20V Dual N-Channel Mosfet

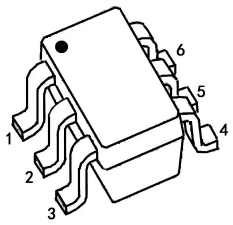
FEATURES

- $R_{DS(ON)}$=13mΩ(Typ.) @V_{GS}=10V
- $R_{DS(ON)}$=15mΩ(Typ.) @V_{GS}=4.5V
- $R_{DS(ON)}$=20mΩ(Typ.) @V_{GS}=2.5V

APPLICATIONS

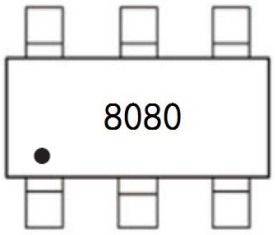
- PWM Applications
- Load Switch

SOT-23-6L



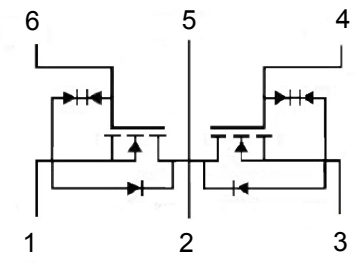
1: S1 3: S2 5: D1/D2
2: D1/D2 4: G2 6: G1

MARKING



8080:Device Code

N-CHANNEL MOSFET



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

Symbol	Parameter		Max.	Units
V_{DSS}	Drain-Source Voltage		20	V
V_{GSS}	Gate-Source Voltage		±12	V
I_D	Continuous Drain Current	T_a = 25℃	7	A
		T_a = 100℃	4.5	A
I_{DM}	Pulsed Drain Current note1		28	A
P_D	Power Dissipation	T_a = 25℃	1.5	W
$R_{\theta JA}$	Thermal Resistance, Junction to Ambient		83.3	℃/W
T_J, T_{STG}	Operating and Storage Temperature Range		-55 to +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} =16V, V_{GS} = 0V	-	-	1	μA
I_{GSS}	Gate to Body Leakage Current	V_{DS} =0V,V_{GS} = ±4.5V	-	-	±1	μA
		V_{DS} =0V,V_{GS} = ±10V			±5	
On Characteristics						
$V_{GS(th)}$	Gate Threshold Voltage	V_{DS}= V_{GS}, I_D=250μA	0.4	0.75	1.0	V
$R_{DS(on)}$	Static Drain-Source on-Resistance note2	V_{GS} =10V, I_D =7A	-	13	20	mΩ
		V_{GS} =4.5V, I_D =7A	-	15	22	
		V_{GS} =2.5V, I_D =6.5A	-	20	26	
g_{fs}	Forward Transconductance	V_{DS}=5V, I_D =7A	9	-	-	S
Dynamic Characteristics						
C_{iss}	Input Capacitance	V_{DS} =10V, V_{GS} = 0V, f = 1.0MHz	-	1150	-	pF
C_{oss}	Output Capacitance		-	185	-	pF
C_{rss}	Reverse Transfer Capacitance		-	145	-	pF
Q_g	Total Gate Charge	V_{DS} =10V, I_D =7A, V_{GS} =4.5V	-	15	-	nC
Q_{gs}	Gate-Source Charge		-	1.5		nC
Q_{gd}	Gate-Drain(“Miller”) Charge		-	3.2		nC
Switching Characteristics						
$t_{d(on)}$	Turn-on Delay Time	V_{DS} =10V, R_G=3Ω, R_L =1.35Ω ,V_{GS} =5V	-	6	-	ns
t_r	Turn-on Rise Time		-	13	-	ns
$t_{d(off)}$	Turn-off Delay Time		-	52	-	ns
t_f	Turn-off Fall Time		-	16	-	ns
Drain-Source Diode Characteristics and Maximum Ratings						
I_S	Maximum Continuous Drain to Source Diode Forward Current		-	-	7	A
I_{SM}	Maximum Pulsed Drain to Source Diode Forward Current		-	-	28	A
V_{SD}	Drain to Source Diode Forward Voltage	V_{GS} =0V, I_{SD} =1A	-	-	1	V

