

SOT-323 Plastic-Encapsulate MOSFET

20V N-Channel MOSFET

Product Summary

$V_{(BR)DSS}$	$R_{DS(on)TYP}$	I_D
20V	59mΩ@4.5V	2.1A
	70mΩ@2.5V	

Feature

TrenchFET Power MOSFET

Excellent $R_{DS(on)}$ and Low Gate Charge

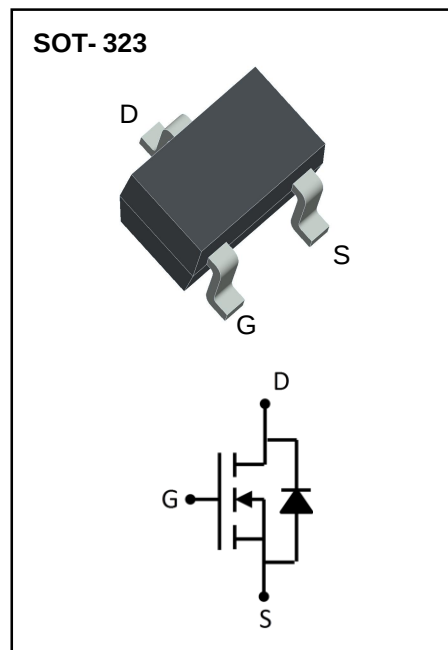
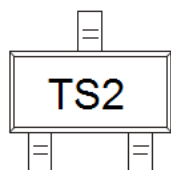
Application

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}	20	V
Gate-Source Voltage	V_{GS}	± 8	V
Continuous Drain Current	I_D	2.1	A
Pulsed Drain Current ($t=300\mu\text{s}$)	I_{DM}	6.3	A
Power Dissipation	P_D	0.2	W
Thermal Resistance from Junction to Ambient	$R_{\theta JA}$	625	$^{\circ}\text{C/W}$
Junction Temperature	T_J	150	$^{\circ}\text{C}$
Storage Temperature	T_{STG}	-55~ +150	$^{\circ}\text{C}$

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

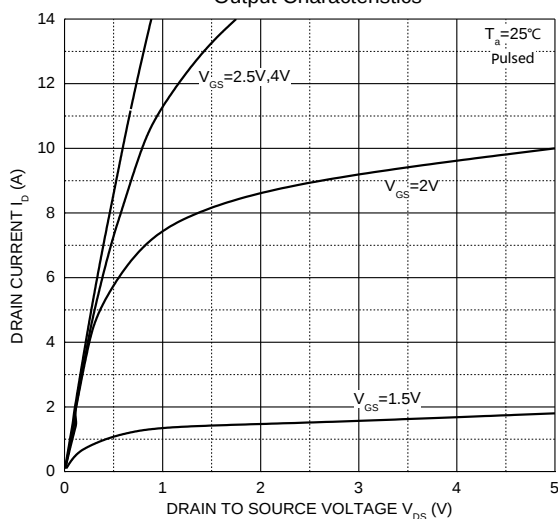
Parameter	Symbol	Test Condition	Min	Type	Max	Unit
Static Characteristics						
Drain-source breakdown voltage	V _{(BR)DSS}	V _{GS} = 0V, I _D =250μA	20			V
Zero gate voltage drain current	I _{DSS}	V _{DS} =20V,V _{GS} = 0V			1	μA
Gate-body leakage current	I _{GSS}	V _{GS} =±8V, V _{DS} = 0V			±0.1	μA
Gate threshold voltage	V _{GS(th)}	V _{DS} =V _{GS} , I _D =250μA	0.65	0.95	1.2	V
Drain-source on-resistance ¹	R _{DS(on)}	V _{GS} =4.5V, I _D =3.6A		59	78	mΩ
		V _{GS} =2.5V, I _D =3.1A		70	105	
Forward tranconductance ¹	g _{FS}	V _{DS} =5V, I _D =3.6A	8			S
Dynamic characteristics						
Input Capacitance ²	C _{iss}	V _{DS} =10V,V _{GS} =0V,f=1MHz		305		pF
Output Capacitance ²	C _{oss}			122		
Reverse Transfer Capacitance ²	C _{rss}			83		
Total gate charge	Q _g	V _{DS} =10V,V _{GS} =4.5V,I _D =3.6A		2	12	nC
Gate-source charge	Q _{gs}			0.67		
Gate-drain charge	Q _{gd}			1.3		
Switching Characteristics ²						
Turn-on delay time	t _{d(on)}	V _{DD} =10V, R _L =5.5Ω,I _D =3.6A V _{GEN} =4.5V,R _g =6Ω		8	16	ns
Turn-on rise time	t _r			56	79	
Turn-off delay time	t _{d(off)}			17	65	
Turn-off fall time	t _f			11	26	
Source-Drain Diode characteristics						
Diode Forward voltage	V _{DS}	V _{GS} =0V, I _S =0.94A			1.2	V

