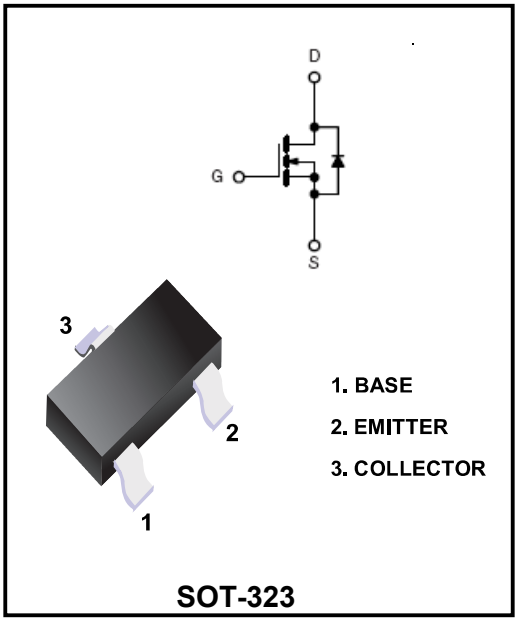
20V N-Channel Enhancement Mode Power MOSFET

MAIN CHARACTERISTICS

I_D	2.1A
V_{DSS}	20V
R_{DSON}-typ(@V_{GS}=4.5V)	＜0.06Ω(Typ:0.045Ω)
R_{DSON}-typ(@V_{GS}=2.5V)	＜0.115Ω(Typ:0.07Ω)



FEATURE

- TrenchFET Power MOSFET

APPLICATION

- Load Switch for Portable Devices
- DC/DC Converter

Product Specification Classification

Part Number	Package	Marking	Pack
YFW2302W	SOT-323	2302	3000PCS/Tape

Maximum Ratings at Tc=25°C unless otherwise specified

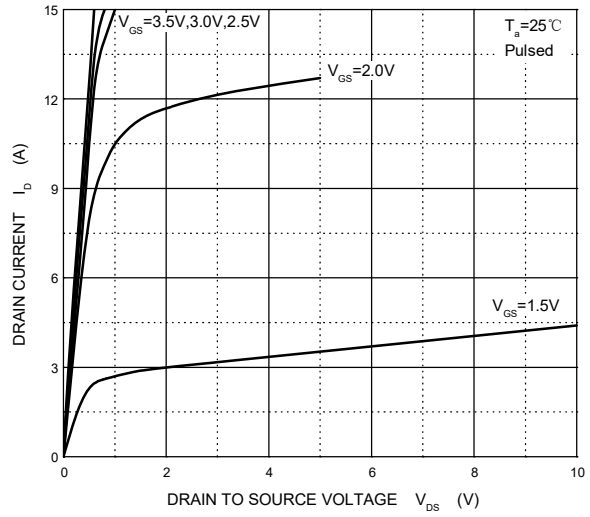
Characteristics	Symbols	Value	Units
Drain-Source Voltage	V_{DS}	20	V
Gate - Source Voltage	V_{GS}	±8	V
Continuous Drain Current	I_D	2.1	A
Continuous Source-Drain Current(Diode Conduction)	I_S	0.6	A
Power Dissipation	P_D	0.35	W
Operating Junction Temperature Range	T_J	150	°C
Storage Temperature Range	T_{STG}	-55 to +150	°C
Thermal Resistance from Junction to Ambient (t≤5s)	$R_{\theta JA}$	357	°C/W

