WANSEMI
万芯半导体

WP3030AP3

Enhancement Mode N-Channel Power MOSFET

PDFN3x3/NMOS/30V/±20V/1.8V/30A/6mΩ

Rev0.6

30V, 6mΩ, 30A, Single N-Channel

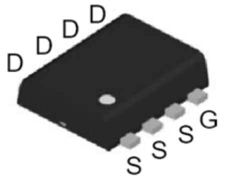
1.Features

- 30V MOSFET technology
- Low on-state resistance
- Fast switching
- Vgs±20V

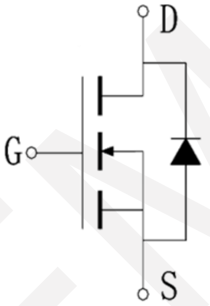
V_{DS}	$R_{DS(on)}$ Typ.	I_D Max.
30V	6mΩ @ 10V	30A
	9.2mΩ @ 4.5V	

2.Applications

- Power Switching Application
- Load Switching



PDFN3x3-8L
Pin Description



Schematic Diagram

3.Package Marking and Ordering Information

Part no.	Marking	Package	PCS/Reel	PCS/CTN.
WP3030AP3	WP3030AP3	PDFN3x3-8L	5,000	50,000

4.Absolute Max Ratings at Ta=25℃ (Note1)

Parameter	Symbol	Maximum	Units
Drain to Source Voltage	V_{DSS}	30	V
Gate to Source Voltage	V_{GSS}	±20	V
Drain Current (DC)	I_D	30	A
Drain Current (Pulse), PW≤300μs	I_{DP}	120	A
Total Dissipation	P_D	22	W
Avalanche Energy, Single Pulsed	E_{AS}	49	mJ
Junction Temperature	T_j	150	℃
Storage Temperature	T_{stg}	-55 to +150	℃

Note 1: Stresses exceeding those listed in the Maximum Ratings table may damage the device. If any of these limits are exceeded, device functionality should not be assumed, damage may occur and reliability may be affected.

5.Thermal Resistance Ratings (Note 2)

Parameter	Symbol	Value	Unit
Junction to case	$R_{\theta JC}$	5.7	°C/W

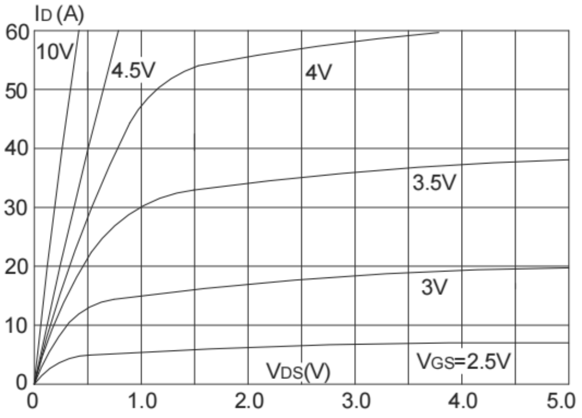
Note 2：When mounted on 1 inch square copper board t ≤ 10sec The value in any given application depends on the user's specific board design.

6.Electrical Characteristics at Ta=25℃ (Note 3)

