

• General Description

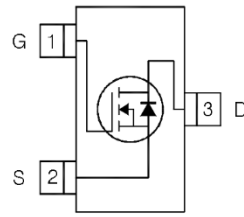
APLML0060B combines advanced MOSFET technology with a low resistance package to provide extremely low $R_{DS(ON)}$. This device is most suitable to load switch or PWM applications.

• Applications

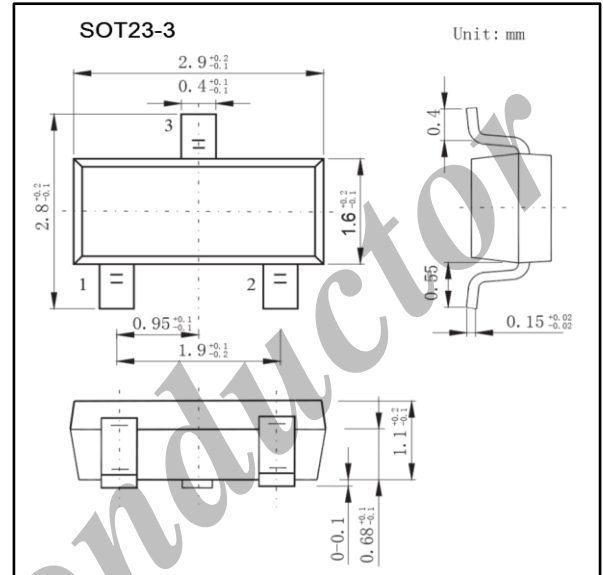
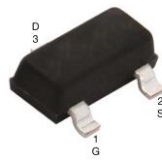
- Load / System Switch

• Product Summary

V_{DS}	60V
I_D (at $V_{GS} = 10V$)	3.7A
$R_{DS(ON)}$ (at $V_{GS} = 10V$)	< 100m Ω
$R_{DS(ON)}$ (at $V_{GS} = 4.5V$)	< 120m Ω



Top View



• Absolute Maximum Ratings $T_a = 25^\circ\text{C}$

Parameter	Symbol	Rating	Unit
Drain-Source Voltage	V_{DS}	60	V
Gate-Source Voltage	V_{GS}	± 20	V
Continuous Drain Current	I_D	3.7	A
Pulsed Drain Current	I_{DM}	25	
Power Dissipation	P_D	1.4	W
Thermal Characteristics			
Junction and Storage Temperature Range	T_J, T_{STG}	-55 to 150	$^\circ\text{C}$
Thermal Resistance, Junction-to-Ambient	$R_{\theta JA}$	55	$^\circ\text{C/W}$

• **Electrical Characteristics Ta = 25°C**

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Static Parameters						
Drain-Source Breakdown Voltage	V_{DSS}	$I_D=250\mu A, V_{GS}=0V$	60			V
Zero Gate Voltage Drain Current	I_{DSS}	$V_{DS}=60V, V_{GS}=0V$			1	μA
Gate-Source Leakage Current	I_{GSS}	$V_{DS}=0V, V_{GS}=\pm 20V$			± 100	nA
Gate Threshold Voltage	$V_{GS(th)}$	$V_{DS}=V_{GS}, I_D=250\mu A$	1		3	V
On-State Drain Current	$I_{D(ON)}$	$V_{GS}=5V, V_{DS}=10V$	8			A
Static Drain-Source On-Resistance	$R_{DS(ON)}$	$V_{GS}=10V, I_D=3.9A$			100	m Ω
		$V_{GS}=4.5V, I_D=3.7A$			120	
Forward Transconductance	g_{FS}	$V_{DS}=5V, I_D=3.7A$	3	9		S
Diode Forward Voltage	V_{SD}	$I_S=1.5A, V_{GS}=0V$			1.2	V
Maximum Body-Diode Continuous Current	I_S				2.5	A
Dynamic Parameters						
Input Capacitance	C_{iss}	$V_{GS}=0V, V_{DS}=25V, f=1MHz$			800	pF
Output Capacitance	C_{oss}				250	
Reverse Transfer Capacitance	C_{rss}				60	
Switching Parameters						
Total Gate Charge	Q_g	$V_{GS}=10V, V_{DS}=40V, I_D=3.7A$		9	12	nC
Gate Source Charge	Q_{gs}			2		
Gate Drain Charge	Q_{gd}			6		
Turn-On Delay Time	$t_{D(on)}$	$I_D=1A, V_{DS}=25V, R_{GEN}=6\Omega$		15	20	ns
Turn-On Rise Time	t_r			18	20	
Turn-Off Delay Time	$t_{D(off)}$			40	50	
Turn-Off Fall Time	t_f			16	20	

