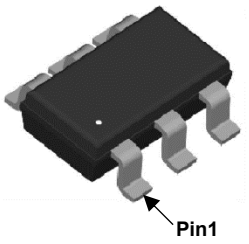
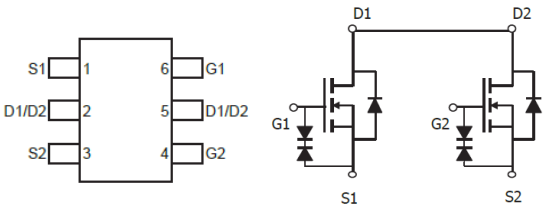
60V_{DS}/±20V_{GS} Dual N-Channel Power MOSFET

Features

- V_{DS}=60V,I_D=0.5A
- $R_{DS(ON)}$=300mΩ（TYP.）V_{GS}=4.5V
- $R_{DS(ON)}$=400mΩ（TYP.）V_{GS}=2.5V
- $R_{DS(ON)}$=500mΩ（TYP.）V_{GS}=1.8V
- ESD Rating:2KV HBM
- Low On-Resistance

SOT23-6L





Applications

- Switch switching
- Power management in portable/desktop PCs

Ordering Information

Device	package	Device Marking	Package Qty.
DMN5L06DMK	SOT-163	N5L06D	3000

Absolute Maximum Ratings (T_C=25℃,unless otherwise noted)

Parameter	Symbol	Value	Unit
Drain-Source Voltage (V_{GS}=0V)	V_{DS}	60	V
Gate-Source Voltage (V_{GS}=0V,static)	V_{GS}	±20	V
Continuous Drain Current (T_C=25℃)	I_D	0.5	A
Continuous Drain Current (T_C=100℃)		0.2	A
Pulesd Drain Current	I_{DM}	25	A
Maximum Power Dissipation (T_C=25℃)	P_D	1.4	W
Maximum Power Dissipation (T_C=100℃)		0.9	W
Operating,Storage Temperature Range	T_J,T_{STG}	-55~150	℃

Thermal Characteristics

Parameter	Symbol	Min.	Typ.	Max.	Unit
Thermal Resistance,Junction-to-Case	$R_{\theta JC}$	-	68	-	℃/ W
Thermal Resistance,Junction-to-Ambient	$R_{\theta JA}$	-	105	-	℃/ W

Electrical Characteristics

Parameter	Symbol	Test Conditions	Min.	Typ.	Max.	Unit
Drain-Source Breakdown Voltage	BV_{DSS}	V_{GS}=0V,I_D=250μA	60	-	-	V
Zero Gate Voltage Drain Current	I_{DSS}	V_{DS}=20V, V_{GS}=0V	-	-	1	μA
Gate -Source Leakage Current	I_{GSS}	V_{GS}=±8V, V_{DS}=0V	-	-	±100	nA
Gate Threshold Voltage	$V_{GS(th)}$	V_{DS}= V_{GS},I_D=250μA	0.4	0.8	1.1	V
Drain-Source On-stage Resistance	$R_{DS(ON)}$	V_{GS}=4.5V,I_D=7A	-	220	300	mΩ
		V_{GS}=2.5V,I_D=5.5A	-	260	400	
		V_{GS}=1.8V,I_D=5A	-	420	500	

Dynamic Characteristics

Parameter	Symbol	Test Conditions	Min.	Typ.	Max.	Unit
Input capacitance	C_{iss}	V_{DS}=10V	-	1200	-	pF
Output capacitance	C_{oss}	V_{GS}=0V	-	160	-	
Reverse transfer capacitance	C_{rss}	f=1MHz	-	80	-	
Total Gate Charge	Q_g	V_{DS}=10V	-	14	-	nC
Gate Source Charge	Q_{gs}	V_{GS}=4.5V	-	4.2	-	
Gate Drain Charge	Q_{gd}	I_D=7A	-	2.6	-	
Turn-on delay Time	$t_{d(on)}$	V_{GS}=4.5V	-	270	-	ns
Rise time	t_r	V_{DS}=10V	-	320	-	
Turn-off delay Time	$t_{d(off)}$	R_L=1.54Ω	-	3	-	
Fall time	t_f	R_G=3Ω	-	2.2	-	

Reverse Diode Characteristics

Parameter	Symbol	Test Conditions	Min.	Typ.	Max.	Unit
Body Diode Forward Voltage	V_{SD}	V_{GS}=0V,I_{SD}=1A	-	0.75	1	V
Reverse Recovery Time	t_{rr}	V_{GS}=0V,I_{SD}=7A	-	30	-	ns
Reverse Recovery Charge	Q_{rr}	d_i/d_t=100A/μs	-	6.5	-	nC

