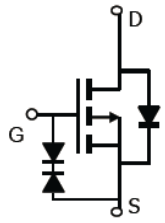
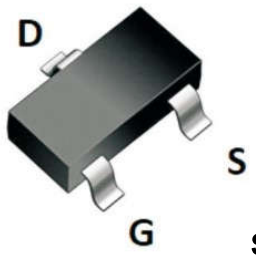
-20V P-Channel Plastic-Encapsulate MOSFET

MAIN CHARACTERISTICS

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

Equivalent Circuit





SOT-23

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.

Marking Code	
YFW3415A	R15

Maximum Ratings & Thermal Characteristics

(Ratings at 25℃ 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	℃
Storage Temperature	Tstg	-50-+150	℃
Thermal Resistance From Junction to Ambient	$R_{\theta JA}$	357	℃/W

Electrical Characteristics

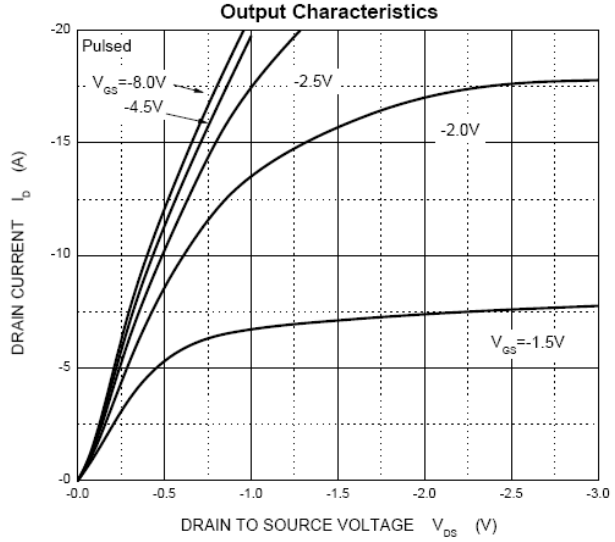
(Ratings at 25℃ ambient temperature unless otherwise specified).

Parameter	Symbols	Test Condition	Limits			Unit
			Min	Typ	Max	
Drain-Source Breakdown Voltage	$V_{(BR)DSS}$	V_{GS}=0V, I_D=-250uA	-20			V
Gate-Threshold voltage	$V_{GS(th)}$	V_{DS}=V_{GS}, I_D=-250uA	-0.3	-0.56	-1.0	V
Gate-body Leakage	I_{GSS}	V_{DS}=0V, V_{GS}=±8V			±10	uA
		V_{DS}=0V, V_{GS}=±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	mΩ
		V_{GS}=-2.5V, I_D=-4A		45	60	
		V_{GS}=-1.8V, I_D=-2A		56	73	
Forward trans conductance(b)	g_{fs}	V_{DS}=-5V, I_D=-4A	8			S
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	Rg	V_{DS}=0V, V_{GS}=0V,f =1MHz		6.5		Ω
Turn-on Time	$td_{(on)}$	V_{DD}=-10V, R_L=2.5Ω, V_{GEN}=-4.5V, R_{GEN}=3Ω		9.5		ns
Rise time	T_r			17		
Turn-off Time	$td_{(off)}$			94		
Fall time	t_f			35		
Body diode voltage(b)	V_{SD}	I_S=-1A, V_{GS}=0V			-1.0	V

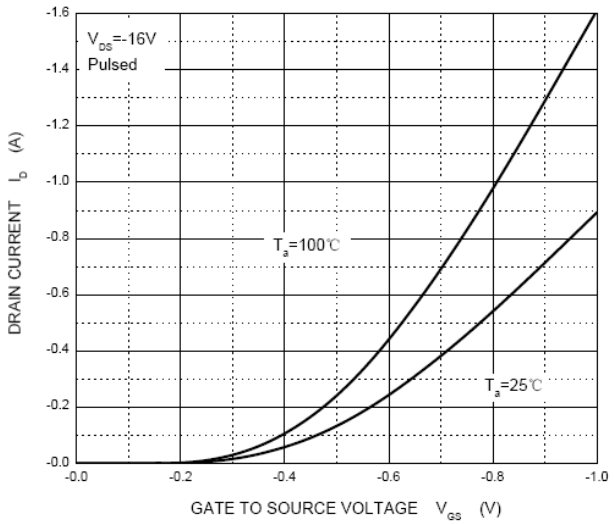
Notes: a. Repetitive rating, pulse width limited by junction temperature.
B. Pulse Test: Pulse Width ≤300us, Duty Cycle≤2%.
b. These parameters have no way to verify.

