

Descriptions

This is -20V -3A P-CHANNEL MOSFET in a SOT-23 Plastic Package

Features

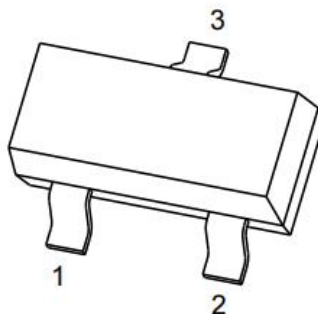
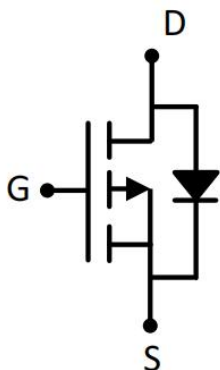
- TrenchFET Power MOSFET
- Excellent $R_{DS(on)}$ and Low Gate Charge

Parameter	Value	Unit
V_{DS}	-20	V
$R_{DS(ON)MAX. V_{GS}=-4.5V}$	70	m Ω
$R_{DS(ON)MAX. V_{GS}=-2.5V}$	100	m Ω
I_D	3.0	A

Applications

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

Equivalent Circuit & Pinning



SOT-23

1. GATE 2. SOURCE 3. DRAIN

Absolute Maximum Ratings(Ta=25°C)

Parameter	Symbol	Value	Unit
Drain-Source Voltage	V _{DS}	-20	V
Gate-Source Voltage	V _{GS}	±10	V
Continuous Drain Current	I _D	-3.0	A
Pulsed Drain Current (t=300μs)	I _{DM}	-10	A
Power Dissipation	P _D	0.4	W
Thermal Resistance from Junction to Ambient	R _{θJA}	312.5	°C/W
Junction Temperature	T _J	150	°C
Storage Temperature	T _{STG}	-55~ +150	°C

Electrical Characteristics(Ta=25°C)

