LM20080DLB6A

Dual N-Channel Enhancement Mode MOSFET Datasheet

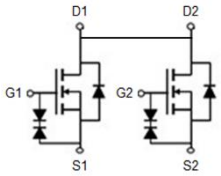
Feature

- Reliable and Rugged
- ROHS Compliant & Halogen-Free
- Lower Q_g and Q_{gd} for high-speed switching
- Lower $R_{DS(ON)}$ to Minimize Conduction Losses

Pin Description

DFN2*3-6L

Symbol



Applications

- Power Management in Notebook Computer, Portable Equipment and Battery Powered systems.

V_{DSS}	20	V
$R_{DS(ON)\text{-}Max}$	8	mΩ
I_D	7.8	A

Absolute Maximum Ratings (T_J=25°C Unless Otherwise Noted)

Symbol	Parameter		Rating	Unit
V_{DSS}	Drain-Source Voltage		20	V
V_{GSS}	Gate-Source Voltage		±8	
T_J	Maximum Junction Temperature		150	°C
T_{STG}	Storage Temperature Range		-55 to 150	°C
I_{DM}①	Pulse Drain Current Tested	T_A=25°C	19.5	A
I_D②	Continuous Drain Current	T_A=25°C	7.8	A
		T_A=70°C	6.3	
P_D②	Maximum Power Dissipation	T_A=25°C	0.98	W
		T_A=70°C	0.63	

Thermal Characteristics

Symbol	Parameter		Rating	Unit
$R_{\theta JA}$②	Thermal Resistance-Junction to Ambient	Steady State	127	°C/W

Note ① : Max. current is limited by junction temperature.
Note ② : Surface Mounted on 1in^2 FR-4 board with 1oz

Electrical Characteristics (T_J=25°C Unless Otherwise Noted)

Symbol	Parameter	Test Conditions	Min.	Typ.	Max.	Unit
Static Electrical Characteristics						
BV_{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	uA
$V_{GS(th)}$	Gate Threshold Voltage	V_{DS}=V_{GS}, I_D=250uA	0.35	0.6	0.85	V
I_{GSS}	Gate Leakage Current	V_{GS}=±8V, V_{DS}=0V	-	-	±10	uA
$R_{DS(ON)}$③	Drain-Source On-state Resistance	V_{GS}=4.5V, I_D=5.5A	-	6	8	mΩ
		V_{GS}=4V, I_D=5.5A	-	6	8.5	
		V_{GS}=3.7V, I_D=5.5A	-	6.2	9	
		V_{GS}=3.1V, I_D=5.5A	-	6.7	9.4	
		V_{GS}=2.5V, I_D=5.5A	-	7.8	11	
g_{fs}	Forward Transconductance	V_{DS}=5V, I_D=5.5A	-	19	-	S
Dynamic Characteristics④						
C_{iss}	Input Capacitance	V_{GS}=0V, V_{DS}=10V, Freq.=1MHz	-	1340	-	pF
C_{oss}	Output Capacitance		-	180	-	
C_{rss}	Reverse Transfer Capacitance		-	150	-	
$td_{(ON)}$	Turn-on Delay Time	V_{DD}=16V, I_D=5.5A, V_{GS}=4.5V, R_{GEN}=6Ω	-	26	-	nS
t_r	Turn-on Rise Time		-	60	-	
$t_{d(OFF)}$	Turn-off Delay Time		-	58	-	
t_f	Turn-off Fall Time		-	50	-	
Q_g	Total Gate Charge	V_{DS}=10V, V_{GS}=2.5V, ID=11A	-	6	-	nC
Q_g	Total Gate Charge	V_{DS}=10V, V_{GS}=4.5V, I_D=11A	-	14	-	
Q_{gs}	Gate-Source Charge		-	2.8	-	
Q_{gd}	Gate-Drain Charge		-	3.3	-	
Source-Drain Characteristics						
V_{SD}③	Diode Forward Voltage	I_S=5.5A, V_{GS}=0V	-	0.75	1.1	V

Note ③：Pulse test (pulse width≤300us, duty cycle≤2%).

Note ④：Guaranteed by design, not subject to production testing.

