

**Product Summary**

$V_{(BR)DSS}$	$R_{DS(on)TYP}$	$I_D$
20V	17mΩ@4.5V	6.8A
	20mΩ@2.5V	
	30mΩ@1.8V	

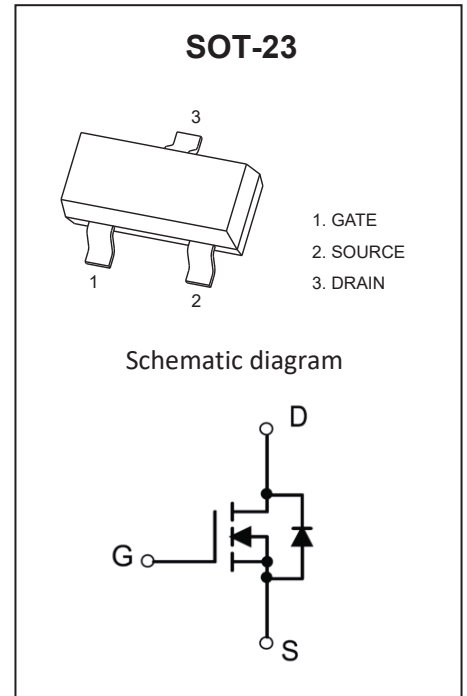
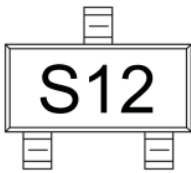
**Feature**

- 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 ( $T_a=25^{\circ}C$  unless otherwise noted)**

Parameter		Symbol	Value	Unit
Drain - Source Voltage		$V_{DS}$	20	V
Gate - Source Voltage		$V_{GS}$	±12	V
Continuous Drain Current <sup>1,5</sup>	$T_A = 25^{\circ}C$	$I_D$	6.8	A
Pulsed Drain Current <sup>2</sup>		$I_{DM}$	20	A
Power Dissipation <sup>4,5</sup>	$T_A = 25^{\circ}C$	$P_D$	1.5	W
Thermal Resistance from Junction to Ambient <sup>5</sup>		$R_{\theta JA}$	83.3	$^{\circ}C/W$
Junction and Storage Temperature Range		$T_J, T_{STG}$	-55~ +150	$^{\circ}C$

