

-20V P-Channel Enhancement Mode MOSFET

MAIN CHARACTERISTICS

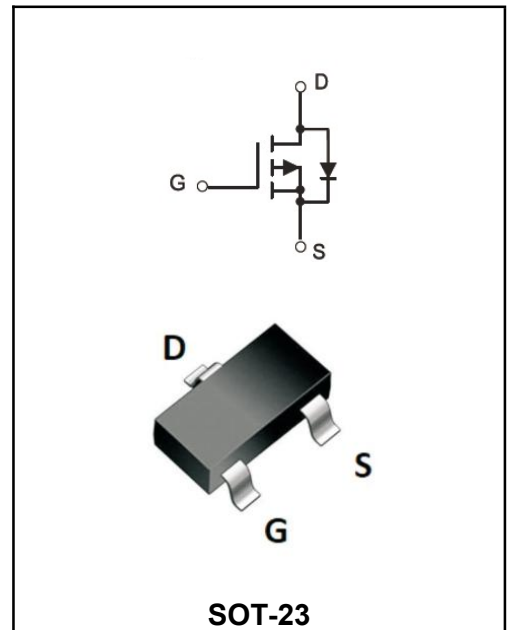
I_D	-4A
V_{DS}	-20V
R_{DS(on)}-typ(@V_{GS}=-4.5V)	<44mΩ(Typ:34mΩ)
R_{DS(on)}-typ(@V_{GS}=-2.5V)	<64mΩ(Typ:46mΩ)

FEATURES

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

MECHANICAL DATA

- ◆Case: SOT-23
- ◆Epoxy UL:94V-0.
- ◆Mounting Position: Any.



Marking Code

YFW2305B	2305B
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Maximum Ratings & Thermal Characteristics

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

Parameter	Symbols	Value	Units
Drain-Source Voltage	V_{DS}	-20	V
Gate-Source Voltage	V_{GS}	±12	V
Continuous Drain Current	I_D	-4	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

