

30V N-CHANNEL ENHANCEMENT MODE MOSFET

MAIN CHARACTERISTICS

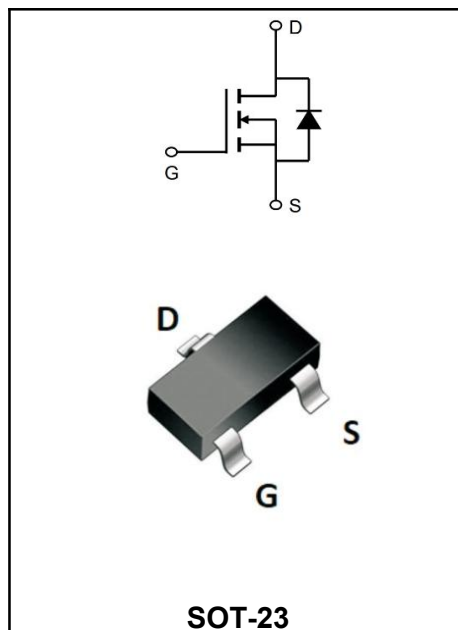
I_D	3.3A
V_{DSS}	30V
$R_{DS(on)-Max}(@V_{GS}=10V)$	<60mΩ (Typ:37mΩ)
$R_{DS(on)-Max}(@V_{GS}=4.5V)$	<75mΩ (Typ:57mΩ)

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

YFW2304	2304
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Maximum Ratings & Thermal Characteristics

Ratings at 25°C ambient temperature unless otherwise specified.

Characteristics	Symbols	Value	Units
Drain-Source Voltage	V_{DS}	30	V
Gate - Source Voltage	V_{GS}	±20	V
Continuous Drain Current	I_D	3.3	A
Drain Current-Pulsed	I_{DM}	15	A
Continuous Source-Drain Diode Current	I_S	0.9	A
Power Dissipation	P_D	350	mW
Operating Junction Temperature Range	T_J, T_{STG}	-50 to +150	°C
Thermal Resistance From Junction to Ambient	$R_{\theta JA}$	357	°C/W

Electrical Characteristics

Ratings at 25°C ambient temperature unless otherwise specified

Characteristics	Test Condition	Symbols	Min	Typ	Max	Units
Drain-Source Breakdown Voltage	$V_{GS}=0V, I_D=250\mu A$	$V(BR)_{DSS}$	30	-	-	V
Gate -Threshold Voltage	$V_{DS}=V_{GS}, I_D=250\mu A$	$V_{GS(th)}$	1	1.55	2.2	V
Gate to Body Leakage Current	$V_{GS}=\pm 20V, V_{DS}=0V$	I_{GSS}	-	-	± 100	nA
Zero Gate Voltage Drain Current	$V_{DS}=30V, V_{GS}=0V$	I_{DSS}	-	-	1.0	μA
Drain-Source On-Resistance (note 1)	$V_{GS}=10V, I_D=3.2A$	$R_{DS(ON)}$	-	37	60	m Ω
	$V_{GS}=4.5V, I_D=2.8A$		-	57	75	
Forward trans conductance	$V_{DS}=4.5V, I_D=2.5A$	g_{fs}	2.5	-	-	S
Diode forward voltage	$I_S=2.7A, V_{GS}=0V$	V_{SD}	-	0.8	1.2	V
Continuous source-drain diode current	$T_c=25^\circ C$	I_S			1.4	A
Pulse diode forward current		I_{SM}			15	A
Input Capacitance ^{note 2}	$V_{DS}=15V$ $V_{GS}=0V$ $f=1.0MHz$	C_{iss}	-	235	-	pF
Output Capacitance ^{note 2}		C_{oss}	-	45	-	
Reverse Transfer Capacitance ^{note 2}		C_{rss}	-	17	-	
Total gate charge	$V_{DS}=15V, V_{GS}=10V, I_D=3.4A$	Q_G		4.5	6.7	nC
				2.1	3.2	
Gate-source charge	$V_{DS}=15V, V_{GS}=4.5V, I_D=3.4A$	Q_{GS}		0.85		
Gate-drain charge		Q_{GD}		0.65		
Gate resistance	$f=1MHz$	R_g	0.8	4.4	8.8	Ω
Turn-on delay time	$V_{DD}=15V, R_L=5.6\Omega,$ $V_{GEN}=4.5V, I_D\approx 2.7A,$ $R_G=1\Omega$	$t_{d(on)}$	-	12	20	ns
Turn-on Rise Time		T_r	-	50	75	
Turn-Off Delay Time		$t_{d(OFF)}$	-	12	30	
Turn-Off Fall Time		t_f	-	22	35	
Turn-on delay time	$V_{DD}=15V, R_L=5.6\Omega,$ $V_{GEN}=10V, I_D\approx 2.7A,$ $R_G=1\Omega$	$t_{d(on)}$	-	5	10	ns
Turn-on Rise Time		T_r	-	12	20	
Turn-Off Delay Time		$t_{d(OFF)}$	-	10	15	
Turn-Off Fall Time		t_f	-	5	10	

