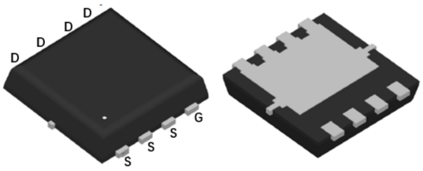
AD30P48D3

Pch -30V -60A Power MOSFET

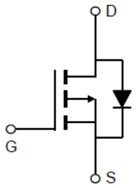
V_{DS}	-30V
$R_{DS(ON)}$ (typ.)	6.1mΩ
I_D	-60A
P_D	40W

Outline

PDFN3030



Inner Circle



Features

1、Low on – resistance

2、High power package (PDFN3030)

3、Pb-free lead plating ; RoHS compliant

4、Halogen free

5、100% Rg and UIS tested

Packaging specifications

Packing	Embossed Tape
Reel Size(mm)	330
Tape width(mm)	12
Basic ordering unit (pcs)	5000
Taping code	D3
Marking	AD30P48D3

Applications

Switching

Absolute maximum ratings（T_C=25℃）

Symbol	Parameter	Value	Unit
V_{DS}	Drain-Source Voltage (V_{GS}=0V)	-30	V
V_{GS}	Gate-Source Voltage (V_{GS}=0V,static)	±25	V
I_D	Continuous Drain Current (T_C=25℃)	-60	A
	Continuous Drain Current (T_C=100℃)	-42	A
I_{DM}	Pulesd Drain Current	-240	A
I_{AS}	Avalanche Current	-14	A
E_{AS}	Single Pulsed Avalanche Energy	11	mJ
P_D	Maximum Power Dissipation (T_C =25℃)	40	W
	Power Dissipation – Derate above 25℃	2.1	W/℃
T_J,T_{STG}	Operating,Storage Temperature Range	-55~150	℃

Symbol	Parameter	Typ.	Max.	Unit
$R_{\theta JA}$	Thermal Resistance,Junction-to-Ambient	---	62	℃/ W
$R_{\theta JC}$	Thermal Resistance,Junction-to-Case	---	2.1	℃/ W

Electrical Characteristics(TJ=25℃,unless otherwise noted)

Static State Characteristics

Symbol	Parameter	Test Conditions	Min.	Typ.	Max.	Unit
B_{VDSS}	Drain-Source Breakdown Voltage	V_{GS}=0V,I_D=-250μA	-30	---	---	V
I_{DSS}	Zero Gate Voltage Drain Current	V_{DS}=-30V, V_{GS}=0V	---	---	-1	μA
I_{GSS}	Gate -Source Leakage Current	V_{GS}=±25V, V_{DS}=0V	---	---	±100	nA
$R_{DS(ON)}$	Drain-Source On-stage Resistance	V_{GS}=-10V,I_D=-12A	---	6.1	8	mΩ
		V_{GS}=-4.5V,I_D=-12A	---	8.7	10.3	
$V_{GS(th)}$	Gate Threshold Voltage	V_{DS}= V_{GS},I_D=-250μA	-1.0	-1.7	-2.5	V

Dynamic Characteristics

Symbol	Parameter	Test Conditions	Min.	Typ.	Max.	Unit
Q_g	Total Gate Charge	V_{DS}=-15V V_{GS}=-4.5V I_D=-12A	---	33	---	nC
Q_{gs}	Gate Source Charge		---	9	---	
Q_{gd}	Gate Drain Charge		---	12	---	
$t_{d(on)}$	Turn-on delay Time	V_{DS}=-15V V_{GS}=-10V R_G=10Ω I_D=-6A	---	20	---	ns
t_r	Rise time		---	30	---	
$t_{d(off)}$	Turn-off delay Time		---	140	---	
t_f	Fall time		---	95	---	
C_{iss}	Input capacitance	V_{DS}=-15V V_{GS}=0V f=1MHz	---	3200	---	pF
C_{oss}	Output capacitance		---	550	---	
C_{rss}	Reverse transfer capacitance		---	410	---	
R_g	Gate Resistance	f=1MHz	---	3.5	---	Ω

Drain-Source Diode Characteristics

Symbol	Parameter	Test Conditions	Min.	Typ.	Max.	Unit
I_S	Continuous Source Current	V_{DS}=V_{GS}=0V Force Current	---	---	-1.7	A
I_{SM}	Pulsed Source Current		---	---	-48	A
V_{SD}	Diode Forward Voltage	V_{GS}=0V,I_S=-1.7A	---	---	-1.2	V
t_{rr}	Reverse Recovery Time	V_{GS}=0V,I_S=-10A di/dt=100A/μs	---	38	---	ns
Q_{rr}	Reverse Recovery Charge		---	55	---	nC

