



Power MOSFETS

DATASHEET

LM20080DGB6A

Dual N-Channel
Enhancement Mode MOSFET



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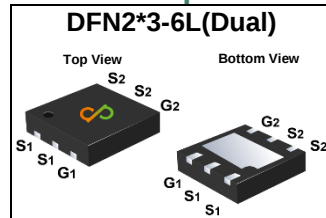


Quality Management Systems

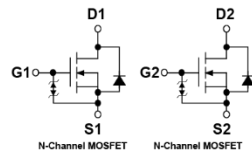
ISO 9001:2015 Certificate

Dual N-Channel Enhancement Mode MOSFET

Pin Description



Symbol



Product Summary

Symbol	Dual N-Channel	Unit
V_{DSS}	20	V
$R_{DS(ON)-Max}$	8	m Ω
ID	7.5	A

Feature

- Fast switching speed
- Reliable and Rugged
- ROHS Compliant & Halogen-Free

Applications

- Portable Equipment
- Battery Powered System

Ordering Information

Orderable Part Number	Package Type	Form	Shipping	Marking
LM20080DGB6A	DFN2*3-6L (Dual)	Tape & Reel	3000 / Tape & Reel	01□□□

Note : □□□ = Lot Code

Absolute Maximum Ratings ($T_J=25^\circ\text{C}$ Unless Otherwise Noted)

Symbol	Parameter		Dual N-Channel	Unit
V_{DSS}	Drain-Source Voltage		20	V
V_{GSS}	Gate-Source Voltage		± 12	
T_J	Maximum Junction Temperature		150	$^\circ\text{C}$
T_{STG}	Storage Temperature Range		-55 to 150	$^\circ\text{C}$
I_S	Diode Continuous Forward Current		0.7	A
$I_{DM}^{①}$	Pulse Drain Current Tested	$T_A=25^\circ\text{C}$	19	A
I_D	Continuous Drain Current	$T_A=25^\circ\text{C}$	7.5	A
		$T_A=70^\circ\text{C}$	6	
P_D	Maximum Power Dissipation	$T_A=25^\circ\text{C}$	0.98	W
		$T_A=70^\circ\text{C}$	0.63	

Thermal Characteristics

Symbol	Parameter		Rating	Unit
$R_{\theta JA}^{③}$	Thermal Resistance-Junction to Ambient	Steady State	127	$^\circ\text{C/W}$

Note ① : Max. current is limited by junction temperature

Note ② : UIS tested and pulse width are limited by maximum junction temperature 150°C

Note ③ : Surface Mounted on 1in^2 FR-4 board with 1oz.

Dual N-Channel 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 _{DS} =250uA	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 _{DS} =250uA	0.5	0.75	1.0	V
I _{GSS}	Gate Leakage Current	V _{GS} =±12V, V _{DS} =0V	-	-	±10	uA
R _{DS(ON)} ④	Drain-Source On-state Resistance	V _{GS} =4.5V, I _{DS} =5.5A	-	6	8	mΩ
		V _{GS} =2.5V, I _{DS} =5.5A		8	11	
gfs	Forward Transconductance	V _{DS} =5V, I _{DS} =5.5A	-	19	-	S
Dynamic Characteristics ⑤						
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 _{GS} =4.5V , V _{DS} =7V, Id=1A, RGEN=6Ω	-	4.8	-	nS
tr	Turn-on Rise Time		-	21.7	-	
td(OFF)	Turn-off Delay Time		-	43.9	-	
tf	Turn-off Fall Time		-	8.5	-	
Qg	Total Gate Charge	V _{GS} =2.5V,V _{DS} =10V Id=5.5A	-	9.9	-	nC
Qg	Total Gate Charge	V _{GS} =4.5V,V _{DS} =10V, Id=5.5A	-	16.9	-	
Qgs	Gate-Source Charge		-	3.26	-	
Qgd	Gate-Drain Charge		-	3.74	-	
Source-Drain Characteristics						
VSD ④	Diode Forward Voltage	ISD=11A, VGS=0V	-	0.8	1.1	V

Note ④ : Pulse test (pulse width≤300us, duty cycle≤2%).

Note ⑤ : Guaranteed by design, not subject to production testing.