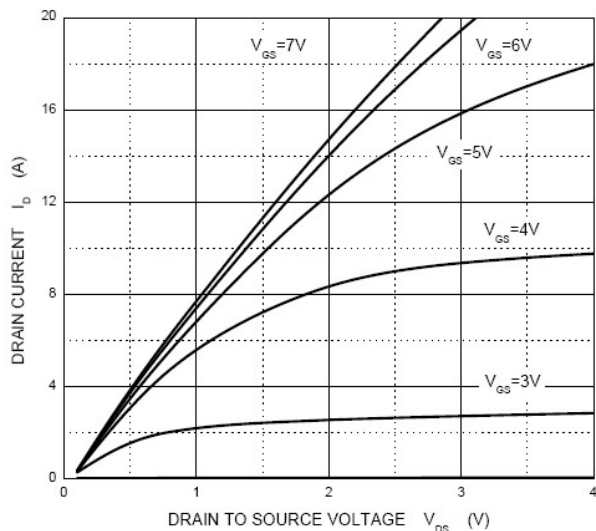
Notes:

note 1 Pulse Test: Pulse Width $\leq 300\mu s$, Duty Cycle $\leq 2\%$.

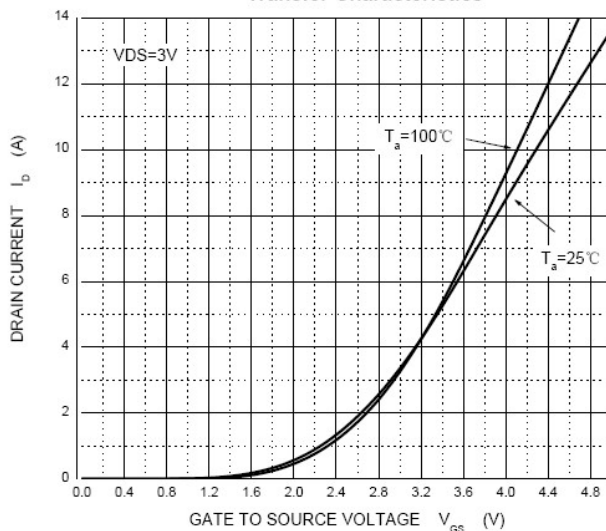
note 2 These parameters have no way to verify.