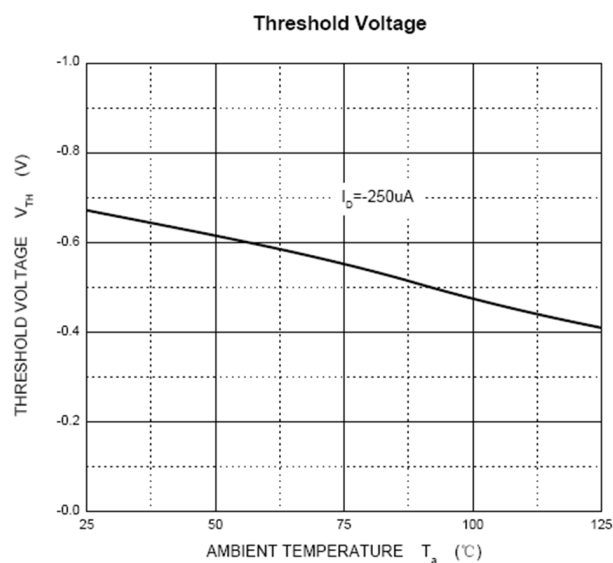
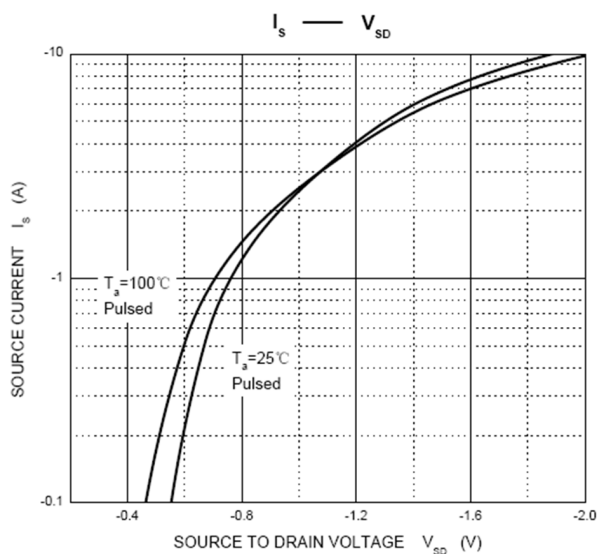
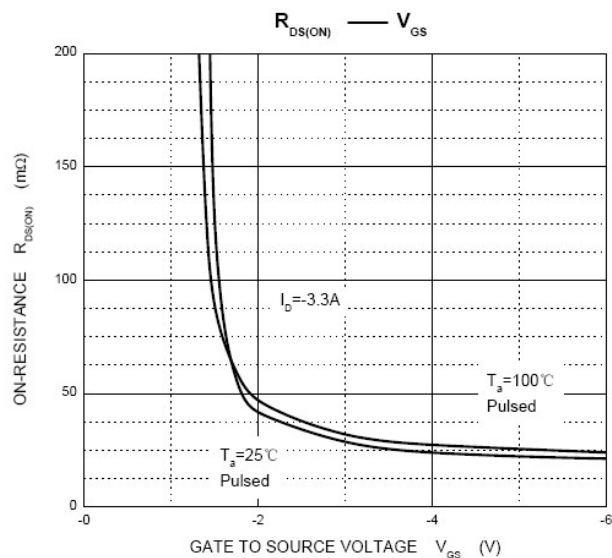
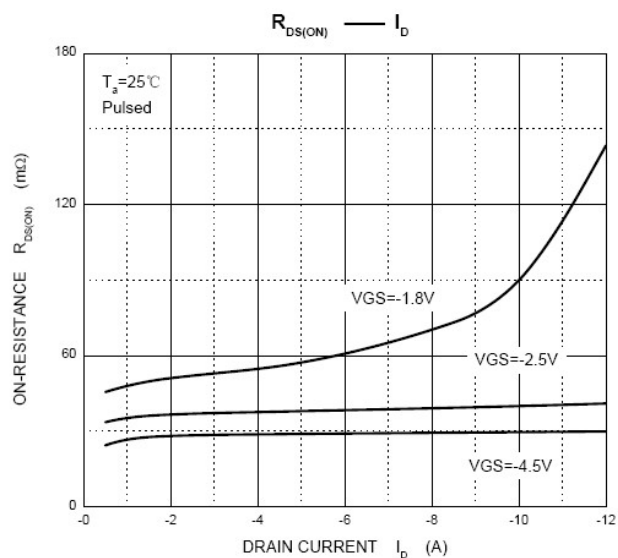
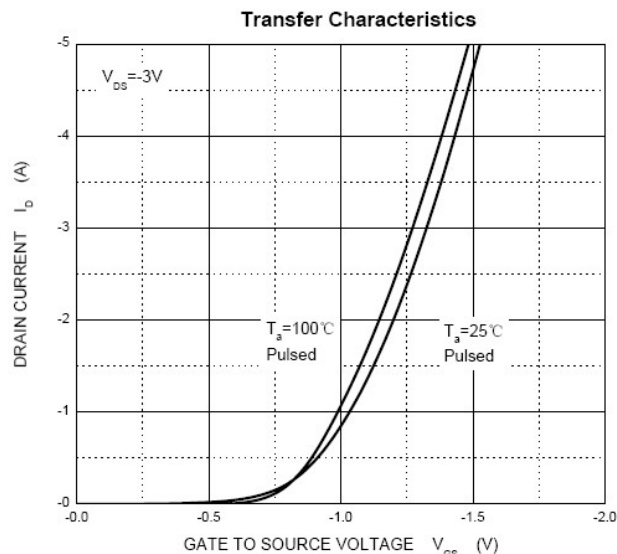
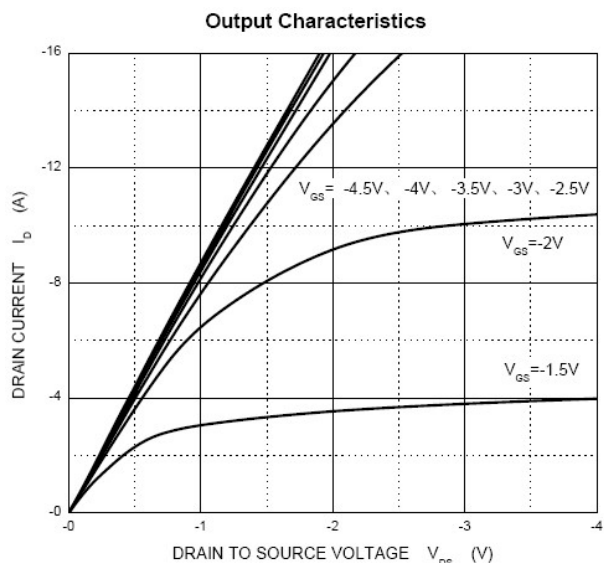
(Ratings at 25°C ambient temperature unless otherwise specified).