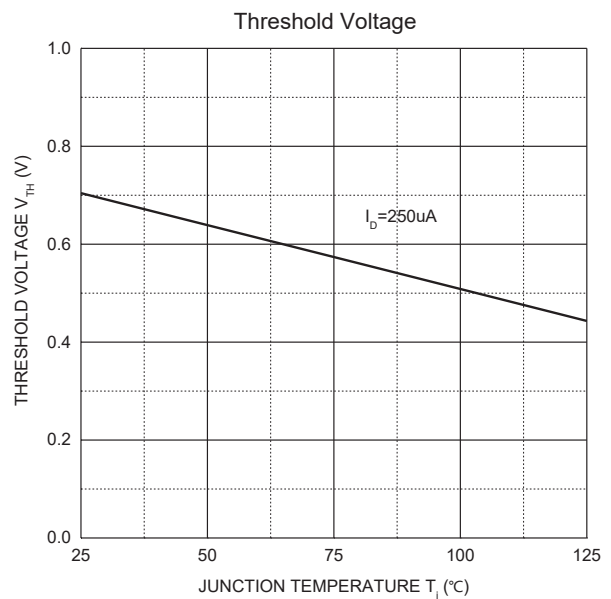
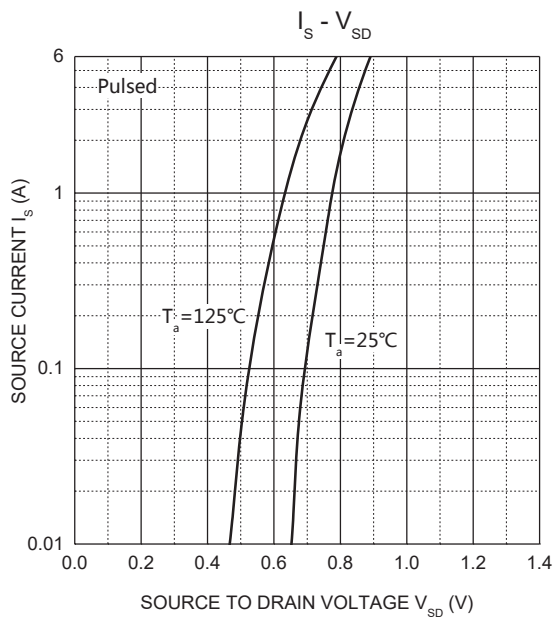
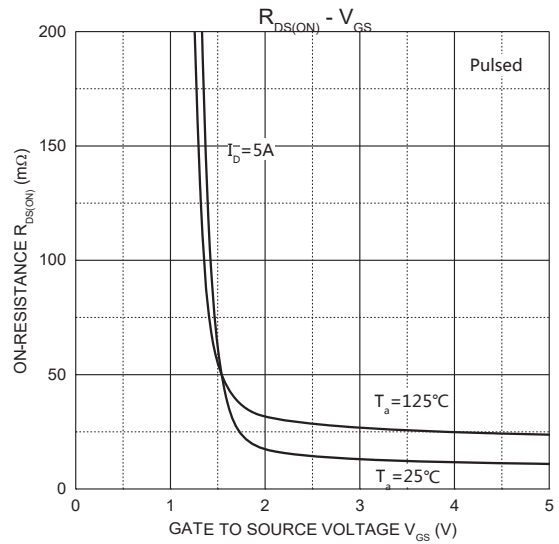
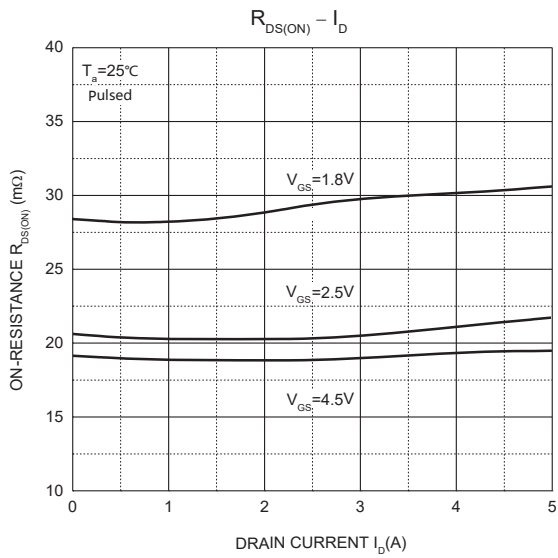
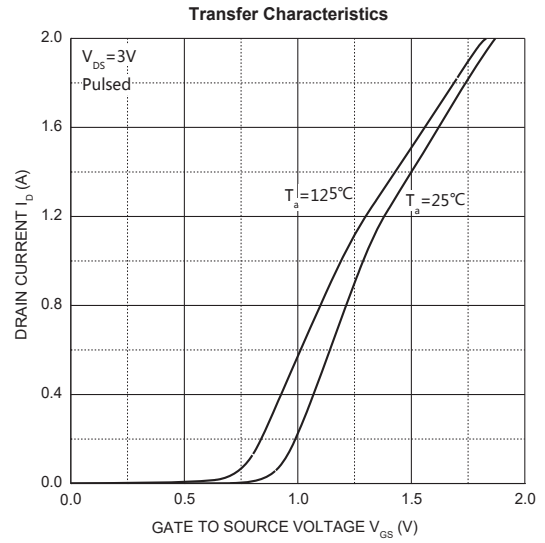
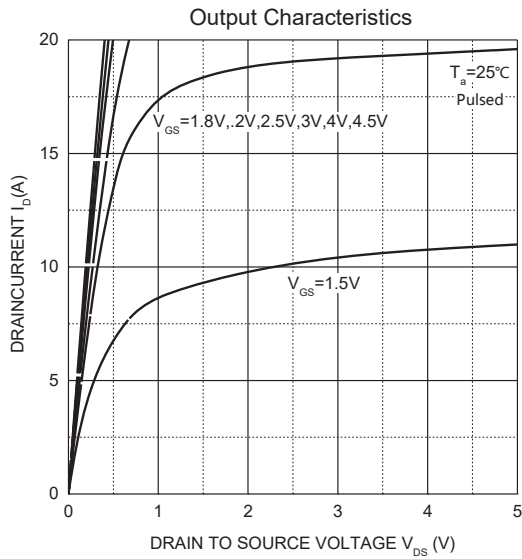
**MOSFET ELECTRICAL CHARACTERISTICS(T<sub>a</sub>=25°C unless otherwise noted)**

