

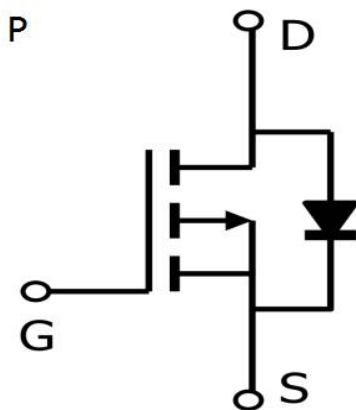
Features

TrenchFET Power MOSFET

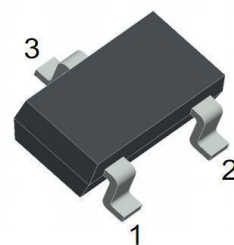
APPLICATIONS

- Load Switch for Portable Devices
- DC/DC Converter

Equivalent Circuit



SOT23



1.GATE
2.SOURCE
3.DRAIN

Absolute Maximum Ratings (T_{amb}=25°C unless otherwise specified)

Parameter	Symbol	Value	Unit
Drain-Source Voltage	V _{DS}	-12	V
Gate-Source Voltage	V _{GS}	±8	
Continuous Drain Current	I _D	-4.1	A
Continuous Source-Drain Diode Current	I _S	-0.8	
Maximum Power Dissipation	P _D	0.35	W
Thermal Resistance from Junction to Ambient(t≤10s)	R _{θJA}	357	°C/W
Junction Temperature	T _J	150	°C
Storage Temperature	T _{STG}	-50 ~+150	

Electrical Characteristics (TA=25°C unless otherwise specified)

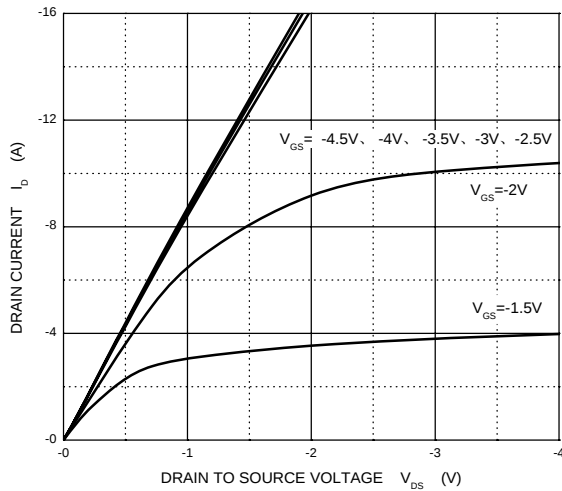
Parameter	Symbol	Test Condition	Min	Typ	Max	Units
Static						
Drain-source breakdown voltage	V _{(BR)DSS}	V _{GS} = 0V, I _D = -250μA	-12			V
Gate-source threshold voltage	V _{GS(th)}	V _{DS} = V _{GS} , I _D = -250μA	-0.5		-0.9	
Gate-source leakage	I _{GSS}	V _{DS} = 0V, V _{GS} = ±8V			±100	nA
Zero gate voltage drain current	I _{DSS}	V _{DS} = -8V, V _{GS} = 0V			-1	μA
Drain-source on-state resistance ^a	R _{DS(on)}	V _{GS} = -4.5V, I _D = -3.5A			0.045	Ω
		V _{GS} = -2.5V, I _D = -3A			0.060	
		V _{GS} = -1.8V, I _D = -2.0A			0.090	
Forward transconductance ^a	g _{fs}	V _{DS} = -5V, I _D = -4.1A	6			S
Dynamic						
Input capacitance ^{b,c}	C _{iss}	V _{DS} = -4V, V _{GS} = 0V, f = 1MHz		740		pF
Output capacitance ^{b,c}	C _{oss}			290		
Reverse transfer capacitance ^{b,c}	C _{rss}			190		
Total gate charge ^b	Q _g	V _{DS} = -4V, V _{GS} = -4.5V, I _D = -4.1A		7.8	15	nC
		V _{DS} = -4V, V _{GS} = -2.5V, I _D = -4.1A		4.5	9	
Gate-source charge ^b	Q _{gs}			1.2		
Gate-drain charge ^b	Q _{gd}			1.6		
Gate resistance ^{b,c}	R _g	f = 1MHz	1.4	7	14	Ω
Turn-on delay time ^{b,c}	t _{d(on)}	V _{DD} = -4V, R _L = 1.2Ω, I _D ≈ -3.3A, V _{GEN} = -4.5V, R _g = 1Ω		13	20	ns
Rise time ^{b,c}	t _r			35	53	
Turn-off Delay time ^{b,c}	t _{d(off)}			32	48	
Fall time ^{b,c}	t _f			10	20	
Turn-on delay time ^{b,c}	t _{d(on)}	V _{DD} = -4V, R _L = 1.2Ω, I _D ≈ -3.3A, V _{GEN} = -8V, R _g = 1Ω		5	10	
Rise time ^{b,c}	t _r			11	17	
Turn-off delay time ^{b,c}	t _{d(off)}			22	33	
Fall time ^{b,c}	t _f			16	24	
Drain-source body diode characteristics						
Continuous source-drain diode current	I _S	T _C = 25°C			-1.4	A
Pulse diode forward current ^a	I _{SM}				-10	
Body diode voltage	V _{SD}	I _F = -3.3A		-0.8	-1.2	V

