

20V N-Channel Mosfet

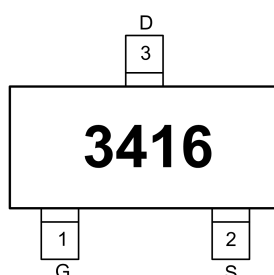
FEATURES

- $R_{DS(ON)} \leq 18m\Omega$ (13m Ω Typ.)
@ $V_{GS}=4.5V$
- $R_{DS(ON)} \leq 22m\Omega$ (17m Ω Typ.)
@ $V_{GS}=2.5V$

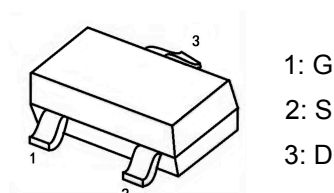
APPLICATIONS

- DC/DC Converter
- Load Switch for Portable Devices
- Battery Switch

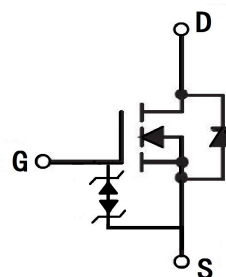
MARKING



SOT-23



N-CHANNEL MOSFET



MAXIMUM RATINGS (Ta=25°C unless otherwise noted)

Symbol	Parameter	Value	Unit
V_{DS}	Drain-Source Voltage	20	V
V_{GS}	Gate-Source Voltage	± 12	
I_D	Continuous Drain Current	7	A
I_{DM}	Pulsed Drain Current	30	
P_D	Maximum Power Dissipation	1.4	W
$R_{\theta JA}$	Thermal Resistance from Junction to Ambient(t $\leq 5s$)	357	$^{\circ}C/W$
T_J	Junction Temperature	150	$^{\circ}C$
T_{stg}	Storage Temperature	-55 ~ +150	

