

20V P沟道功率MOSFET

UM2301S SOT23-3
UM2301P SOT323

描述

UM2301 是一款低阈值 P 沟道 MOSFET，具有极低的导通电阻。这一优势为设计师提供了适用于电池和负载管理应用的极高效器件。该器件采用节省空间、外形小巧的 SOT23-3 或 SOT323 封装。

应用

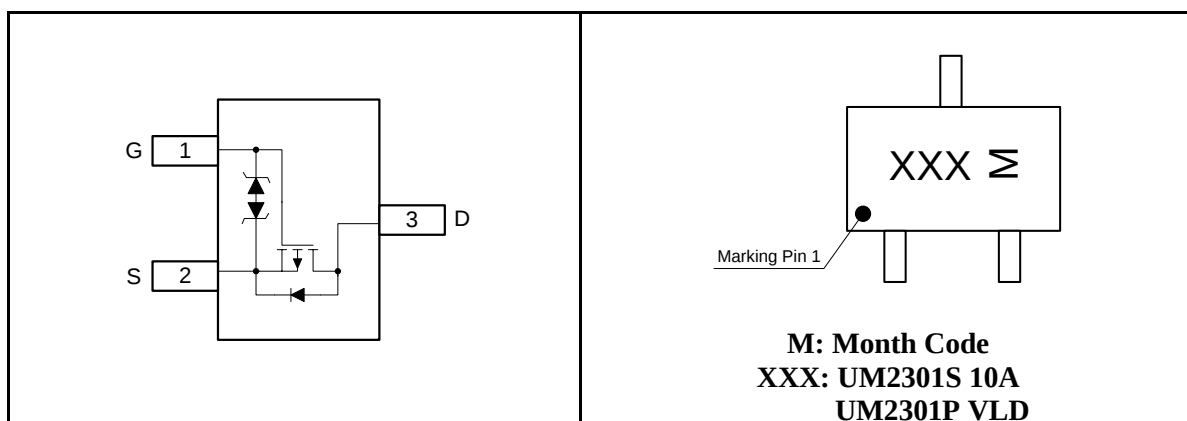
- 电池组
- 电池供电的便携式设备
- 手机和无线电话

特性

- 漏源电压（最大）：-20V
- 低导通电阻：
200mΩ@V_{GS}=-4.5V
250mΩ@V_{GS}=-2.5V
- 持续漏极电流（最大）：
-1.5A@25℃ (SOT23-3)
-1.1A@25℃ (SOT323)

引脚配置

顶部视图



芯片型号	封装类型	丝印编码	发货数量
UM2301S	SOT23-3	10A	3000pcs/7 Inch Tape & Reel
UM2301P	SOT323	VLD	

Absolute Maximum Ratings

Symbol	Parameter	Value	Unit
V_{DSS}	Drain-Source Voltage	-20	V
V_{GS}	Gate-Source Voltage	± 8	V
I_D	Continuous Drain Current (5s)	SOT23-3	A
		SOT323	
I_{DP}	Drain Current Pulsed (Pulse Width $\leq 10\mu s$, Duty Cycle $\leq 1\%$)	-5	A
P_D	Power Dissipation	SOT23-3	W
		SOT323	
T_J	Junction Temperature	-55~150	$^{\circ}C$
T_{STG}	Storage Temperature	-55~150	$^{\circ}C$
$R_{\theta JA}$	Thermal Resistance, Junction-to-Ambient ($\leq 5s$)	SOT23-3	$^{\circ}C/W$
		SOT323	
ESD	ESD Method 3015.8	2000	V

Electrical Characteristics ($T_J=25^{\circ}C$, unless otherwise noted)

