AS6009FL

N-Channel Enhancement Mode Power MOSFET

Product Summary

$V_{(BR)DSS}$	$R_{DS(on)MAX}$	I_D
60V	40mΩ@10V	9A
	45mΩ@4.5V	

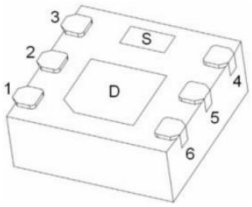
Feature

- High power and current handing capability
- Lead free product is acquired
- Surface mount package

Application

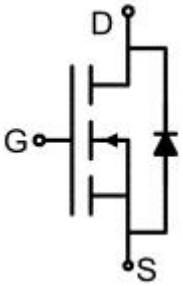
- PWM application
- Load switch

Package

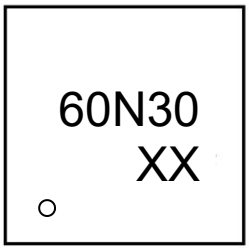


DFN2*2-6L

Circuit diagram



Marking



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N-Channel Enhancement Mode Power MOSFET

Absolute maximum ratings (T_a=25℃ unless otherwise noted)

Parameter	Symbol	Value	Unit
Drain-Source Voltage	V_{DS}	60	V
Gate-Source Voltage	V_{GS}	±20	V
Continuous Drain Current	I_D	9	A
Pulsed Drain Current	I_{DM}	36	A
Power Dissipation	P_D	2.1	W
Thermal Resistance,Junction-to-Ambient	$R_{\theta JA}$	59.5	℃/W
Junction Temperature	T_J	150	℃
Storage Temperature	T_{STG}	-55 ~ +150	℃

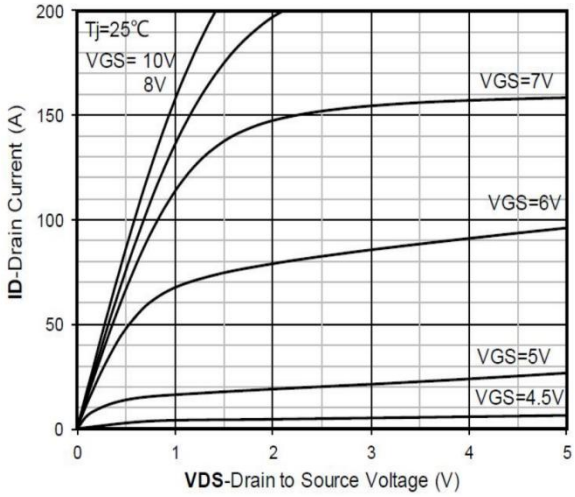
Electrical characteristics (T_A=25℃ unless otherwise noted)

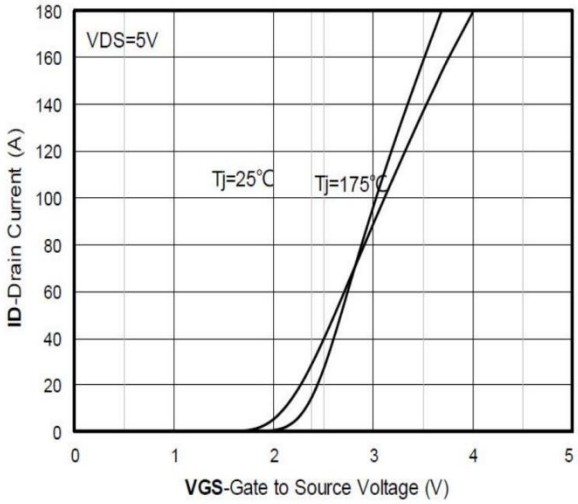
Parameter	Symbol	Test Condition	Min.	Typ.	Max.	Unit
Static Characteristics						
Drain-source breakdown voltage	$V_{(BR)DSS}$	V_{GS} = 0V, I_D =250μA	60			V
Zero gate voltage drain current	I_{DSS}	V_{DS} =60V,V_{GS} = 0V			1	μA
Gate-body leakage current	I_{GSS}	V_{GS} =±20V, V_{DS} = 0V			±100	nA
Gate threshold voltage	$V_{GS(th)}$	V_{DS} =V_{GS}, I_D =250μA	1.0	1.6	2.5	V
Drain-source on-resistance	$R_{DS(on)}$	V_{GS} =10V, I_D =8A		30	40	mΩ
		V_{GS} =4.5V, I_D =4A		35	45	
Dynamic characteristics[1)]						
Input Capacitance	C_{iss}	V_{DS} =25V,V_{GS} =0V,f =1MHz		1150		pF
Output Capacitance	C_{oss}			60		
Reverse Transfer Capacitance	C_{rss}			50		
Total Gate Charge	Q_g	V_{DS} =30V,V_{GS} =10V, I_D =8A		20.3		nC
Gate-Source Charge	Q_{gs}			3.7		
Gate-Drain Charge	Q_{gd}			5.1		
Turn-on delay time	$t_{d(on)}$	V_{DD}=30V,V_{GS}=10V, I_D=8A,R_G=3Ω		6		nS
Turn-on rise time	t_r			6.1		
Turn-off delay time	$t_{d(off)}$			17		
Turn-off fall time	t_f			3		
Source-Drain Diode characteristics						
Diode Forward voltage	V_{SD}	V_{GS} =0V, I_S=1A			1.2	V

