

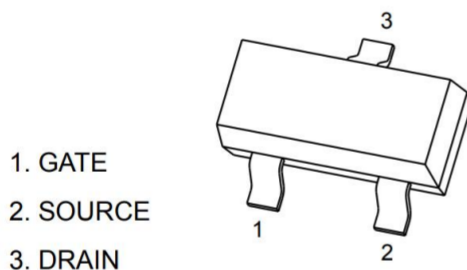
Product Summary

- V_{DS} -12 V
- I_{DS} -4.1 A
- $R_{DS(ON)}$ (at $V_{GS}=-4.5V$) <45m Ω

Application

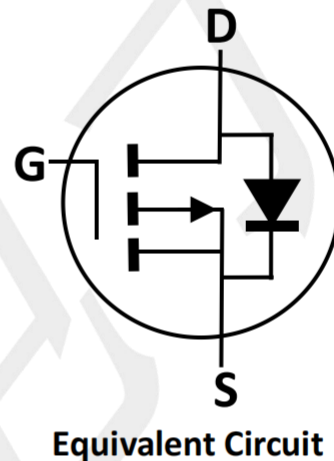
- DC/DC Converter
- Portable equipment and battery
- Load Switch

Package and Pin Configuration



SOT-23

Circuit diagram



Absolute Maximum Ratings (T_A=25°C unless otherwise noted)

PARAMETER	SYMBOL	LIMIT	UNIT
Drain-Source Voltage	V_{DS}	-12	V
Gate-Source Voltage	V_{GS}	±8	V
Continuous Drain Current	I_D	-4.1	A
Continuous Source-Drain Diode Current	I_S	-0.8	A
Maximum Power Dissipation	P_D	0.35	W
Operating Junction Temperature Range	T_J	-55 to +150	°C
Storage Temperature Range	T_{stg}	-55 to +150	°C

Thermal Characteristic

PARAMETER		Symbol	Value	Unit
Thermal Resistance from Junction to Ambient(t≤10s)	PCB Mount (Note)	$R_{\theta JA}$	357	°C/W

Note : When mounted on 1" square PCB (FR4 material).

