

### Product Summary

$V_{(BR)DSS}$	$R_{DS(on)TYP}$	$I_D$
-16V	19mΩ@-4.5V	-6A
	21mΩ@-3.7V	
	27mΩ@-2.5V	
	35mΩ@-1.8V	
	50mΩ@-1.5V	

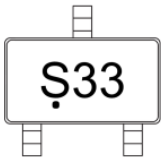
### Feature

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

### Application

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

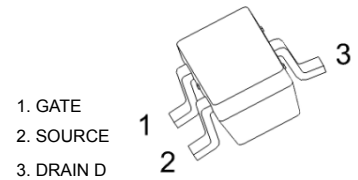
### MARKING:



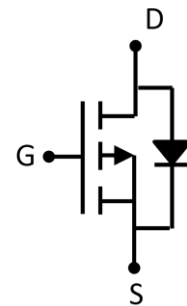
### ABSOLUTE MAXIMUM RATINGS ( $T_a=25^{\circ}C$ unless otherwise noted)

Parameter	Symbol	Value	Unit
Drain-Source Voltage	$V_{DS}$	-16	V
Gate-Source Voltage	$V_{GS}$	±8	V
Continuous Drain Current <sup>1,2</sup>	$I_D$	-6	A
Pulsed Drain Current ( $t=300\mu s$ )	$I_{DM}$	-20	A
Power Dissipation	$P_D$	0.4	W
Thermal Resistance from Junction to Ambient <sup>1,2</sup>	$R_{\theta JA}$	312.5	$^{\circ}C/W$
Junction Temperature	$T_J$	150	$^{\circ}C$
Storage Temperature	$T_{STG}$	-55~ +150	$^{\circ}C$