Electrical Characteristics Diagrames

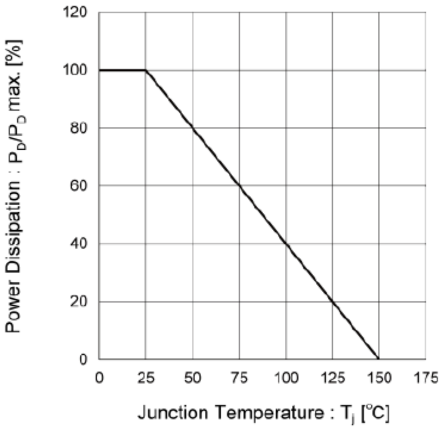


Figure 1. Power Dissipation Derating Curve

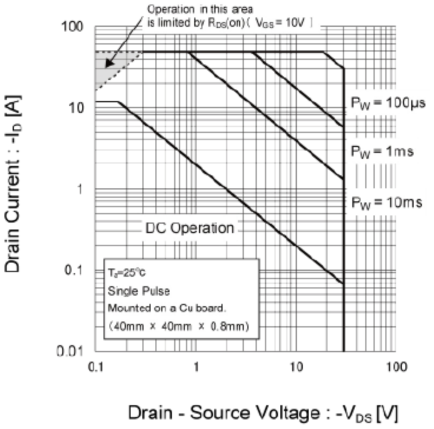


Figure 2. Maximum Safe Operating Area

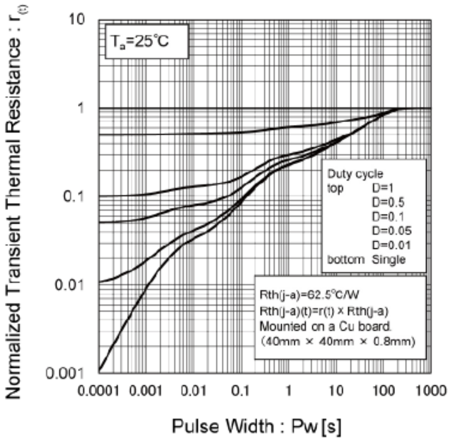


Figure 3. Normalized Transient Thermal Resistance vs. Pulse Width

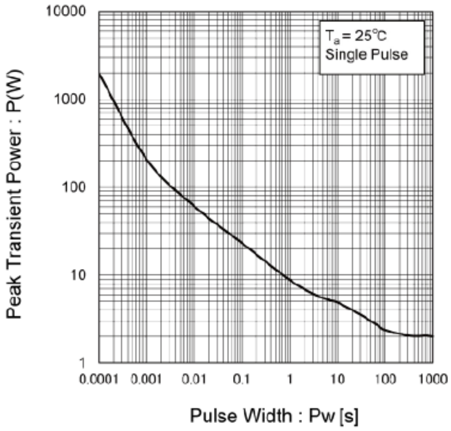


Figure 4. Single Pulse Maximum Power Dissipation

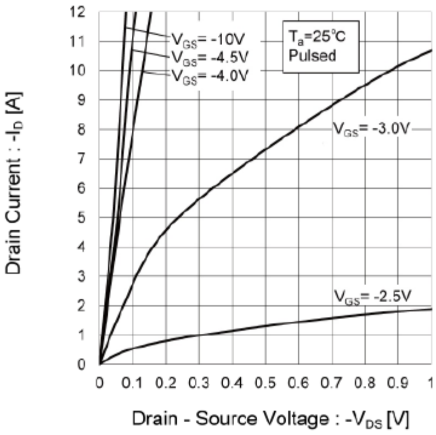


Figure 5. Typical Output Characteristics(I)

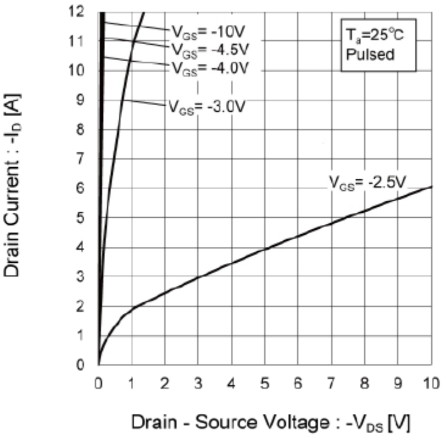


Figure 6. Typical Output Characteristics(II)