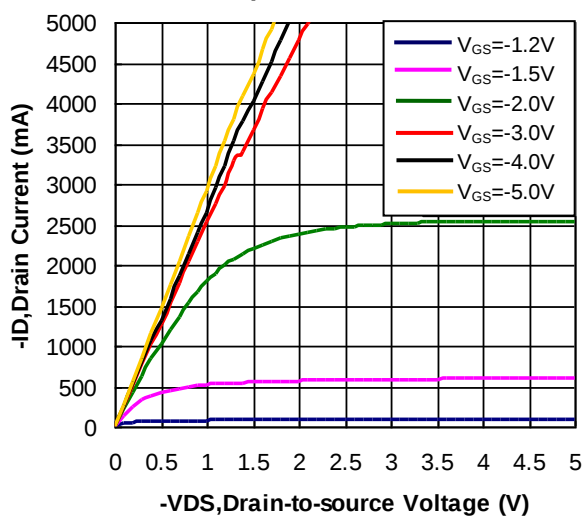
Symbol	Parameter	Test Condition	Min	Typ	Max	Unit
Off Characteristics						
BV _{DSS}	Drain-to-Source Breakdown Voltage	V _{GS} =0V, I _D =-250μA	-20			V
I _{DSS}	Zero Gate Voltage Drain Current	V _{DS} =-20V, V _{GS} =0V			-0.1	μA
I _{GSS}	Gate-to-Source Leakage Current	V _{GS} =±8V, V _{DS} =0V			±10	μA
On Characteristics						
R _{DS(ON)}	Static Drain-to-Source On-Resistance (Note 1)	V _{GS} =-4.5V, I _D =-1.0A		200	350	mΩ
		V _{GS} =-2.5V, I _D =-1.0A		250	400	
V _{GS(TH)}	Gate-Source Threshold Voltage	V _{DS} = V _{GS} , I _D =-250μA	-0.4	-0.6	-1	V
g _{fs}	Forward Transconductance (Note 1)	V _{DS} =-5V, I _D =-2.0A		4.5		S
Dynamic Characteristics (Note 2)						
C _{iss}	Input Capacitance	V _{GS} =0V, V _{DS} =-10V, f=1.0MHz		405		pF
C _{oss}	Output Capacitance			150		
C _{rss}	Reverse Transfer Capacitance			55		
Switching Characteristics (Note 2)						
td(on)	Turn-on Delay Time	V _{DD} =-10V, R _L =10Ω, I _D =-1A, V _{GEN} =-4.5V, R _G =1Ω		11	20	ns
tr	Rise Time			35	60	
td(off)	Turn-off Delay Time			80	150	
tf	Fall Time			50	90	
Drain-Source Diode Characteristics and Maximum Ratings						
V _{SD}	Forward Diode Voltage	I _S =-0.7A		-0.8	-1.2	V

Note 1: Pulse test: pulse width $\leq 300\mu s$, duty cycle $\leq 2\%$.

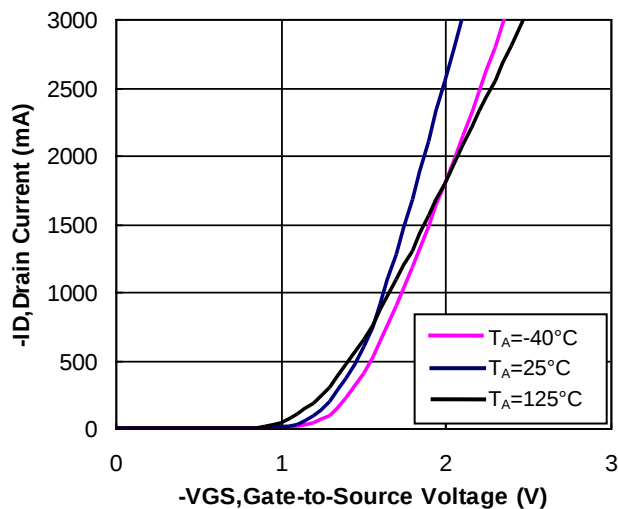
Note 2: Guaranteed by design, not subject to production testing.

