

-20V P-Channel Plastic-Encapsulate MOSFET

MAIN CHARACTERISTICS

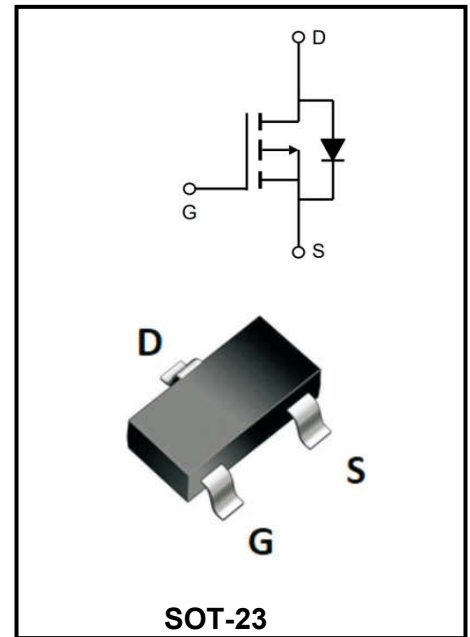
I_D	-4.1A
V_{DSS}	-20V
R_{DS(on)-typ}(@V_{GS}-4.5V)	<45mΩ(Typ:30 mΩ)
R_{DS(on)-typ}(@V_{GS}-2.5V)	<60mΩ(Typ:40 mΩ)
R_{DS(on)-typ}(@V_{GS}-1.8V)	<90mΩ(Typ:60 mΩ)

FEATURES

- ◆TrenchFET Power MOSFET
- ◆Load Switch for Portable Devices
- ◆DC/DC Converter.

MECHANICAL DATA

- ◆SOT-23 Small Outline Plastic Package.
- ◆Epoxy UL: 94V-0.
- ◆Mounting Position: Any.



Marking Code	
YFW2305	S5

Maximum Ratings & Thermal Characteristics

(Ratings at 25°C ambient temperature unless otherwise specified.)

Parameters	Symbol	Value	Unit
Drain-Source Voltage	V _{DS}	-20	V
Gate-Source Voltage	V _{GS}	±12	V
Continuous Drain Current	I _D	-4.1	A
Continuous Source-Drain Diode Current	I _S	-0.8	A
Power Dissipation	P _D	350	mW
Junction Temperature	T _j	150	°C
Storage Temperature	T _{stg}	-50-+150	°C
Thermal Resistance From Junction to Ambient	R _{θJA}	357	°C/W

Electrical Characteristics

(Ratings at 25°C ambient temperature unless otherwise specified).

Parameter	Symbols	Test Condition	Limits			Unit
			Min	Typ	Max	
Drain-Source Breakdown Voltage	$V_{(BR)DSS}$	$V_{GS}=0V, I_D=-250\mu A$	-20	-	-	V
Gate-Threshold voltage	$V_{GS(th)}$	$V_{DS}=V_{GS}, I_D=-250\mu A$	-0.5	-	-0.9	V
Gate-body Leakage	I_{GSS}	$V_{DS}=0V, V_{GS}=\pm 12V$	-	-	± 100	μA
Zero Gate Voltage Drain current	I_{DSS}	$V_{DS}=-8V, V_{GS}=0V$	-	-	-1	μA
Drain-Source On-Resistance(a)	$R_{DS(on)}$	$V_{GS}=-4.5V, I_D=-3.5A$	-	30	45	m Ω
		$V_{GS}=-2.5V, I_D=-3.0A$	-	40	60	
		$V_{GS}=-1.8V, I_D=-2A$	-	60	90	
Forward trans conductance(a)	g_{fs}	$V_{DS}=-5V, I_D=-4A$	6	-	-	S
Input capacitance	C_{iss}	$V_{DS}=-4V$ $V_{GS}=0V$ $f=1MHz$	-	740	-	pF
Output capacitance	C_{oss}		-	290	-	
Reverse Transfer capacitance	C_{rss}		-	190	-	
Total gate charge	Q_g	$V_{DS}=-4V, V_{GS}=-4.5V, I_D=-4.1A$	-	7.8	15	nC
		$V_{DS}=-4V$ $V_{GS}=-2.5V$ $I_D=-4.1A$	-	4.5	9	
Gate-source charge	Q_{gs}		-	1.2	-	
Gate-drain charge	Q_{gd}		-	1.6	-	
Gate resistance	R_g	$f=1MHz$	1.4	7	14	Ω
Turn-on Time	$t_{d(on)}$	$V_{DD}=-4V$ $R_L=1.2\Omega$ $V_{GEN}=-8V$ $I_D=-3.3A$ $R_G=1\Omega$	-	5	10	ns
Rise time	T_r		-	11	17	
Turn-off Time	$t_{d(off)}$		-	22	33	
Fall time	t_f		-	16	24	
Continuous source-drain diode current	I_S	$T_C=25^\circ C$			-1.4	A
Pulse diode forward current (a)	I_{SM}				-10	A
Body diode voltage	V_{SD}	$I_S=-3.3A$	-	-	-1.2	V