N-Channel Typical Characteristics

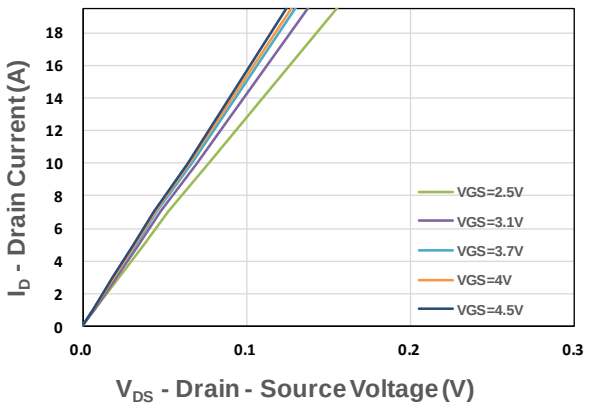


Figure 1. Output Characteristics

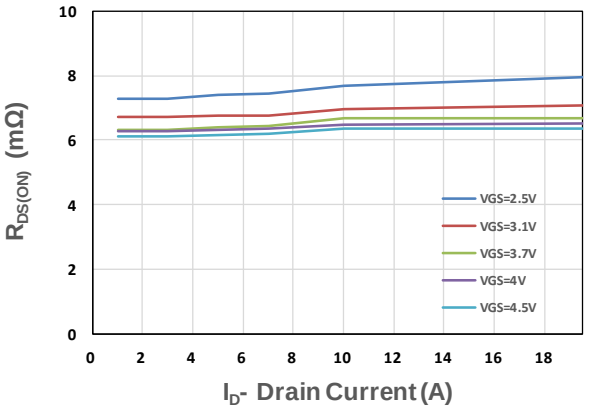


Figure 2. On−Resistance vs. I_D

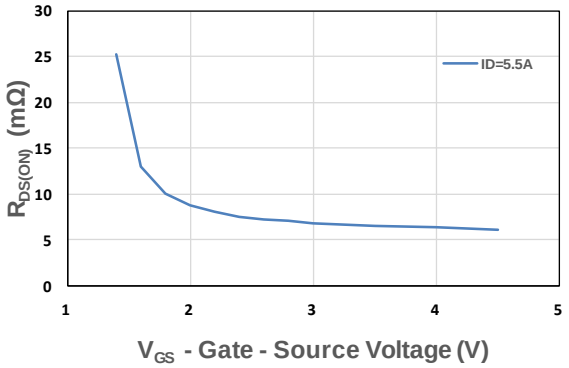


Figure 3. On−Resistance vs. V_{GS}

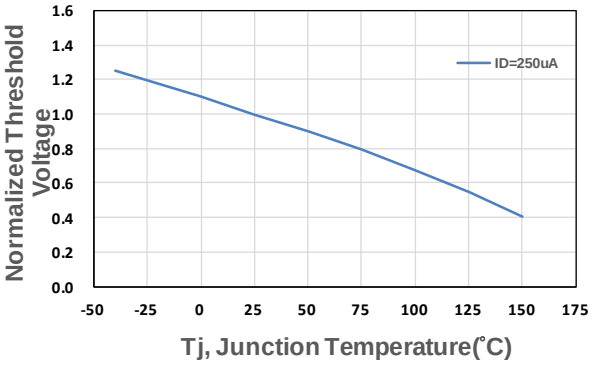


Figure 4. Gate Threshold Voltage

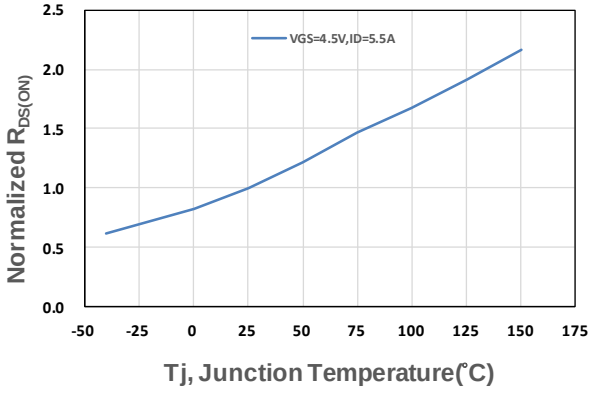


Figure 5. Drain-Source On Resistance

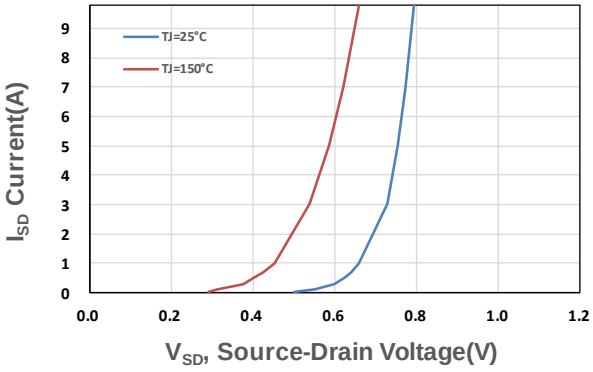


Figure 6. Source-Drain Diode Forward