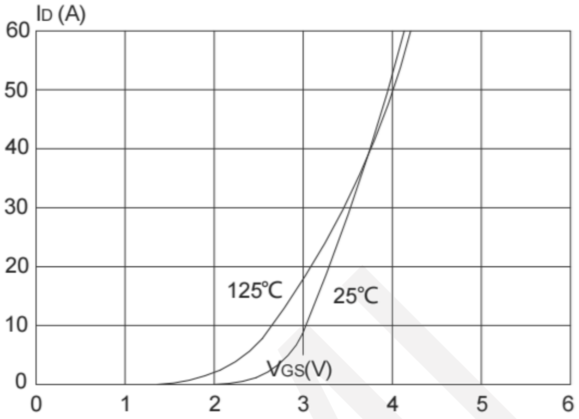
Parameter	Symbol	Test Conditions	Min.	Typ.	Max.	Units
Drain to Source Breakdown Voltage	$V_{(BR)DSS}$	I_D = 250μA, V_{GS} = 0V	30			V
Zero-Gate Voltage Drain Current	I_{DSS}	V_{DS} = 30V, V_{GS} = 0V			1	μA
Gate to Source Leakage Current	I_{GSS}	V_{GS} = ±20V, V_{DS} = 0V			±100	nA
Gate Threshold Voltage	$V_{GS(th)}$	V_{DS}=V_{GS}, I_{DS}=250μA	1.0	1.8	2.5	V
Static Drain to Source On-State Resistance	$R_{DS(on)}$	I_D = 25A, V_{GS} = 10V		6	7.5	mΩ
		I_D = 15A, V_{GS} = 4.5V		9.2	13	mΩ
Input Capacitance	C_{iss}	V_{GS}=0V, V_{DS}=15V, Frequency=1.0MHz		1120		pF
Output Capacitance	C_{oss}			190		pF
Reverse Transfer Capacitance	C_{rss}			150		pF
Turn-ON Delay Time	$t_{d(on)}$	V_{DD} = 15V, I_{DS} = 30A, V_{GS} = 10V, R_G = 3Ω		8		ns
Rise Time	t_r			100		ns
Turn-OFF Delay Time	$t_{d(off)}$			23		ns
Fall Time	t_f			108		ns
Total Gate Charge	Q_g	V_{DS} = 15V, V_{GS} = 10V, I_{DS} = 15A		24		nC
	Q_{gs}			4		nC
	Q_{gd}			6		nC
Diode Forward Voltage	V_{FSD}	I_S = 30A, V_{GS} = 0			1.2	V

Note 3：Product parametric performance is indicated in the Electrical Characteristics for the listed test conditions, unless otherwise noted. Product performance may not be indicated by the Electrical Characteristics if operated under different conditions.

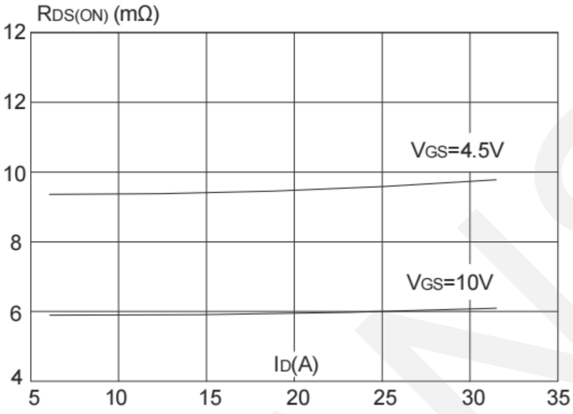
7.Typical electrical and thermal characteristics



