



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	

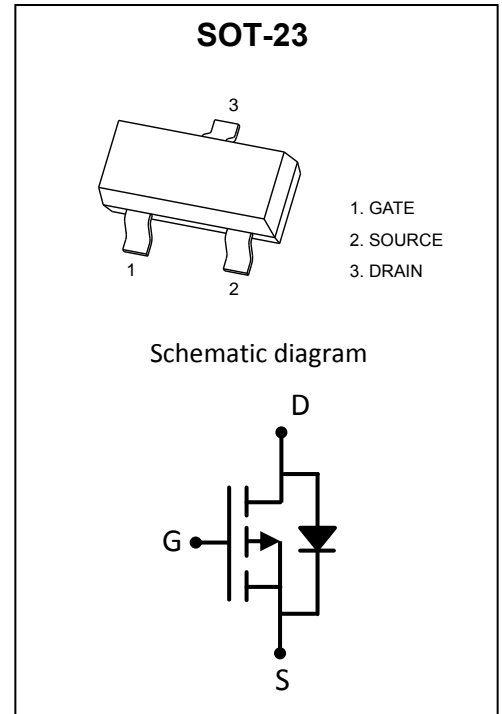
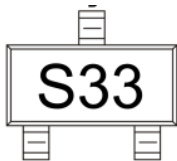
Feature

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

Application

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

MARKING:



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

Parameter	Symbol	Value	Unit
Drain-Source Voltage	V_{DS}	-12	V
Gate-Source Voltage	V_{GS}	± 8	V
Continuous Drain Current	I_D	-6 ^a	A
Pulsed Drain Current ($t=300\mu\text{s}$)	I_{DM}	-20	A
Power Dissipation	P_D	0.35 ^b	W
Thermal Resistance from Junction to Ambient	$R_{\theta JA}$	357 ^b	$^{\circ}\text{C}/\text{W}$
Junction Temperature	T_J	150	$^{\circ}\text{C}$
Storage Temperature	T_{STG}	-55~ +150	$^{\circ}\text{C}$

a. Device mounted on FR-4 substrate board, with minimum recommended pad layout, single side.

b. Device mounted on no heat sink.

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

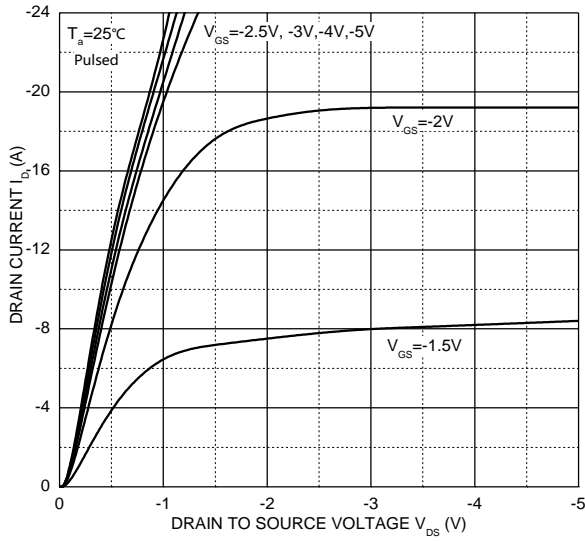
Parameter	Symbol	Test Condition	Min	Type	Max	Unit
Static Characteristics						
Drain-source breakdown voltage	V _{(BR)DSS}	V _{GS} = 0V, I _D = -250μA	-12			V
Zero gate voltage drain current	I _{DSS}	V _{DS} = -12V, V _{GS} = 0V			-1	μA
Gate-body leakage current	I _{GSS}	V _{GS} = ±8V, V _{DS} = 0V			±0.1	μA
Gate threshold voltage ^a	V _{GS(th)}	V _{DS} = V _{GS} , I _D = -250μA	-0.4	-0.65	-1	V
Drain-source on-resistance ^a	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 ^a	g _{FS}	V _{DS} = -5V, I _D = -5A		18		S
Dynamic characteristics^b						
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		
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	21	nC
Gate-Source Charge	Q _{gs}			2.3		
Gate-Drain Charge	Q _{gd}			3.6		
Turn-on delay time	t _{d(on)}	V _{DD} = -6V, V _{GEN} = -4.5V, I _D = -4A R _L = 6Ω, R _{GEN} = 1Ω		26	40	ns
Turn-on rise time	t _r			24	40	
Turn-off delay time	t _{d(off)}			45	75	
Turn-off fall time	t _f			20	35	
Source-Drain Diode characteristics						
Diode forward current	I _S	T _C = 25°C			-1.4	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			48	ns
Diode reverse recovery charge ^b	Q _{rr}				16	nC

