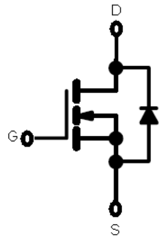
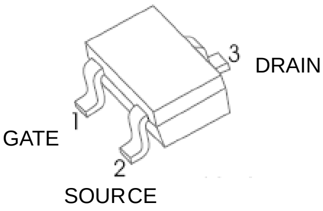
MT2102 N-Channel MOSFET



$V_{(BR)DSS}$	$R_{DS(on)}$MAX	I_D
20 V	68mΩ@4.5V	2.1A
	115mΩ@2.5V	



SOT-323

FEATURE

- TrenchFET Power MOSFET

APPLICATION

- Load Switch for Portable Devices
- DC/DC Converter

MARKING TS2

Maximum ratings (T_a=25℃ unless otherwise noted)

Parameter	Symbol	Value	Unit
Drain-Source Voltage	V_{DS}	20	V
Gate-Source Voltage	V_{GS}	±8	
Continuous Drain Current	I_D	2.1	A
Continuous Source-Drain Current(Diode Conduction)	I_S	0.6	
Power Dissipation	P_D	0.2	W
Thermal Resistance from Junction to Ambient (t≤5s)	$R_{\theta JA}$	625	℃/W
Operation Junction and Storage Temperature Range	T_J,T_{STG}	-55 ~+150	℃

MOSFET ELECTRICAL CHARACTERISTICS

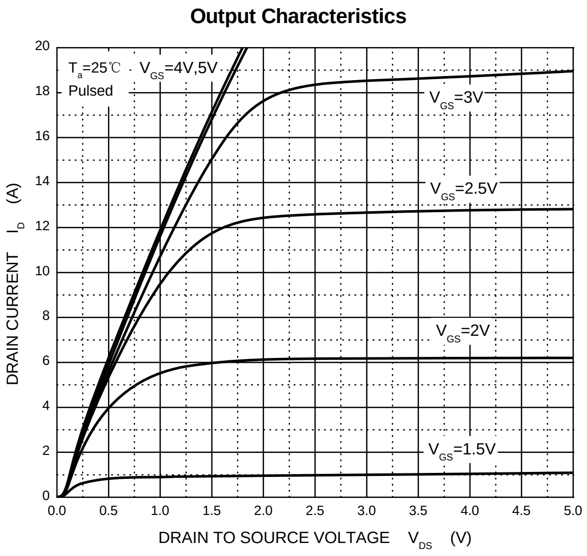
T_a=25℃ unless otherwise specified

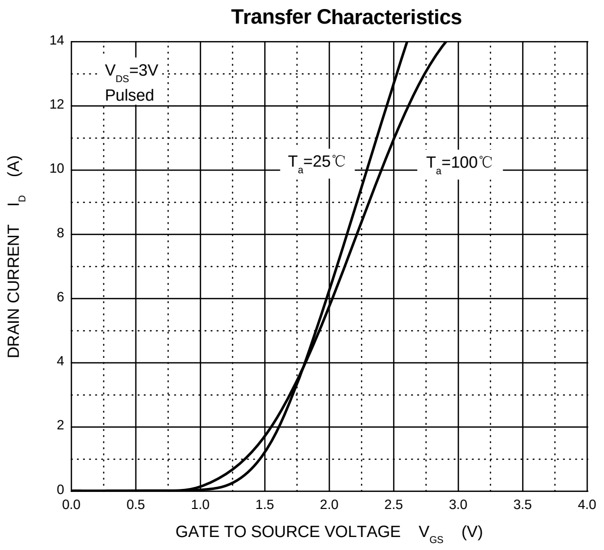
Parameter	Symbol	Test Condition	Min	Typ	Max	Unit
Static Characteristics						
Drain-source breakdown voltage	$V_{(BR)DSS}$	V_{GS} = 0V, I_D =10μA	20			V
Gate-threshold voltage	$V_{GS(th)}$	V_{DS} =V_{GS}, I_D =50μA	0.65	0.95	1.2	
Gate-body leakage	I_{GSS}	V_{DS} =0V, V_{GS} =±8V			±100	nA
Zero gate voltage drain current	I_{DSS}	V_{DS} =20V, V_{GS} =0V			1	μA
Drain-source on-resistance[1]	$R_{DS(on)}$	V_{GS} =4.5V, I_D =3.6A		0.059	0.068	Ω
		V_{GS} =2.5V, I_D =3.1A		0.070	0.115	
Forward transconductance[1]	g_{fs}	V_{DS} =5V, I_D =3.6A		8		S
Diode forward voltage	V_{SD}	I_S=0.94A,V_{GS}=0V		0.76	1.2	V
Dynamic Characteristics						
Total gate charge	Q_g	V_{DS} =10V,V_{GS} =4.5V,I_D =3.6A		4.0	10	nC
Gate-source charge	Q_{gs}			0.65		
Gate-drain charge	Q_{gd}			1.5		
Input capacitance [2]	C_{iss}	V_{DS} =10V,V_{GS} =0V,f=1MHz		300		pF
Output capacitance [2]	C_{oss}			120		
Reverse transfer capacitance[2]	C_{rss}			80		
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,Rg=6Ω		7	15	ns
Rise time	t_r			55	80	
Turn-off delay time	$t_{d(off)}$			16	60	
Fall time	t_f			10	25	

