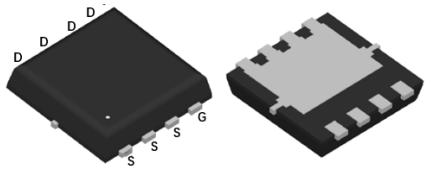
AD30P47D3

Pch -30V -47A Power MOSFET

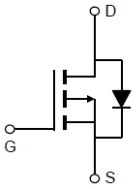
V_{DS}	-30V
$R_{DS(ON)}$ (typ.)	7.1mΩ
I_D	-47A
P_D	59W

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

Applications

Switching

Packaging specifications

Packing	Embossed Tape
Reel Size(mm)	330
Tape width(mm)	12
Basic ordering unit (pcs)	5000
Taping code	D3
Marking	AD30P47D3

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℃)	-47	A
	Continuous Drain Current (T_C=100℃)	-33	A
I_{DM}	Pulesd Drain Current	-188	A
I_{AS}	Avalanche Current	-23	A
E_{AS}	Single Pulsed Avalanche Energy	27	mJ
P_D	Maximum Power Dissipation (T_C =25℃)	59	W
	Power Dissipation – Derate above 25℃	4.1	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

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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=-10A	---	7.1	8.5	mΩ
		V_{GS}=-4.5V,I_D=-8A	---	11.5	14	
$V_{GS(th)}$	Gate Threshold Voltage	V_{DS}= V_{GS},I_D=-250μA	-1.2	-1.6	-2.5	V
gfs	Forward Transconductance	V_{DS}=-10V , I_D=-10A	---	14	---	S

Dynamic Characteristics

Symbol	Parameter	Test Conditions	Min.	Typ.	Max.	Unit
Q_g	Total Gate Charge	V_{DS}=-15V V_{GS}=-4.5V I_D=-10A	---	35	56	nC
Q_{gs}	Gate Source Charge		---	10.8	16	
Q_{gd}	Gate Drain Charge		---	10.6	16	
$t_{d(on)}$	Turn-on delay Time	V_{DS}=-15V V_{GS}=-10V R_G=10Ω I_D=-1A	---	24.5	38	ns
t_r	Rise time		---	10.5	16	
$t_{d(off)}$	Turn-off delay Time		---	156.8	230	
t_f	Fall time		---	50	75	
C_{iss}	Input capacitance	V_{DS}=-15V V_{GS}=0V f=1MHz	---	3300	4800	pF
C_{oss}	Output capacitance		---	410	700	
C_{rss}	Reverse transfer capacitance		---	280	500	
R_g	Gate Resistance	f=1MHz	---	8.5	12	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	---	---	-47	A
I_{SM}	Pulsed Source Current		---	---	-100	A
V_{SD}	Diode Forward Voltage	V_{GS}=0V,I_S=-2.5A	---	---	-1.2	V
t_{rr}	Reverse Recovery Time	V_{GS}=0V,I_S=-10A di/dt=100A/μs	---	35	---	ns
Q_{rr}	Reverse Recovery Charge		---	48	---	nC

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Electrical Characteristics Diagrames