Maximum Ratings at Ta=25°C unless otherwise specified

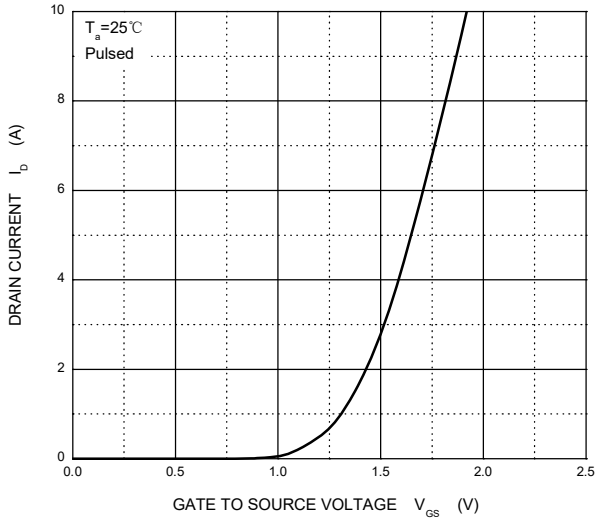
Characteristics	Test Condition	Symbols	Min	Typ	Max	Units
Drain-Source Breakdown Voltage	V_{GS}=0V, I_D=10uA	$V_{(BR)DSS}$	20	-	-	V
GateThreshold Voltage	V_{DS} =V_{GS}, I_D=50uA	$V_{GS(th)}$	0.65	0.95	1.2	V
Gate-body leakage	V_{DS} =0V,V_{GS} =±8V	I_{GSS}	-	-	±100	nA
Zero Gate Voltage Drain Current	V_{DS} =20V, V_{GS} =0V	I_{DSS}	-	-	1	μA
Drain-Source On-Resistance [a]	V_{GS} =4.5V, I_D =3.6 A	$R_{DS(ON)}$	-	0.045	0.060	Ω
	V_{GS} =2.5V, I_D =3.1A		-	0.070	0.115	Ω
Forward transconductance [a]	V_{DS} =5V, I_D =3.6A	g_{fs}		8		S
Diode forward voltage	Is=0.94A,V_{GS}=0V	V_{SD}		0.76	1.2	V
Total gate charge	V_{DS} =10V V_{GS} =4.5V I_D =3.6A	Q_g		4.0	10	nC
Gate-source charge		Q_{gs}		0.65	-	
Gate-drain charge		Q_{gd}		1.5	-	
Input Capacitance [b]	V_{DS} =10V V_{GS} =0V f =1MHz	C_{iss}	-	300	-	pF
Output Capacitance [b]		C_{oss}	-	120	-	
Reverse Transfer Capacitance [b]		C_{rss}	-	80	-	
Turn-on delay time	V_{DD}=10V, R_L=5.5Ω, I_D ≈3.6A, V_{GEN}=4.5V,Rg=6Ω	$t_{d(on)}$	-	7	15	ns
Rise time		tr		55	80	
Turn-off delay time		$t_{d(off)}$	-	16	60	
Fall time		t_f	-	10	25	

