20V Dual N-Channel Mosfet

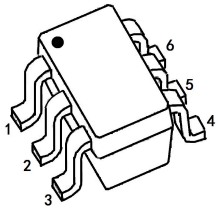
FEATURES

- $R_{DS(ON)}$ ≤ 16mΩ(14.8mΩ Typ.) @V_{GS}=4.5V
- $R_{DS(ON)}$ ≤ 19mΩ(16.8mΩ Typ.) @V_{GS}=2.5V

APPLICATIONS

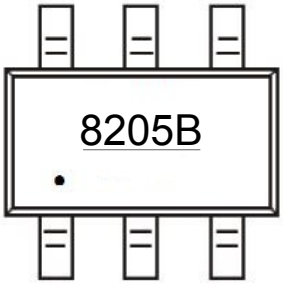
- Load Switch for Portable Devices
- Battery Protection
- Power Management

SOT-23-6L

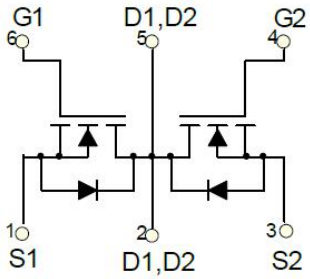


1: S1	3: S2	5: D1/D2
2: D1/D2	4: G2	6: G1

MARKING



Dual 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	7.6	A
I_{DM}	Pulsed Drain Current	28	
P_D	Maximum Power Dissipation	1.25	W
$R_{\theta JA}$	Thermal Resistance from Junction to Ambient(t ≤5s)	357	℃/W
T_J	Junction Temperature	150	℃
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	21.5	-	V
I_{DSS}	Zero Gate Voltage Drain Current	V_{DS} = 20V, V_{GS} = 0V, T_J = 25℃	-	-	1	μA
I_{GSS}	Gate to Body Leakage Current	V_{GS} = ±12V,V_{DS} = 0V	-	-	±100	nA
On Characteristics						
$V_{GS(th)}$	Gate Threshold Voltage	V_{DS} =V_{GS},I_D = 250μA	0.5	0.7	1.0	V
$R_{DS(on)}$	Static Drain-Source On-Resistance note1	V_{GS} =4.5V, I_D =4.5A	-	14.8	16	mΩ
		V_{GS} =2.5V, I_D =3.5A	-	16.8	19	
Dynamic Characteristics note2						
C_{iss}	Input Capacitance	V_{DS} =10V, V_{GS} = 0V f = 1.0MHz	-	560	-	pF
C_{oss}	Output Capacitance		-	130	-	pF
C_{rss}	Reverse Transfer Capacitance			6 9	-	pF
Q_g	Total gate charge	V_{DS} =10V, I_D =5A V_{GS} = 4.5V	-	9.5	-	nC
Q_{gs}	Gate-source charge		-	2.1	-	nC
Q_{gd}	Gate-drain charge			1.4	-	nC
Switching Characteristics note2						
$t_{d(on)}$	Turn-On Delay Time	V_{GS} = 4V, V_{DS}=10V, R_G =10Ω, I_D=5A	-	11	-	ns
t_r	Turn-On Rise Time		-	12	-	ns
$t_{d(off)}$	Turn-Off Delay Time		-	33	-	ns
t_f	Turn-Off Fall Time		-	25	-	ns
Drain-Source Diode Characteristics and Maximum Ratings						
V_{SD}	Drain to Source Diode Forward Voltage	V_{GS} = 0V, I_S=1.7A T_J = 25℃	-	0.8	1.2	V

Notes: 1. Pulse Test : Pulse Width < 300μs, Duty Cycle ≤2%.