Notes:1. Repetitive Rating: Pulse Width Limited by Maximum Junction Temperature

2. Pulse Test: Pulse width ≤300μs, duty cycle ≤0.5%

Typical Performance Characteristics

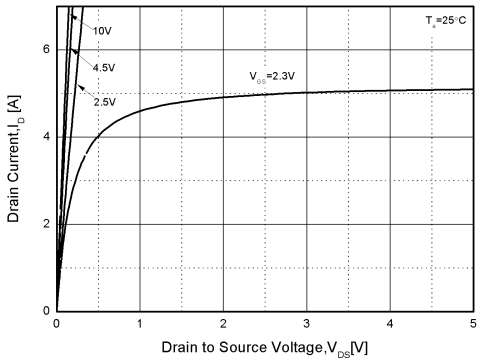


Figure1. Output Characteristics

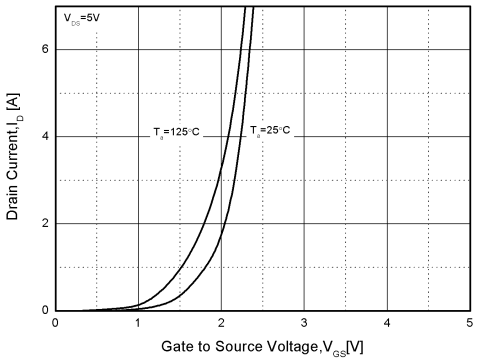


Figure2. Transfer Characteristics

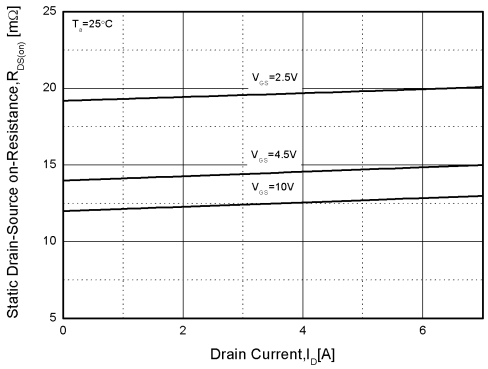


Figure3. Rdson-Drain Current

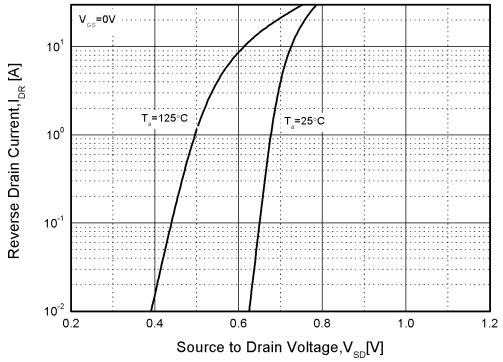


Figure4. Typical Source-Drain Diode Forward Voltage

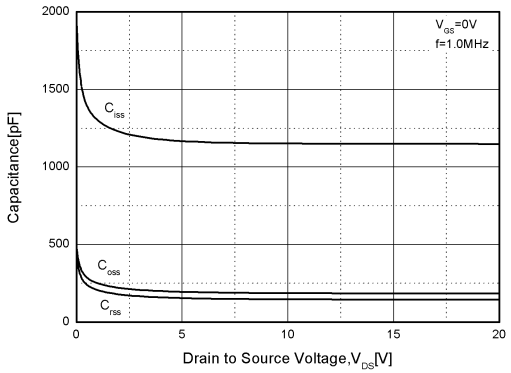


Figure5. Capacitance Characteristics

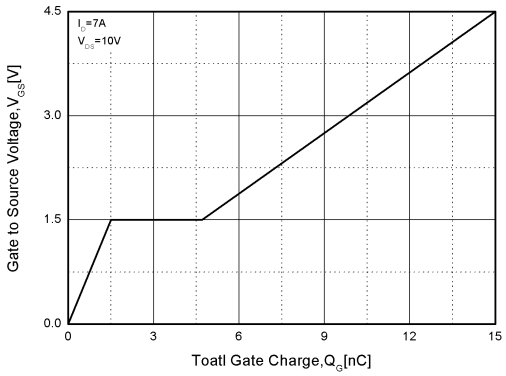


Figure6. Gate Charge

Typical Performance Characteristics (cont.)