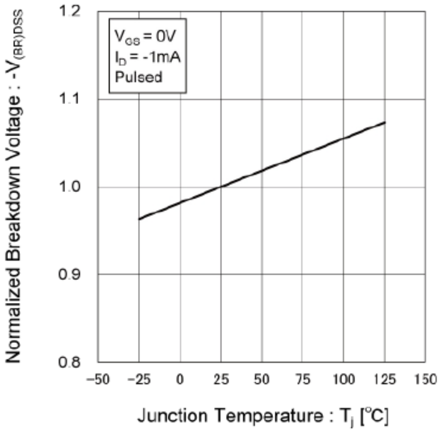


Figure 7. Normalized Breakdown Voltage vs. Junction Temperature

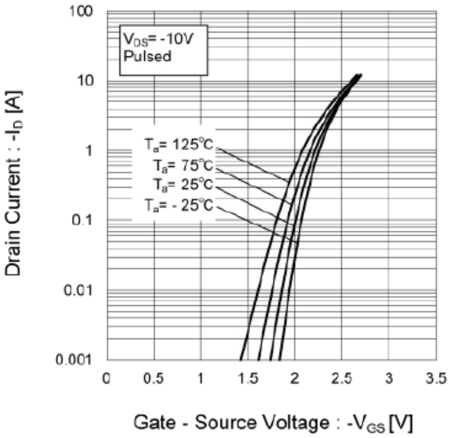


Figure 8. Typical Transfer Characteristics

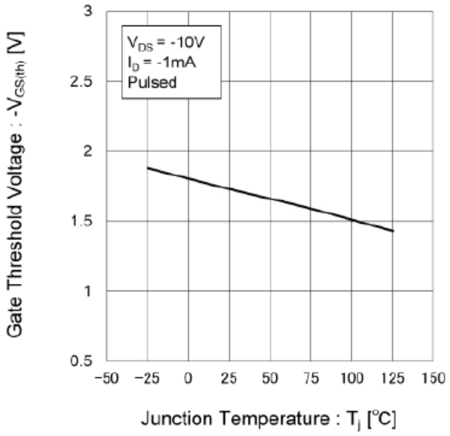


Figure 9. Gate Threshold Voltage vs. Junction Temperature

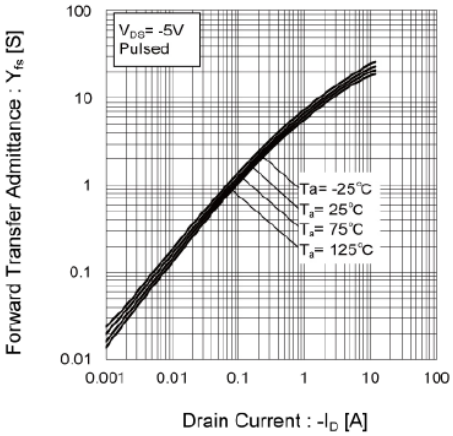


Figure 10. Forward Transfer Admittance vs. Drain Current

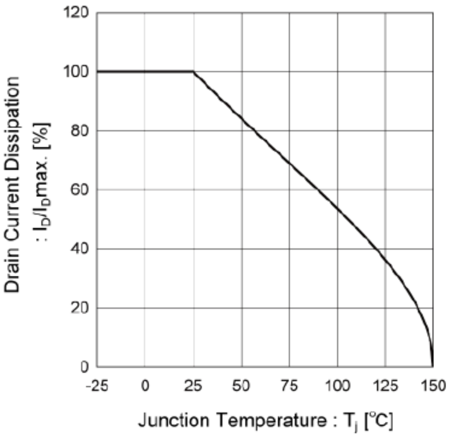


Figure 11. Drain Current Derating Curve

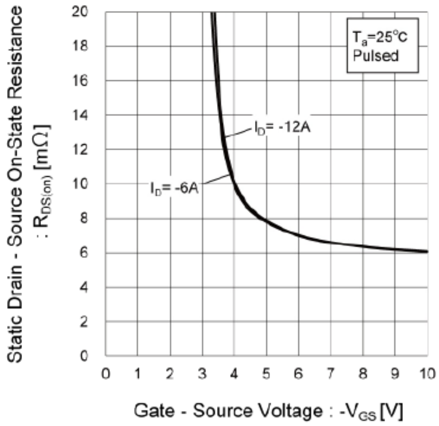


Figure 12. Static Drain-Source On-State Resistance vs. Gate Source Voltage

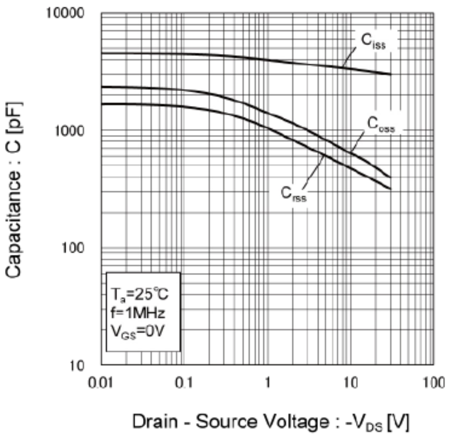