Dual N-Channel Typical Characteristics

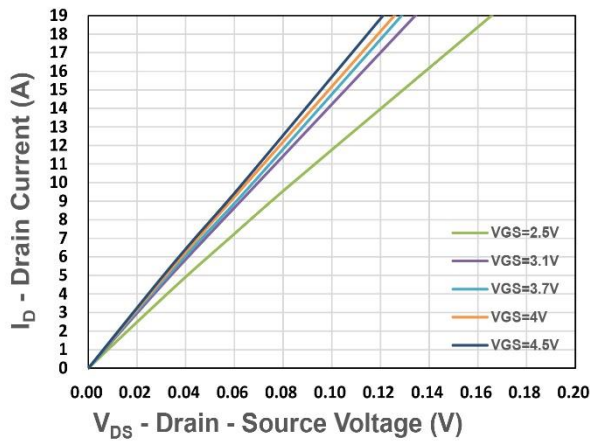


Figure 1. Output Characteristics

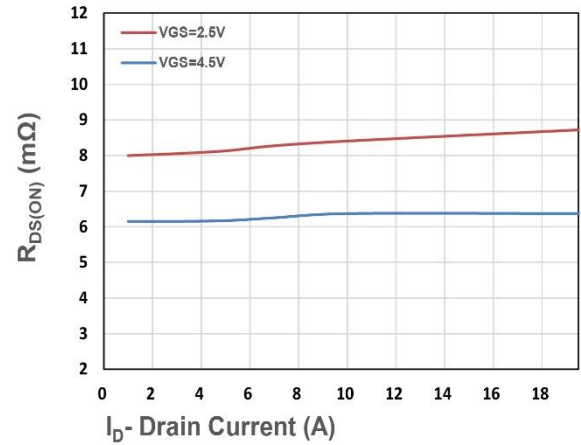


Figure 2. On-Resistance vs. I_D

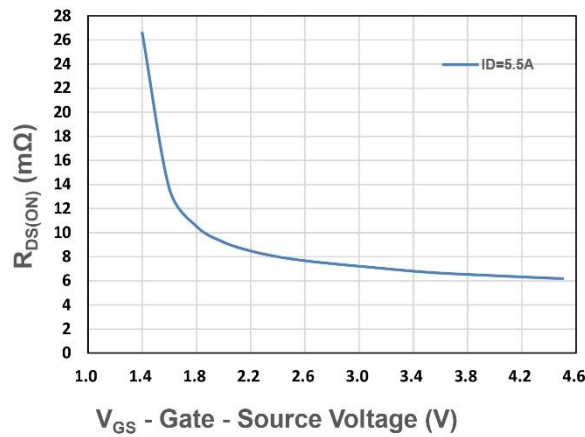


Figure 3. On-Resistance vs. V_{GS}

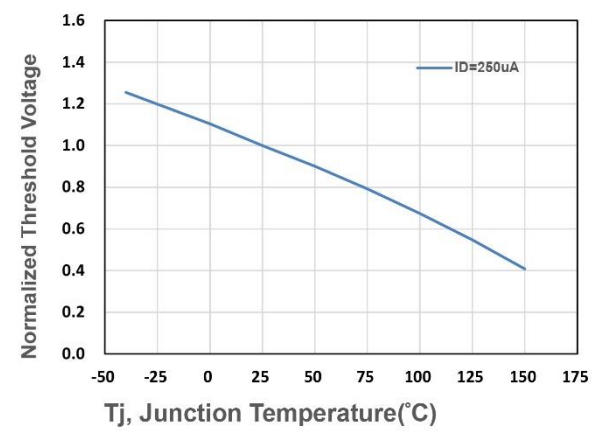


Figure 4. Gate Threshold Voltage