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

TYPICAL PERFORMANCE CHARACTERISTICS

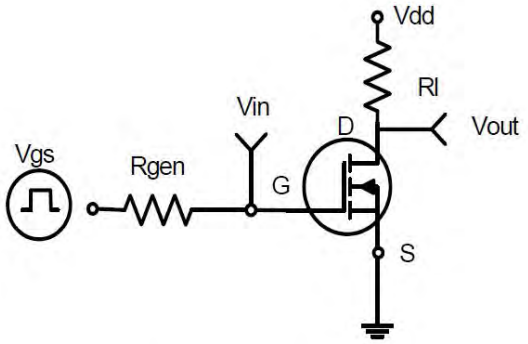


Figure 1:Switching Test Circuit

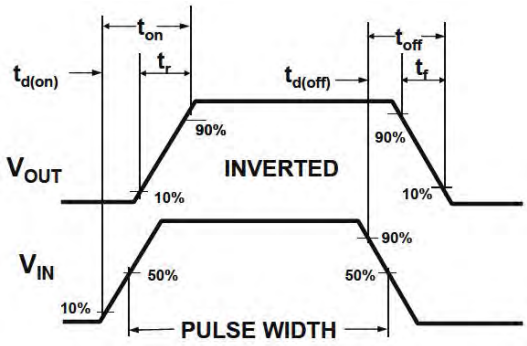


Figure 2:Switching Waveforms

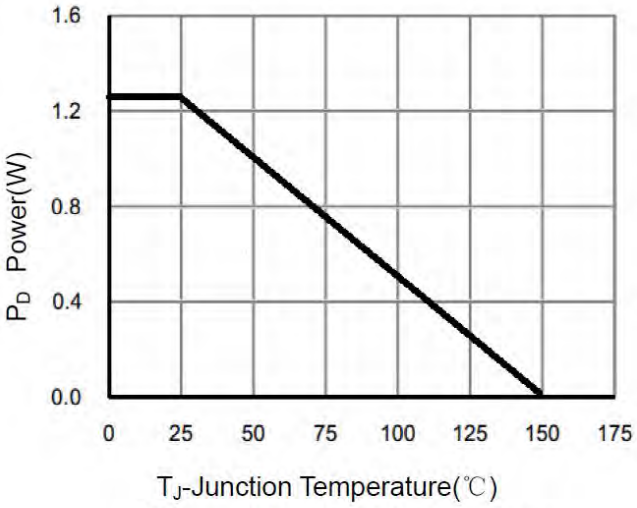


Figure 3 Power Dissipation

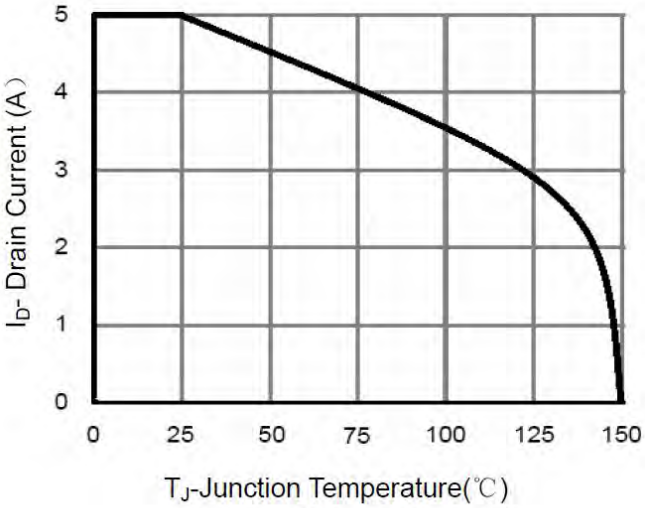


Figure 4 Drain Current

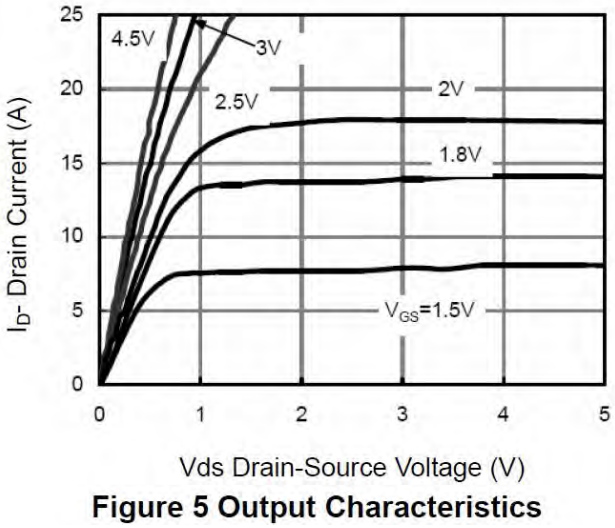


Figure 5 Output Characteristics

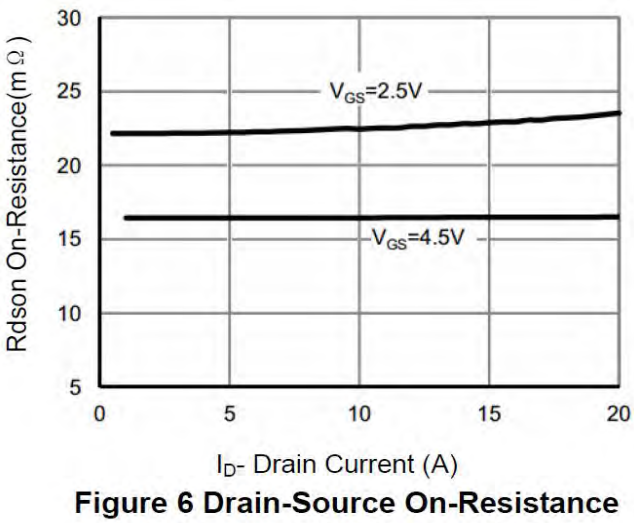


Figure 6 Drain-Source On-Resistance

TYPICAL PERFORMANCE CHARACTERISTICS (cont.)