Note :

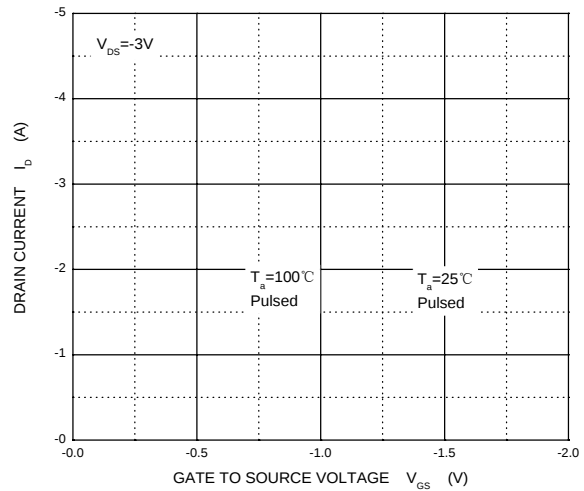
- a. Pulse Test ; Pulse Width $\leq 300\mu s$, Duty Cycle $\leq 2\%$.
- b. Guaranteed by design, not subject to production testing.
- c. These parameters have no way to verify.

Typical Performance Characteristics ($T_A=25^\circ\text{C}$ unless otherwise Specified)

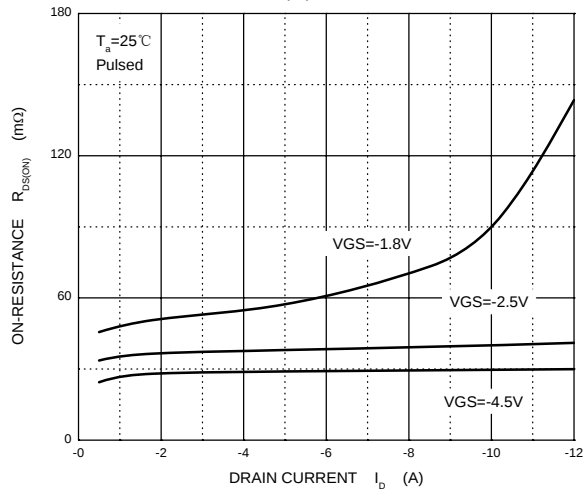
Output Characteristics



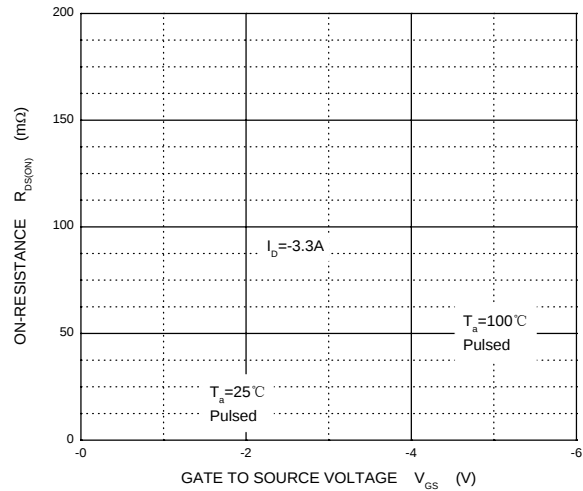
Transfer Characteristics



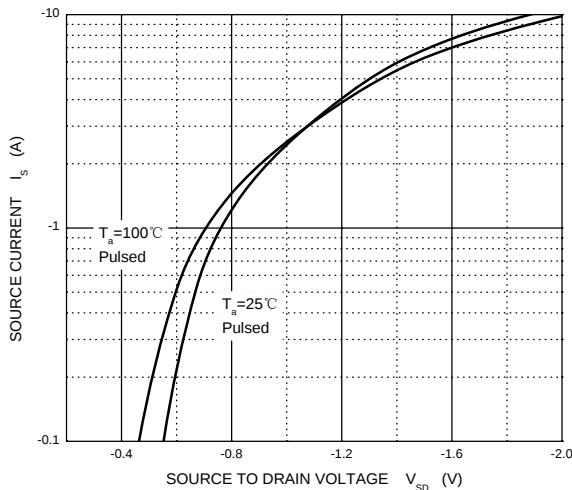
$R_{DS(ON)}$ — I_D



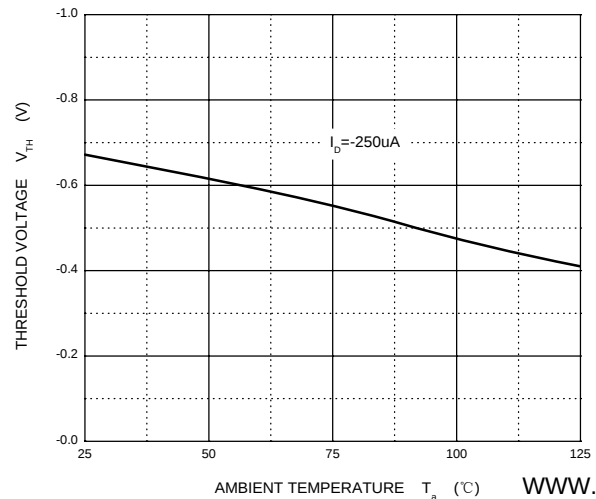
$R_{DS(ON)}$ — V_{GS}



I_S — V_{SD}

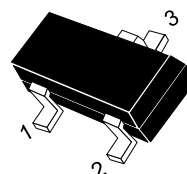
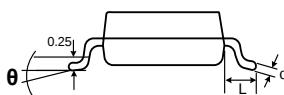
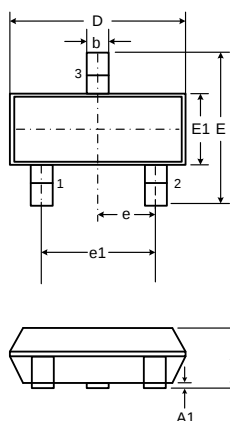


Threshold Voltage