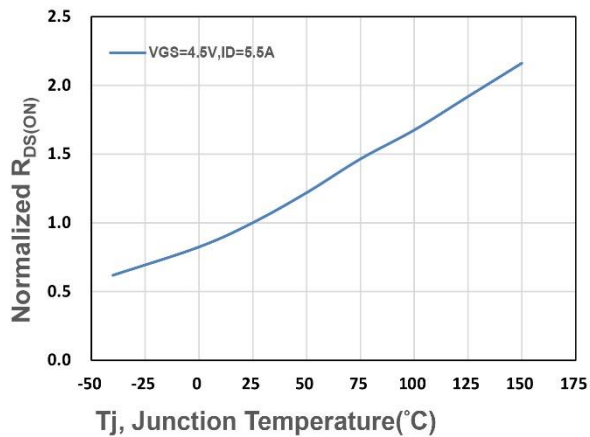


Figure 5. Drain-Source On Resistance

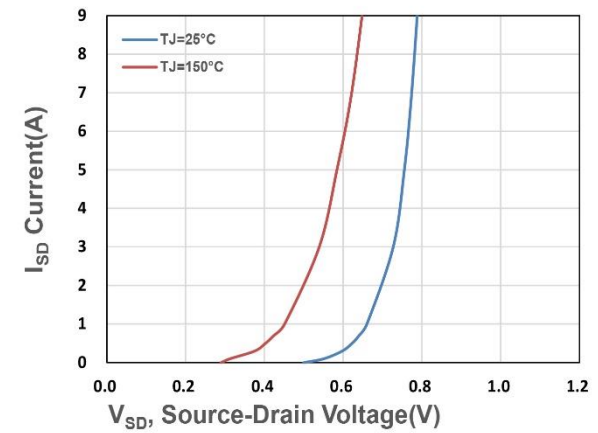


Figure 6. Source-Drain Diode Forward

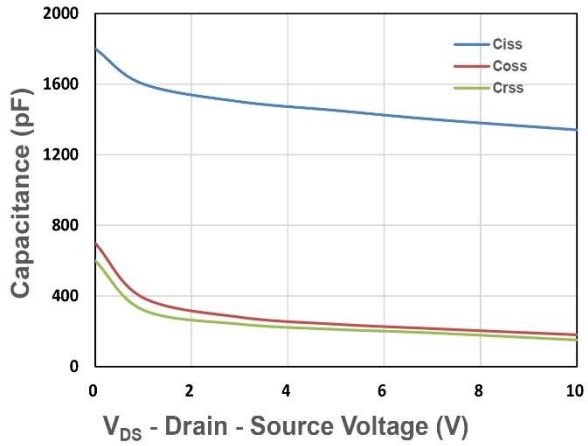


Figure 7. Capacitance

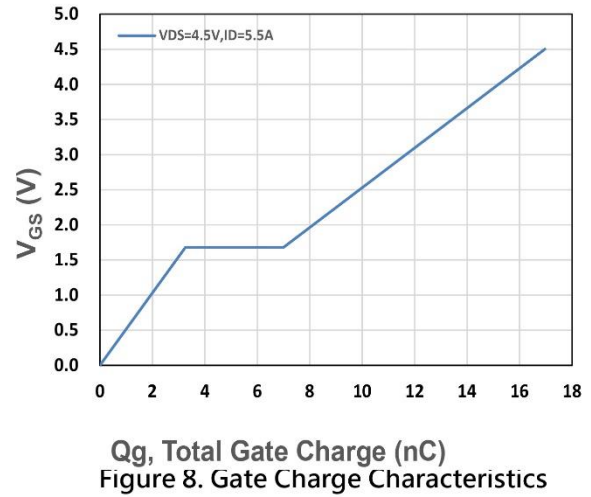


Figure 8. Gate Charge Characteristics

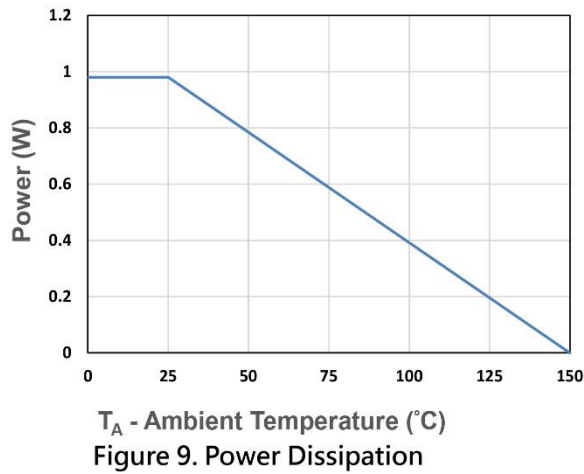