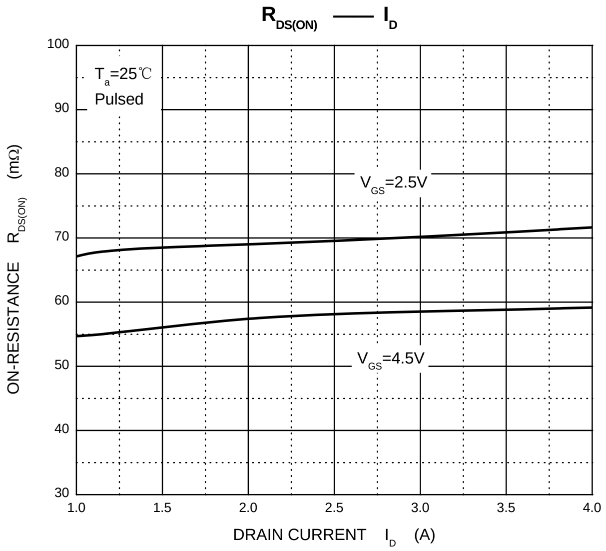
Notes :

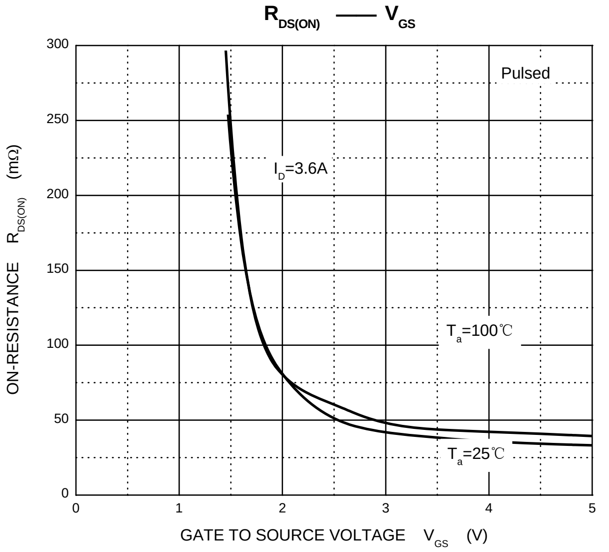
1. Pulse Test : Pulse width≤300μs, duty cycle ≤2%.
2. These parameters have no way to verify.