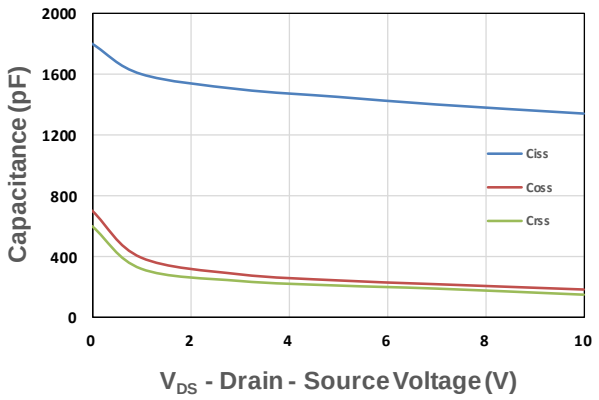


Figure 7. Capacitance

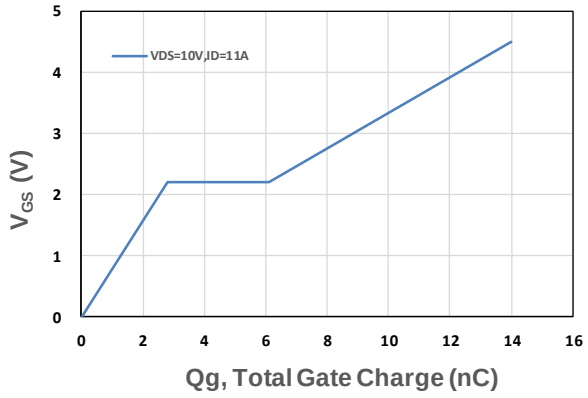


Figure 8. Gate Charge Characteristics

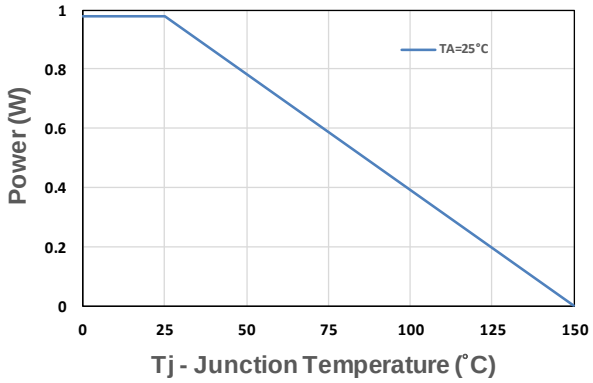


Figure 9. Power Dissipation

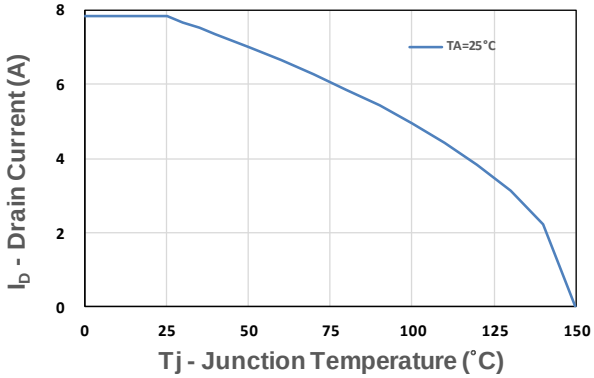


Figure 10. Drain Current

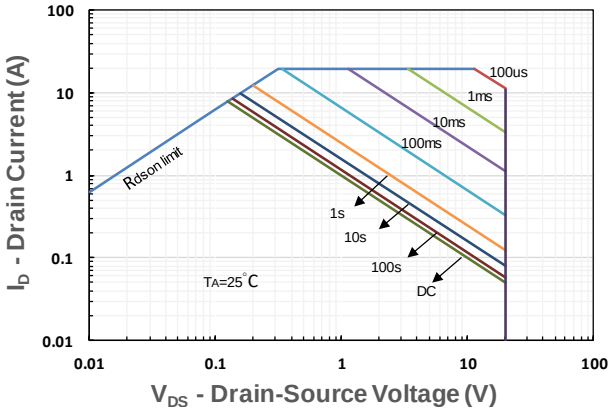


Figure 11. Safe Operating Area

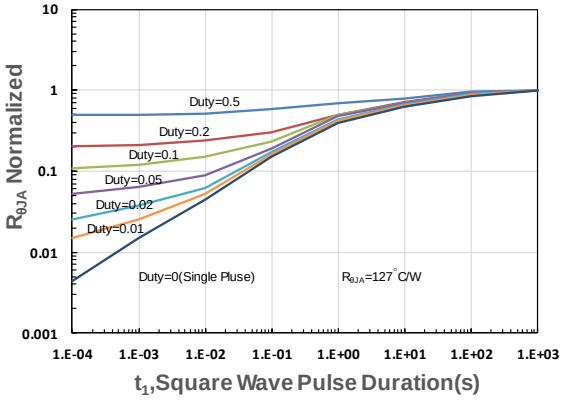
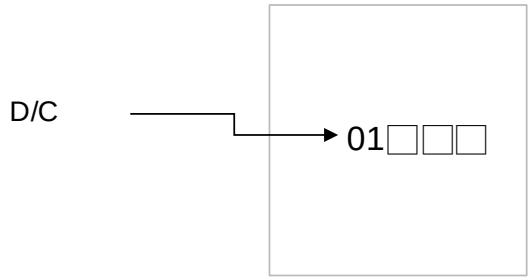
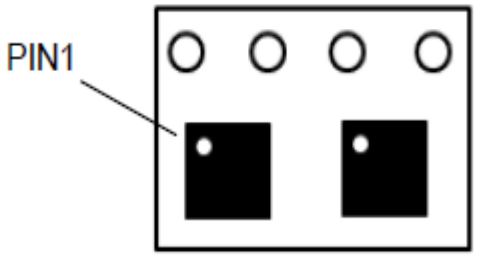