Figure 9. Power Dissipation

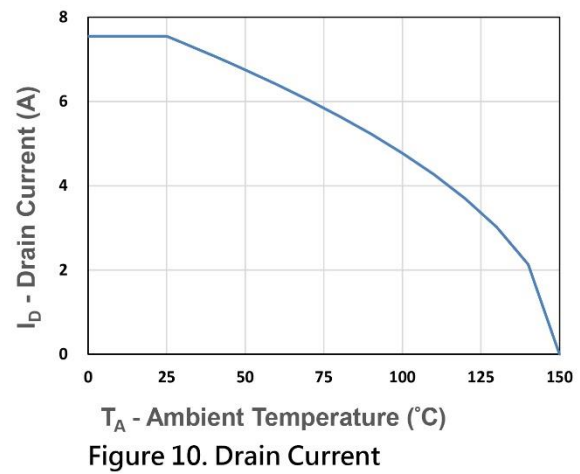


Figure 10. Drain Current

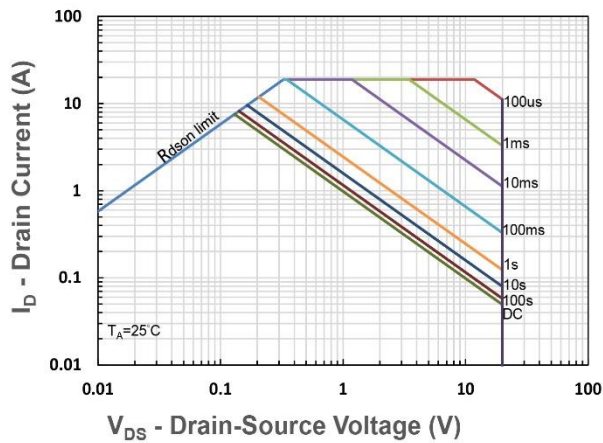


Figure 11. Safe Operating Area

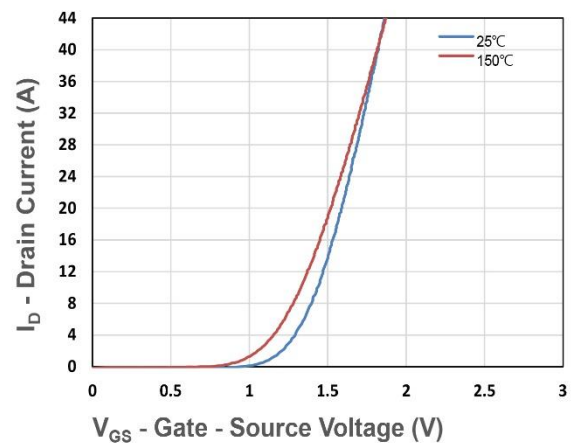


Figure 12. Transfer Characteristics

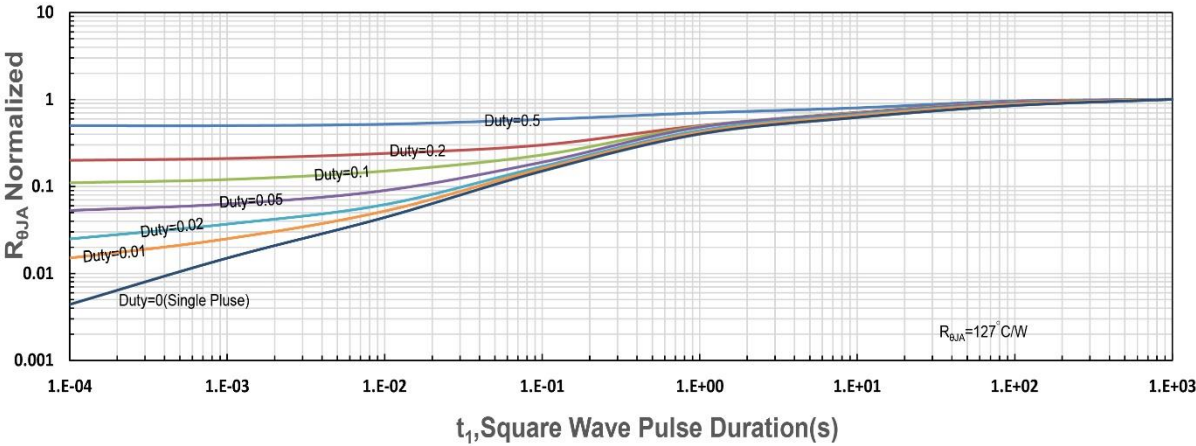


Figure 13. $R_{\theta JA}$ Transient Thermal Impedance