Power MOSFETS

DATASHEET

LM60M80PEI3A

P-Channel

Enhancement Mode MOSFET

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Quality Management Systems

ISO 9001:2015 Certificate

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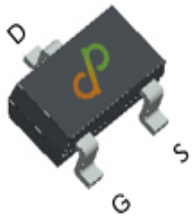
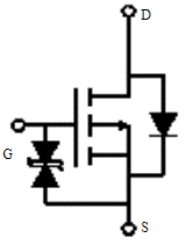
Pin Description

SOT-23 (TOP view)



Symbol



Ordering Information

Symbol	P-Channel	Unit
V_{DSS}	**-60**	**V**
$R_{DS(ON)-Max}$	**4.3**	**Ω**
I_D	**-0.21**	**A**

Feature

- Reliable and Rugged
- ROHS Compliant & Halogen-Free
- ESD Protection

Applications

- General Purpose Interfacing Switch
- Analog Switch

Ordering Information

Orderable Part Number	Package Type	Form	Shipping	Marking
LM60M80PEI3A	SOT-23	Tape & Reel	3000 / Tape & Reel	12□□□

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

Symbol	Parameter		P-Channel	Unit
V_{DSS}	Drain-Source Voltage		-60	V
V_{GSS}	Gate-Source Voltage		±20	
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	-0.53	A
I_D	Continuous Drain Current	T_A=25°C	-0.21	A
		T_A=70°C	-0.17	
P_D	Maximum Power Dissipation	T_A=25°C	0.36	W
		T_A=70°C	0.23	

Thermal Characteristics

Symbol	Parameter		Rating	Unit
$R_{\theta JA}$③	Thermal Resistance-Junction to Ambient	Steady State	350	°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.

P-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	-60	-	-	V
I_{DSS}	Zero Gate Voltage Drain Current	V_{DS}=-48V, V_{GS}=0V	-	-	-1	uA
$V_{GS(th)}$	Gate Threshold Voltage	V_{DS}=V_{GS}, I_{DS}=-250uA	-1	-1.6	-2.5	V
I_{GSS}	Gate Leakage Current	V_{GS}=±20V, V_{DS}=0V	-	-	±10	uA
$R_{DS(ON)}$④	Drain-Source On-state Resistance	V_{GS}=-10V, I_{DS}=-0.1A	-	3.55	4.3	Ω
		V_{GS}=-4.5V, I_{DS}=-0.1A	-	3.8	5	
gfs	Forward Transconductance	V_{DS}=-5V, I_{DS}=-0.1A	-	4.4	-	S
Dynamic Characteristics ⑤						
C_{iss}	Input Capacitance	V_{GS}=0V, V_{DS}=-30V, Freq.=1MHz	-	30	-	pF
C_{oss}	Output Capacitance		-	12	-	
C_{rss}	Reverse Transfer Capacitance		-	6	-	
$td_{(ON)}$	Turn-on Delay Time	V_{GS}=-10V,V_{DS}=-30V, I_D=-1A,R_{GEN}=6Ω	-	18.4	-	nS
t_r	Turn-on Rise Time		-	15.2	-	
$t_{d(OFF)}$	Turn-off Delay Time		-	113	-	
t_f	Turn-off Fall Time		-	41	-	
Q_g	Total Gate Charge	V_{GS}=-4.5V,V_{DS}=-30V I_D=-0.37A	-	0.47	-	nC
Q_g	Total Gate Charge	V_{GS}=-10V,V_{DS}=-30V, I_D=-0.37A	-	0.84	-	
Qgs	Gate-Source Charge		-	0.19	-	
Qgd	Gate-Drain Charge		-	0.21	-	
Source-Drain Characteristics						
V_{SD}④	Diode Forward Voltage	I_{SD}=-0.1A, V_{GS}=0V	-	-0.8	-1.1	V
t_{rr}	Reverse Recovery Time	I_F=-0.18A, V_R=-30V dI$_F$/dt=100A/μs	-	10	-	nS
Q_{rr}	Reverse Recovery Charge		-	5	-	nC

Note ④：Pulse test (pulse width≤300us, duty cycle≤2%).
Note ⑤：Guaranteed by design, not subject to production testing.

