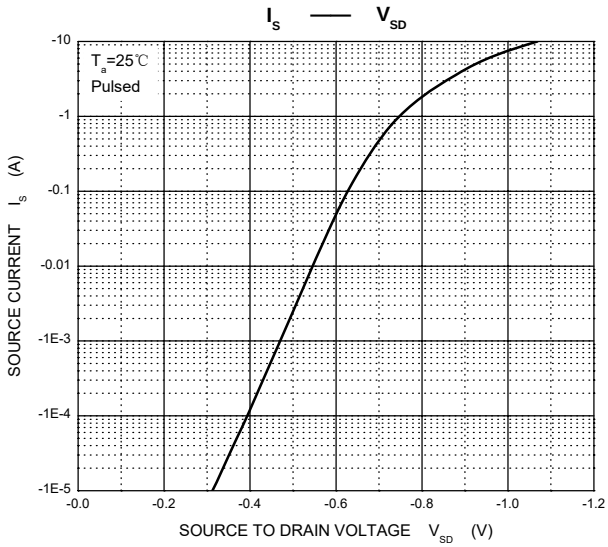
9. Typical characteristics





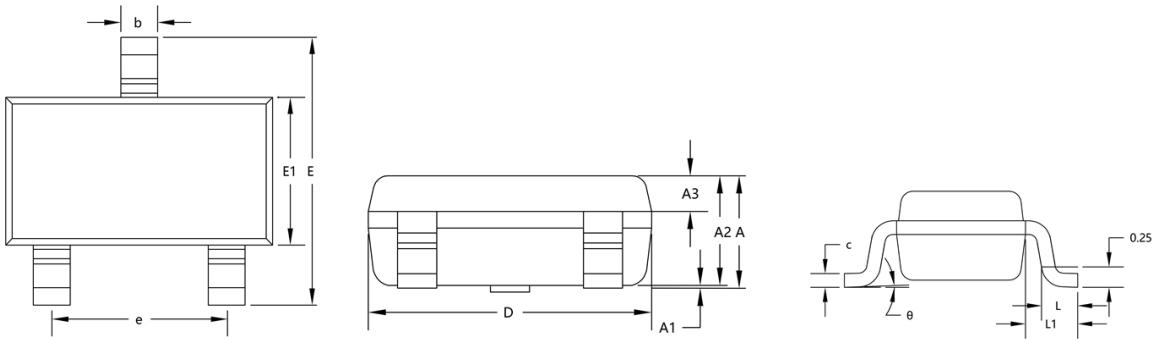






10. Package outline

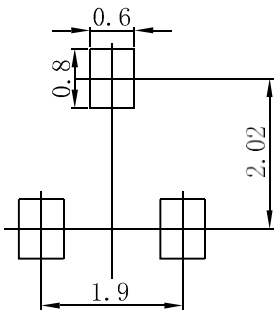
Table 7. SOT-23-3L Package outline



Symbol	Dimension in millimeter		
	Min	Nom	Max
A	1.0	1.15	1.3
A1	0.0	0.05	0.1
A2	1.0	1.10	1.20
A3	0.40	0.45	0.50
b	0.35	0.425	0.50
c	0.10	0.175	0.25
D	2.70	2.90	3.1
E	2.60	2.80	3.00
E1	1.5	1.65	1.80
e	1.7	1.9	2.1
L	0.35	0.45	0.55
L1	0.55	0.625	0.70
θ	0°	3°	8°

11. Suggested pad layout

Table 8. Suggested pad layout



Note:
1. Controlling dimension: in millimeters
2. General tolerance: 0.05mm
3. The pad layout is for reference purposes only

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