

**Product Summary**

$V_{(BR)DSS}$	$R_{DS(on)TYP}$	$I_D$
-20V	70mΩ@-4.5V	-2.3A
	110mΩ@-2.5V	

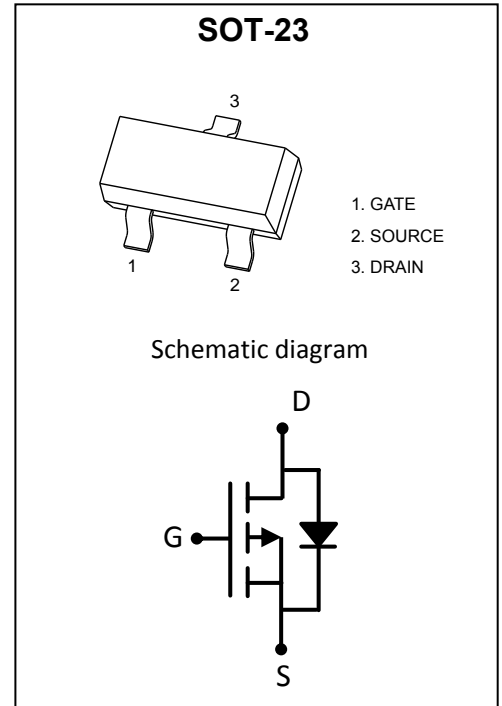
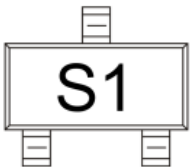
**Feature**

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

**Application**

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

**MARKING:**



**ABSOLUTE MAXIMUM RATINGS ( $T_a=25^\circ\text{C}$  unless otherwise noted)**

Parameter	Symbol	Value	Unit
Drain-Source Voltage	$V_{DS}$	-20	V
Gate-Source Voltage	$V_{GS}$	$\pm 8$	V
Continuous Drain Current	$I_D$	-2.3	A
Pulsed Drain Current ( $t=300\mu\text{s}$ )	$I_{DM}$	-10	A
Power Dissipation	$P_D$	0.4	W
Thermal Resistance from Junction to Ambient	$R_{\theta JA}$	312.5	$^\circ\text{C}/\text{W}$
Junction Temperature	$T_J$	150	$^\circ\text{C}$
Storage Temperature	$T_{STG}$	-55~ +150	$^\circ\text{C}$