Typical Characteristics

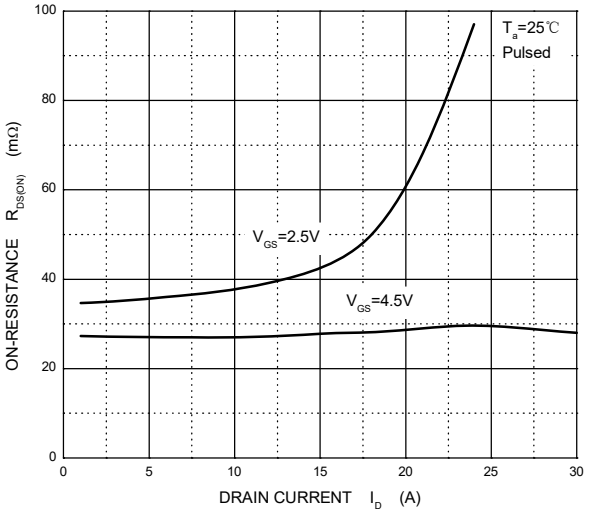
Output Characteristics



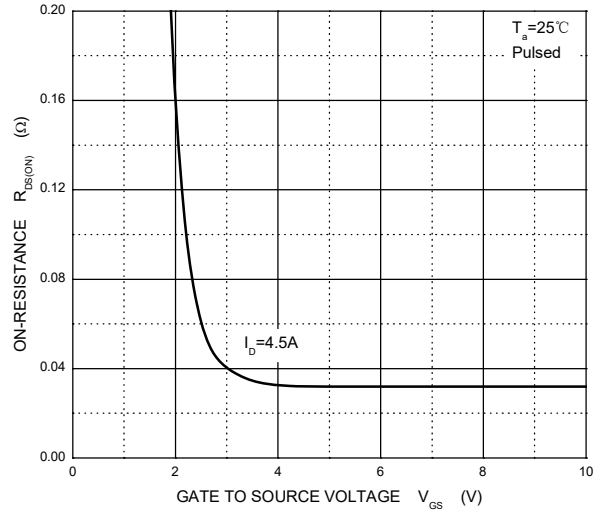
Transfer Characteristics



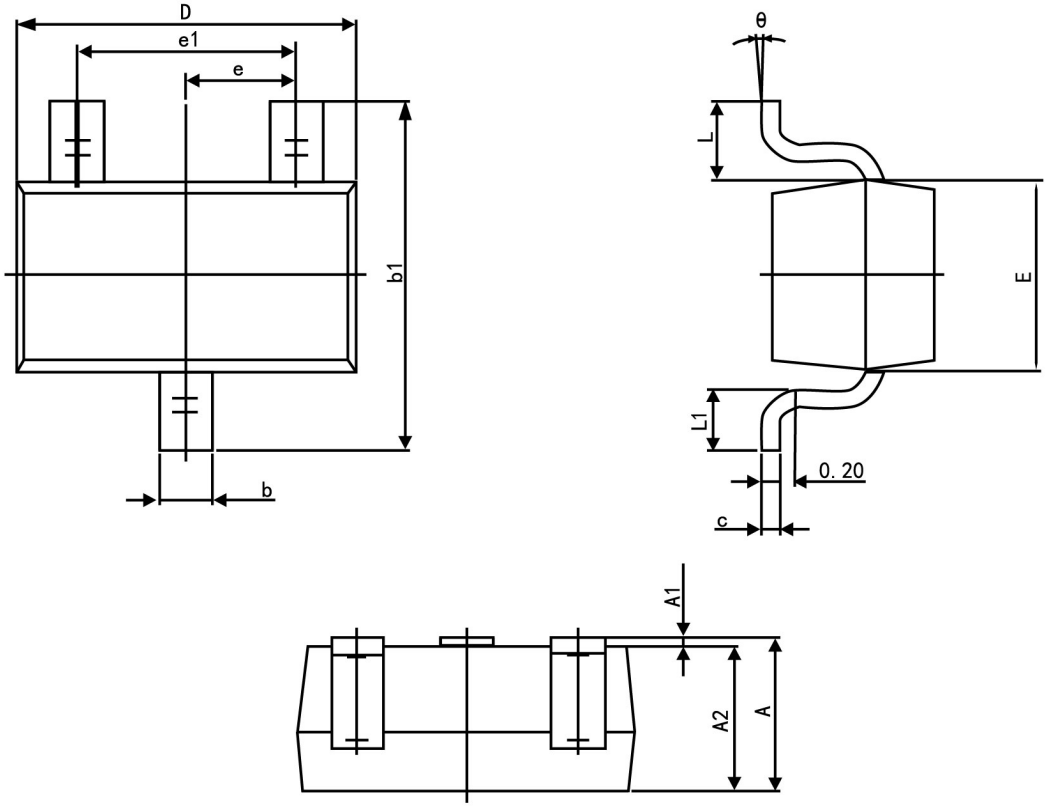
$R_{DS(ON)}$ — I_D



$R_{DS(ON)}$ — V_{GS}



Package Outline SOT-323



Symbol	Dimension in Millimeters	
	Min	Max
A	0.900	1.100
A1	0.000	0.100
A2	0.900	1.000
b	0.200	0.400
c	0.080	0.150
D	2.000	2.200
E	1.150	1.350
E1	2.150	2.450
e	0.650 TYP.	
e1	1.200	1.400
L	0.525 REF.	
L1	0.260	0.460
θ	**0°**	8°