Typical Characteristics ($T_J=25^\circ\text{C}$, unless otherwise noted)

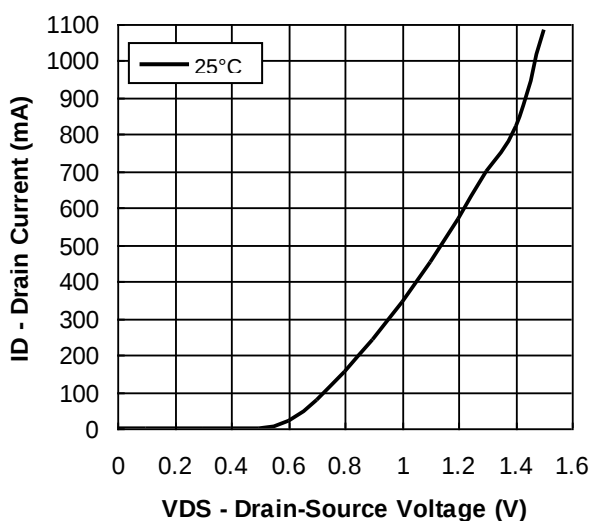
Output Characteristics



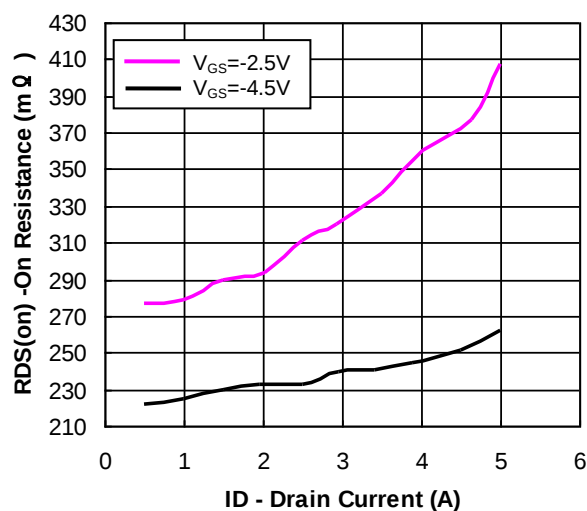
Transfer Characteristics



Source-Drain Diode Forward Voltage

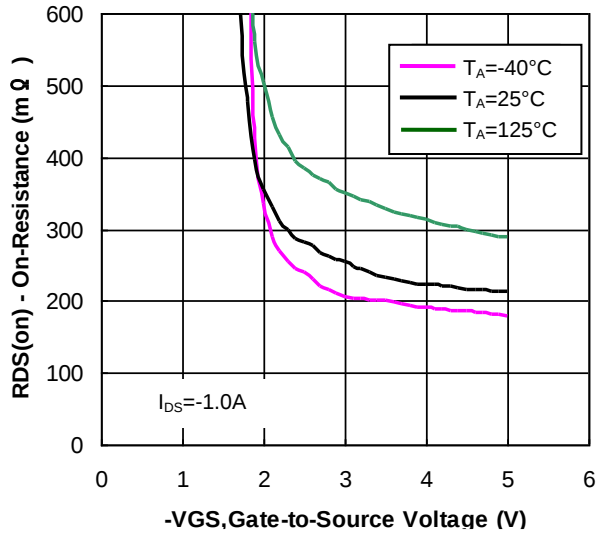


On Resistance vs. Drain Current

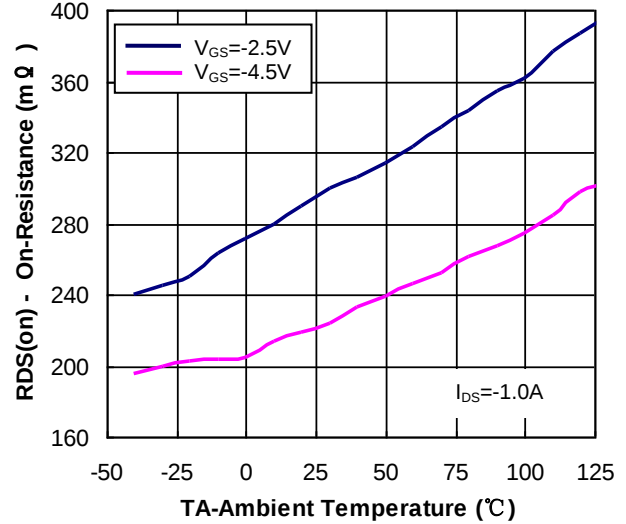


Typical Characteristics ($T_J=25^\circ\text{C}$, unless otherwise noted)