**MOSFET ELECTRICAL CHARACTERISTICS(T<sub>a</sub>=25°C unless otherwise noted)**

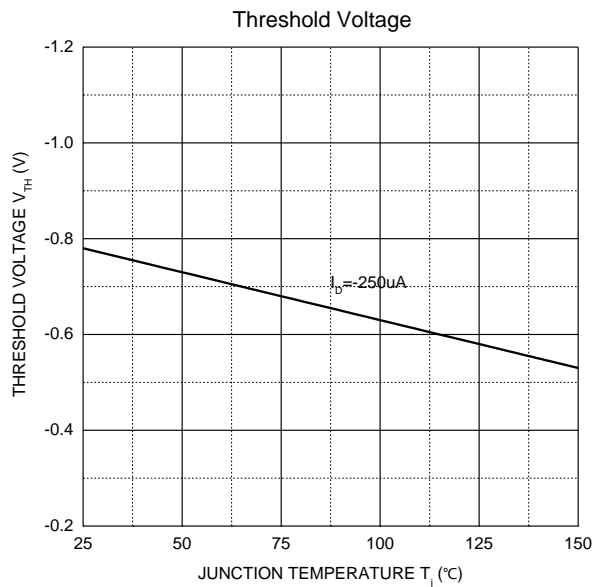
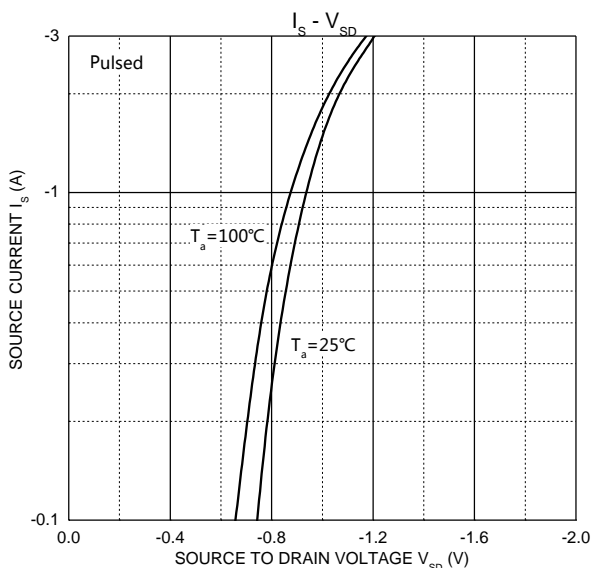
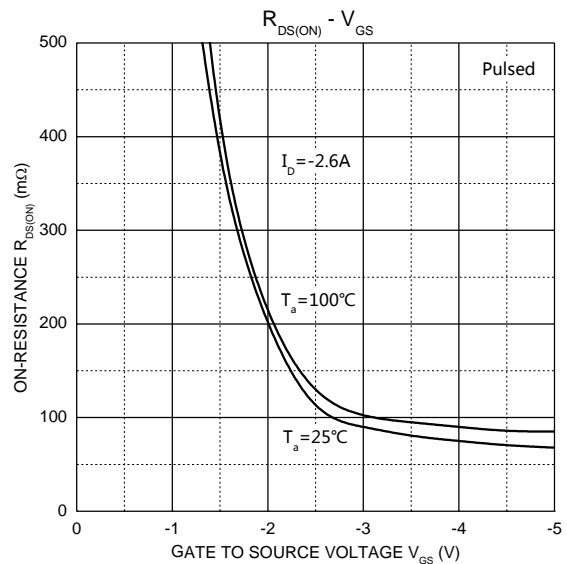
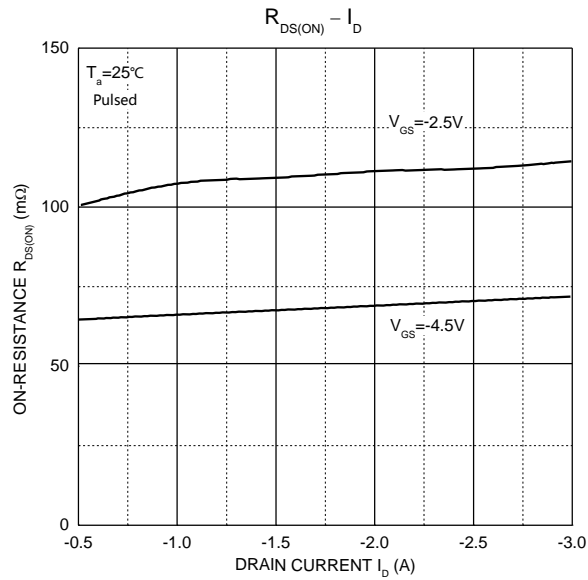
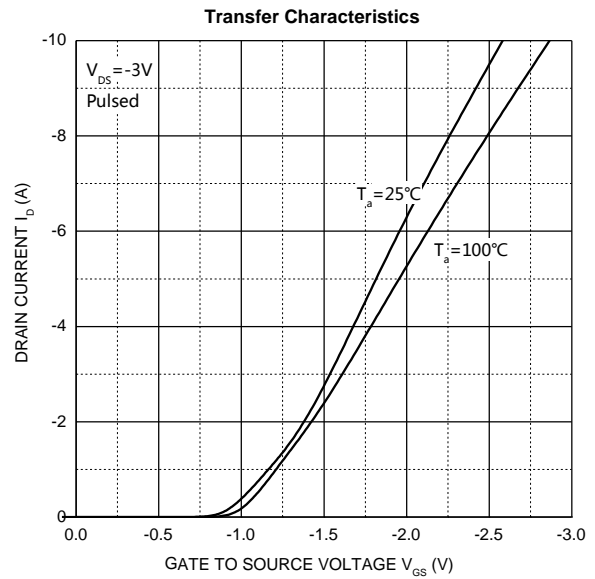
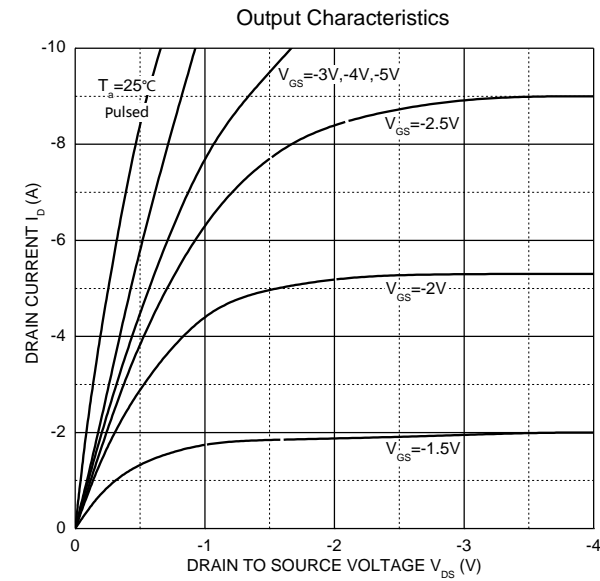
Parameter	Symbol	Test Condition	Min	Type	Max	Unit
<b>Static Characteristics</b>						
Drain-source breakdown voltage	V <sub>(BR)DSS</sub>	V <sub>GS</sub> = 0V, I <sub>D</sub> = -250μA	-20			V
Zero gate voltage drain current	I <sub>DSS</sub>	V <sub>DS</sub> = -20V, V <sub>GS</sub> = 0V			-1	μA
Gate-body leakage current	I <sub>GSS</sub>	V <sub>GS</sub> = ±8V, V <sub>DS</sub> = 0V			±100	nA
Gate threshold voltage	V <sub>GS(th)</sub>	V <sub>DS</sub> = V <sub>GS</sub> , I <sub>D</sub> = -250μA	-0.4	-0.7	-1	V
Drain-source on-resistance <sup>a</sup>	R <sub>DS(on)</sub>	V <sub>GS</sub> = -4.5V, I <sub>D</sub> = -3A		70	90	mΩ
		V <sub>GS</sub> = -2.5V, I <sub>D</sub> = -2A		110	140	
Forward tranconductance <sup>a</sup>	g <sub>FS</sub>	V <sub>DS</sub> = -5V, I <sub>D</sub> = -2A	5			S
<b>Dynamic characteristics<sup>b</sup></b>						
Input Capacitance	C <sub>iss</sub>	V <sub>DS</sub> = -10V, V <sub>GS</sub> = 0V, f = 1MHz		405		pF
Output Capacitance	C <sub>oss</sub>			75		
Reverse Transfer Capacitance	C <sub>rss</sub>			55		
Gate resistance	R <sub>g</sub>	f = 1MHz		6		Ω
Total Gate Charge	Q <sub>g</sub>	V <sub>DS</sub> = -10V, V <sub>GS</sub> = -2.5V, I <sub>D</sub> = -3A		3.3	12	nC
Gate-Source Charge	Q <sub>gs</sub>			0.7		
Gate-Drain Charge	Q <sub>gd</sub>			1.3		
Turn-on delay time	t <sub>d(on)</sub>	V <sub>DD</sub> = -10V, V <sub>GEN</sub> = -4.5V, I <sub>D</sub> = -1A R <sub>L</sub> = 10Ω, R <sub>GEN</sub> = 1Ω		11		ns
Turn-on rise time	t <sub>r</sub>			35		
Turn-off delay time	t <sub>d(off)</sub>			30		
Turn-off fall time	t <sub>f</sub>			10		
<b>Source-Drain Diode characteristics</b>						
Diode forward current	I <sub>S</sub>	T <sub>C</sub> = 25°C			-2.3	A
Diode pulsed forward current <sup>a</sup>	I <sub>SM</sub>				-10	A
Diode Forward voltage	V <sub>DS</sub>	V <sub>GS</sub> = 0V, I <sub>S</sub> = -1.3A			-1.2	V

