

Product Summary

$V_{(BR)DSS}$	$R_{DS(on)TYP}$	I_D
-12V	19mΩ@-4.5V	-6A
	21mΩ@-3.7V	
	27mΩ@-2.5V	
	35mΩ@-1.8V	
	50mΩ@-1.5V	

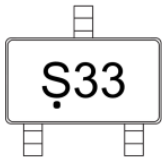
Feature

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

Application

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

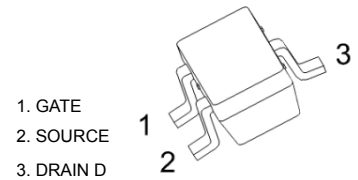
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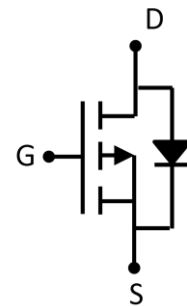
ABSOLUTE MAXIMUM RATINGS ($T_a=25^{\circ}C$ unless otherwise noted)

Parameter	Symbol	Value	Unit
Drain-Source Voltage	V_{DS}	-12	V
Gate-Source Voltage	V_{GS}	±8	V
Continuous Drain Current ^{1,2}	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 ^{1,2}	$R_{\theta JA}$	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



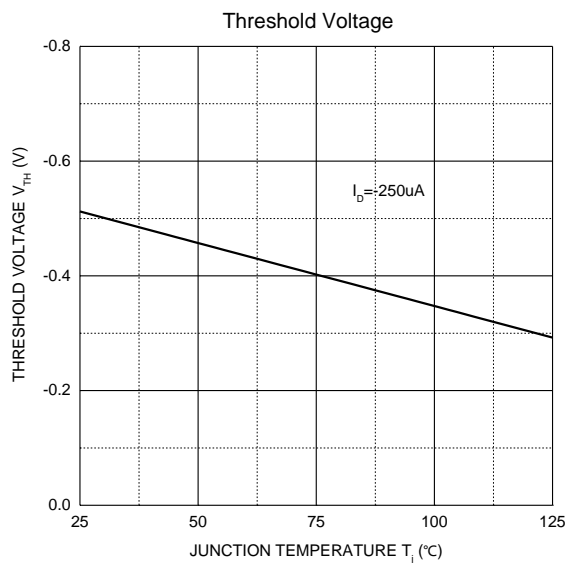
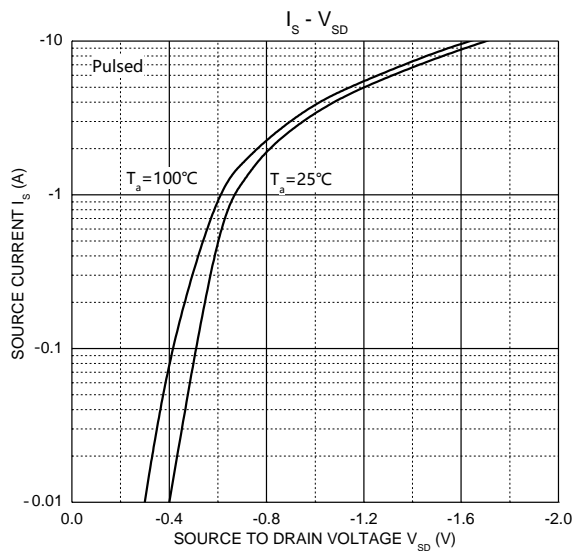
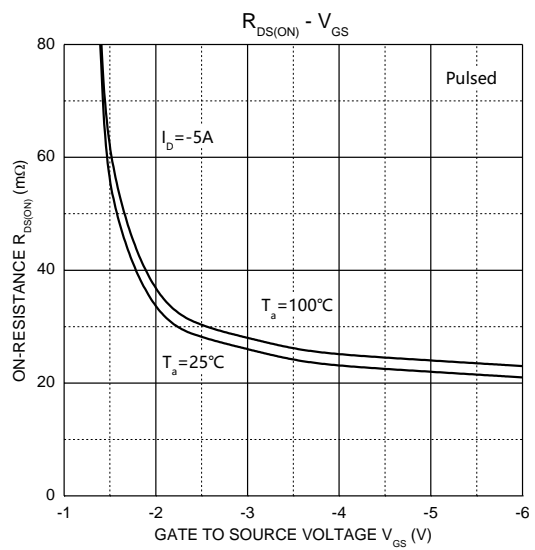
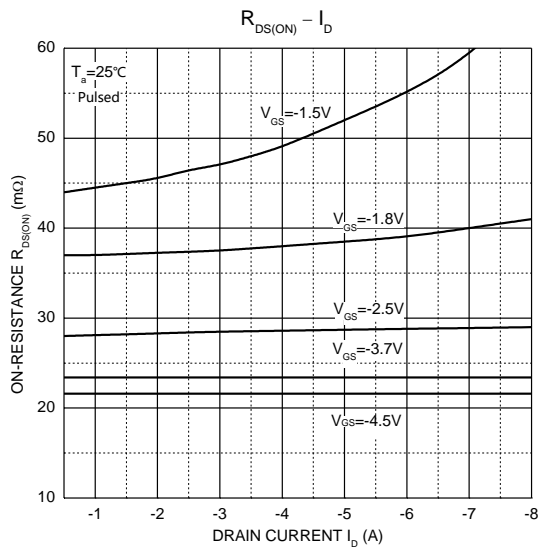
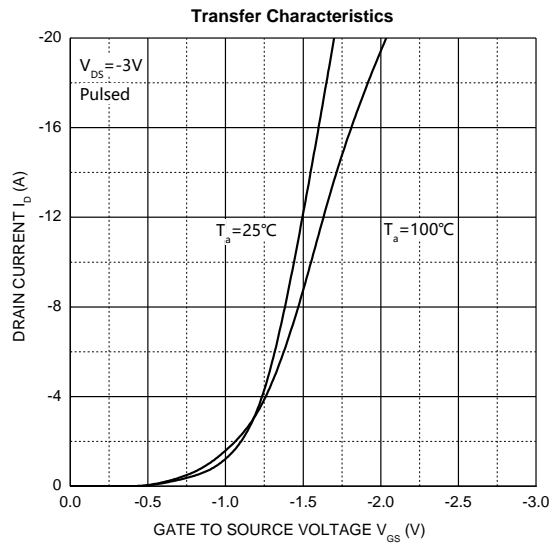
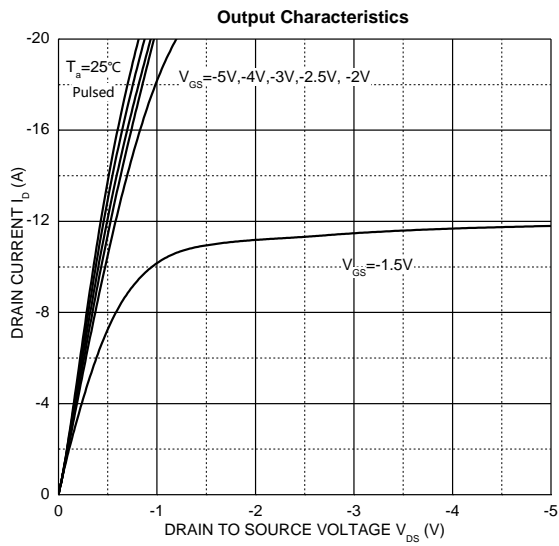
MOSFET ELECTRICAL CHARACTERISTICS(T_a=25°C unless otherwise noted)