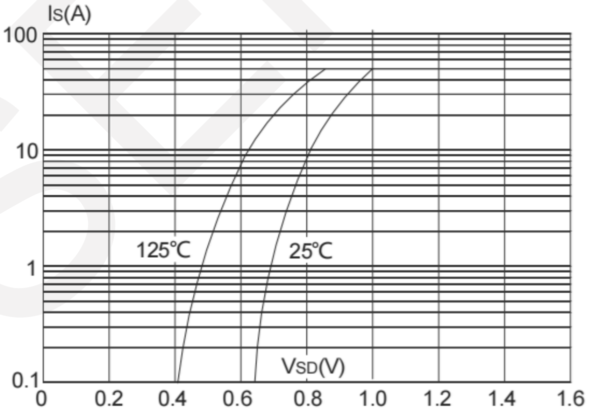
Output Characteristics



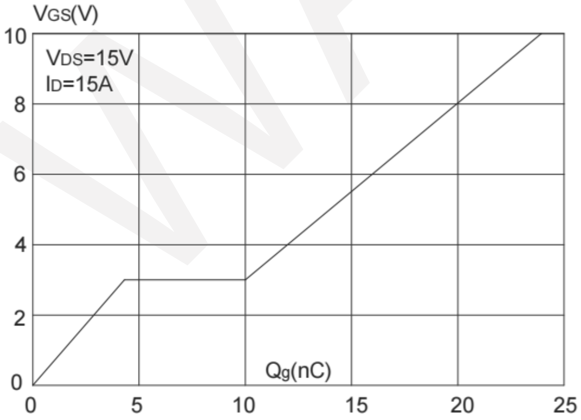
Typical Transfer Characteristics



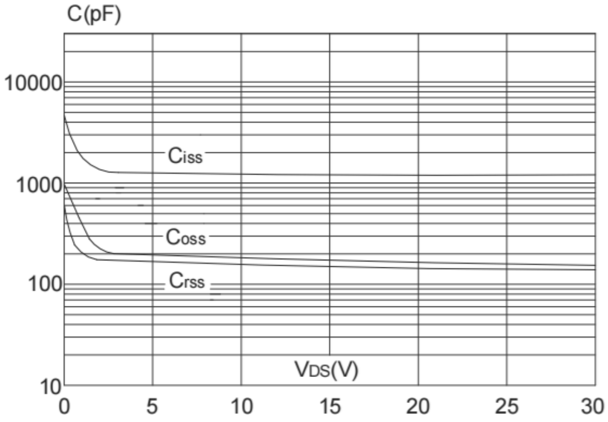
On-resistance vs. Drain Current



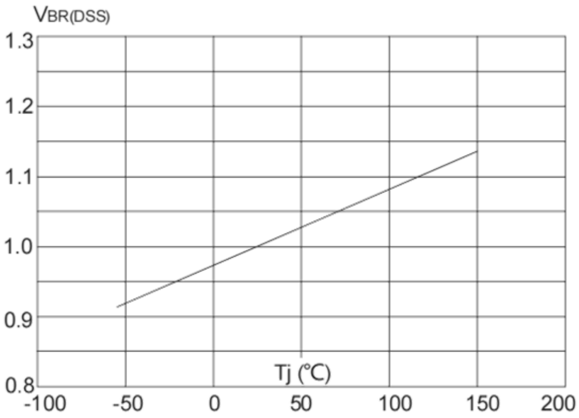
Body Diode Characteristics



Gate Charge Characteristics

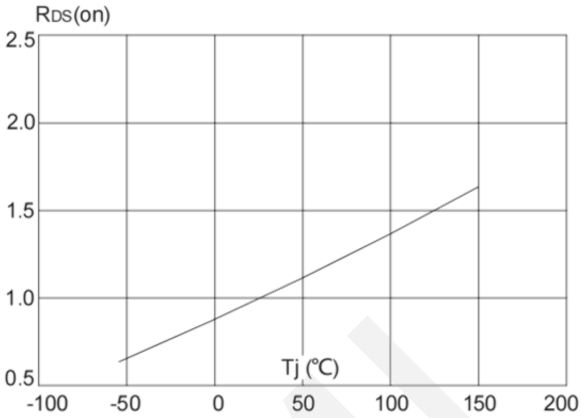


Capacitance Characteristics



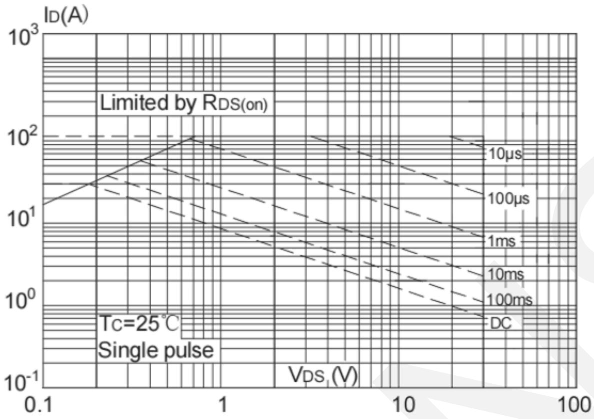
Normalized Breakdown Voltage vs.

Junction Temperature

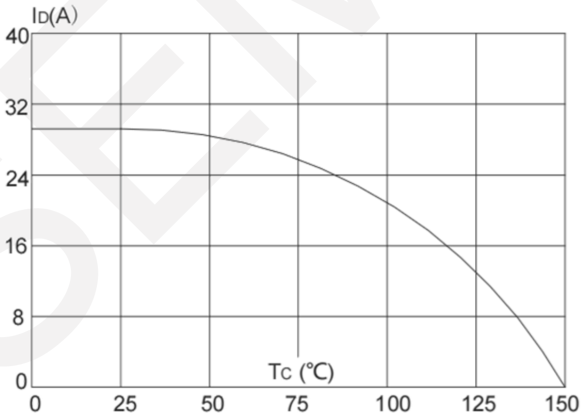


Normalized on Resistance vs.

