

-20V P-Channel Plastic-Encapsulate MOSFET

MAIN CHARACTERISTICS

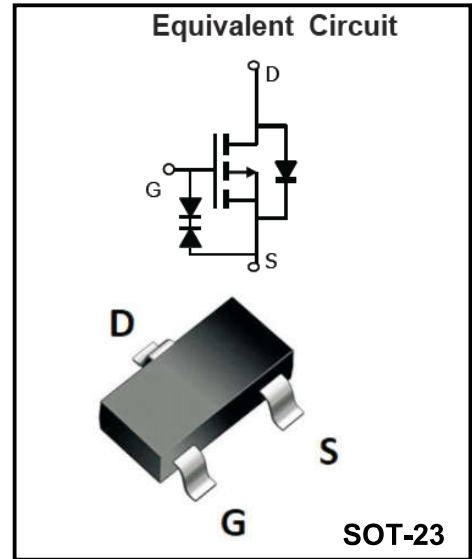
I_D	-4.2A
V_{DSS}	-20V
R_{DS(on)-typ}(@V_{GS}-4.5V)	< 50mΩ (Type: 37 mΩ)
R_{DS(on)-typ}(@V_{GS}-2.5V)	< 60mΩ (Type: 45 mΩ)
R_{DS(on)-typ}(@V_{GS}-1.8V)	< 73mΩ (Type: 56 mΩ)

Features

- ◆ Excellent R_{DS(ON)}, low gate charge, low gate voltages
- ◆ Load Switch and in PWM applications.
- ◆ ESD protected

Mechanical Data

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



Product Specification Classification

Part Number	Package	Marking	Pack
YFW3415A	SOT-23	R15	3000PCS/Tape

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}	±8	V
Continuous Drain Current	I _D	-4.2	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).