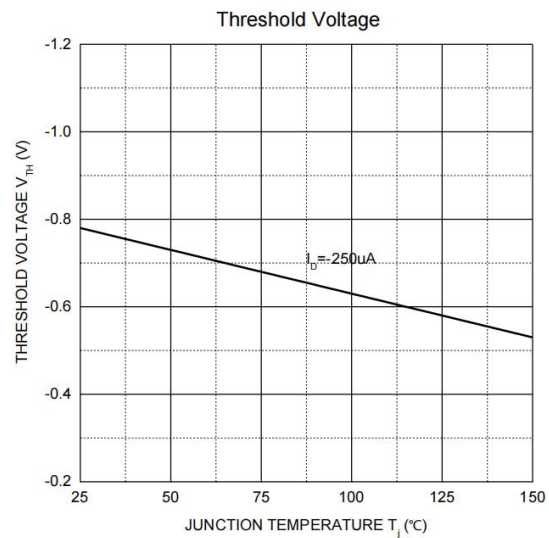
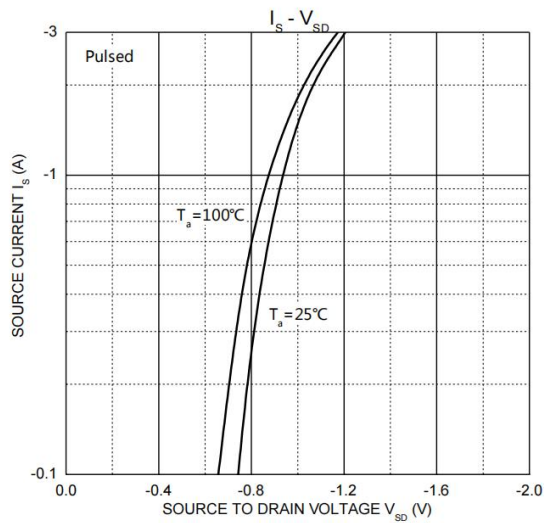
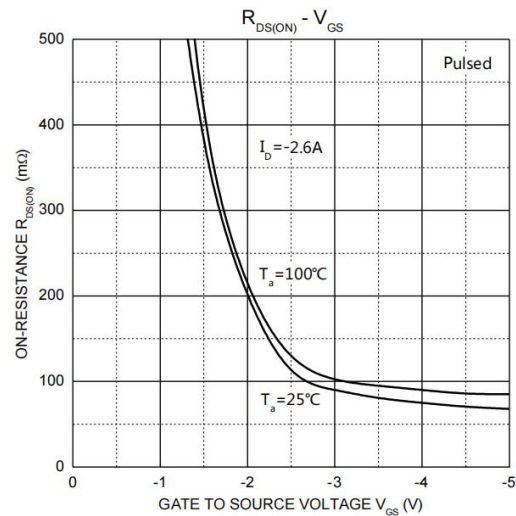
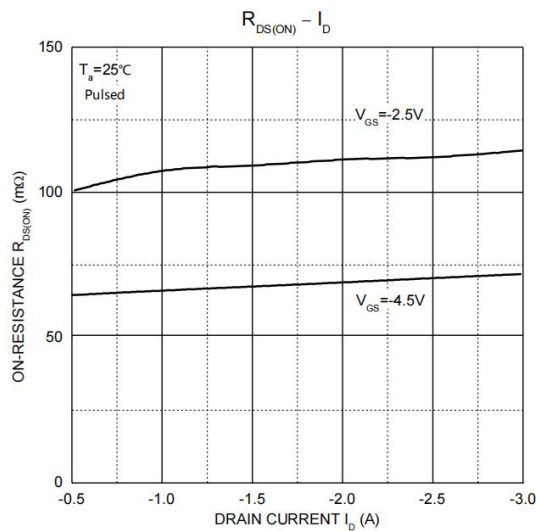
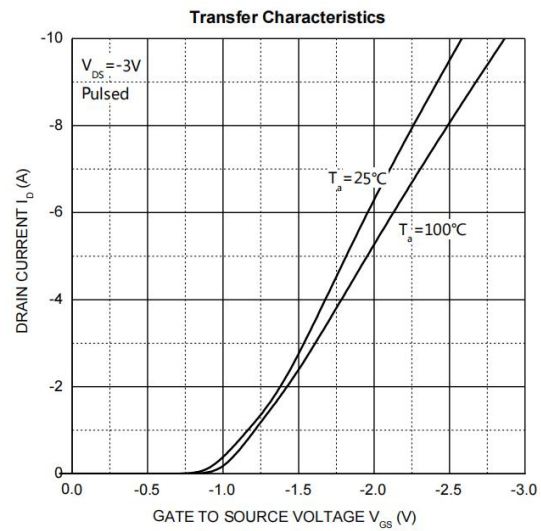
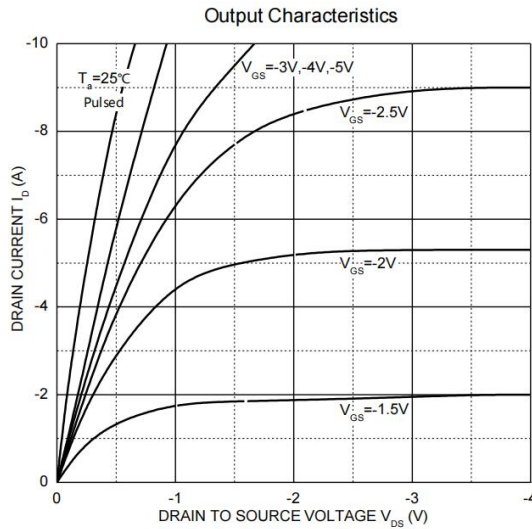
Parameter	Symbol	Test Condition	Min	Type	Max	Unit
Static Characteristics						
Drain-source breakdown voltage	V _{(BR)DSS}	V _{GS} = 0V, I _D =-250μA	-20			V
Zero gate voltage drain current	I _{DSS}	V _{DS} =-20V,V _{GS} = 0V			-1	μA
Gate-body leakage current	I _{GSS}	V _{GS} =±10V, V _{DS} = 0V			±100	nA
Gate threshold voltage	V _{GS(th)}	V _{DS} =V _{GS} , I _D =-250μA	-0.5	-0.7	-1.5	V
Drain-source on-resistance ^a	R _{DS(on)}	V _{GS} =-4.5V, I _D =-3A		55	70	mΩ
		V _{GS} =-2.5V, I _D =-2A		70	100	
Forward tranconductance ^a	g _{FS}	V _{DS} =-5V, I _D =-2A	5			S
Dynamic characteristics ^b						
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		
Gate resistance	R _g	f =1MHz		6		Ω
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 current	I _S	T _C =25℃			-2.3	A
Diode pulsed forward current ^a	I _{SM}				-10	A
Diode Forward voltage	V _{DS}	V _{GS} =0V, I _S =-1.3A			-1.2	V