Electrical Characteristics Diagrames

Figure 1. On-Regin Characteristics

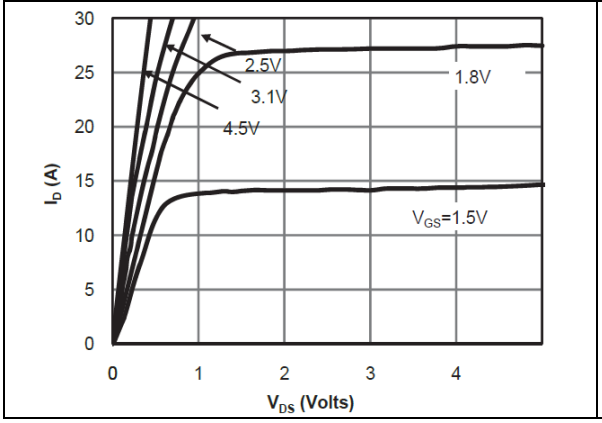


Figure 2. Transfer Characteristics

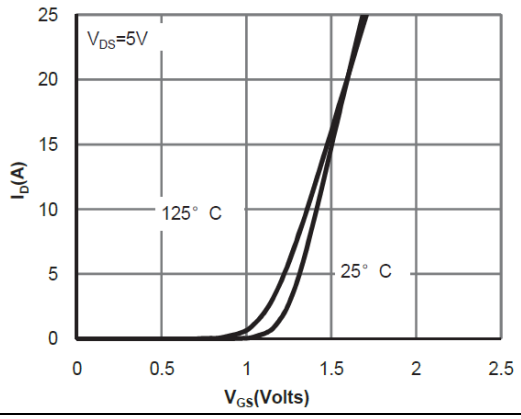


Figure 3. On-Resistance vs. Drain Current and Gate Voltage

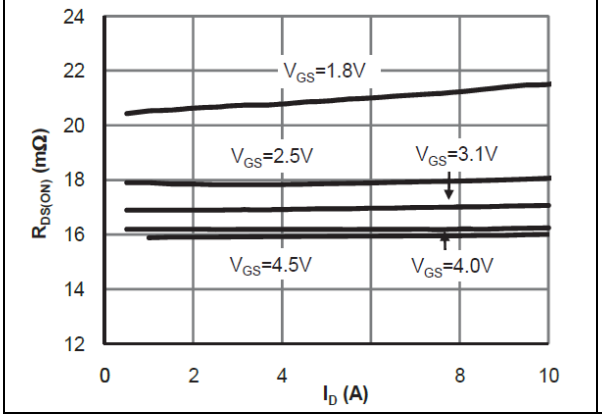


Figure 4. On-Resistance vs. Junction Temperature

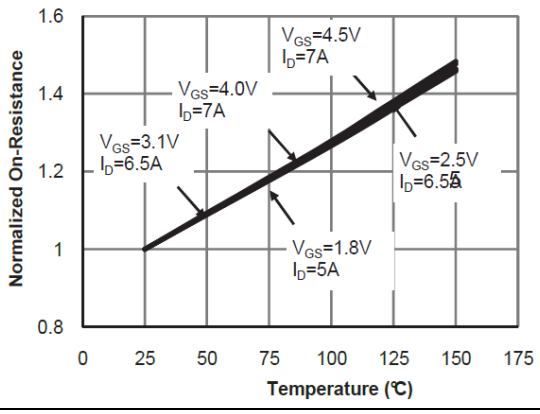


Figure 5. On-Resistance vs. Gate-Source Voltage

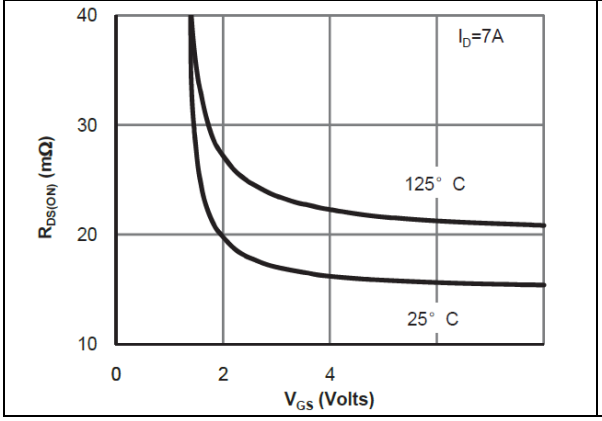


Figure 6. Body-Diode Characteristics

