

Product Summary

$V_{(BR)DSS}$	$R_{DS(on)TYP}$	I_D
-20V	80mΩ@-4.5V	-3A
	100mΩ@-2.5V	

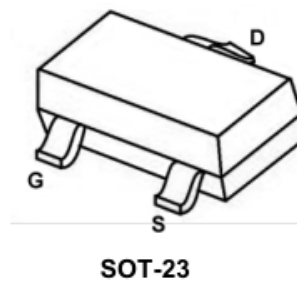
Feature

- TrenchFET Power MOSFET
- Excellent $R_{DS(on)}$ and Low Gate Charge

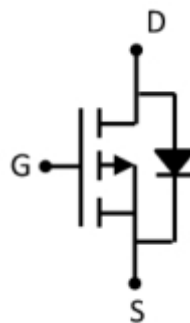
Applications

- DC/DC Converter
- Load Switch for Portable Devices
- Battery Switch

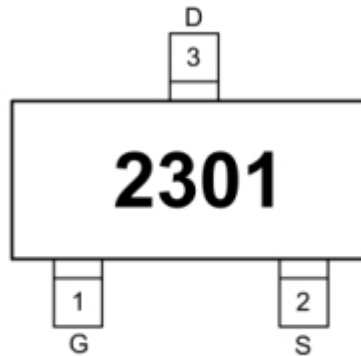
Package



Circuit diagram



Marking



2301 =Device Code

Absolute maximum ratings

(T_a=25°C unless otherwise noted)

Parameter	Symbol	Value	Unit
Drain-Source Voltage	V _{DS}	-20	V
Gate-Source Voltage	V _{GS}	±12	V
Continuous Drain Current	I _D	-3	A
Pulsed Drain Current	I _{DM}	-12	A
Power Dissipation	P _D	0.9	W
Thermal Resistance from Junction to Ambient	R _{θJA}	130	°C/W
Junction Temperature	T _J	150	°C
Storage Temperature	T _{STG}	-55~ +150	°C