Figure 12. $R_{\theta JA}$ Transient Thermal Impedance

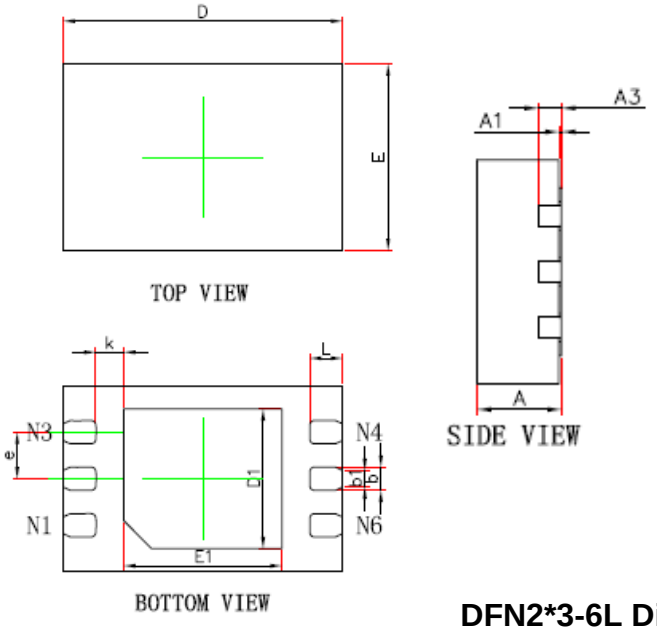
Package Information



Marking Information

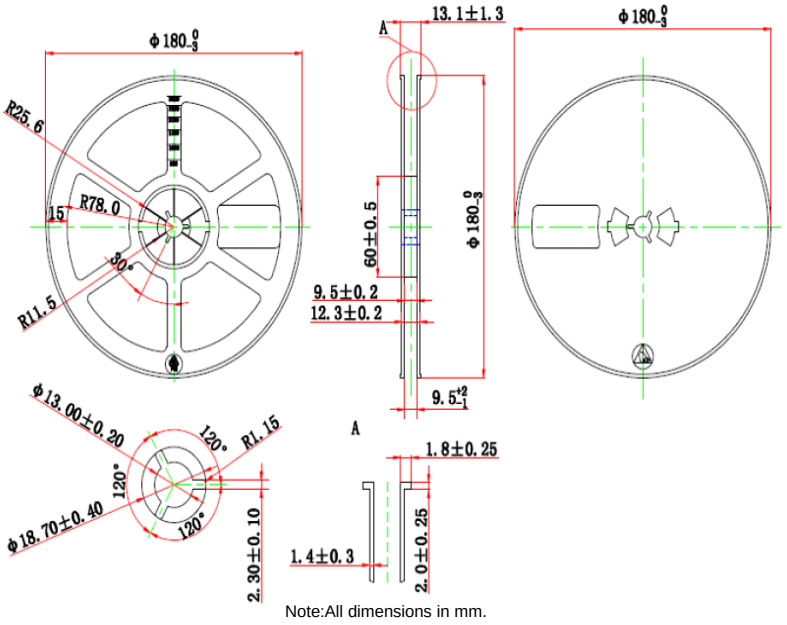


Taping Direction Information



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	MIN.	MAX.	MIN.	MAX.
A	0.700	0.800	0.028	0.031
A1	0.000	0.050	0.000	0.002
A3	0.203REF.		0.008REF.	
D	2.950	3.050	0.116	0.120
E	1.950	2.050	0.077	0.081
D1	1.400	1.600	0.055	0.063
E1	1.600	1.800	0.063	0.071
b	0.200	0.300	0.008	0.012
b1	0.180REF.		0.007REF.	
e	0.500TYP.		0.020TYP.	
k	0.200MIN.		0.008MIN.	
L	0.300	0.400	0.012	0.016

DFN2*3-6L Dimension



Note:All dimensions in mm.

Carrier Tape & Reel Dimension