Notes:

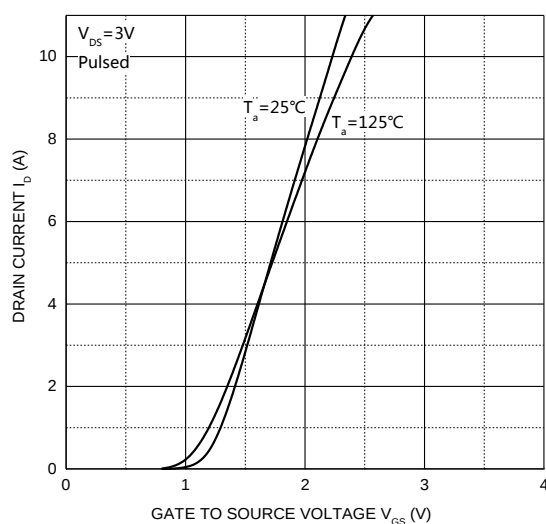
1. Pulse test; pulse width≤300μs, duty cycle≤2%.
2. Guaranteed by design, not subject to production testing.

Typical Characteristics

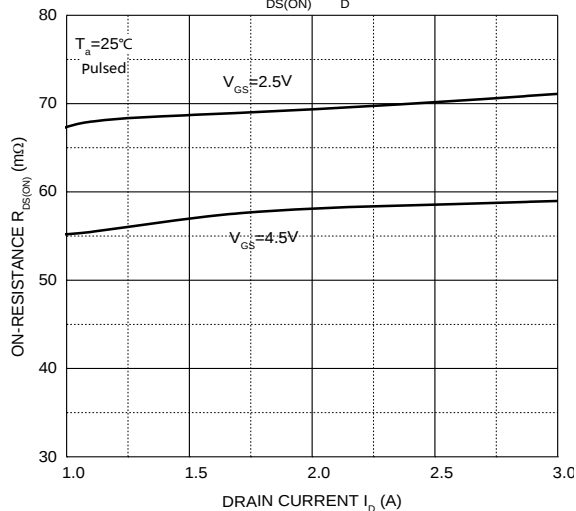
Output Characteristics



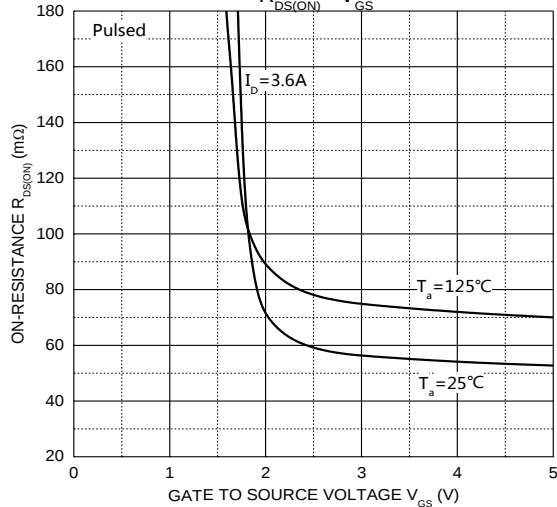
Transfer Characteristics



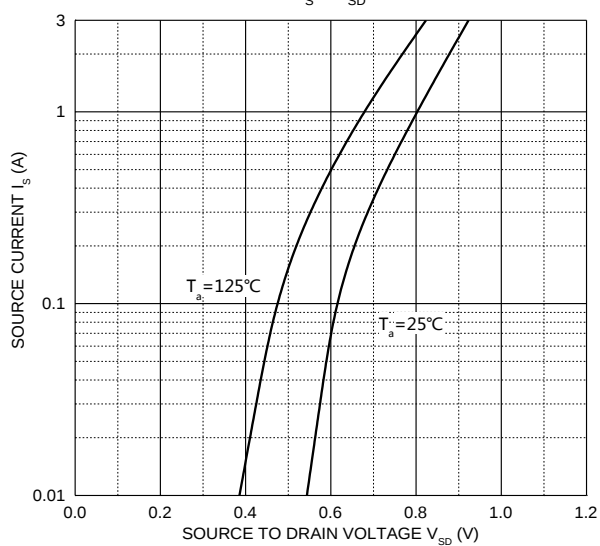
$R_{DS(ON)} - I_D$



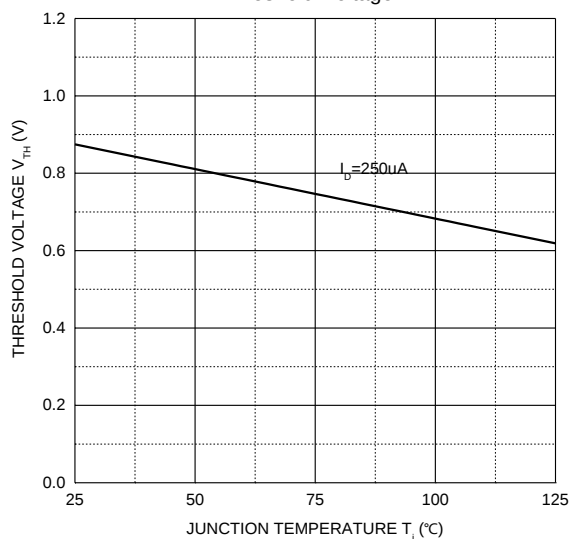
$R_{DS(ON)} - V_{GS}$



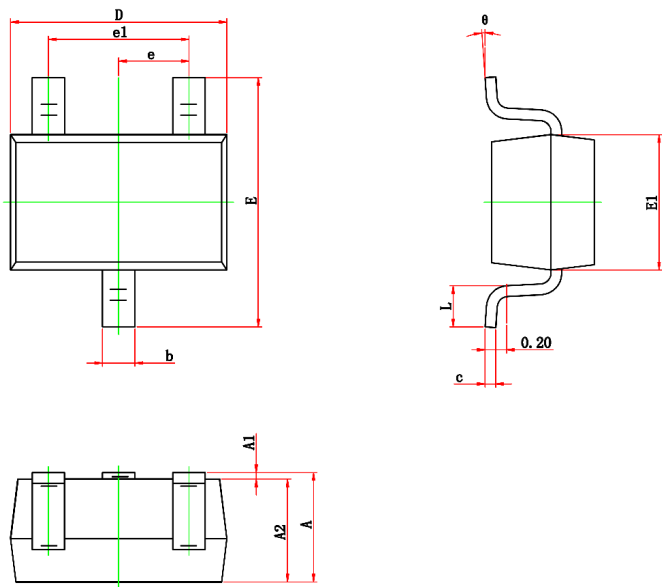
$I_S - V_{SD}$



Threshold Voltage

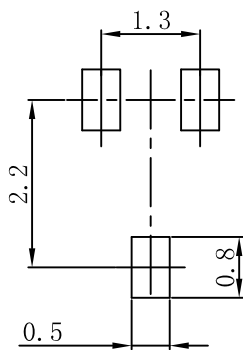


SOT-323 Package Outline Dimensions



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min.	Max.	Min.	Max.
A	0.900	1.100	0.035	0.043
A1	0.000	0.100	0.000	0.004
A2	0.900	1.000	0.035	0.039
b	0.200	0.400	0.008	0.016
c	0.050	0.150	0.002	0.006
D	1.900	2.200	0.075	0.087
E	2.000	2.450	0.079	0.096
E1	1.150	1.350	0.045	0.053
e	0.650TYP.		0.026TYP.	
e1	1.200	1.400	0.047	0.055
L	0.200	0.460	0.008	0.018
θ	0°	8°	0°	8°

SOT-323 Suggested Pad Layout



Note:
1.Controlling dimension:in millimeters.
2.General tolerance:± 0.05mm.
3.The pad layout is for reference purposes only.

NOTICE

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