Typical characteristics

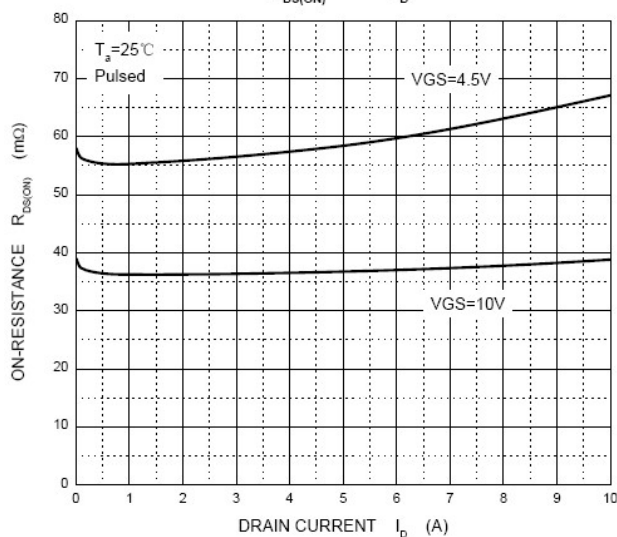
Output Characteristics



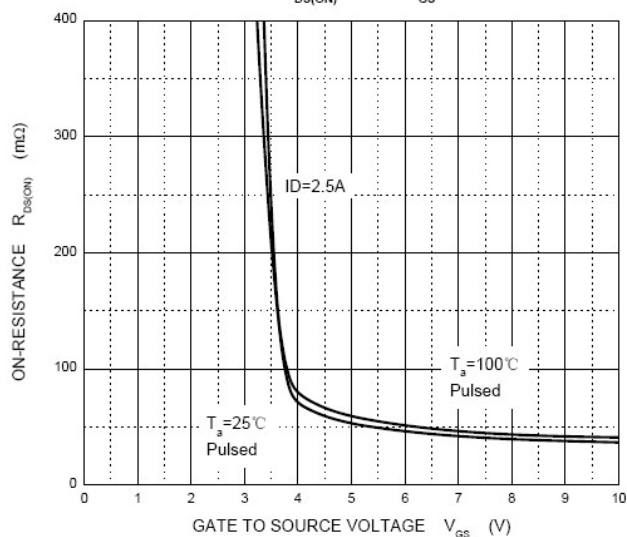
Transfer Characteristics



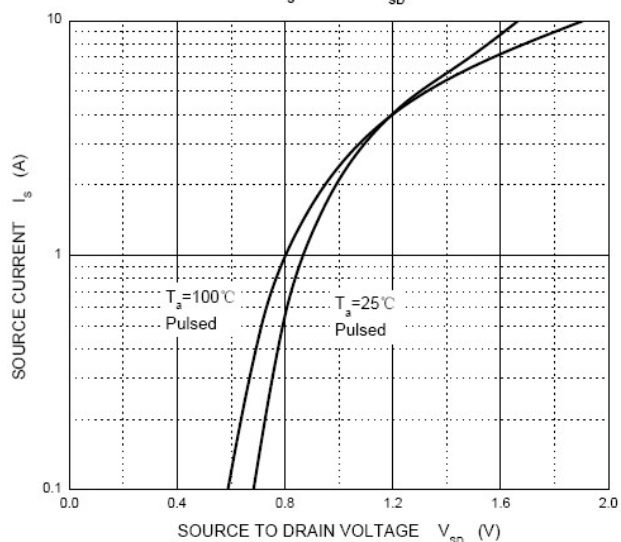
$R_{DS(ON)}$ — I_D



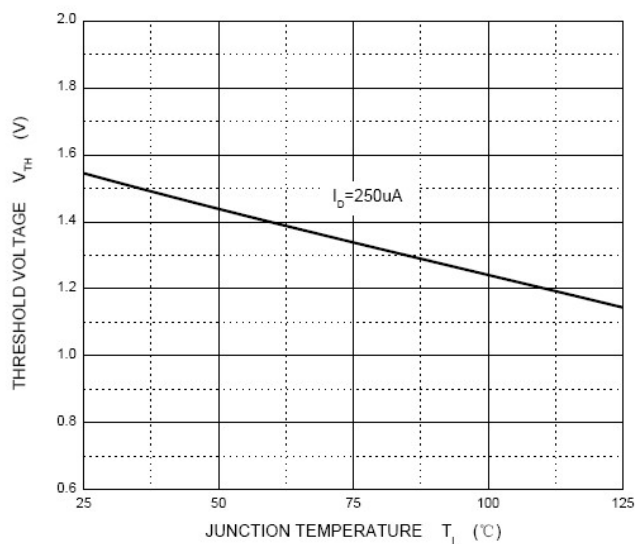
$R_{DS(ON)}$ — V_{GS}



I_S — V_{SD}



Threshold Voltage



Ordering information

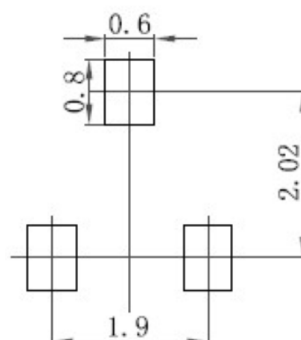
Package	Packing Description	Base Quantity	Packing Quantity
SOT-23	Tape/Reel, 7" reel	3000pcs/Reel	24000PCS/Box 120000PCS/Carton

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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