Electrical characteristics

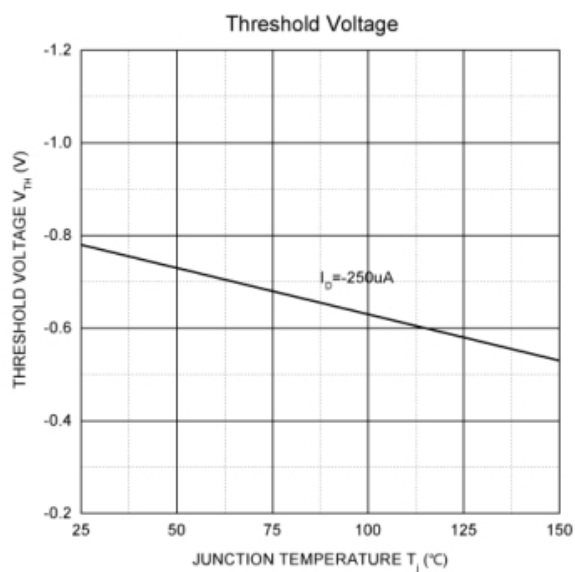
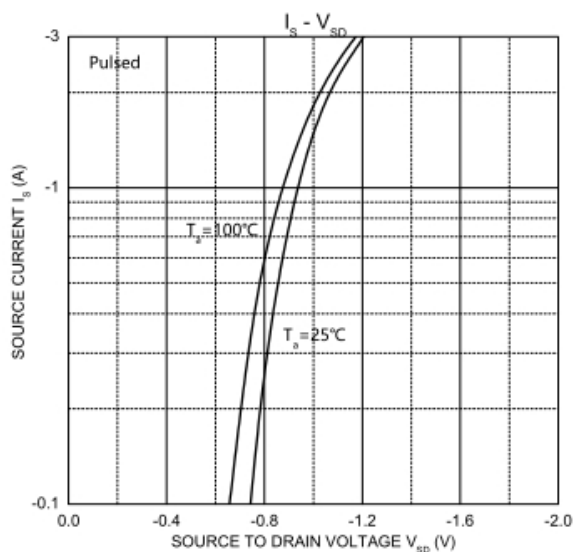
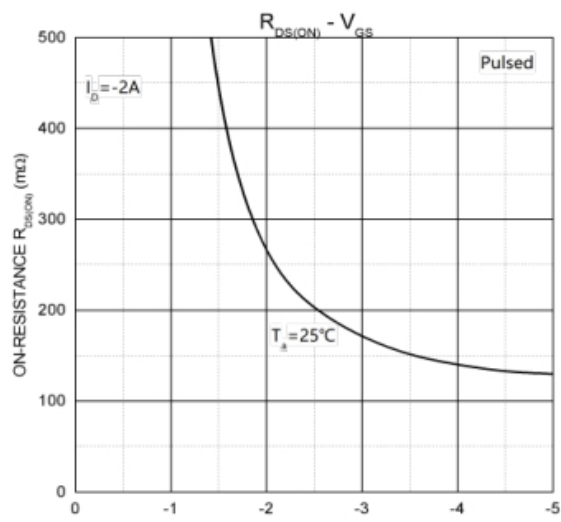
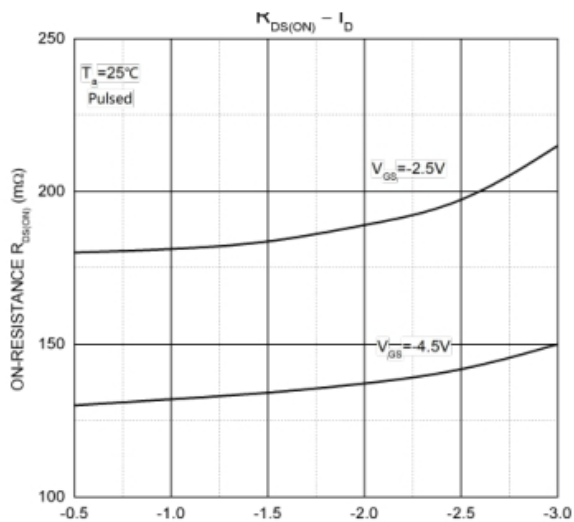
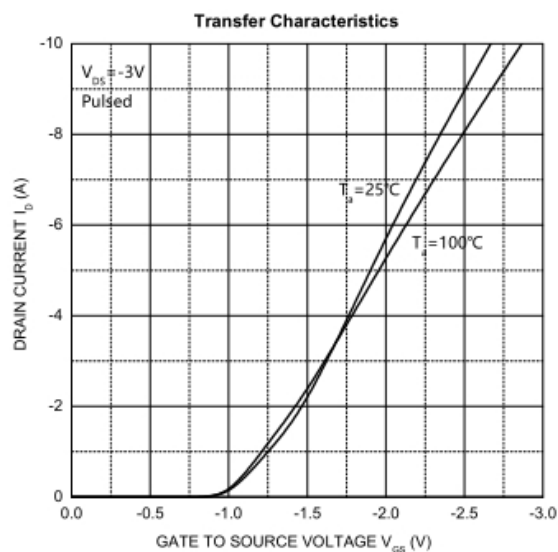
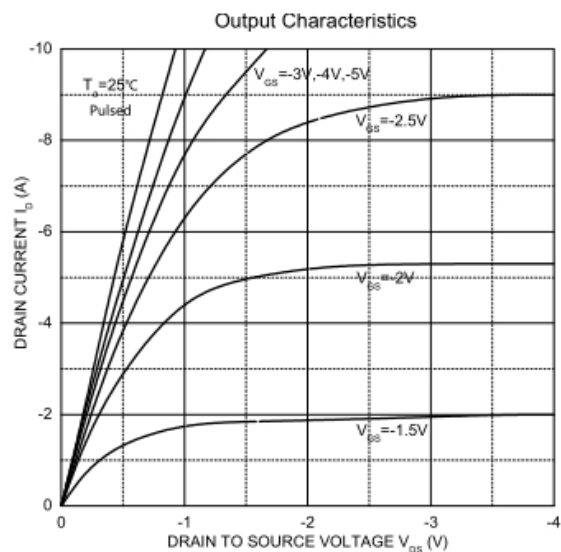
($T_A=25^{\circ}\text{C}$, unless otherwise noted)

Parameter	Symbol	Test Condition	Min.	Typ.	Max.	Unit
Static Characteristics						
Drain-source breakdown voltage	BV (BR)DSS	V _{GS} = 0V, I _D = -250μA	-20			V
Zero gate voltage drain current	I _{DSS}	V _{DS} = -16V, V _{GS} = 0V			-1	uA
Gate-body leakage current	I _{GSS}	V _{GS} = ±12V, V _{DS} = 0V			±100	uA
Gate threshold voltage ⁽¹⁾	V _{GS(th)}	V _{DS} =V _{GS} , I _D = -250μA	-0.5	-0.7	-1	V
Drain-source on-resistance	R _{DS(on)}	V _{GS} = -4.5V, I _D = -4A		80	110	mΩ
		V _{GS} = -2.5V, I _D = -2A		100	140	
Dynamic Characteristics						
Input capacitance	C _{iss}	V _{DS} = -10V, V _{GS} =0V, f=1MHz		405		pF
Output capacitance	C _{oss}			75		
Reverse transfer capacitance	C _{rss}			55		
Total Gate Charge	Q _g	V _{DS} = -10V, V _{GS} = -2.5V, I _D = -3A		3.3	12	nC
Gate-Source Charge	Q _{gs}			0.7		
Gate-Drain Charge	Q _{gd}			1.3		
Turn-on Delay Time	T _{d(on)}	V _{DD} = -10V, V _{GEN} = -4.5V, I _D = -1A, R _L =10Ω, R _{GEN} =1Ω		11		nS
Turn-on Rise Time	T _r			35		
Turn-Off Delay Time	T _{d(off)}			30		
Turn-Off Fall Time	t _f			10		
Source-Drain Diode Characteristics						
Diode Forward voltage	V _{DS}	I _S = -1.25A, V _{GS} = 0V		-0.8	-1.3	V