Notes :

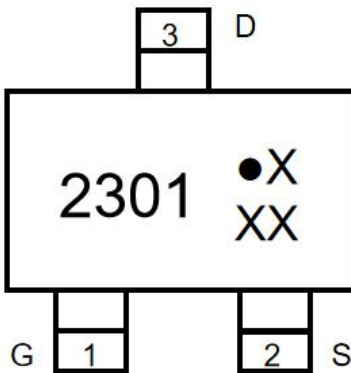
a. Pulse Test : Pulse Width < 300 μs , Duty Cycle $\leq 2\%$.

b. Guaranteed by design, not subject to production testing.

Electrical Characteristic Curve



Marking Instructions



Note:
2301: Package Type
XXX: Year & Month Code

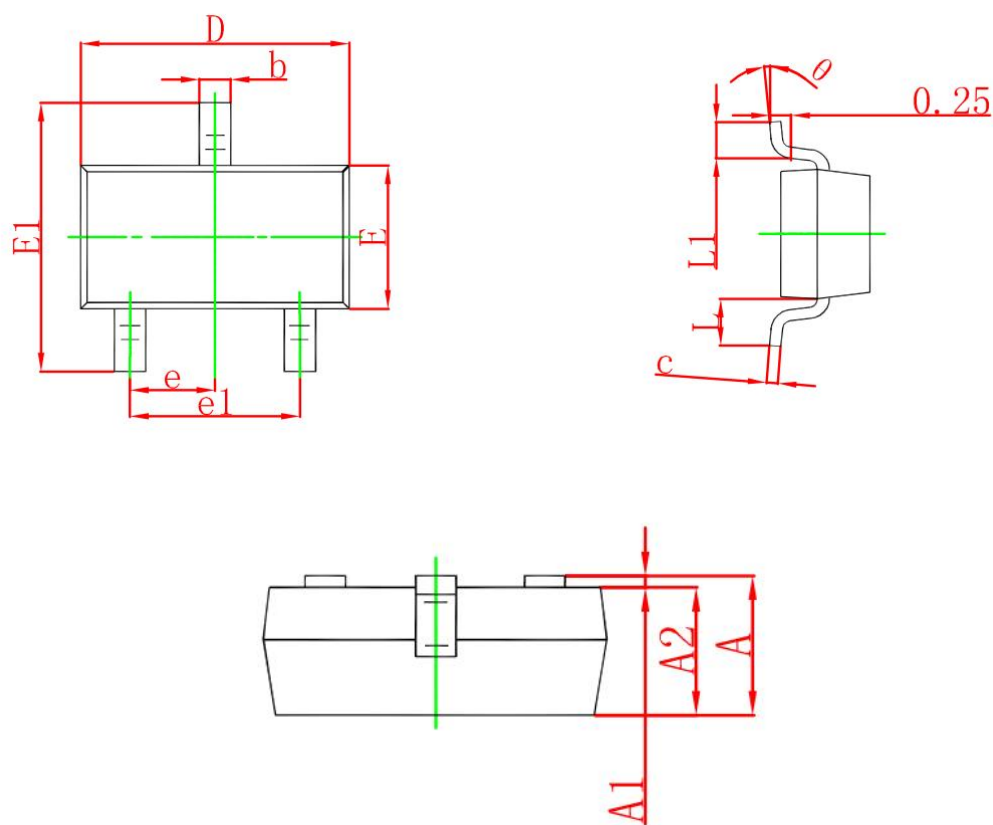
Packaging SPEC

REEL

Package Type	Units/Reel
SOT-23	3000

Package Outline Dimensions

SOT-23



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min	Max	Min	Max
A	0.900	1.150	0.035	0.045
A1	0.000	0.100	0.000	0.004
A2	0.900	1.050	0.035	0.041
b	0.300	0.500	0.012	0.020
c	0.080	0.150	0.003	0.006
D	2.800	3.000	0.110	0.118
E	1.200	1.400	0.047	0.055
E1	2.250	2.550	0.089	0.100
e	0.950 TYP		0.037 TYP	
e1	1.800	2.000	0.071	0.079
L	0.550 REF		0.022 REF	
L1	0.300	0.500	0.012	0.020
θ	0°	8°	0°	8°