Parameter	Test Conditions	Symbol	Min	Typ	Max	Unit
Drain-Source Breakdown Voltage	$V_{GS}=0V, I_D=-250\mu A$	BV_{DSS}	-20			V
Gate-Threshold voltage	$V_{DS}=V_{GS}, I_D=-250\mu A$	$V_{GS(th)}$	-0.5	-	-1.0	V
Gate-body Leakage	$V_{DS}=0V, V_{GS}=\pm 12V$	I_{GSS}			± 100	nA
Zero Gate Voltage Drain current	$V_{DS}=-8V, V_{GS}=0V$	I_{DSS}			-1	μA
Drain-Source On-Resistance (a)	$V_{GS}=-4.5V, I_D=-4.0A$	$R_{DS(on)}$		34	44	m Ω
	$V_{GS}=-2.5V, I_D=-3.0A$			46	64	
Forward trans conductance (a)	$V_{DS}=-5V, I_D=-4.0A$	g_{fs}	6			S
Input capacitance (b,c)	$V_{DS}=-4.0V$ $V_{GS}=0V$ $f=1MHz$	C_{iss}		740		pF
Output capacitance (b,c)		C_{oss}		290		
Reverse Transfer capacitance (b,c)		C_{rss}		190		
Turn-on Time	$V_{DD}=-4V$ $R_L=1.2\Omega$ $V_{GEN}=-4.5V$ $I_D=-3.3A$ $R_G=1\Omega$	$t_{d(on)}$		13	20	ns
Rise time		T_r		35	53	
Turn-off Time		$t_{d(OFF)}$		32	48	
Fall time		t_f		10	20	
Turn-on Time	$V_{DD}=-4V$ $R_L=1.2\Omega$ $V_{GEN}=-8V$ $I_D=-3.3A$ $R_G=1\Omega$	$t_{d(on)}$		5	10	ns
Rise time		T_r		11	17	
Turn-off Time		$t_{d(OFF)}$		22	33	
Fall time		t_f		16	24	
Total Gage Charge	$V_{DS}=-4V, V_{GS}=-4.5V, I_D=-4.0A$	Q_g		7.8	15	nC
				4.5	9	
Gate-Source Charge	$V_{DS}=-4V,$ $V_{GS}=-2.5V,$ $I_D=-4.0A$	Q_{gs}		1.2		
Gate-Drain Charge		Q_{gd}		1.6		
Gate resistance	$F=1MHz$	R_g	1.4	7	14	Ω
Continuous source-drain diode current	$T_c=25^\circ C$	I_s			-1.4	A
Pulse diode forward current (a)		I_{SM}			-10	A
Body diode voltage	$I_s=-3.3A$	V_{SD}			-1.2	V

Notes:

- Pulse Test: Pulse Width $\leq 300\mu s$, Duty Cycle $\leq 2\%$
- Guaranteed by design, not subject to production testing.
- These parameters have no way to verify

Typical characteristics



Ordering information

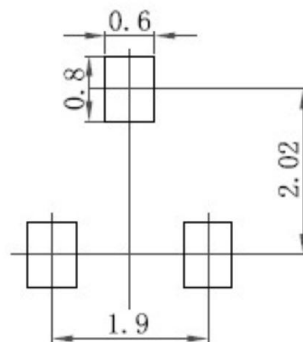
Package	Packing Description	Base Quantity	Packing Quantity
SOT-23	Tape/Reel, 7" reel	3000pcs/Reel	24000PCS/Box 120000PCS/Carton

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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