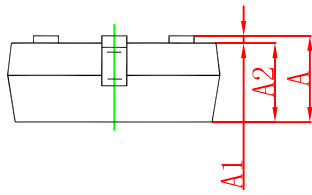
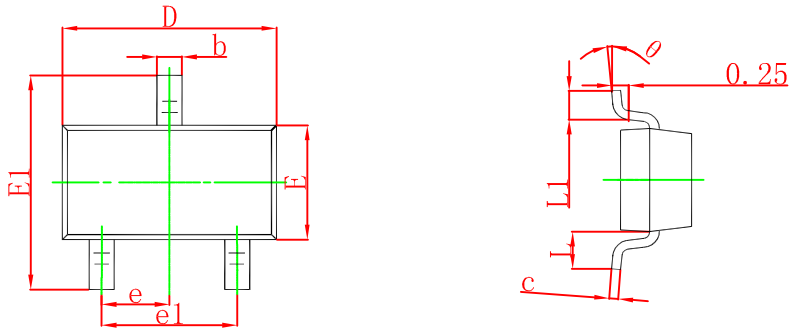
Notes :

a. Pulse Test : Pulse Width < 300μs, Duty Cycle ≤2%.

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

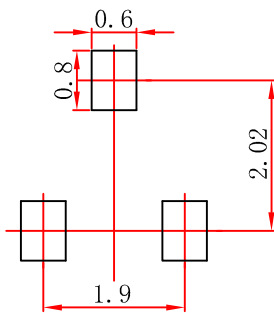
## Typical Electrical and Thermal Characteristics





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
theta	0°	8°	0°	8°

### SOT-23 Suggested Pad Layout



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