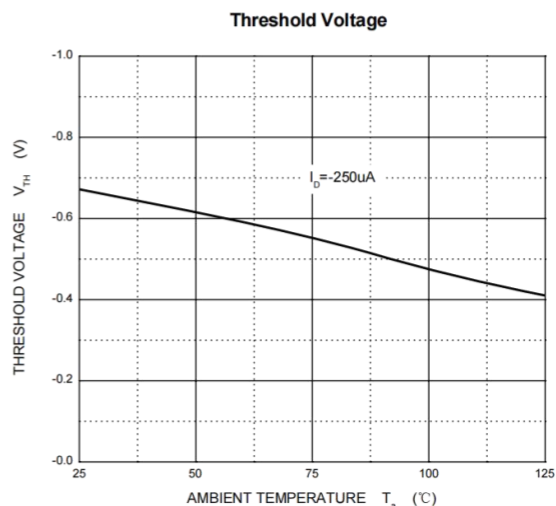
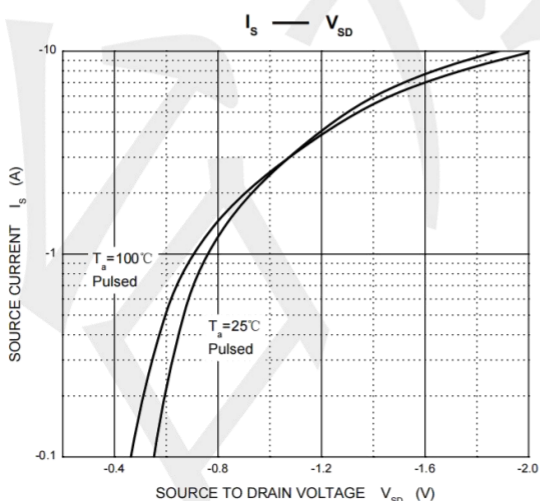
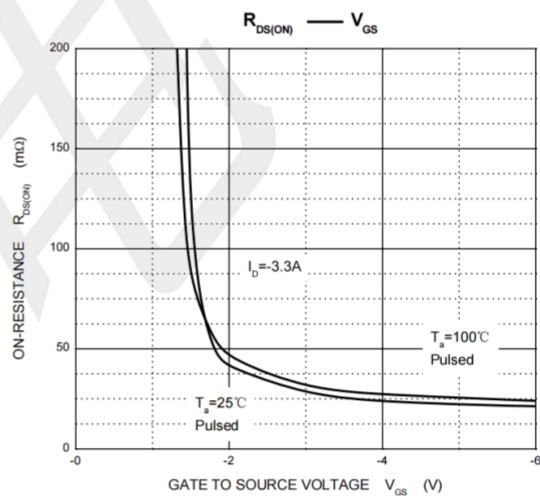
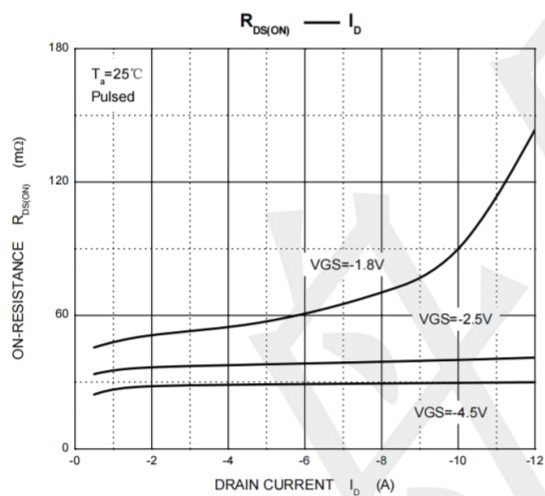
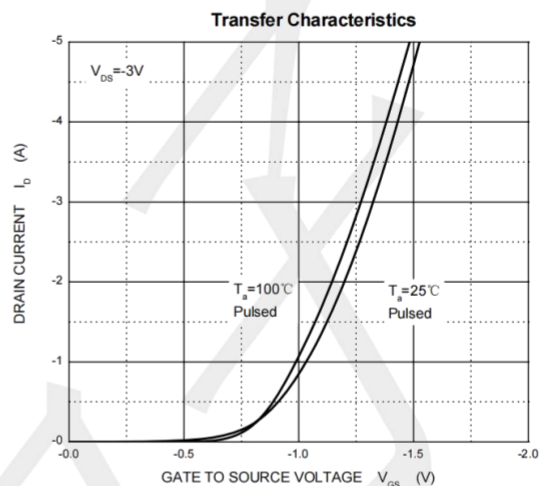
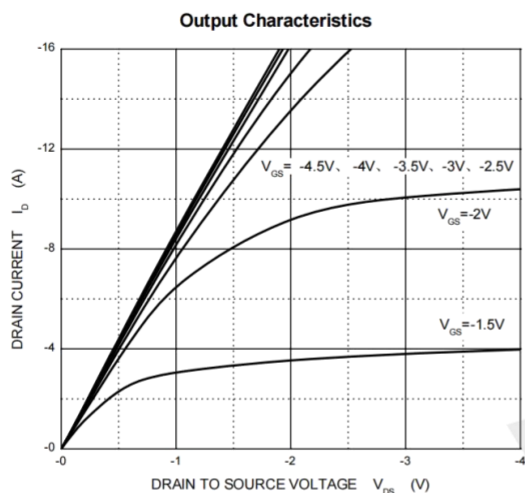
Electrical Characteristics (T_A=25°C unless otherwise noted)