Notes:

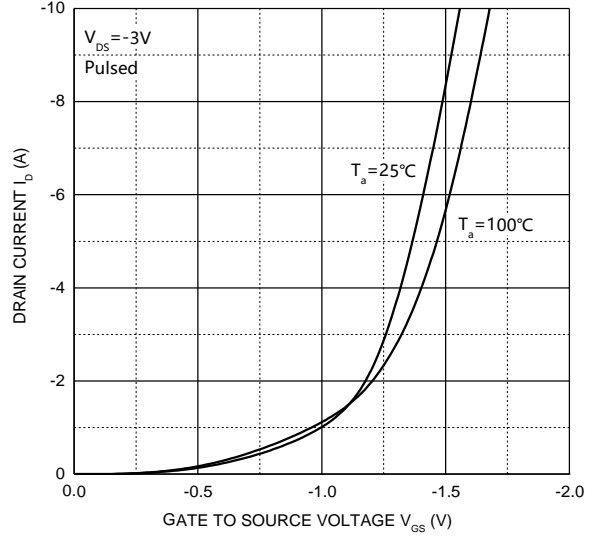
- a. Pulse test; pulse width ≤ 300μs, duty cycle ≤ 2%.
- b. Guaranteed by design, not subject to production testing.

Typical Electrical and Thermal Characteristics

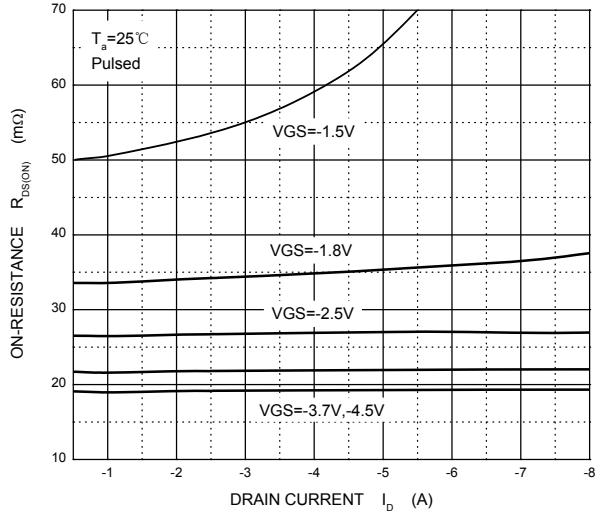
Output Characteristics



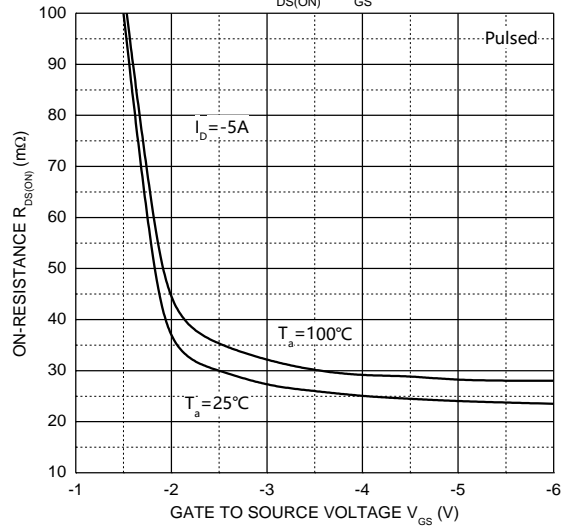
Transfer Characteristics



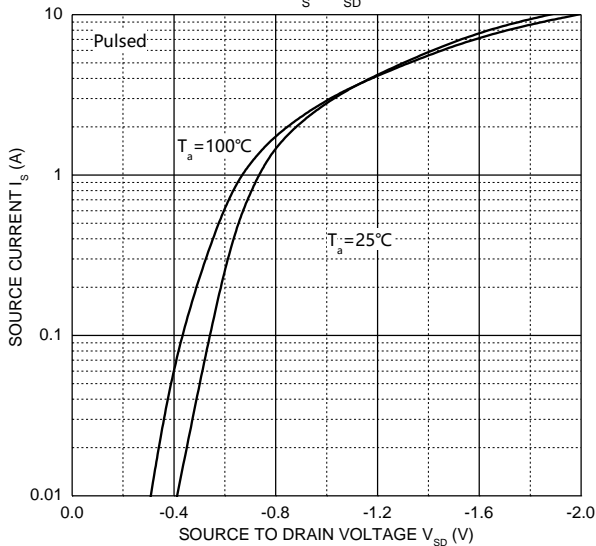
$R_{DS(ON)}$ - I_D



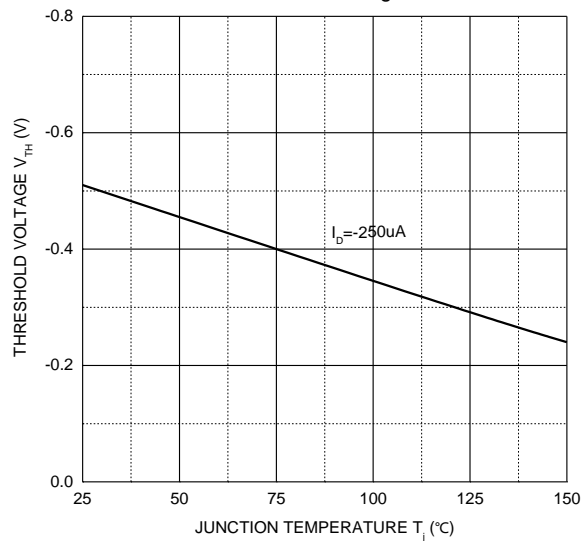