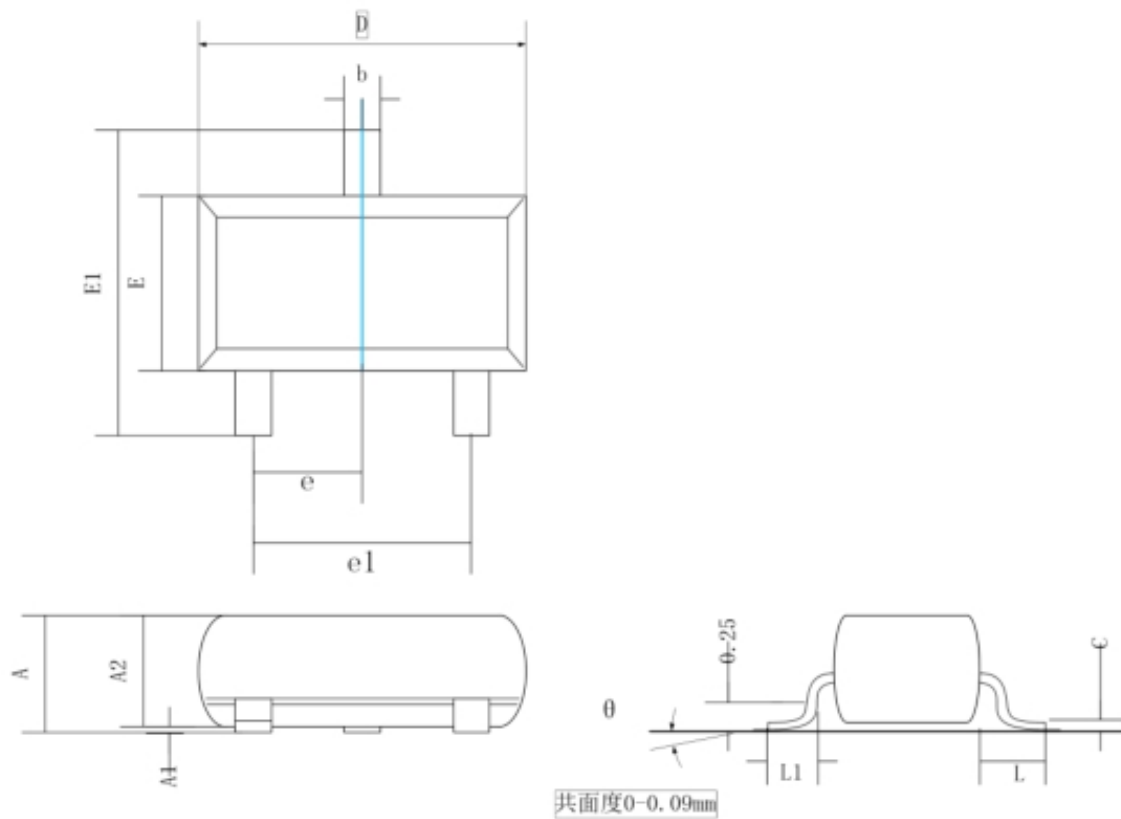
Notes:

1. Pulse Test: Pulse Width < 300 μs , Duty Cycle $\leq 2\%$.
2. Guaranteed by design, not subject to production testing.

Typical Characteristics



SOT-23 Package Information



Symbol	Dimensions In Millimeters	
	Min.	Max.
A	0.90	1.15
A1	0.00	0.10
A2	0.90	1.05
b	0.30	0.50
c	0.08	0.15
D	2.80	3.00
E	1.20	1.40
E1	2.25	2.55
e	0.95 REF.	
e1	1.80	2.00
L	0.55 REF.	
L1	0.30	0.50
θ	0°	8°