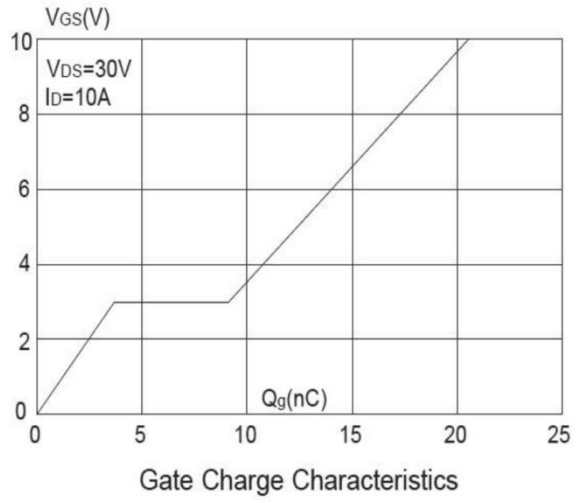
Notes:

1) Guaranteed by design, not subject to production.

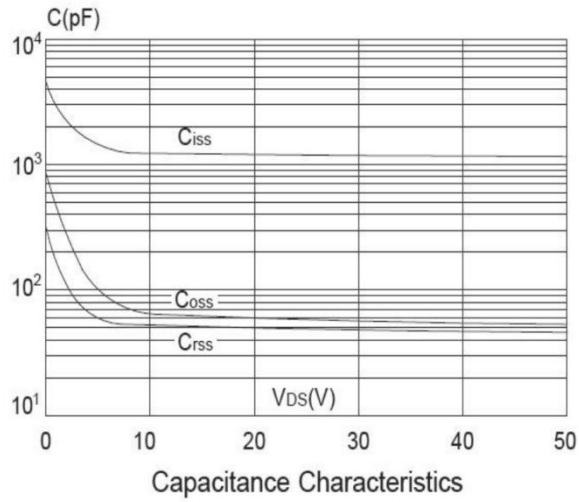
Typical Characteristics



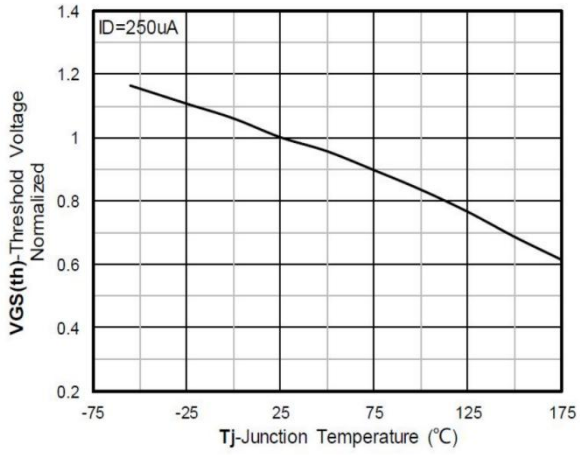




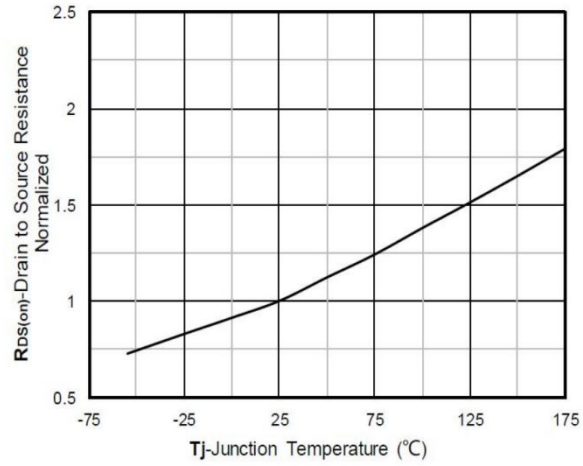
Gate Charge Characteristics



Capacitance Characteristics

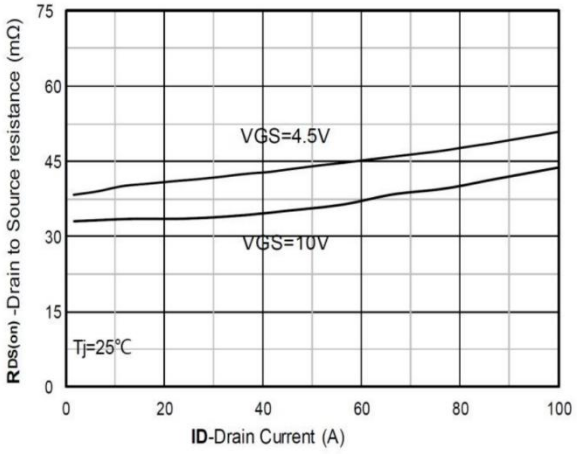