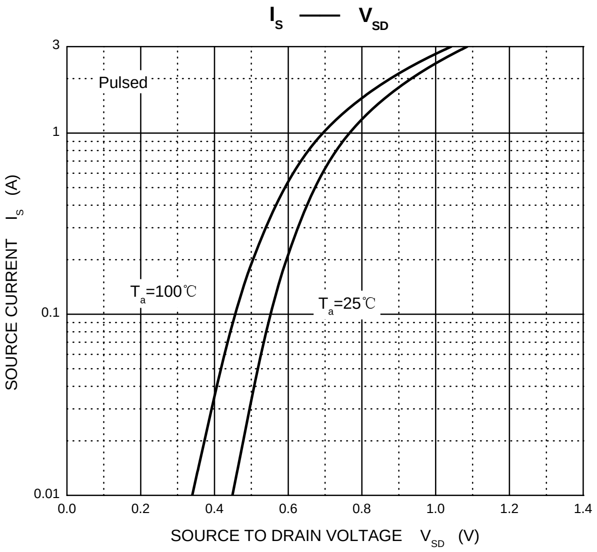
Typical Characteristics

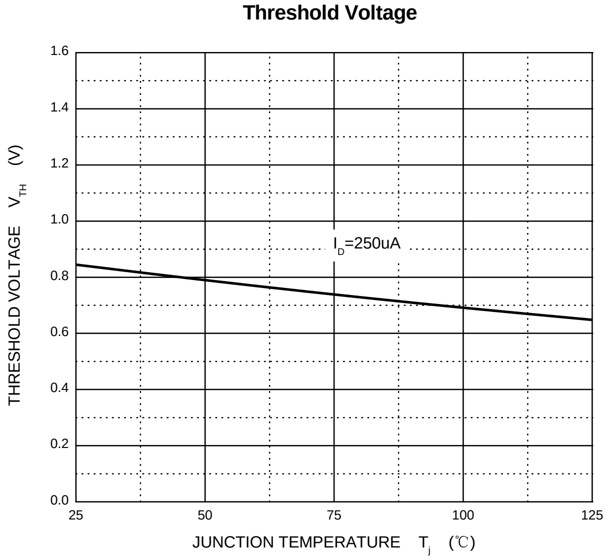

Output Characteristics


Transfer Characteristics

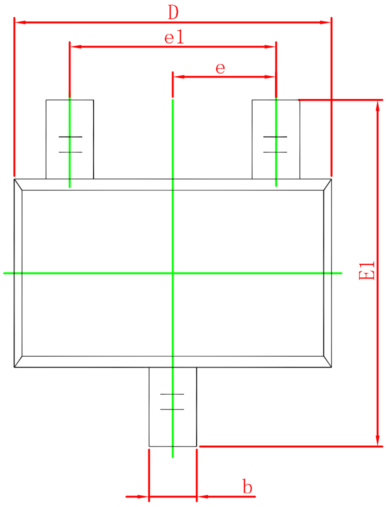

$R_{DS(ON)}$ —— I_D

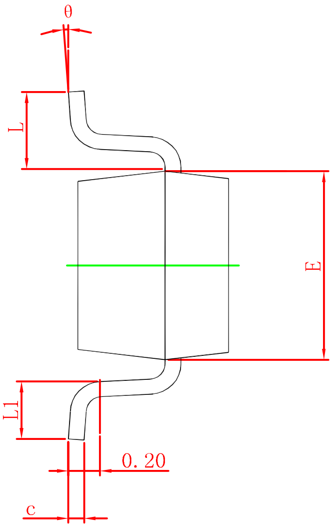

$R_{DS(ON)}$ —— V_{GS}

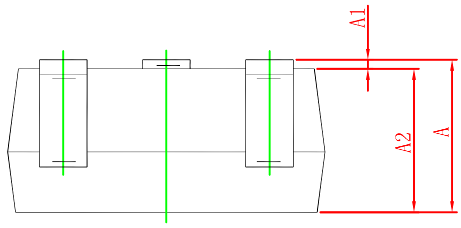

I_S —— V_{SD}


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	0.080	0.150	0.003	0.006
D	2.000	2.200	0.079	0.087
E	1.150	1.350	0.045	0.053
E1	2.150	2.450	0.085	0.096
e	0.650 TYP.		0.026 TYP.	
e1	1.200	1.400	0.047	0.055
L	0.525 REF.		0.021 REF.	
L1	0.260	0.460	0.010	0.018
θ	0°	8°	0°	8°