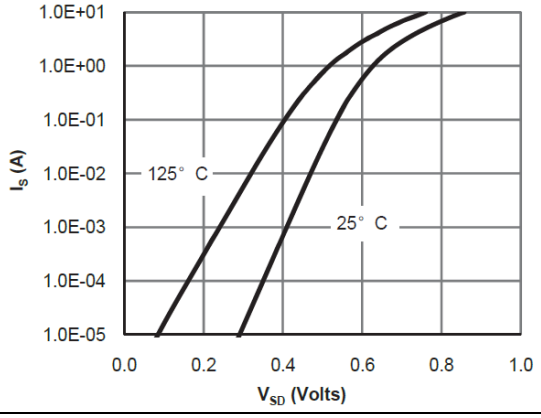


Figure 7. Gate-Charge Characteristics

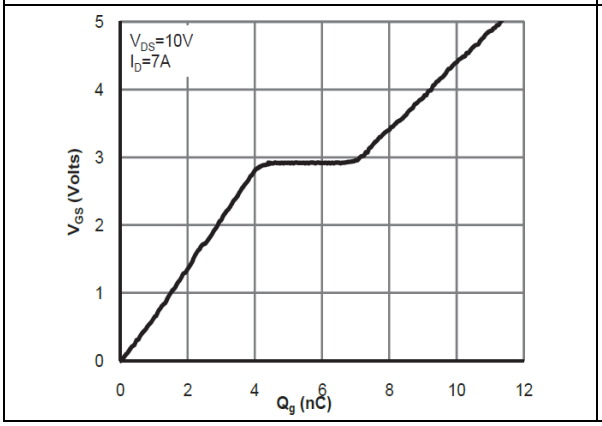


Figure 8. Capacitance Characteristics

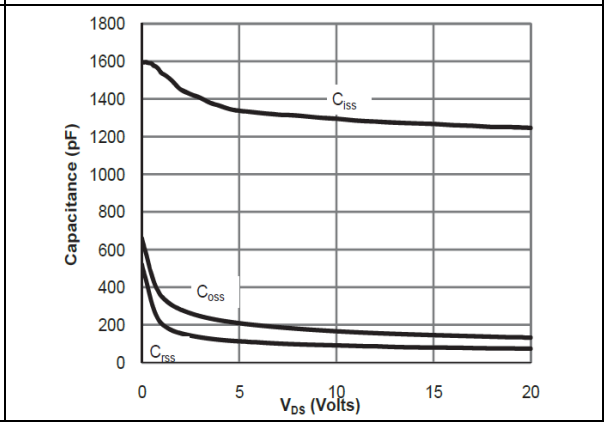


Figure 9. Maximum Forward Biased Safe Operating Area

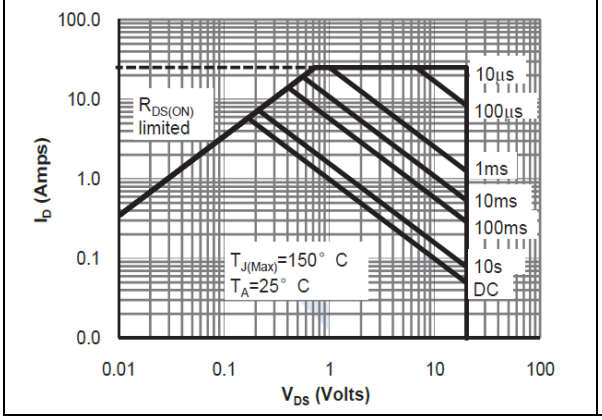


Figure 10. Single Pulse Power Rating Junction-to-Ambient

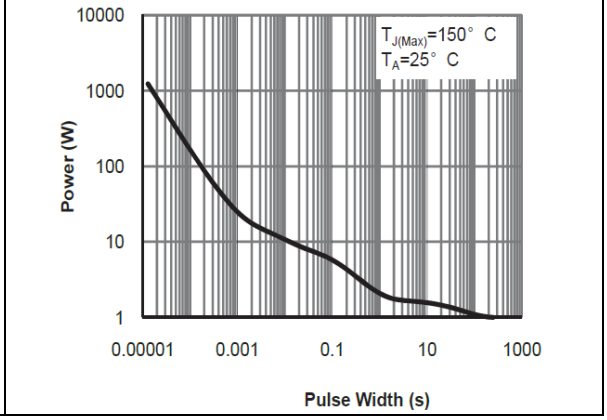
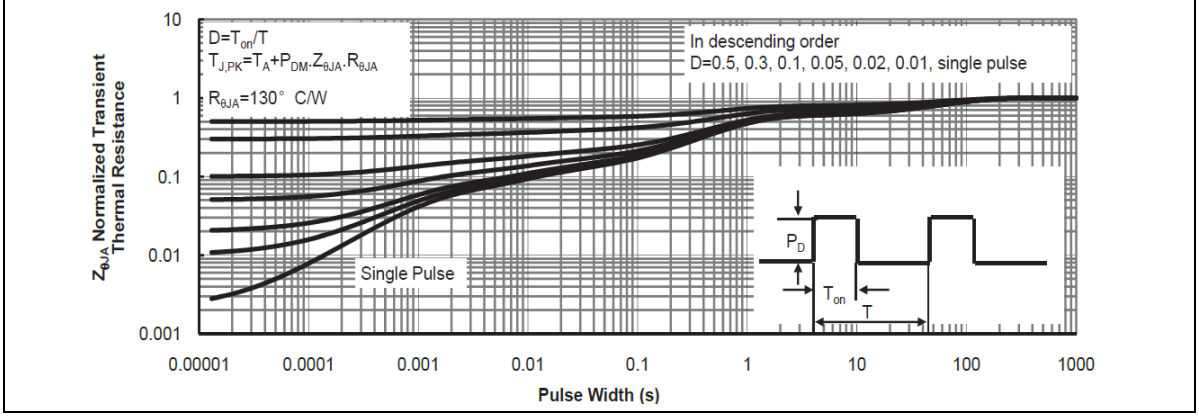


Figure 11. Normalized Maximum Transient Thermal Impedance



Physical Dimensions

SOT23-6L