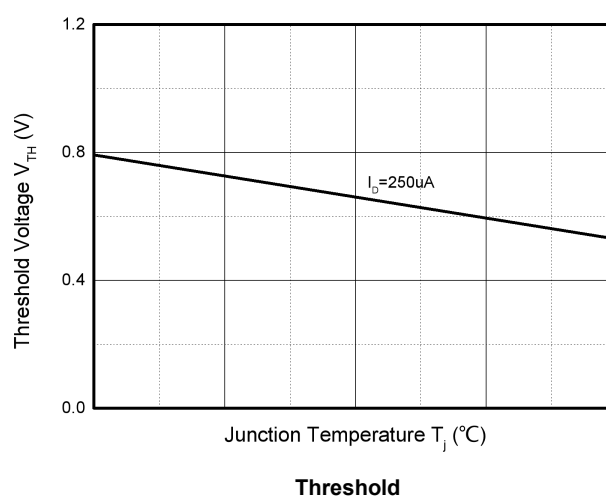
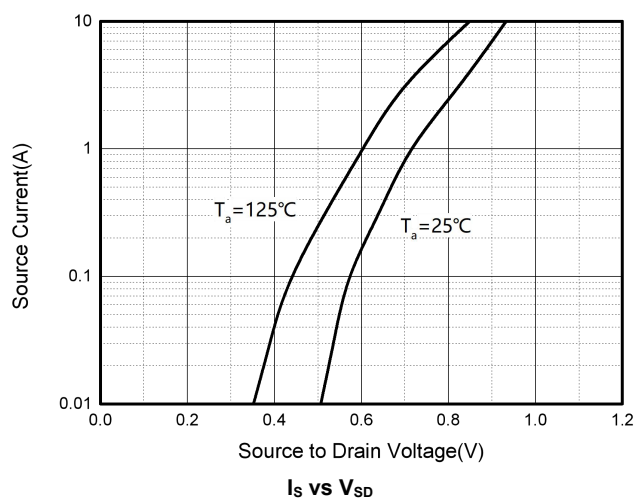
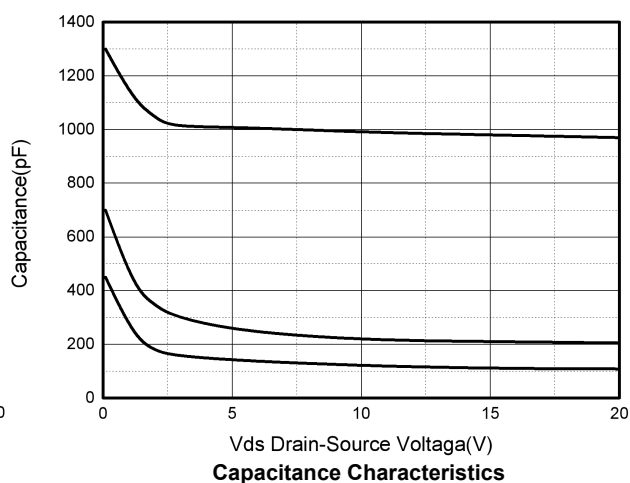
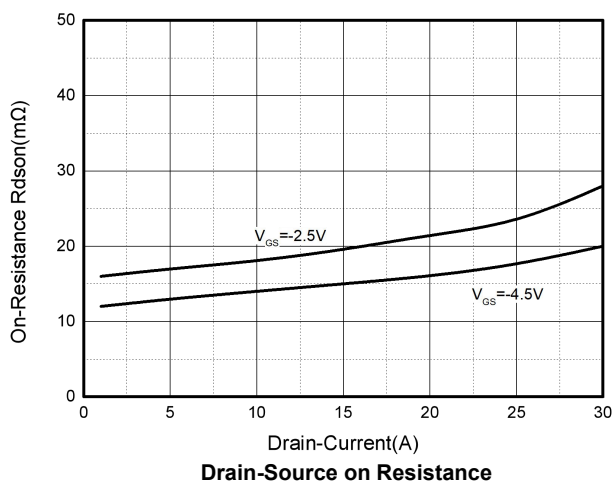
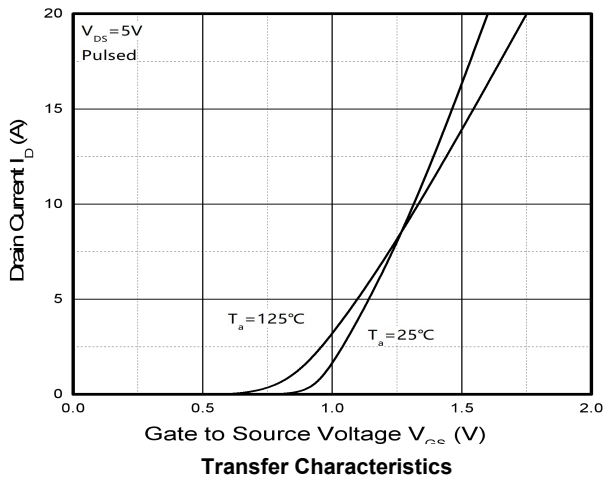
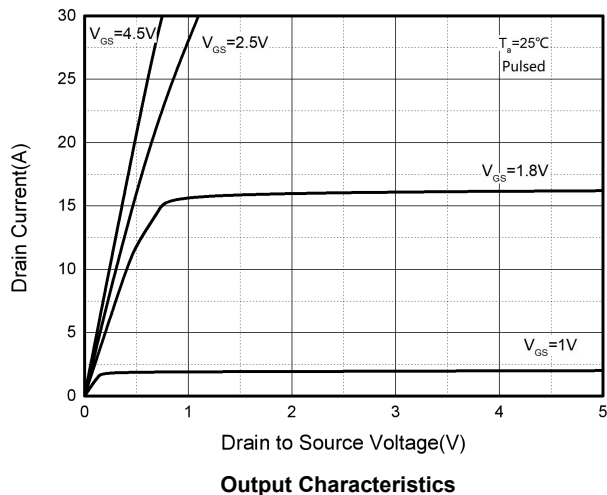
MOSFET ELECTRICAL CHARACTERISTICS Ta=25 °C unless otherwise specified