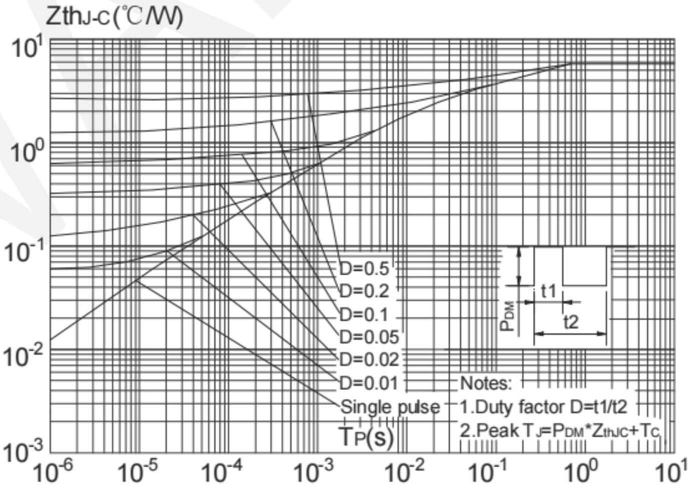
Junction Temperature



Maximum Safe Operating Area

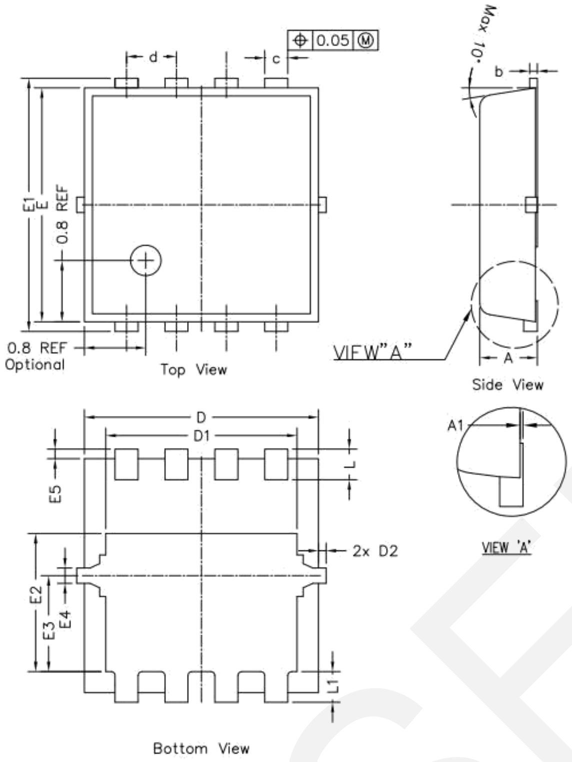


Maximum Continuous Drain Current vs.
Case Temperature



Maximum Effective Transient Thermal Impedance, Junction-to-Case

8.Package Dimensions



SYMBOLS	DIMENSION IN MM			DIMENSION IN INCHES		
	MIN	NOM	MAX	MIN	NOM	MAX
A	0.700	0.750	0.800	0.028	0.030	0.031
A1	---	---	0.050	----	----	0.002
b	0.144	0.152	0.202	0.006	0.006	0.008
c	0.250	0.300	0.350	0.010	0.012	0.014
d	0.65 BSC			0.026 BSC		
D	2.950	3.050	3.150	0.116	0.120	0.124
D1	2.390	2.490	2.590	0.094	0.098	0.102
D2	---	---	0.125	---	---	0.005
E	2.950	3.050	3.150	0.116	0.120	0.124
E1	3.200	3.300	3.400	0.126	0.130	0.134
E2	1.700	1.800	1.900	0.067	0.071	0.075
E3	1.150	1.250	1.350	0.045	0.049	0.053
E4	0.150	0.200	0.250	0.006	0.008	0.010
E5	0.075	0.125	0.175	0.003	0.005	0.007
L	0.300	0.400	0.500	0.01	0.02	0.02
L1	0.300	0.400	0.500	0.01	0.02	0.02

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