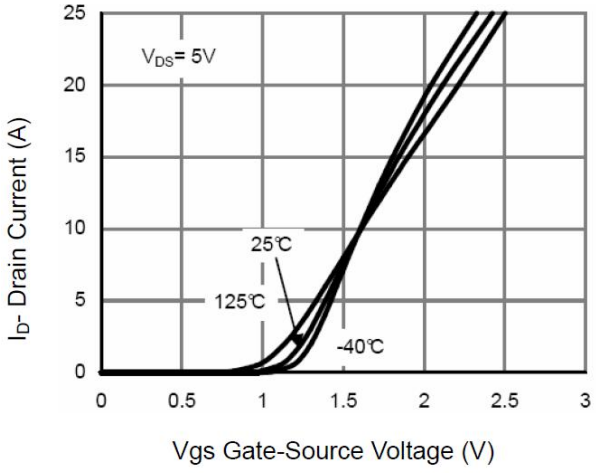


Figure 7 Transfer Characteristics

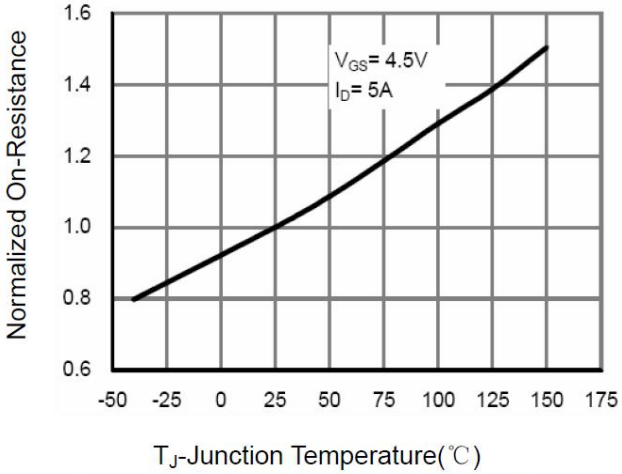


Figure 8 Drain-Source On-Resistance

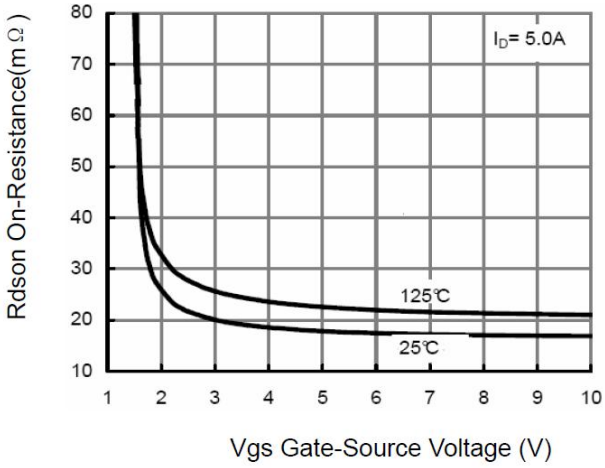


Figure 9 Rdson vs Vgs

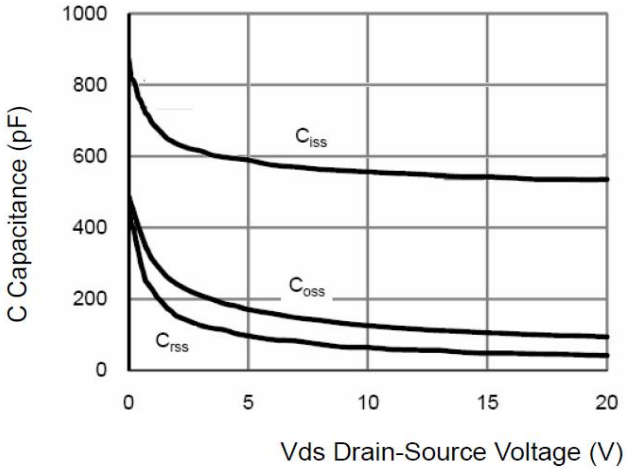


Figure 10 Capacitance vs Vds

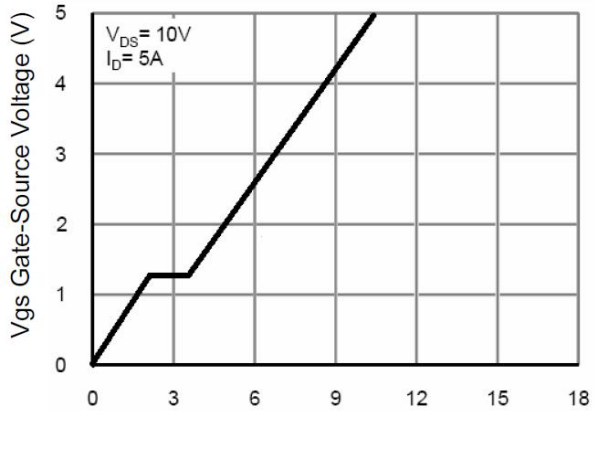


Figure 11 Gate Charge

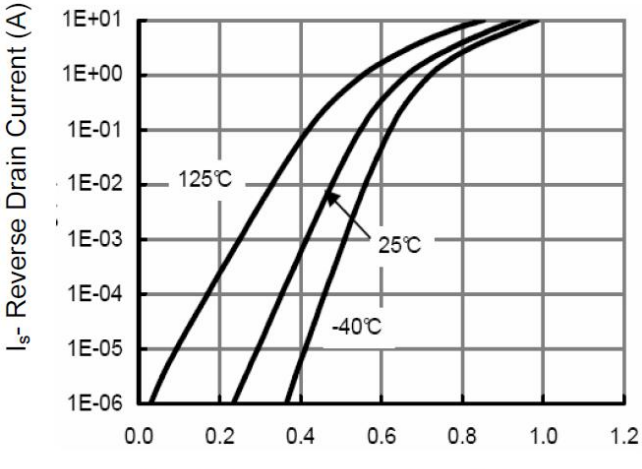
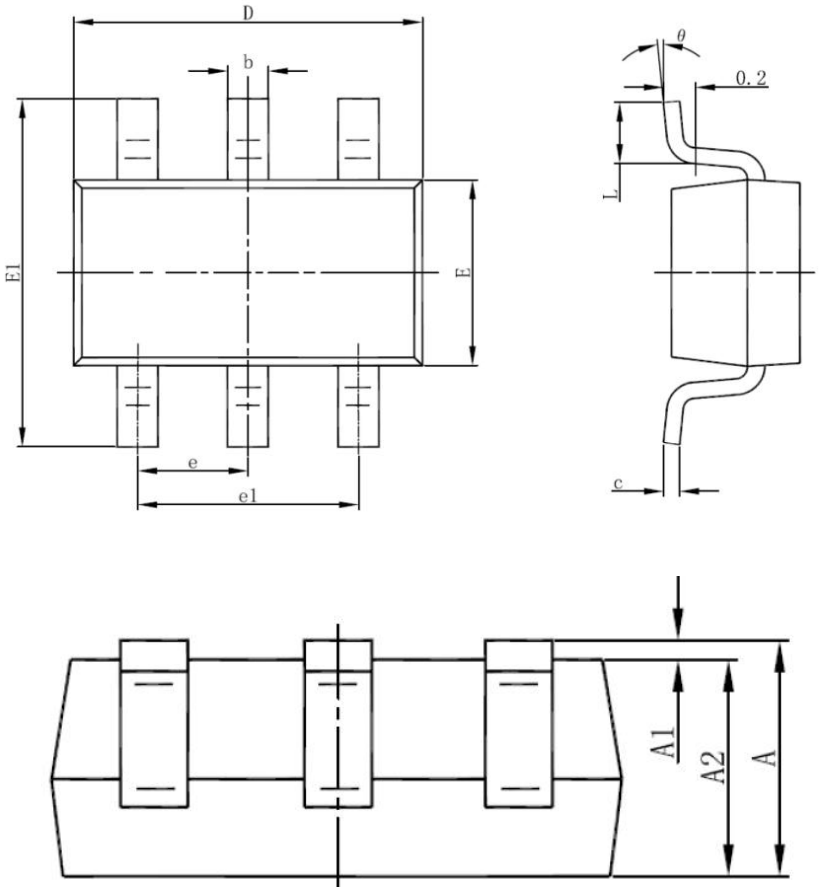


Figure 12 Source- Drain Diode Forward

SOT-23-6L PACKAGE OUTLINE DRAWING



DIM	MILLIMETERS		INCHES	
	MIN	MAX	MIN	MAX
A	1.050	1.250	0.041	0.049
A1	0.000	0.100	0.000	0.004
A2	1.050	1.150	0.041	0.045
b	0.300	0.500	0.012	0.020
c	0.100	0.200	0.004	0.008
D	2.820	3.020	0.111	0.119
E	1.500	1.700	0.059	0.067
E1	2.650	2.950	0.104	0.116
e	0.950(BSC)		0.037(BSC)	
e1	1.800	2.000	0.071	0.079
L	0.300	0.600	0.012	0.024
θ	0°	8°	0°	8°