### SOT-23-3L



### Schematic diagram



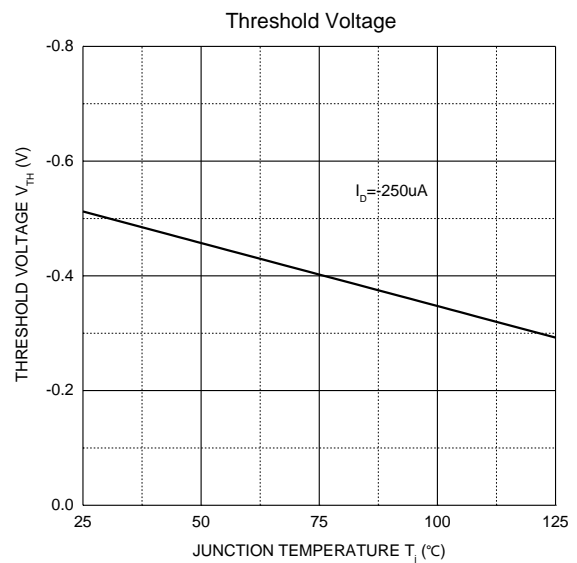
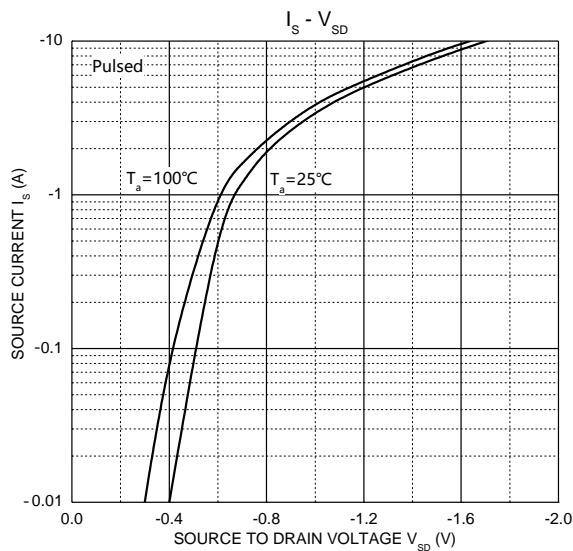
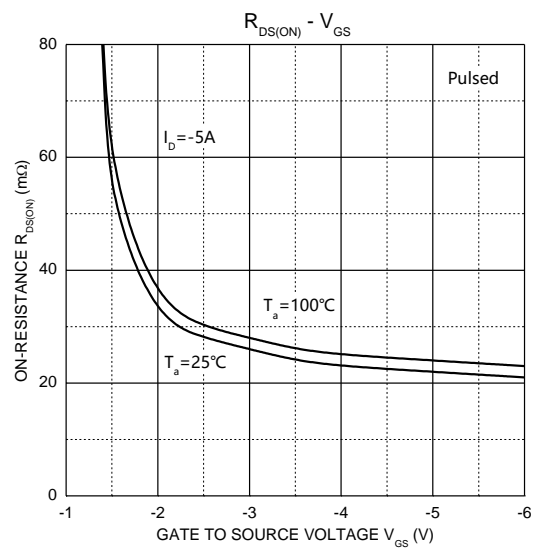
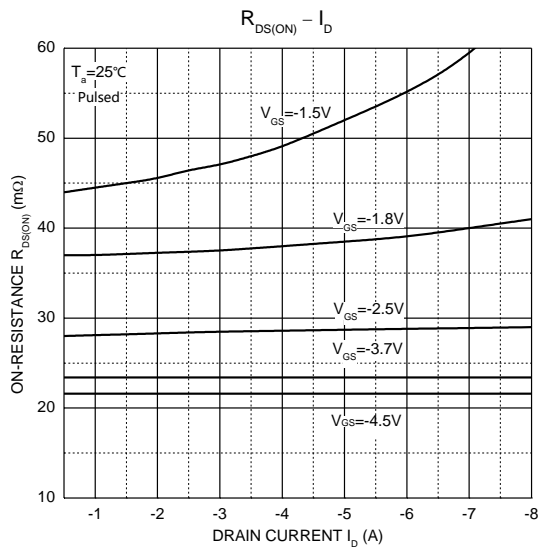
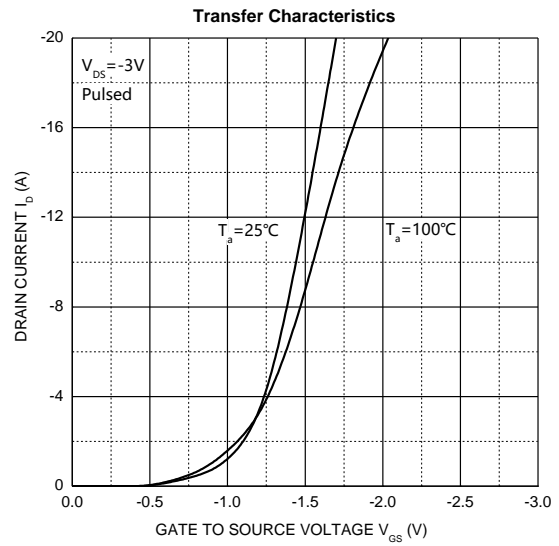
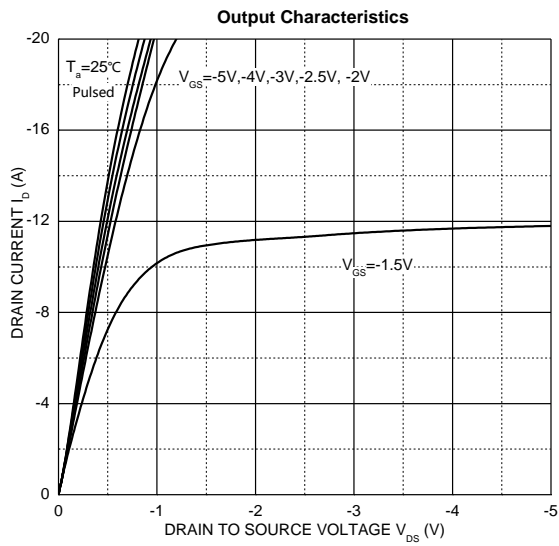
**MOSFET ELECTRICAL CHARACTERISTICS(T<sub>a</sub>=25°C unless otherwise noted)**