Notes:

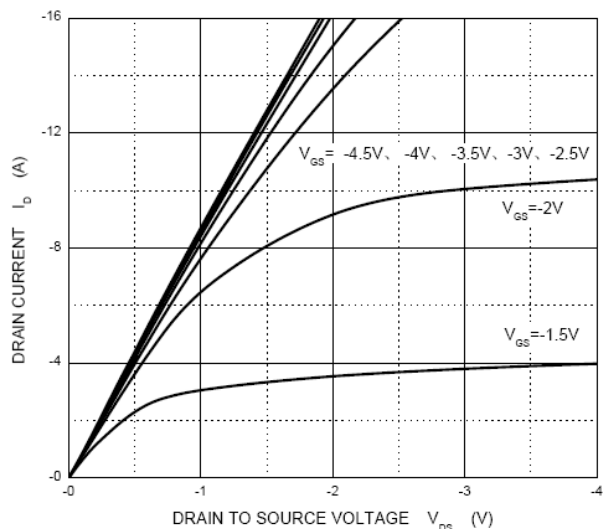
a. Pulse Test: Pulse Width $\leq 300\mu s$, Duty Cycle $\leq 2\%$

b. Guaranteed by design, not subject to production testing.

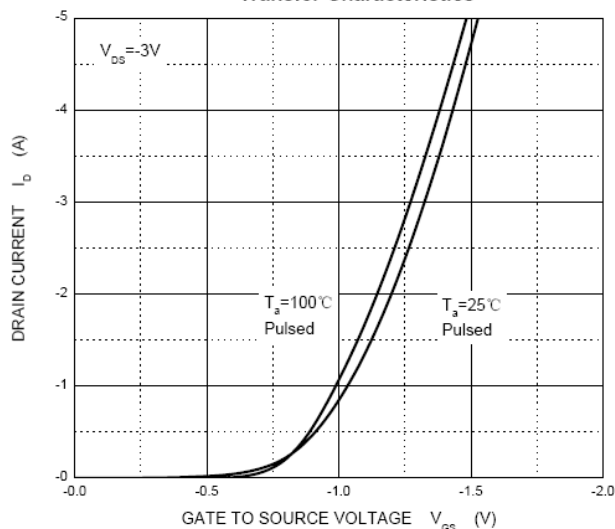
c. These parameters have no way to verify