• **Ordering Information**

Ordering Part Number	Package	MOQ
APLML0060B	SOT23-3	3,000 pcs / reel

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• **Typical Electrical and Thermal Characteristics**

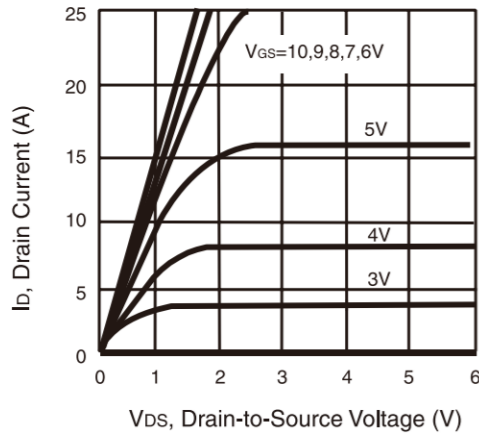


Figure 1. Output Characteristics

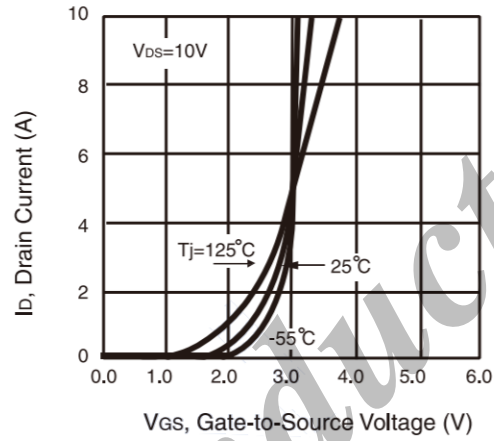


Figure 2. Transfer Characteristics

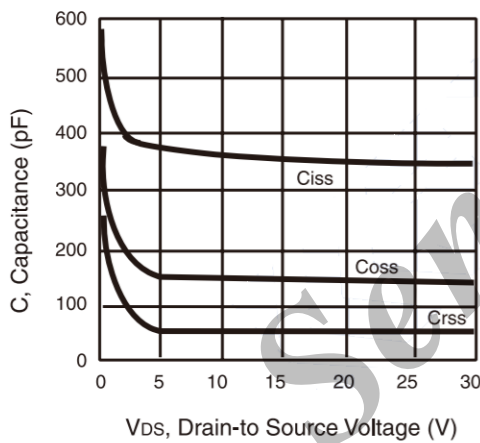


Figure 3. Capacitance

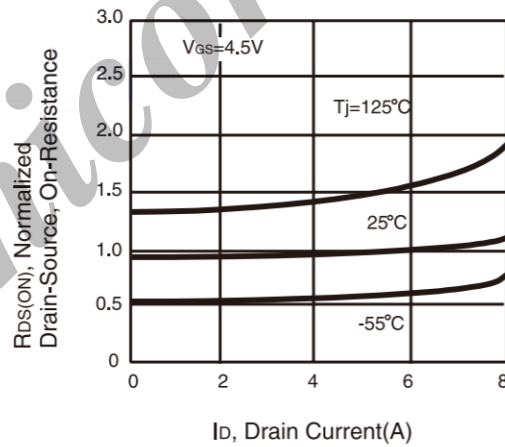


Figure 4. On-Resistance Variation with Drain Current and Temperature

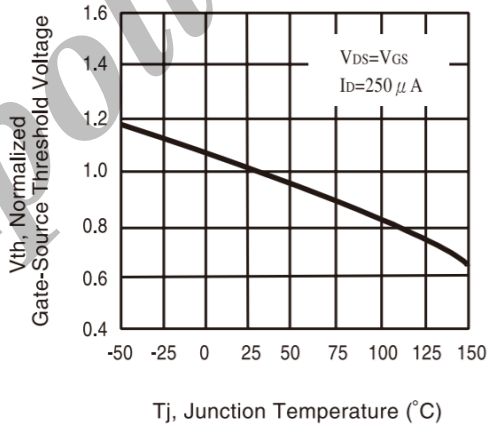


Figure 5. Gate Threshold Variation with Temperature