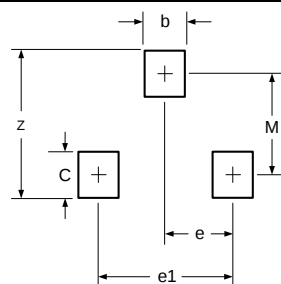
Outline Drawing – SOT23

PACKAGE OUTLINE



DIMENSIONS

SYMBOL	MILLIMETER		INCHES	
	MIN	MAX	MIN	MAX
A	0.90	1.15	0.035	0.045
A1	0.00	0.10	0.000	0.004
b	0.30	0.50	0.012	0.020
c	0.08	0.15	0.003	0.006
D	2.80	3.00	0.110	0.118
E	2.25	2.55	0.089	0.100
E1	1.20	1.40	0.047	0.055
e	0.95 BSC		0.0374 BSC	
e1	1.80	2.00	0.071	0.079
L	0.45	0.65	0.018	0.026
θ	0	8°	0	8°



DIMENSIONS		
DIM	INCHES	MILLIMETERS
M	0.080	2.02
C	0.032	0.80
Z	0.111	2.82
e	0.037 BSC	0.95 BSC
e1	0.075 BSC	1.90 BSC
b	0.032	0.80

Notes

1. Dimensioning and tolerances per ANSI Y14.5M, 1985.
2. Controlling Dimension: Inches
3. Pin 3 is the cathode (Unidirectional Only).
4. Dimensions are exclusive of mold flash and metal burrs.