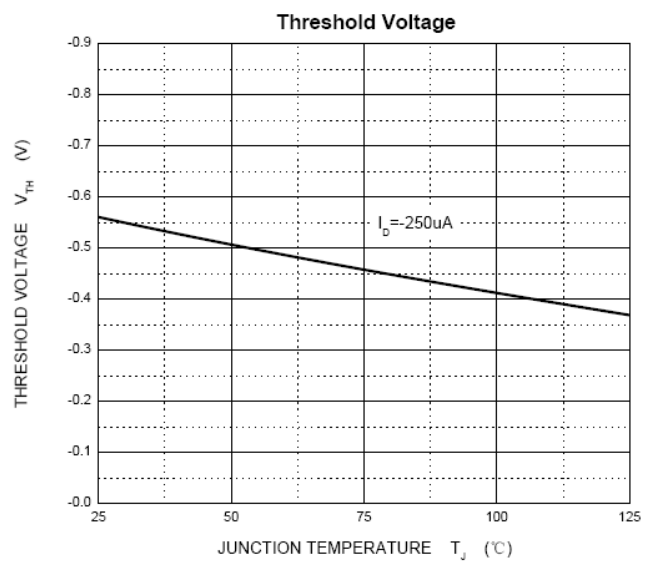
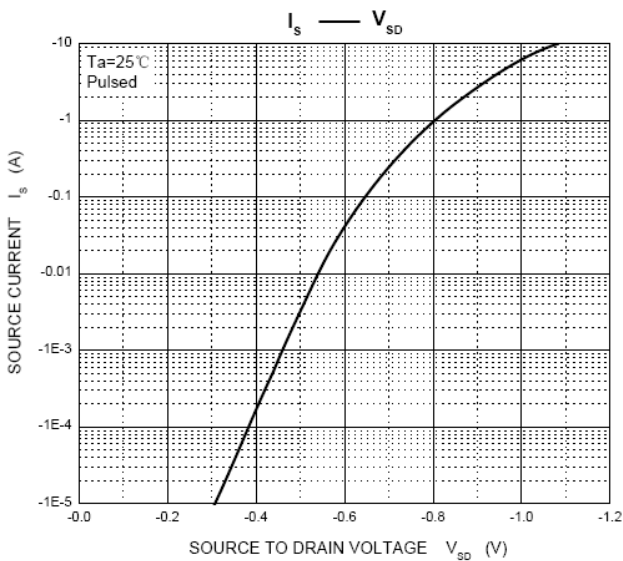
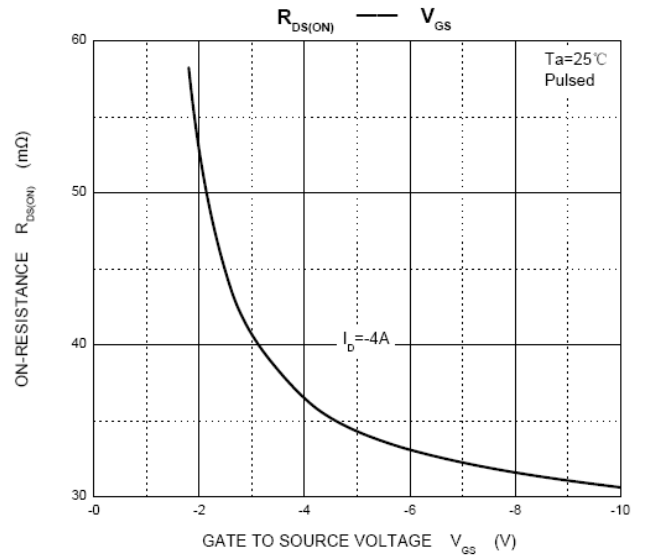
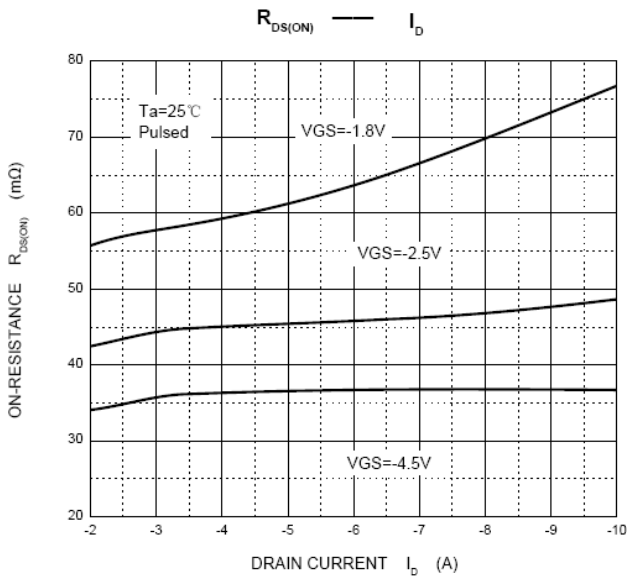
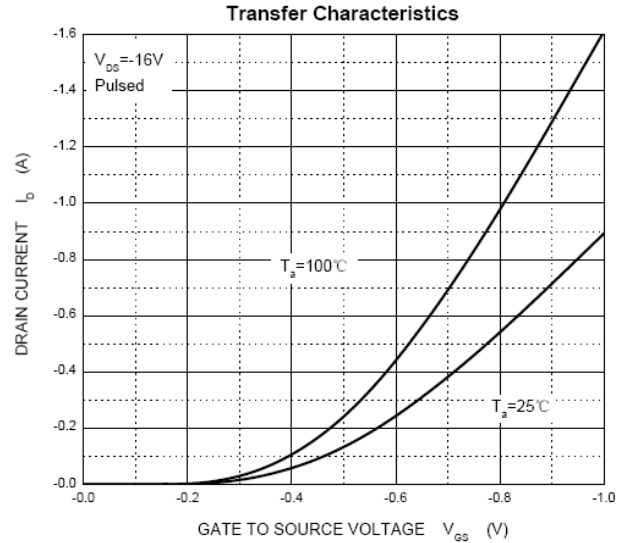
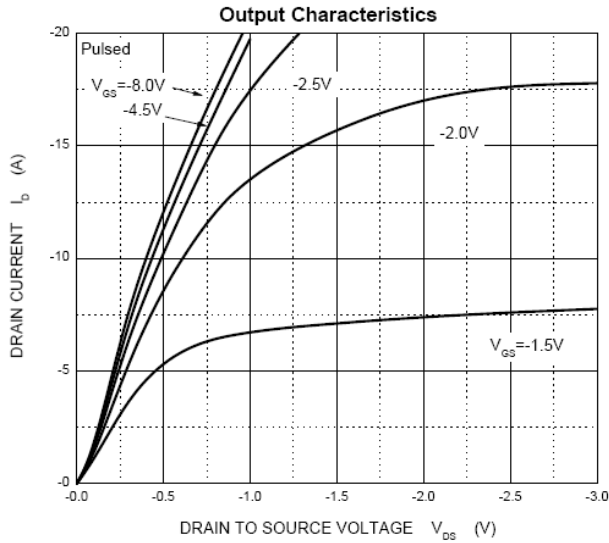
Parameter	Symbols	Test Condition	Limits			Unit
			Min	Typ	Max	
Static						
Drain-Source Breakdown Voltage	$V_{(BR)DSS}$	$V_{GS}=0V, I_D=-250\mu A$	-20			V
Gate-Threshold voltage	$V_{GS(th)}$	$V_{DS}=V_{GS}, I_D=-250\mu A$	-0.3	-0.56	-1.0	V
Gate-body Leakage	I_{GSS}	$V_{DS}=0V, V_{GS}=\pm 8V$			± 10	μA
		$V_{DS}=0V, V_{GS}=\pm 4.5V$			± 1	
Zero Gate Voltage Drain current	I_{DSS}	$V_{DS}=-16V, V_{GS}=0V$			-1	
Drain-Source On-Resistance ^(a)	$R_{DS(ON)}$	$V_{GS}=-4.5V, I_D=-4A$		37	50	m Ω
		$V_{GS}=-2.5V, I_C=-4A$		45	60	
		$V_{GS}=-1.8V, I_C=-2A$		56	73	
Forward trans conductance ^(b)	g_{fs}	$V_{DS}=-5V, I_D=-4A$	8			S
Dynamic^(c)						
Input capacitance	C_{iss}	$V_{DS}=-10V, V_{GS}=0V, f=1MHz$		1450		pF
Output capacitance	C_{oss}			205		
Reverse Transfer capacitance	C_{rss}			160		
Total gate charge	Q_g	$V_{DS}=-10V, V_{GS}=-4.5V, I_D=-4A$		17.2		nC
Gate-source charge	Q_{gs}			1.3		
Gate-drain charge	Q_{gd}			4.5		
Gate resistance	R_g	$V_{DS}=0V, V_{GS}=0V, f=1MHz$		6.5		Ω
Turn-on Time	$t_{d(on)}$	$V_{DD}=-10V, R_L=2.5\Omega, V_{GEN}=-4.5V, R_{GEN}=3\Omega$		9.5		ns
Rise time	t_r			17		
Turn-off Time	$t_{d(off)}$			94		
Fall time	t_f			35		
Drain-source body diode characteristics						
Body diode voltage ^(b)	V_{SD}	$I_S=-1A, V_{GS}=0V$			-1.0	V