P-Channel Typical Characteristics

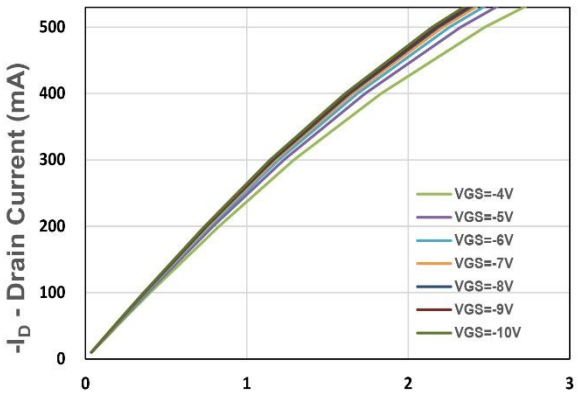


Figure 1. Output Characteristics

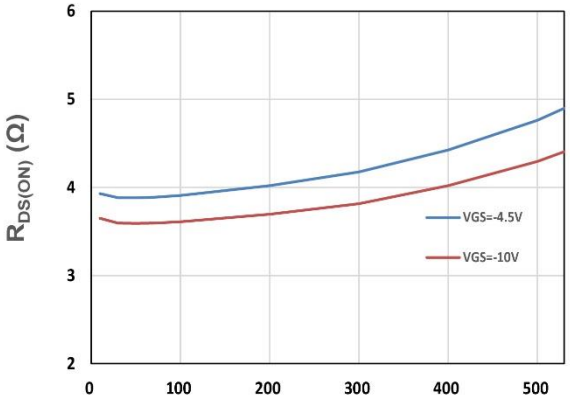


Figure 2. On-Resistance vs. ID

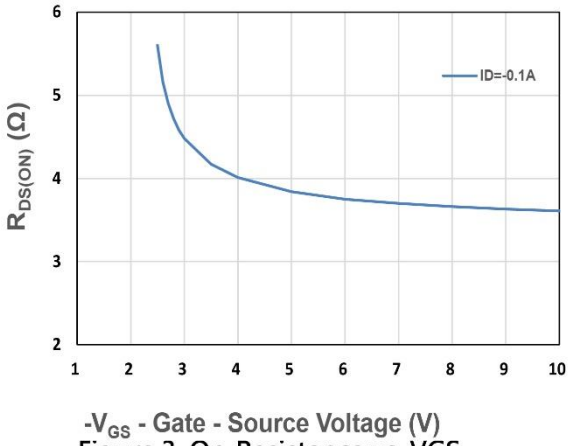


Figure 3. On-Resistance vs. VGS

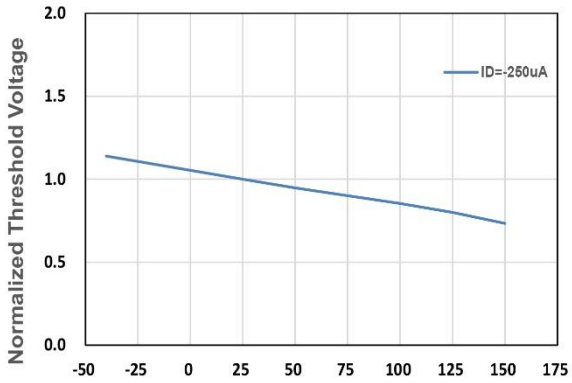


Figure 4. Gate Threshold Voltage

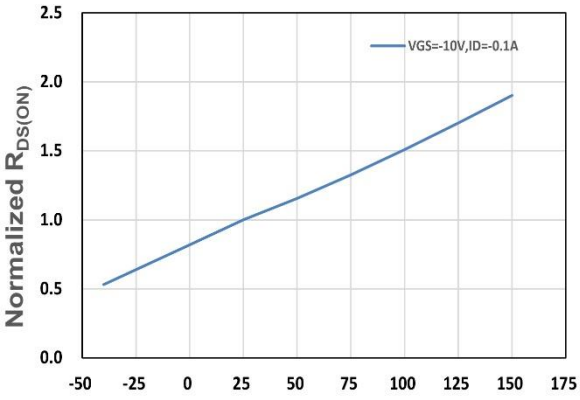


Figure 5. Drain-Source On Resistance

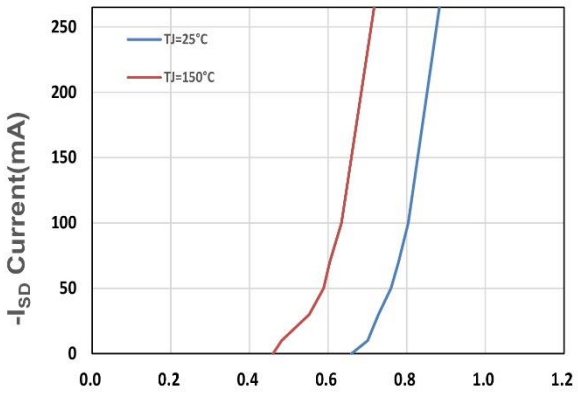


