

20V N-Channel Enhancement Mode Power MOSFET

MAIN CHARACTERISTICS

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

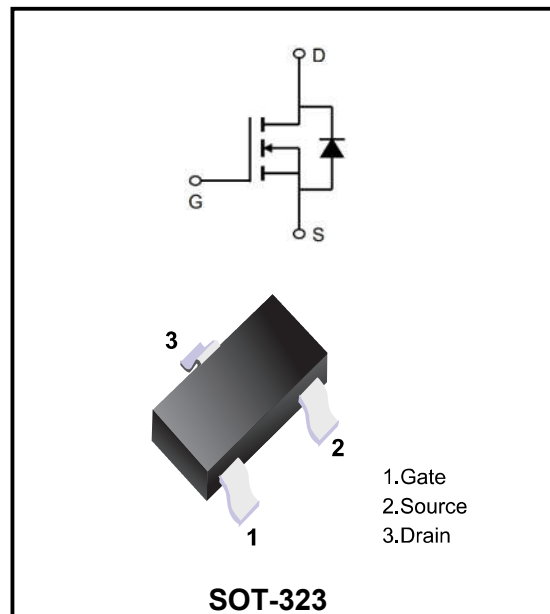
FEATURE

◆TrenchFET Power MOSFET

APPLICATION

◆Load Switch for Portable Devices

◆DC/DC Converter



Marking Code

YFW2102W

2302

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

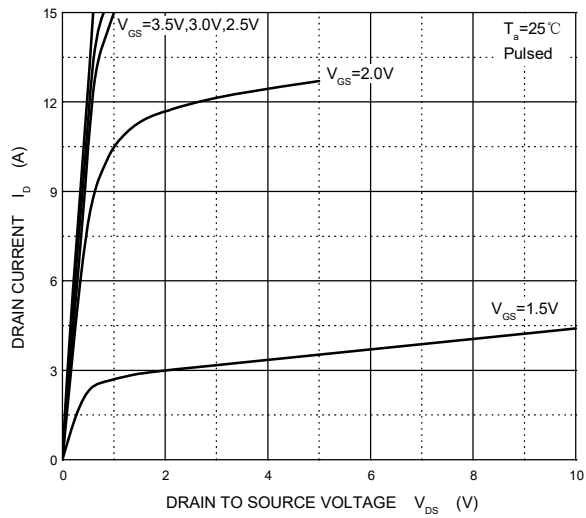
Characteristics	Test Condition	Symbols	Min	Typ	Max	Units
Drain-Source Breakdown Voltage	$V_{GS}=0V, I_D=10\mu A$	$V_{(BR)DSS}$	20	-	-	V
GateThreshold Voltage	$V_{DS}=V_{GS}, I_D=50\mu A$	$V_{GS(th)}$	0.65	0.95	1.2	V
Gate-body leakage	$V_{DS}=0V, V_{GS}=\pm 8V$	I_{GSS}	-	-	± 100	nA
Zero Gate Voltage Drain Current	$V_{DS}=20V, V_{GS}=0V$	I_{DSS}	-	-	1	μA
Drain-Source On-Resistance ^a	$V_{GS}=4.5V, I_D=3.6A$	$R_{DS(ON)}$	-	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	$I_S=0.94A, V_{GS}=0V$	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	$V_{DD}=10V,$ $R_L=5.5\Omega, I_D\approx 3.6A,$ $V_{GEN}=4.5V, R_g=6\Omega$	$t_{d(on)}$	-	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 :