Figure 13. Typical Capacitance vs. Drain-Source Voltage

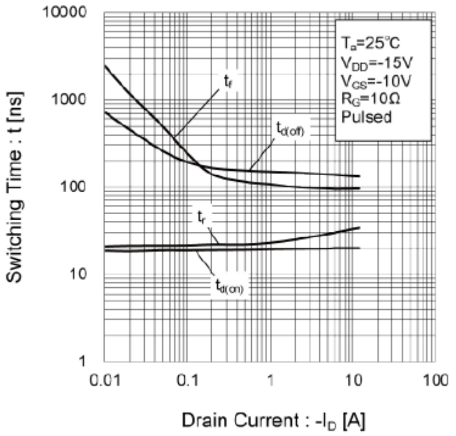


Figure 14. Switching Characteristics

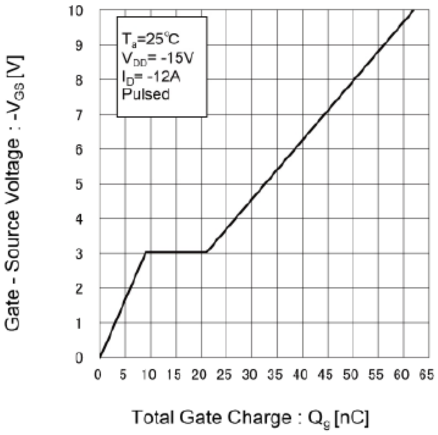


Figure 15. Typical Gate Charge

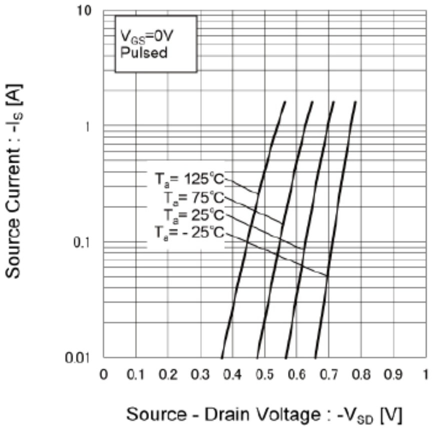
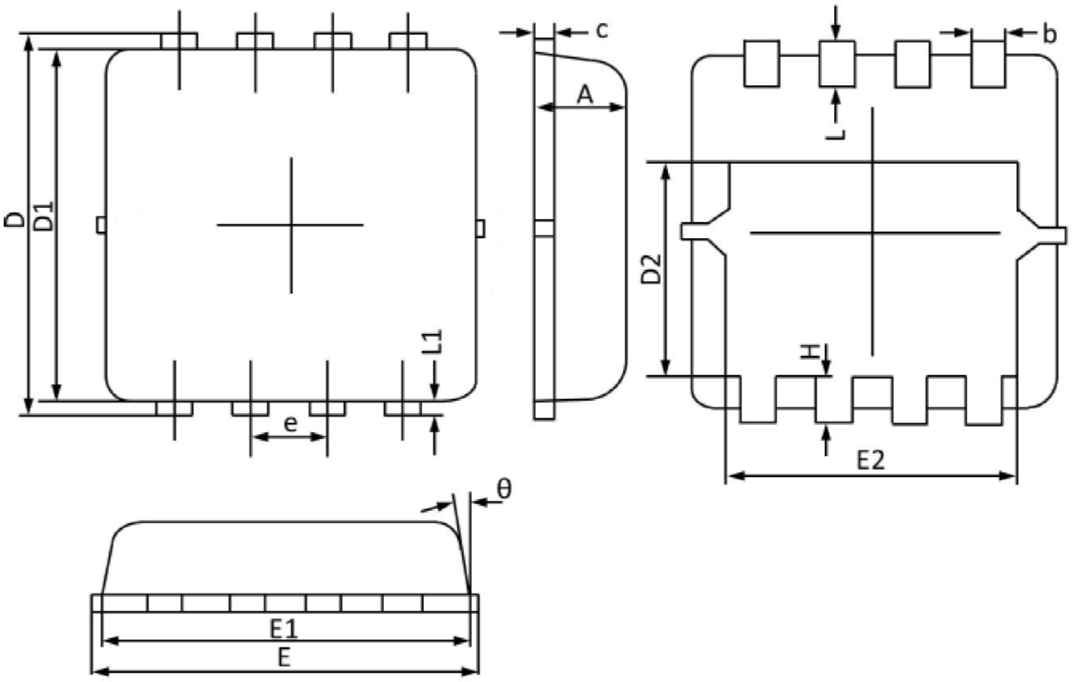


Figure 16. Source Current vs. ource Drain Voltage

PDFN3030 PACKAGE INFORMATION



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	MAX	MIN	MAX	MIN
A	0.900	0.700	0.035	0.028
b	0.350	0.240	0.014	0.009
c	0.250	0.100	0.010	0.004
D	3.450	3.050	0.136	0.120
D1	3.200	2.900	0.126	0.114
D2	1.850	1.350	0.073	0.053
E	3.400	3.000	0.134	0.118