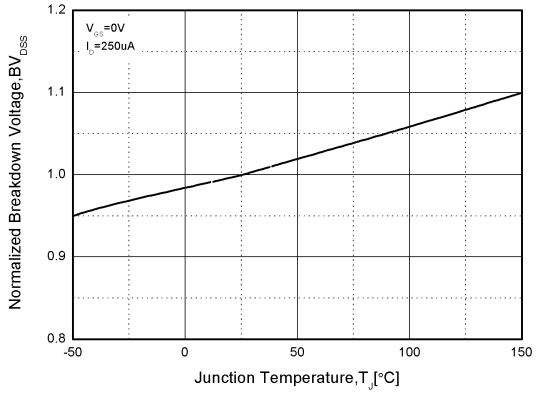


Figure7. Normalized Breakdown Voltage vs. Temperature

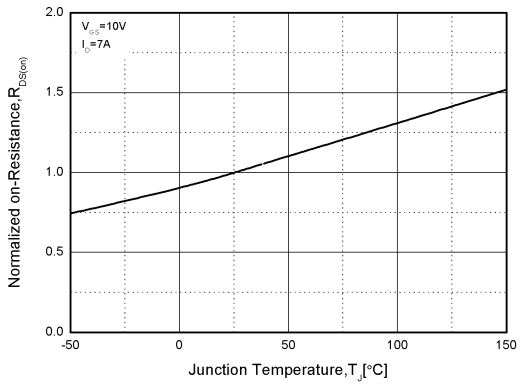


Figure8. Normalized on Resistance vs. Temperature

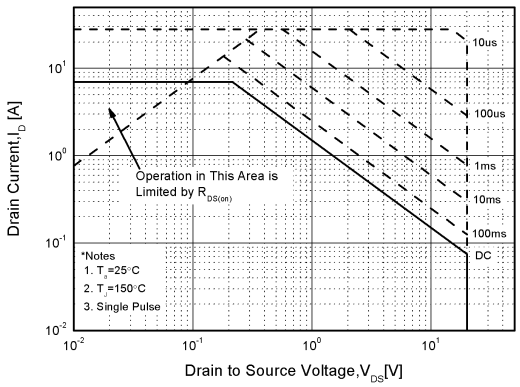


Figure9. Safe Operation Area

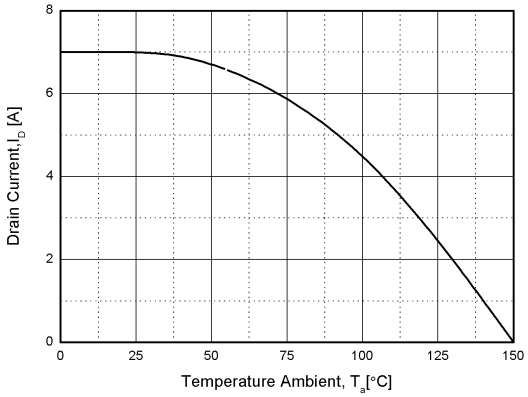


Figure10. Drain Current vs.Temperature Ambient

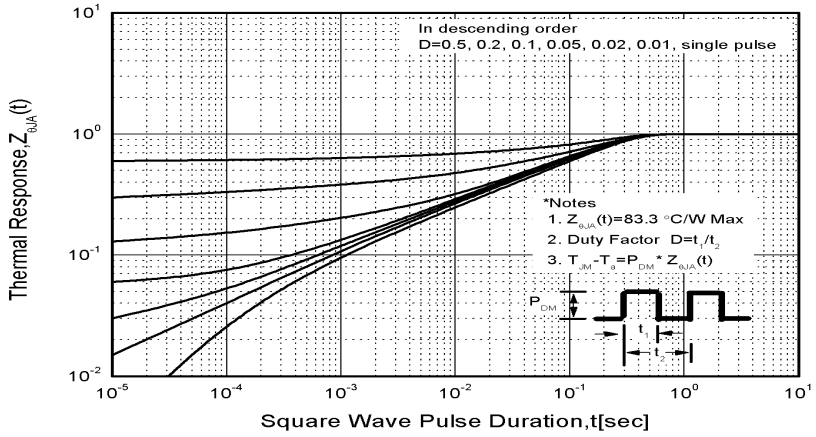
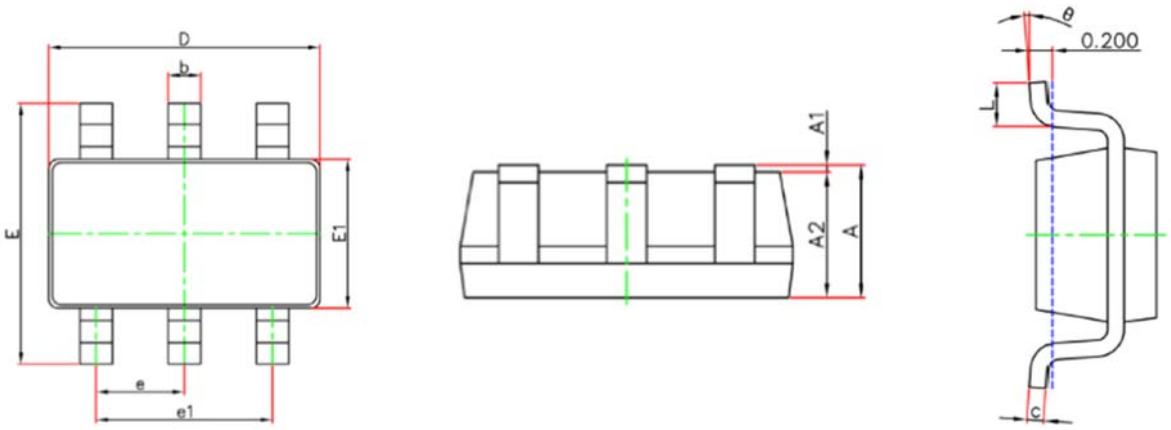


Figure11. Transient Thermal Response Curve

SOT-23-6L PACKAGE OUTLINE DRAWING



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min.		Min.	Max.
A	1.05(	1.250	0.041	0.049
A1	0.00	0.100	0.000	0.004
A2	1.05	1.150	0.041	0.045
b	0.30	0.500	0.012	0.020
c	0.10	0.200	0.004	0.008
D	2.82	3.020	0.111	0.119
E1	1.50	1.700	0.059	0.067
E	2.6	2.950	0.104	0.116
e	0.950 (BSC)		0.037 (BSC)	
e1	1.800	2.000	0.071	0.079
L	0.30	0.600	0.012	0.024
θ	0°	8°	0°	8°