Normalized Threshold voltage

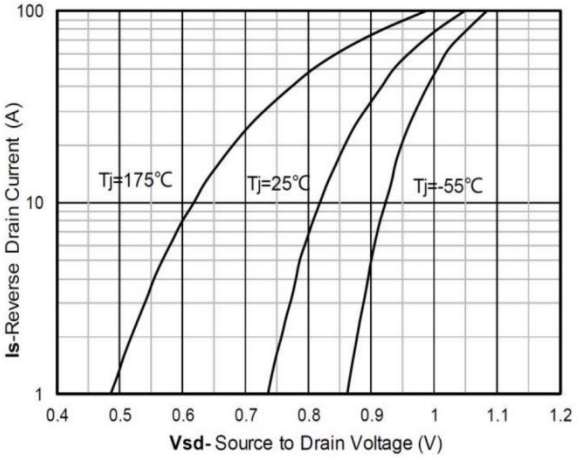


Normalized On-Resistance

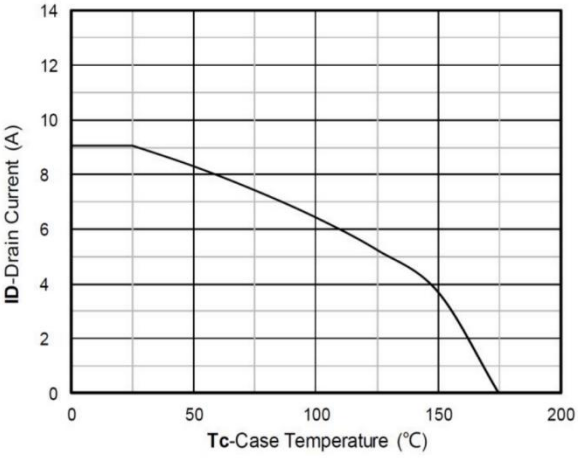
Typical Characteristics



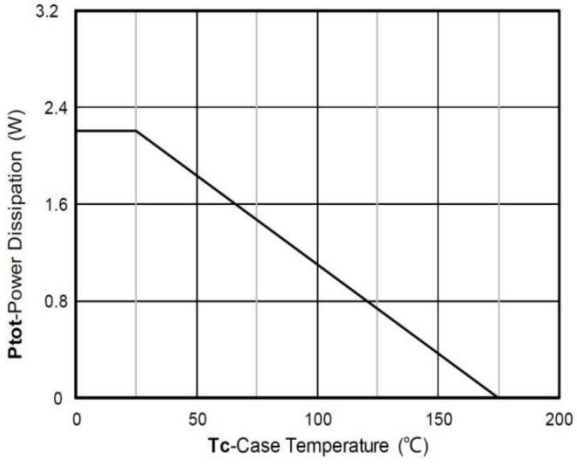
RDS(on) VS Drain Current



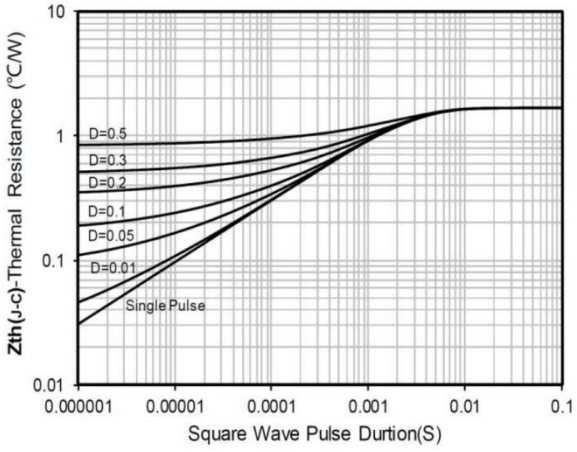
Forward characteristics of reverse diode