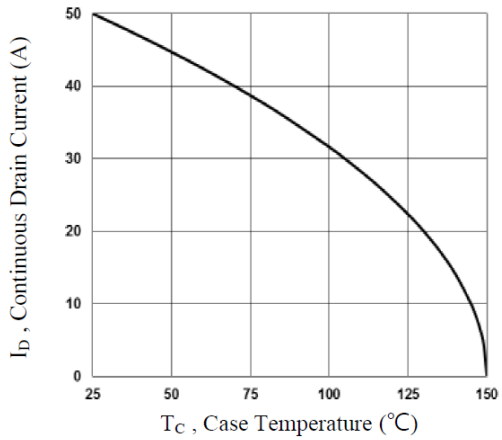

Figure 1. Continuous Drain Current vs. T_C

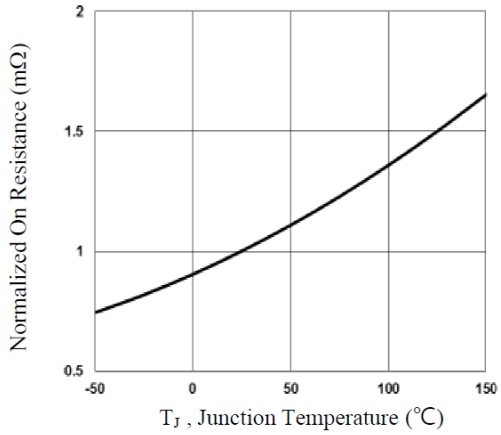

Figure 2. Normalized RDSON vs. T_J

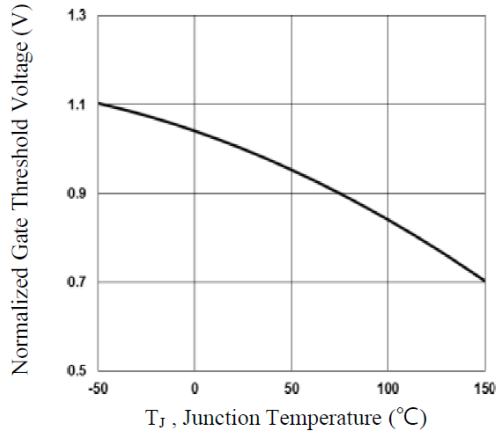

Figure 3. Normalized V_{th} vs. T_J

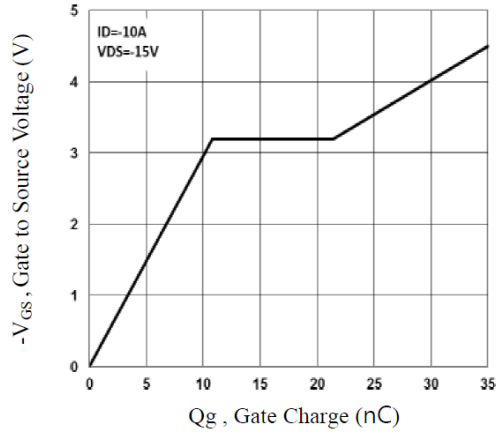

Figure 4. Gate Charge Waveform

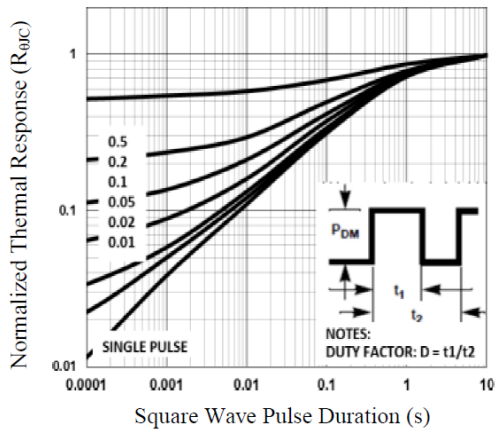

Figure 5. Normalized Transient Impedance

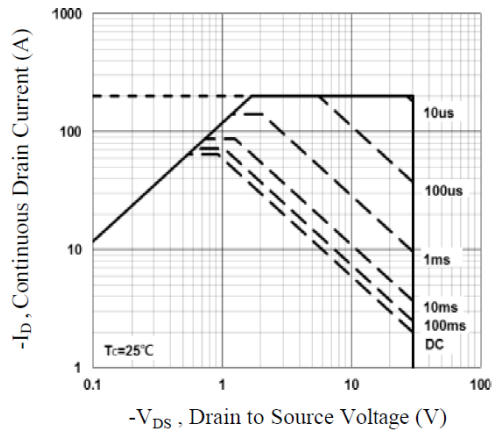

Figure 6. Maximum Safe Operation Area

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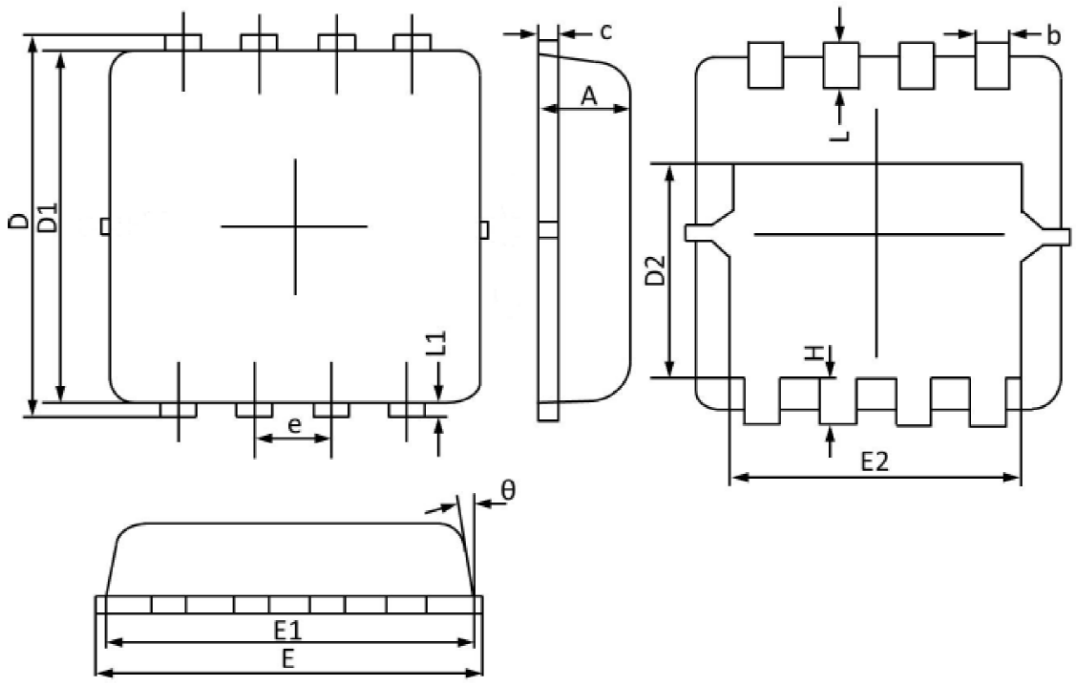
PDFN3030 PACKAGE INFORMATION



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
E1	3.250	2.900	0.128	0.114
E2	2.600	2.350	0.102	0.093
e	0.65BSC		0.026BSC	
H	0.500	0.300	0.020	0.012
L	0.500	0.300	0.020	0.012
L1	0.200	0.070	0.008	0.003
θ	12°	0°	12°	0°