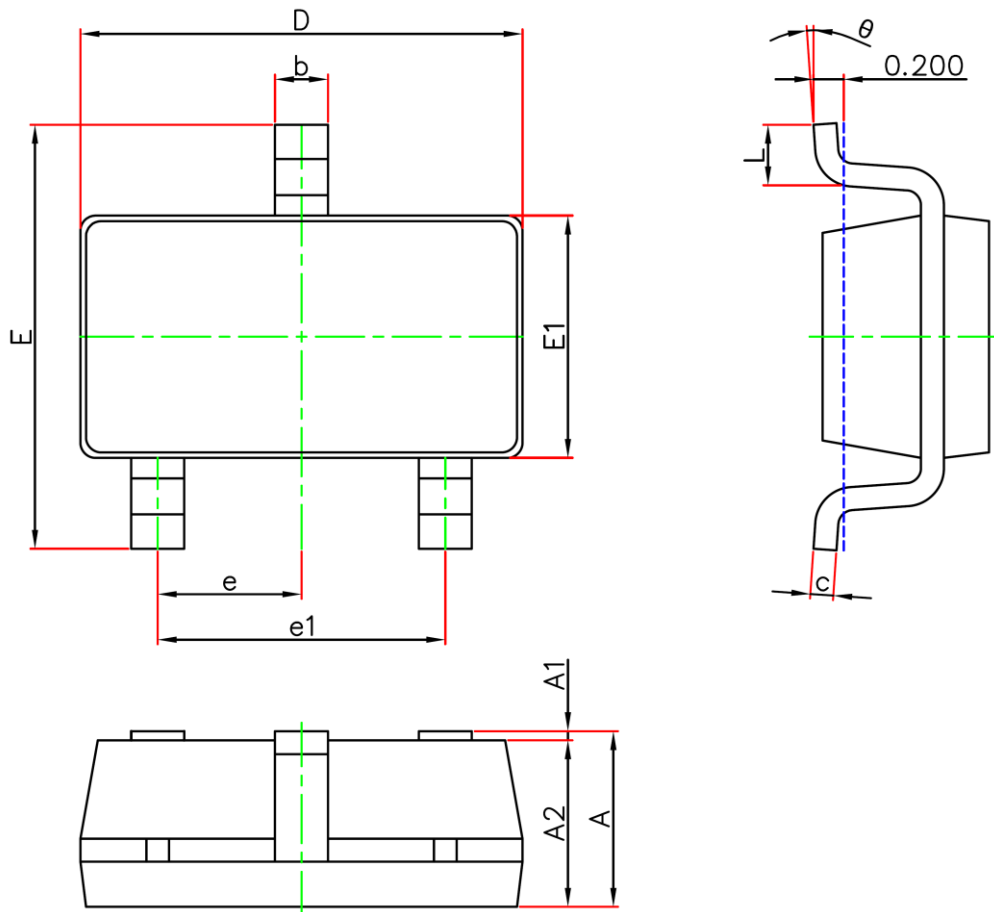
Parameter	Symbol	Test Condition	Min	Type	Max	Unit
<b>Off Characteristics</b>						
Drain-source breakdown voltage	V <sub>(BR)DSS</sub>	V <sub>GS</sub> = 0V, I <sub>D</sub> = -250μA	-16			V
Zero gate voltage drain current	I <sub>DSS</sub>	V <sub>DS</sub> = -12V, V <sub>GS</sub> = 0V			-1	μA
Gate-body leakage current	I <sub>GSS</sub>	V <sub>GS</sub> = ±8V, V <sub>DS</sub> = 0V			±0.1	μA
<b>On Characteristics</b>						
Gate threshold voltage <sup>3</sup>	V <sub>GS(th)</sub>	V <sub>DS</sub> = V <sub>GS</sub> , I <sub>D</sub> = -250μA	-0.4	-0.65	-1	V
Drain-source on-resistance <sup>3</sup>	R <sub>DS(on)</sub>	V <sub>GS</sub> = -4.5V, I <sub>D</sub> = -5A		19	28	mΩ
		V <sub>GS</sub> = -3.7V, I <sub>D</sub> = -4.6A		21	32	
		V <sub>GS</sub> = -2.5V, I <sub>D</sub> = -4.3A		27	40	
		V <sub>GS</sub> = -1.8V, I <sub>D</sub> = -1A		35	63	
		V <sub>GS</sub> = -1.5V, I <sub>D</sub> = -0.5A		50	150	
Forward tranconductance <sup>3</sup>	g <sub>FS</sub>	V <sub>DS</sub> = -5V, I <sub>D</sub> = -5A	10	14		S
<b>Dynamic Characteristics</b>						
Input Capacitance	C <sub>iss</sub>	V <sub>DS</sub> = -6V, V <sub>GS</sub> = 0V, f = 1MHz		1275		pF
Output Capacitance	C <sub>oss</sub>			255		
Reverse Transfer Capacitance	C <sub>rss</sub>			236		
<b>Switching Characteristics</b>						
Gate resistance	R <sub>g</sub>	f = 1MHz	1.9		19	Ω
Total Gate Charge	Q <sub>g</sub>	V <sub>DS</sub> = -6V, V <sub>GS</sub> = -4.5V, I <sub>D</sub> = -5A		14		nC
Gate-Source Charge	Q <sub>gs</sub>			2.3		