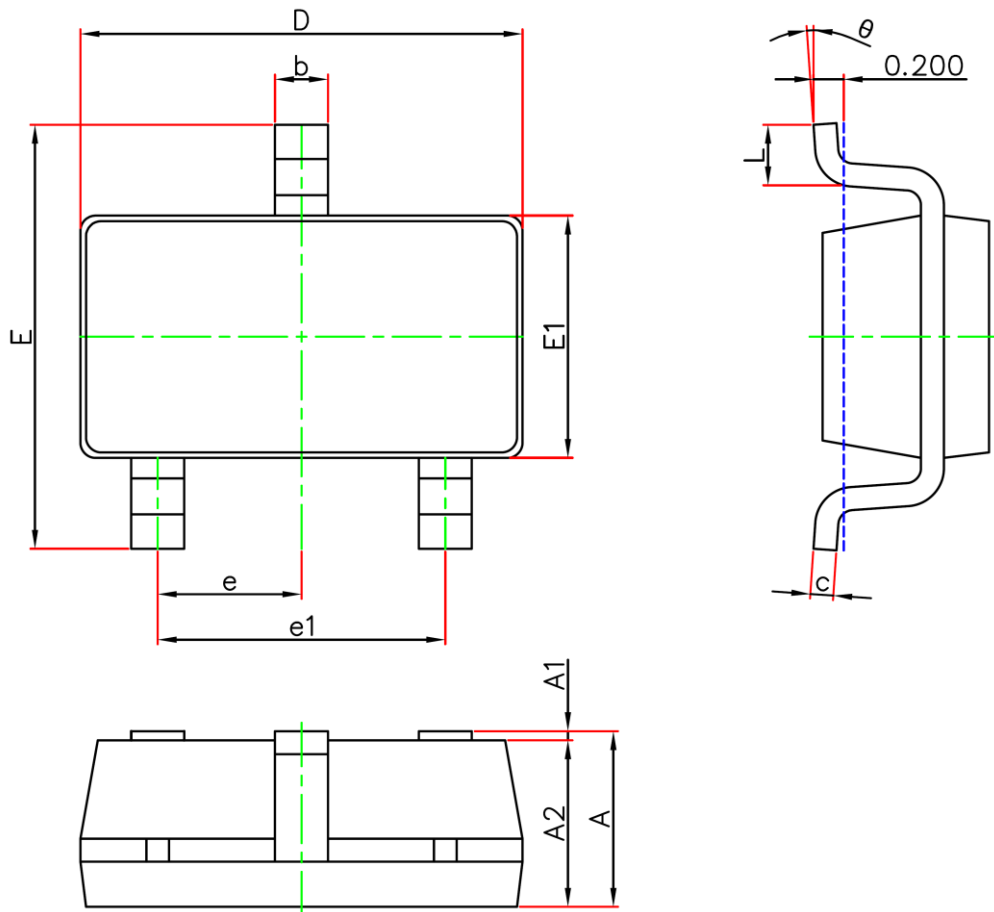
Parameter	Symbol	Test Condition	Min	Type	Max	Unit
Off Characteristics						
Drain-source breakdown voltage	V _{(BR)DSS}	V _{GS} = 0V, I _D = -250μA	-12			V
Zero gate voltage drain current	I _{DSS}	V _{DS} = -12V, V _{GS} = 0V			-1	μA
Gate-body leakage current	I _{GSS}	V _{GS} = ±8V, V _{DS} = 0V			±0.1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

Notes :

- 1.R_{θJA} is measured with the device mounted on 1 in²FR4 board with 1oz. single side copper, in a still air environment with T_A = 25°C.
- 2.R_{θJA} 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°