Typical characteristics

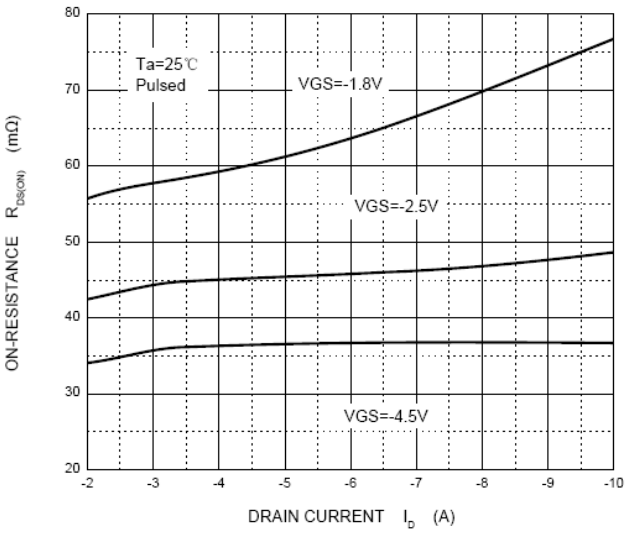
Output Characteristics



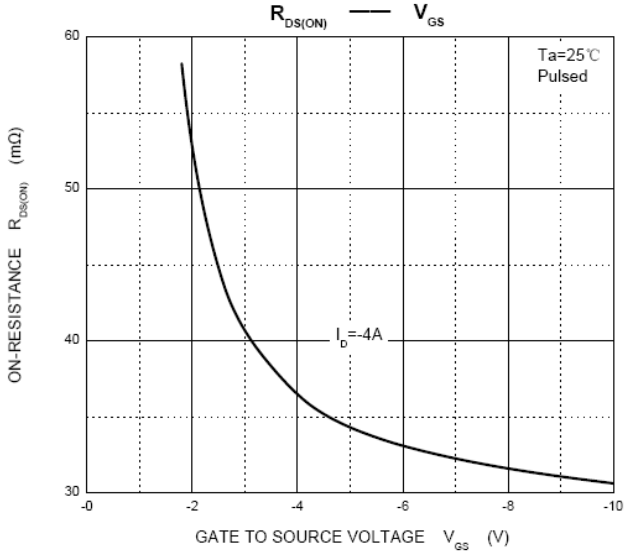
Transfer Characteristics



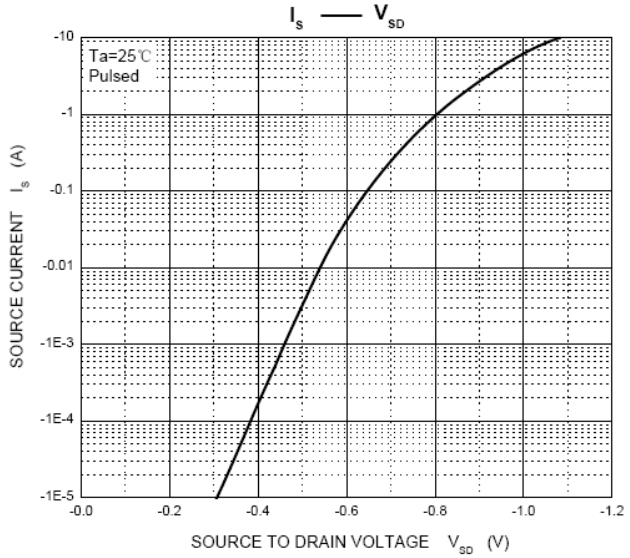
RDS(ON) —— ID



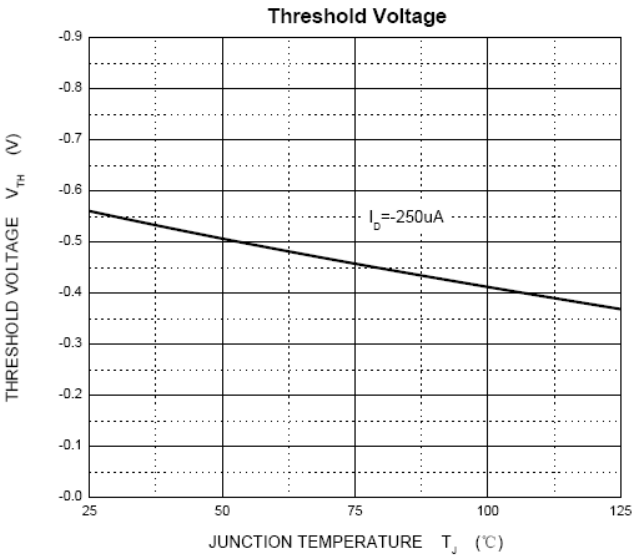
RDS(ON) —— VGS



IS —— VSD



Threshold Voltage

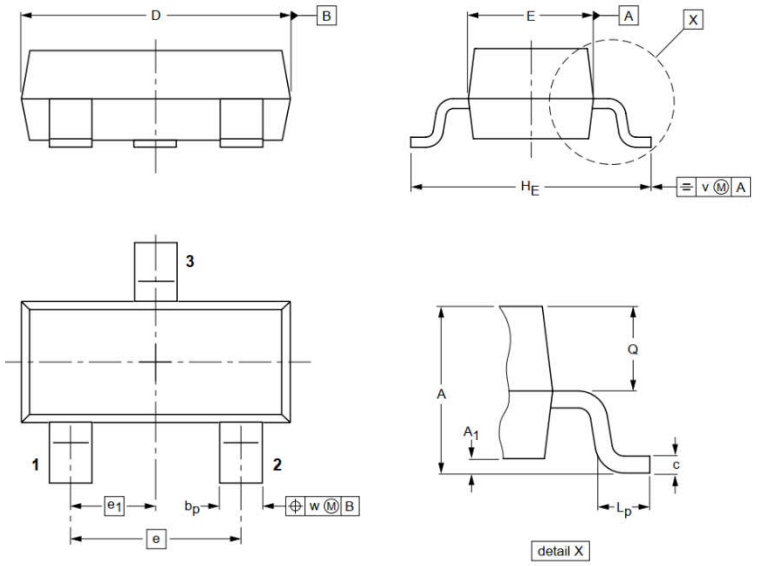


Ordering information

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

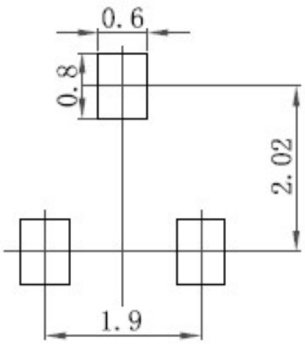
Package Dimensions

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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