Notes: a. Repetitive rating, pulse width limited by junction temperature.

B. Pulse Test: Pulse Width $\leq 300\mu s$, Duty Cycles $\leq 2\%$.

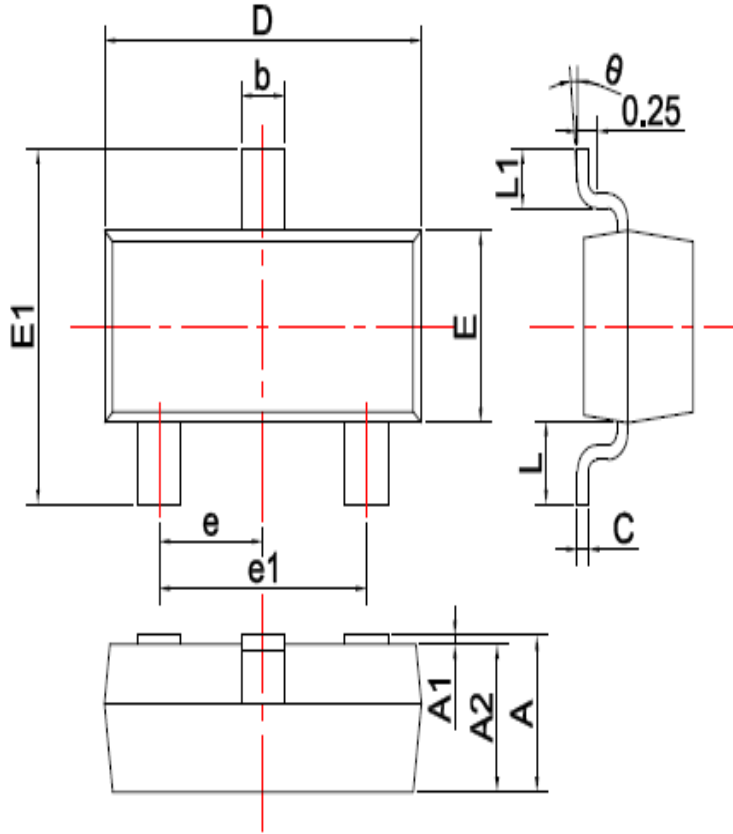
b. These parameters have no way to verify.

Typical characteristics



Package Outline

SOT-23



SYMBOL	DIMENSIONS	
	MIN.	MAX.
A	0.900	1.150
A1	0.000	0.100
A2	0.900	1.050
b	0.300	0.500
c	0.080	0.150
D	2.800	3.000
E	1.200	1.400
E1	2.250	2.550
e	0.950TYP	
e1	1.800	2.000
L	0.550REF	
L1	0.300	0.500
θ	0°	8°

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