PARAMETER	CONDITIONS	SYMBOL	MIN	TYP	MAX	UNIT
Static						
Drain-Source Breakdown Voltage	V _{GS} =0V, I _D =-250μA	BV _{DSS}	-12	--	--	V
Gate-Source Threshold Voltage	V _{DS} =V _{GS} , I _D = -250μA	V _{GS(th)}	-0.5	--	-1.0	V
Gate-Source Leakage	V _{DS} =0V, V _{GS} = ±8V	I _{GSS}	--	--	±100	nA
Zero Gate Voltage Drain Current	V _{DS} = -8V, V _{GS} =0V	I _{DSS}	--	-0.1	-1	μA
	V _{DS} = -8V, T _J =125°C		--	-10	-100	μA
Drain-Source On-State Resistance (Note 1)	V _{GS} = -4.5V, I _D = -3.5A	R _{DS(on)}	--	30	45	mΩ
	V _{GS} = -2.5V, I _D = -3.0A		--	40	60	
	V _{GS} = -1.8V, I _D = -2.0A		--	60	90	
Forward Transconductance (Note 2)	V _{DS} = -5V, I _D = -4.1A	g _{fs}	--	6	--	S
Dynamic (Note 2)						
Total Gate Charge (Note 3)	V _{DS} = -4V,	Q _g	--	4.5	--	nC
Gate-Source Charge (Note 3)	I _D = -4.1A,	Q _{gs}	--	1.2	--	
Gate-Drain Charge (Note 3)	V _{GS} = -2.5V	Q _{gd}	--	1.6	--	
Input Capacitance	V _{DS} = -4V, V _{GS} = 0V, F = 1.0MHz	C _{iss}	--	740	--	pF
Output Capacitance		C _{oss}	--	290	--	
Reverse Transfer Capacitance		C _{rss}	--	190	--	
Switching						
Turn-On Delay Time (Note 3)	V _{DD} = -4V,	t _{d(on)}	--	5	--	nS
Rise Time (Note 3)	I _D = -3.3A,	t _r	--	11	--	
Turn-Off Delay Time (Note 3)	V _{GS} = -8V,	t _{d(off)}	--	22	--	
Fall Time (Note 3)	R _{GEN} = 1Ω	t _f	--	16	--	
Source-Drain Diode Ratings and Characteristics (Note 2)						
Forward Voltage	V _{GS} = 0V, I _F = -3.3A	V _{SD}	--	-0.76	-1.2	V
Continuous Source Current	Integral reverse diode in the MOSFET	I _S	--	--	-1.4	A
Pulsed Current (Note 1)		I _{SM}	--	--	-8.2	A

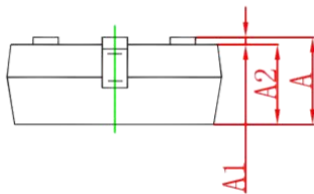
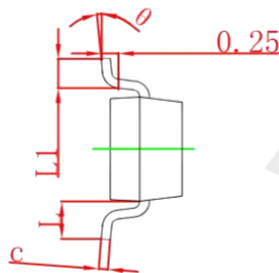
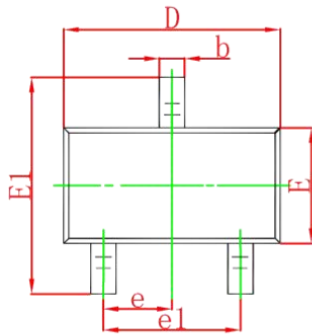
Notes:

1. Pulse test; pulse width ≤ 300 μS, duty cycle ≤ 2%.
2. Guaranteed by design, not subject to production testing.
3. Independent of operating temperature

TYPICAL CHARACTERISTICS (25 °C, unless otherwise noted)

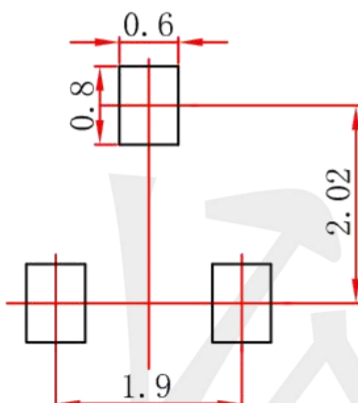


Package Information SOT-23



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°

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.