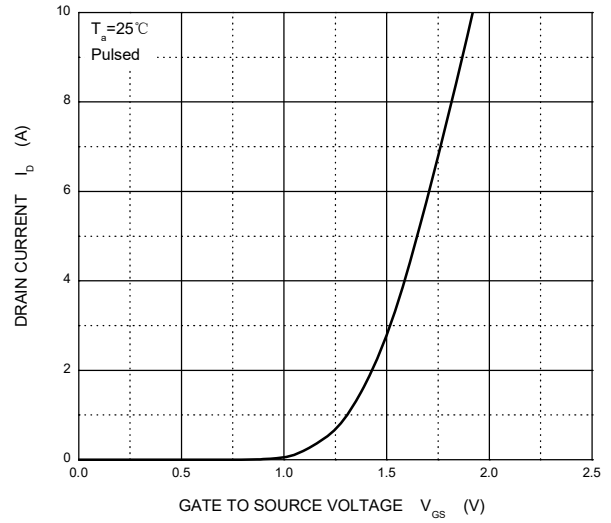
- Pulse Test : Pulse width $\leq 300\mu s$, duty cycle $\leq 2\%$.
- These parameters have no way to verify.

Typical Characteristics

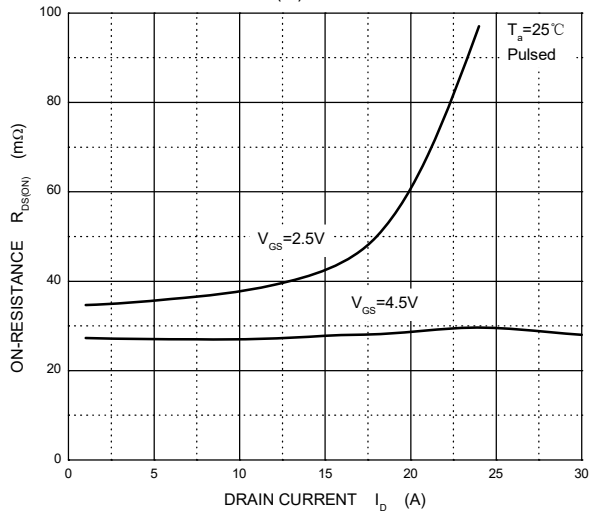
Output Characteristics



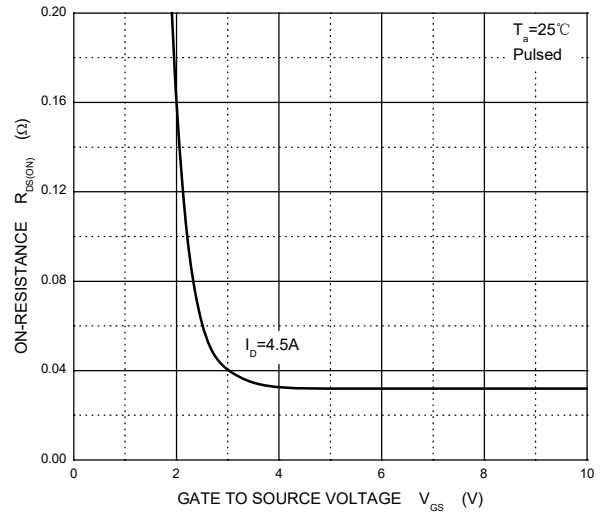
Transfer Characteristics



$R_{DS(ON)}$ — I_D



$R_{DS(ON)}$ — V_{GS}



Ordering information

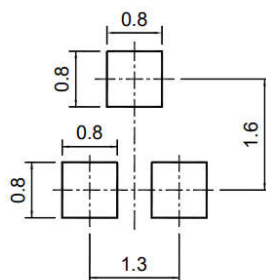
Package	Packing Description	Base Quantity	Packing Quantity
SOT-323	Tape/Reel, 7" reel	3000pcs/Reel	24000PCS/Box 120000PCS/Carton

Package Dimensions

SOT-323

Dim.	Millimeter (mm)		mil	
	Min.	Max.	Min.	Max.
A	0.8	1.1	32	43
A1	0.1		4	
bp	0.3	0.4	12	16
C	0.10	0.25	4	10
D	1.8	2.2	71	87
E	1.15	1.35	45	53
E	1.3		51	
E1	0.65		26	
HE	2.0	2.2	79	87
Lp	0.15	0.45	6	18
Q	0.13	0.23	5.1	9
v	0.2		8	
W	0.2		8	

The recommended mounting pad size



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