Symbol	Parameter	Test Condition	Min.	Typ.	Max.	Units
Off Characteristic						
V _{(BR)DSS}	Drain-Source Breakdown Voltage	V _{GS} = 0V, I _D = 250μA	20	-	-	V
I _{DSS}	Zero Gate Voltage Drain Current	V _{DS} = 20V, V _{GS} = 0V, T _J = 25°C	-	-	1	μA
I _{GSS}	Gate to Body Leakage Current	V _{GS} = ±10V, V _{DS} = 0V	-	-	±10	uA
On Characteristics						
V _{GS(th)}	Gate Threshold Voltage	V _{DS} =V _{GS} , I _D = 250μA	0.4	0.65	1.1	V
R _{DS(on)}	Static Drain-Source On-Resistance ^{note1}	V _{GS} =4.5V, I _D =7.0A	-	13	18	mΩ
		V _{GS} =2.5V, I _D =4.0A	-	17	22	
Dynamic Characteristics ^{note2}						
C _{iss}	Input Capacitance	V _{DS} =10V, V _{GS} = 0V, f = 1.0MHz	-	980	-	pF
C _{oss}	Output Capacitance		-	225	-	pF
C _{rss}	Reverse Transfer Capacitance			120	-	pF
Q _g	Total Gate Charge	V _{DS} =10V, I _D =7.0A, V _{GS} =4.5V,	-	8.1	-	nC
Q _{gs}	Gate-Source Charge		-	2.4	-	nC
Q _{gd}	Gate-Drain(“Miller”) Charge		-	3	-	nC
Switching Characteristics ^{note2}						
t _{d(on)}	Turn-On Delay Time	V _{GS} = 4.5V, V _{DS} =10V, R _G =3Ω, R _L =1.5Ω,	-	1.2	-	ns
t _r	Turn-On Rise Time		-	2.4	-	ns
t _{d(off)}	Turn-Off Delay Time		-	22	-	ns
t _f	Turn-Off Fall Time		-	7	-	ns
Drain-Source Diode Characteristics and Maximum Ratings						
V _{SD}	Drain to Source Diode Forward Voltage	V _{GS} = 0V, I _{SD} =7A, T _J = 25°C	-	-	1.2	V

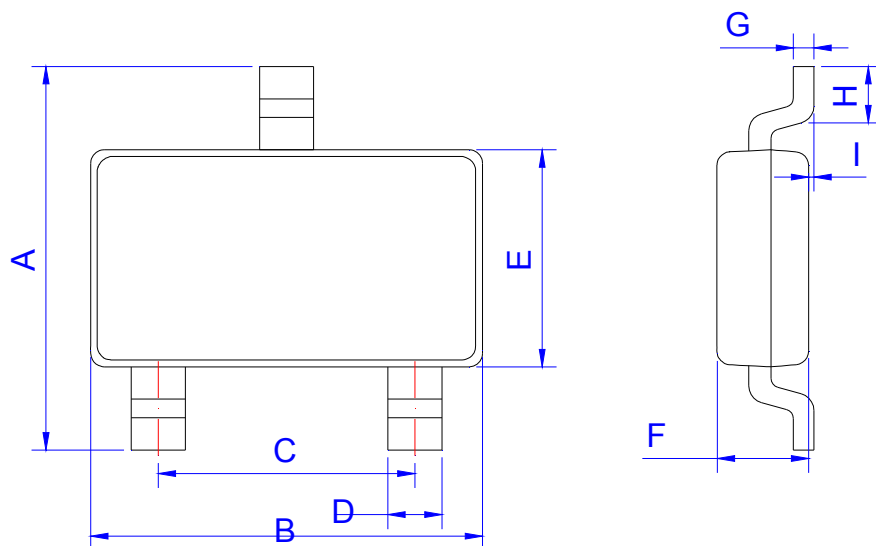
Notes: 1. Pulse Test : Pulse Width < 300 μs , Duty Cycle $\leq 2\%$.

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

TYPICAL PERFORMANCE CHARACTERISTICS



SOT-23 PACKAGE OUTLINE DRAWING



SOT-23

Ref.	Dimensions					
	Millimeters			Inches		
	Min.	Typ.	Max.	Min.	Typ.	Max.
A	2.30	2.40	2.50	0.091	0.095	0.098
B	2.80	2.90	3.00	0.110	0.114	0.118
C	1.90 REF			0.075 REF		
D	0.35	0.40	0.45	0.014	0.016	0.018
E	1.20	1.30	1.40	0.047	0.051	0.055
F	0.90	1.00	1.10	0.035	0.039	0.043
G		0.10	0.15		0.004	0.006
H	0.20			0.008		
I	0		0.10	0		0.004