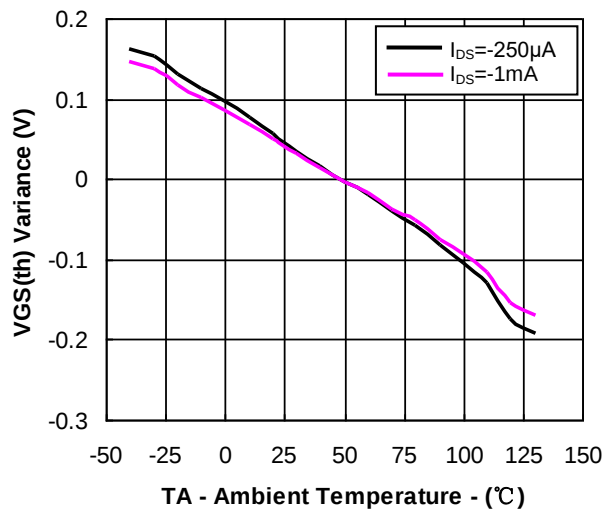
On-Resistance vs. Gate-to-Source Voltage



On-Resistance vs. Ambient Temperature



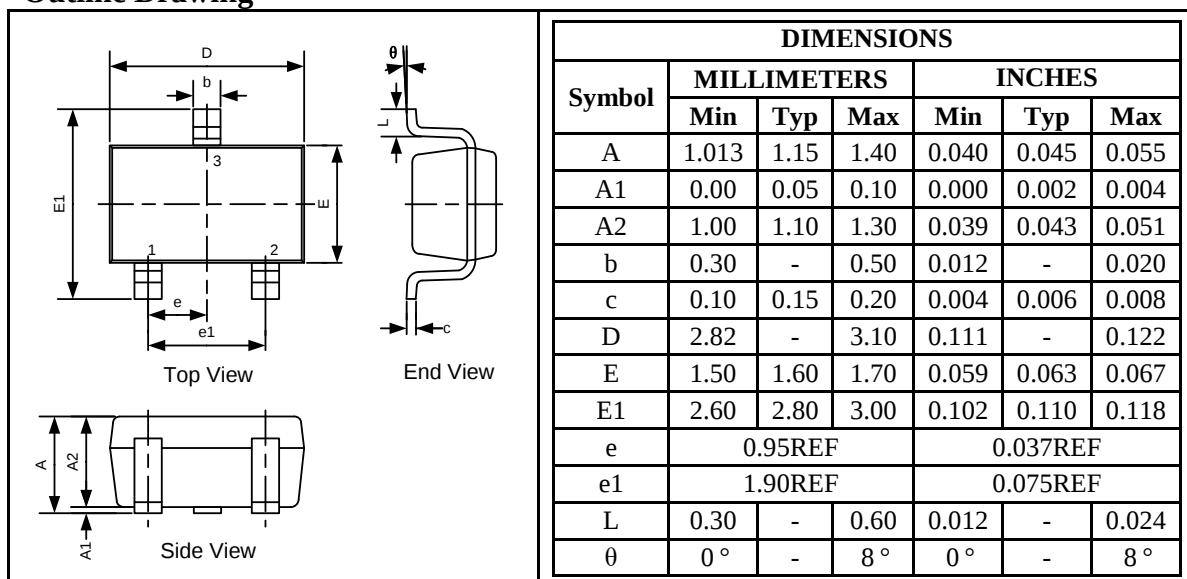
Threshold Voltage vs. Ambient Temperature