Gate-Drain Charge	Q <sub>gd</sub>			3.6		
Turn-on delay time	t <sub>d(on)</sub>	V <sub>DS</sub> = -6V, V <sub>GS</sub> = -4.5V, I <sub>D</sub> = -4A R <sub>L</sub> = 6Ω, R <sub>g</sub> = 1Ω		26		ns
Turn-on rise time	t <sub>r</sub>			24		
Turn-off delay time	t <sub>d(off)</sub>			45		
Turn-off fall time	t <sub>f</sub>			20		
<b>Source-Drain Diode Characteristics</b>						
Diode forward current	I <sub>S</sub>	T <sub>C</sub> =25°C			-6	A
Diode pulsed forward current	I <sub>SM</sub>				-20	A
Diode Forward voltage <sup>a</sup>	V <sub>DS</sub>	V <sub>GS</sub> = 0V, I <sub>S</sub> = -4A			-1.2	V
Diode reverse recovery time <sup>b</sup>	t <sub>rr</sub>	I <sub>F</sub> = -4A, dI/dt = 100A/μs		24	48	ns
Diode reverse recovery charge <sup>b</sup>	Q <sub>rr</sub>				8	16

Notes :

- 1.R<sub>θJA</sub> is measured with the device mounted on 1 in<sup>2</sup>FR4 board with 1oz. single side copper, in a still air environment with T<sub>A</sub> = 25°C.
- 2.R<sub>θJA</sub> is measured in the steady state
- 3.Pulse test : Pulse width ≤ 380μs, duty cycle ≤ 2%.

**Typical Electrical and Thermal Characteristics**



**SOT-23-3L Package Outline Dimensions**


Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min.	Max.	Min.	Max.
A	1.050	1.250	0.041	0.049
A1	0	0.150	0.000	0.006
A2	1.050	1.250	0.041	0.049
b	0.300	0.500	0.012	0.020
c	0.100	0.200	0.004	0.008
D	2.820	3.020	0.111	0.119
E	2.650	2.950	0.104	0.116
E1	1.500	1.700	0.059	0.067
e	0.950TYP		0.037TYP	
e1	1.800	2.000	0.071	0.079
L	0.300	0.600	0.012	0.024
θ	0°	8°	0°	8°