Figure 6. Source-Drain Diode Forward

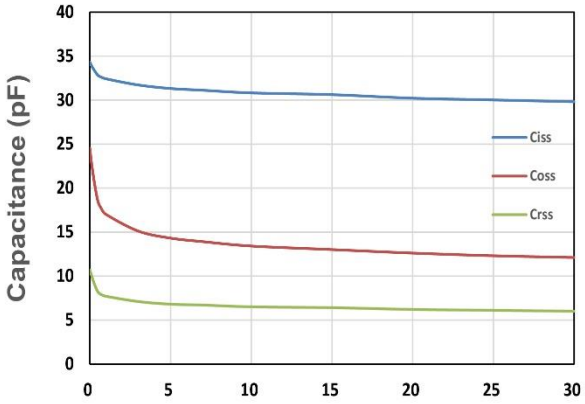


Figure 7. Capacitance

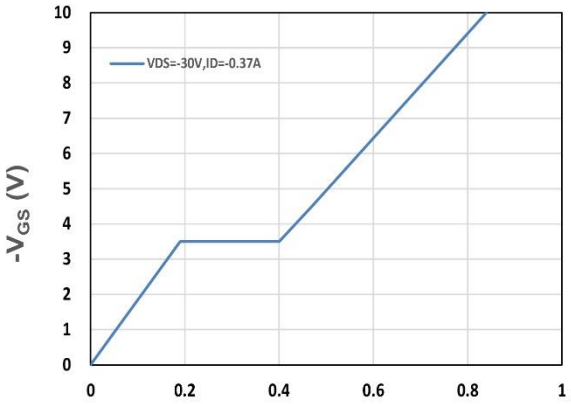


Figure 8. Gate Charge Characteristics

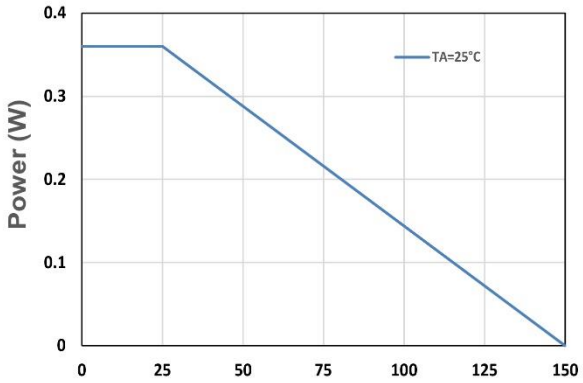


Figure 9. Power Dissipation

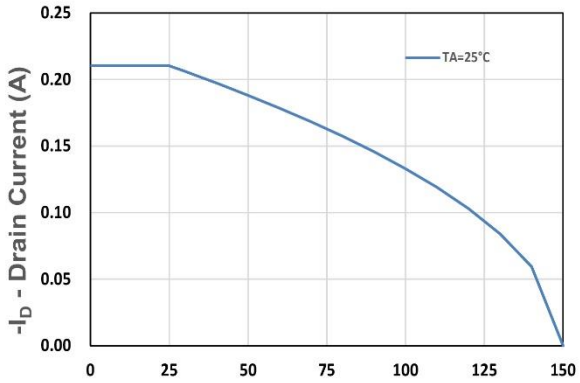


Figure 10. Drain Current

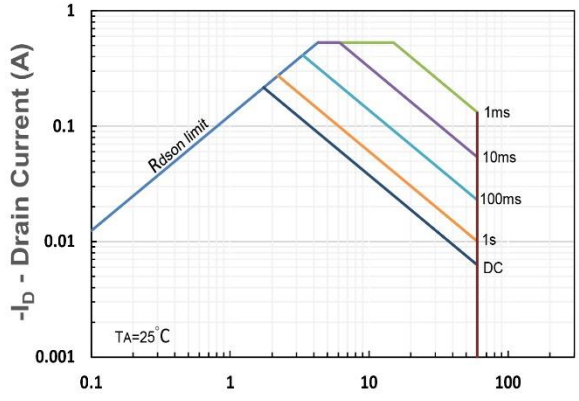


Figure 11. Safe Operating Area

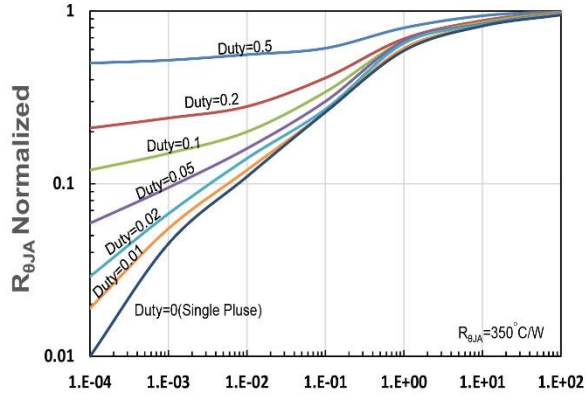


Figure 12. RθJA Transient Thermal Impedance