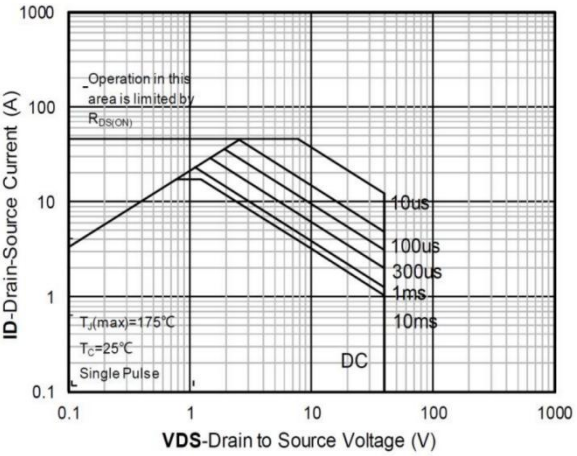
Current dissipation



Power dissipation

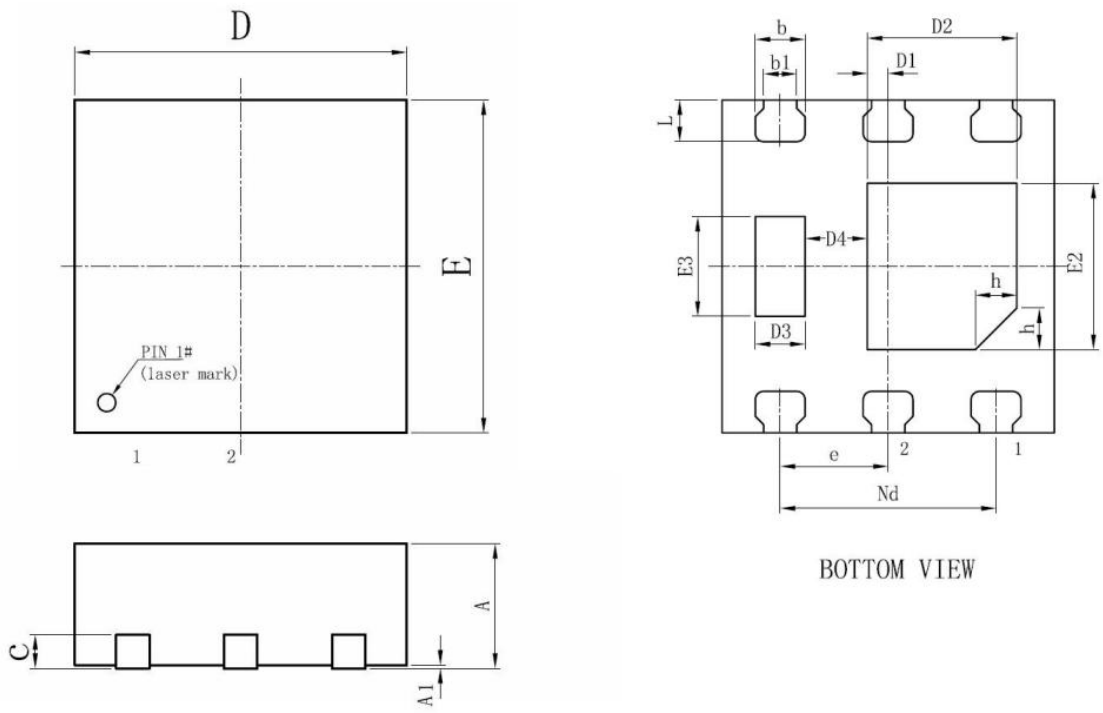


Maximum Transient Thermal Impedance



Safe Operation Area

DFN2*2-6L Package Information



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min.	Max.	Min.	Max.
A	0.700	0.800	0.028	0.031
A1	-	0.050	-	0.002
b	0.250	0.350	0.010	0.014
b1	0.200 REF		0.008 REF	
C	0.203 REF		0.008 REF	
D	1.900	2.100	0.075	0.083
D1	0.080	0.180	0.003	0.007
D2	0.850	0.950	0.033	0.037
D3	0.250	0.350	0.010	0.014
D4	0.330	0.430	0.013	0.017
e	0.650 BSC		0.026 BSC	
Nd	1.300 BSC		0.051 BSC	
E	1.900	2.100	0.075	0.083
E2	0.950	1.050	0.037	0.041
E3	0.550	0.650	0.022	0.026
L	0.200	0.300	0.008	0.012
h	0.250 REF		0.010 REF	