$R_{DS(ON)}$ - V_{GS}

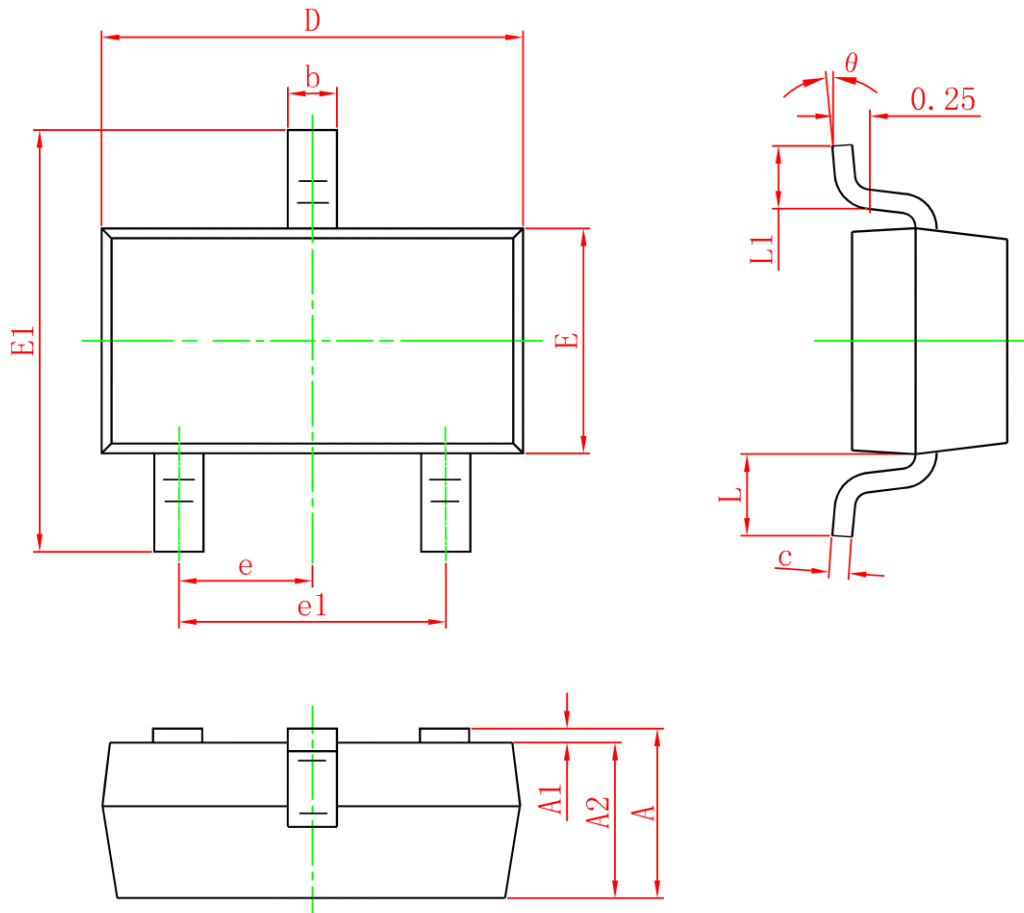


I_S - V_{SD}



Threshold Voltage



SOT-23 Package Information


Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min.	Max.	Min.	Max.
A	0.900	1.150	0.035	0.045
A1	0	0.100	0	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	1.150	1.500	0.045	0.059
E1	2.250	2.650	0.089	0.104
e	0.950TYP		0.037TYP	
e1	1.800	2.000	0.071	0.079
L	0.550REF		0.022REF	
L1	0.300	0.500	0.012	0.020
θ	0°	8°	0°	8°