Typical characteristics

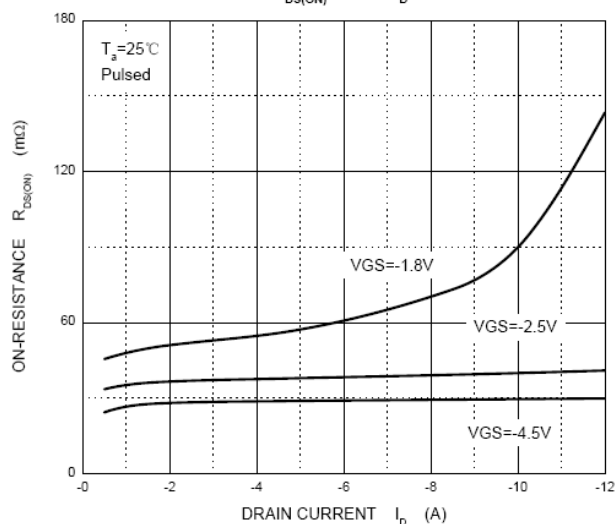
Output Characteristics



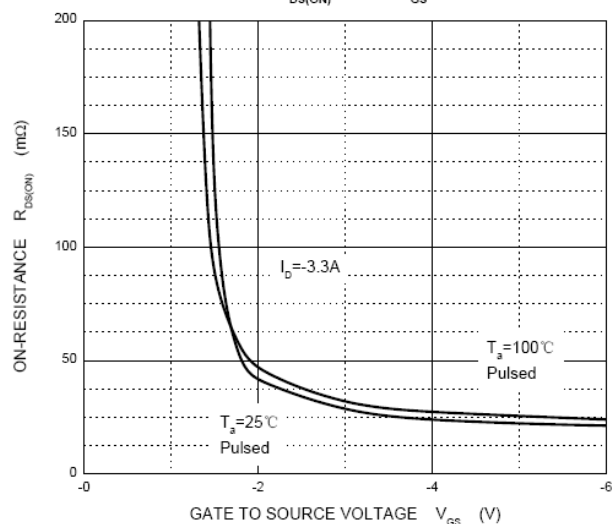
Transfer Characteristics



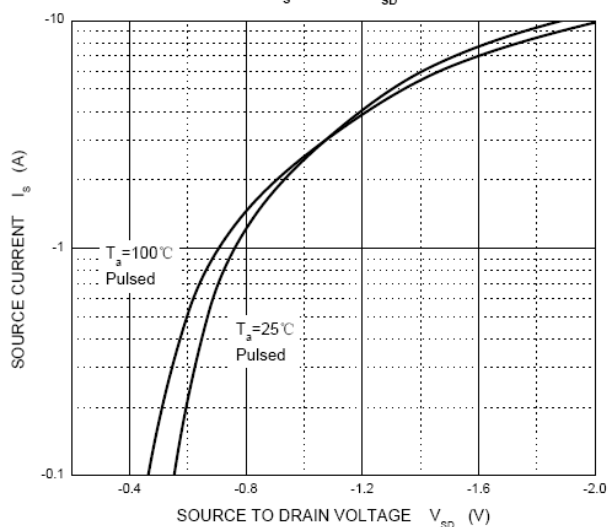
$R_{DS(ON)}$ — I_D



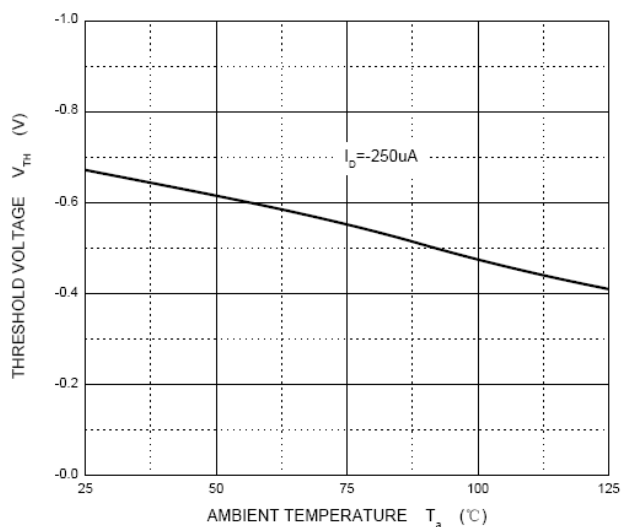
$R_{DS(ON)}$ — V_{GS}



I_S — V_{SD}



Threshold Voltage



Ordering information

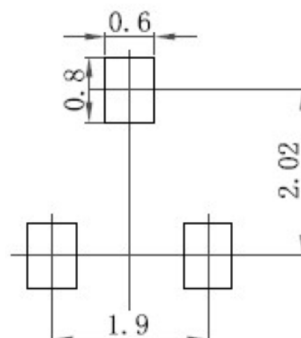
Package	Packing Description	Base Quantity	Packing Quantity
SOT-23	Tape/Reel, 7" reel	3000pcs/Reel	24000PCS/Box 120000PCS/Carton

Package Dimensions

SOT-23

Dim.	Millimeter (mm)		mil	
	Min.	Max.	Min.	Max.
A	0.9	1.15	35	45
A1	0.1		3.9	
bp	0.38	0.48	15	19
C	0.09	0.15	3.54	5.9
D	2.8	3.0	110	118
E	1.2	1.4	47	55
E	1.9		75	
E1	0.95		37	
HE	2.1	2.55	83	100
Lp	0.15	0.45	5.9	18
Q	0.45	0.55	18	22
v	0.2		7.9	
W	0.1		4	

The recommended mounting pad size



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