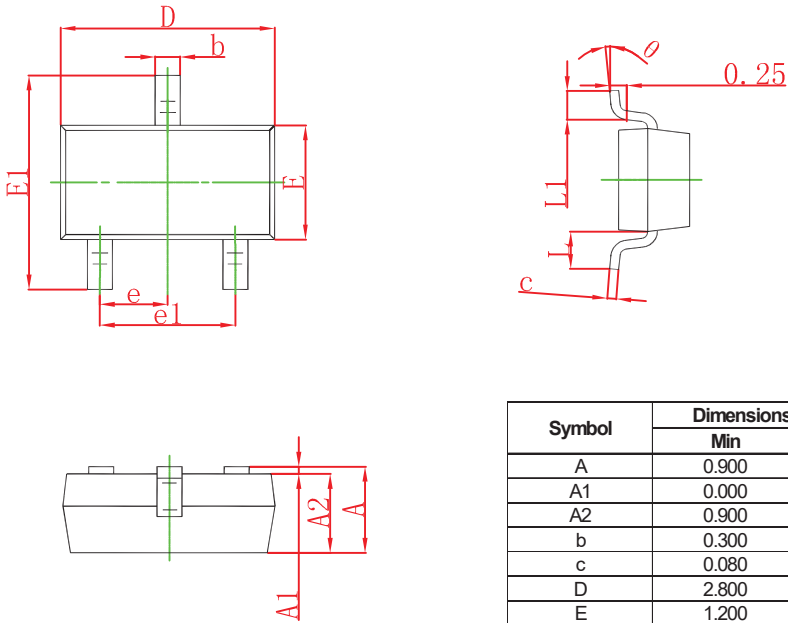
Parameter	Symbol	Test Condition	Min	Type	Max	Unit
<b>Static Characteristics</b>						
Drain-source breakdown voltage	V <sub>(BR)DSS</sub>	V <sub>GS</sub> = 0V, I <sub>D</sub> =250μA	20			V
Zero gate voltage drain current	I <sub>DSS</sub>	V <sub>DS</sub> =20V, V <sub>GS</sub> = 0V			1	μA
Gate-body leakage current	I <sub>GSS</sub>	V <sub>GS</sub> =±8V, V <sub>DS</sub> = 0V			±0.1	μA
Gate threshold voltage	V <sub>GS(th)</sub>	V <sub>DS</sub> =V <sub>GS</sub> , I <sub>D</sub> =250μA	0.45	0.7	1.0	V
Drain-source on-resistance <sup>3</sup>	R <sub>DS(on)</sub>	V <sub>GS</sub> =4.5V, I <sub>D</sub> =5.0A		17	24	mΩ
		V <sub>GS</sub> =2.5V, I <sub>D</sub> =4.7A		20	32	
		V <sub>GS</sub> =1.8V, I <sub>D</sub> =4.3A		30	42	
Forward tranconductance <sup>3</sup>	g <sub>FS</sub>	V <sub>DS</sub> =10V, I <sub>D</sub> =5A	6			S
<b>Dynamic characteristics</b>						
Input Capacitance	C <sub>iss</sub>	V <sub>DS</sub> =10V, V <sub>GS</sub> =0V, f=1MHz		865		pF
Output Capacitance	C <sub>oss</sub>			105		
Reverse Transfer Capacitance	C <sub>rss</sub>			55		
Gate resistance	R <sub>g</sub>	f =1MHz	0.5		4.8	Ω
<b>Switching Characteristics</b>						
Turn-on delay time	t <sub>d(on)</sub>	V <sub>GEN</sub> =5V, V <sub>DD</sub> =10V, I <sub>D</sub> =4A, R <sub>G</sub> =1Ω, R <sub>L</sub> =2.2Ω			10	ns
Turn-on rise time	t <sub>r</sub>				20	
Turn-off delay time	t <sub>d(off)</sub>				32	
Turn-off fall time	t <sub>f</sub>				12	
<b>Source-Drain Diode characteristics</b>						
Diode Forward voltage <sup>3</sup>	V <sub>DS</sub>	V <sub>GS</sub> =0V, I <sub>S</sub> =4A		0.75	1.2	V

**Notes:**

- 1.The maximum current rating is limited by package.
- 2.Pulse Test : Pulse Width ≤ 10μs, duty cycle ≤ 1%.
- 3.Pulse Test : Pulse Width ≤ 300μs, duty cycle ≤ 2%.
- 4.The power dissipation P<sub>D</sub> is limited by T<sub>J(MAX)</sub> = 150°C.
- 5.Device mounted on 1in<sup>2</sup> FR-4 board with 2oz. Copper, in a still air environment with T<sub>A</sub> =25°C.

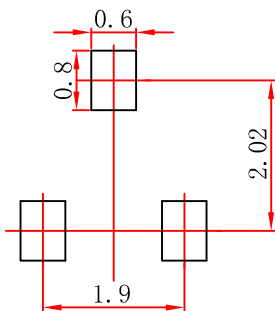
Typical Electrical and Thermal Characteristics





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
θ	0°	8°	0°	8°

### SOT-23 Suggested Pad Layout



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