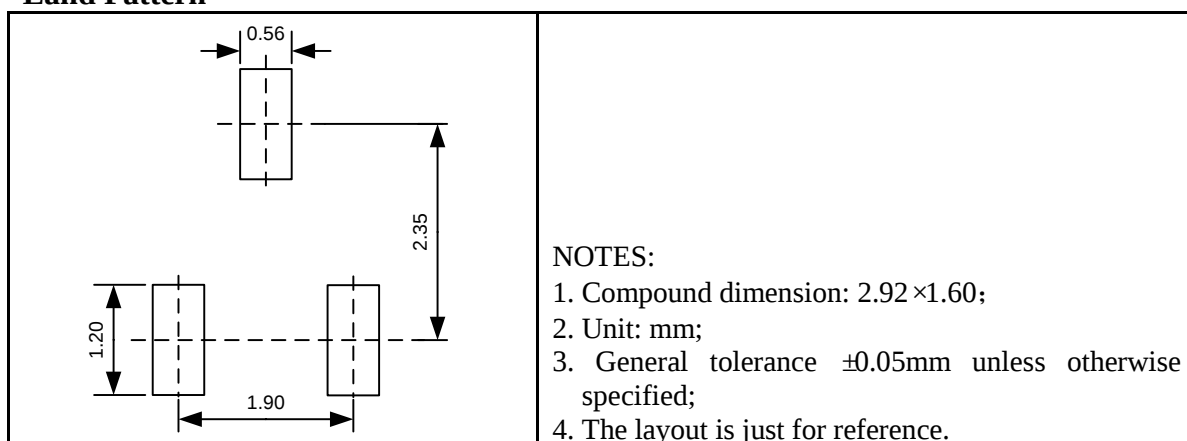
Package Information

UM2301S SOT23-3

Outline Drawing



Land Pattern



Tape and Reel Orientation

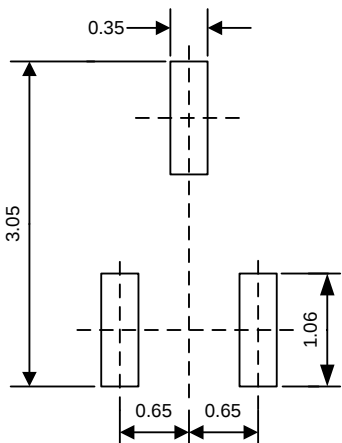


UM2301P SOT323

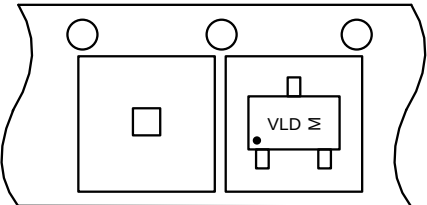
Outline Drawing

DIMENSIONS						
Symbol	MILLIMETERS			INCHES		
	Min	Typ	Max	Min	Typ	Max
A	0.90	-	1.10	0.035	-	0.043
A1	0.00	0.05	0.10	0.000	0.002	0.004
A2	0.90	-	1.00	0.035	-	0.039
b	0.20	0.30	0.40	0.008	0.012	0.016
c	0.08	-	0.18	0.003	-	0.007
D	1.80	2.15	2.20	0.071	0.085	0.087
E	1.15	1.30	1.35	0.045	0.051	0.053
E1	2.00	-	2.45	0.079	-	0.096
e	0.65BSC			0.026BSC		
e1	1.20	1.30	1.40	0.047	0.051	0.055
L	0.25	-	0.46	0.010	-	0.018
θ	0°	-	8°	0°	-	8°

Land Pattern

	NOTES: - Compound dimension: 2.15×1.30. - Unit: mm. - General tolerance $\pm 0.05\text{mm}$ unless otherwise specified. - The layout is just for reference.
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Tape and Reel Orientation



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