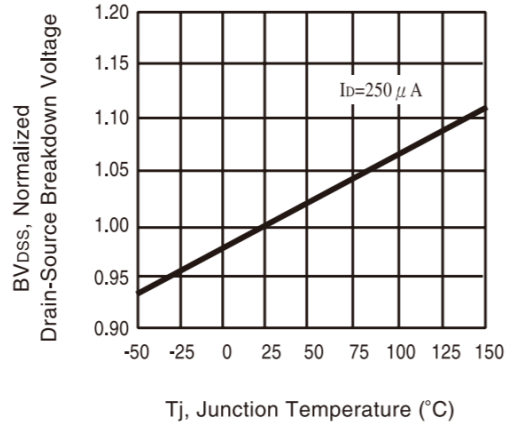


Figure 6. Breakdown Voltage Variation with Temperature

• **Typical Electrical and Thermal Characteristics**

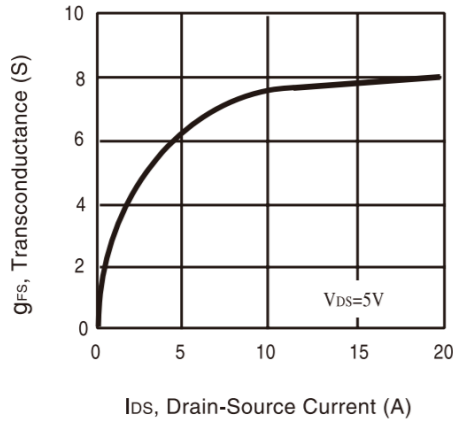


Figure 7. Transconductance Variation with Drain Current

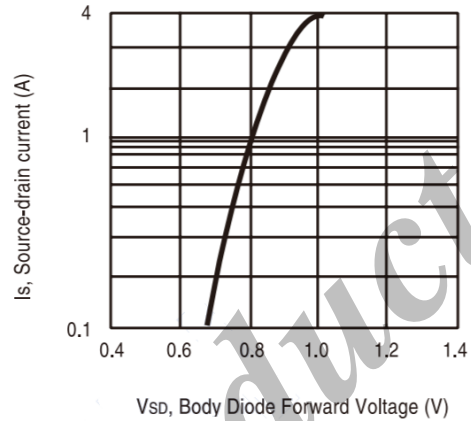


Figure 8. Body Diode Forward Voltage Variation with Source Current

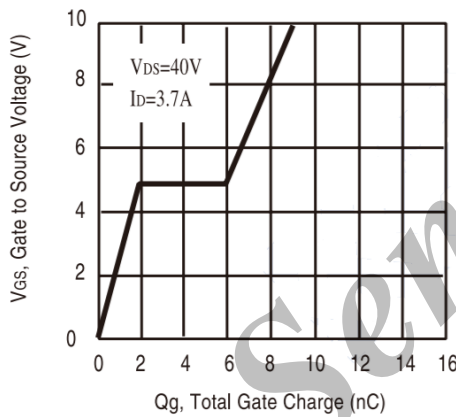


Figure 9. Gate Charge

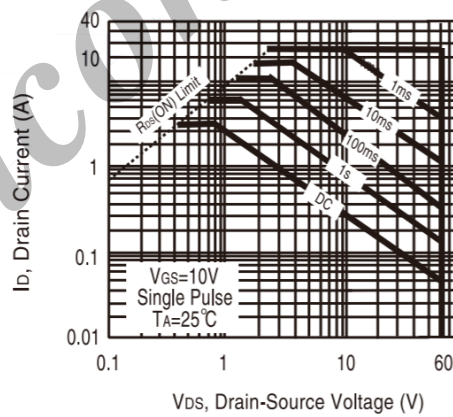


Figure 10. Maximum Safe Operating Area

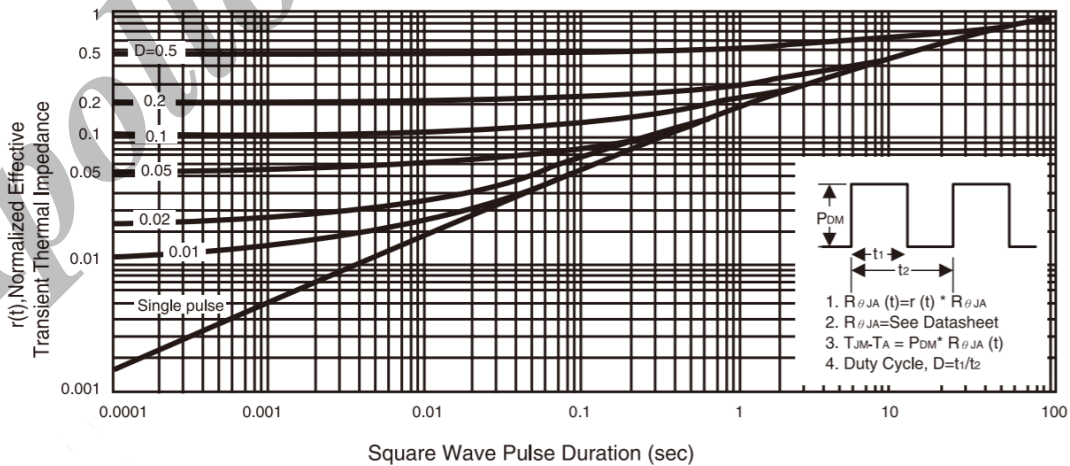


Figure 11. Normalized Thermal Transient Impedance Curve

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