

Dual N-Ch 30V MOSFETs

- ★ 100% EAS Guaranteed
- ★ Green Device Available
- ★ Super Low Gate Charge
- ★ Excellent CdV/dt effect decline
- ★ Advanced high cell density Trench technology

Description

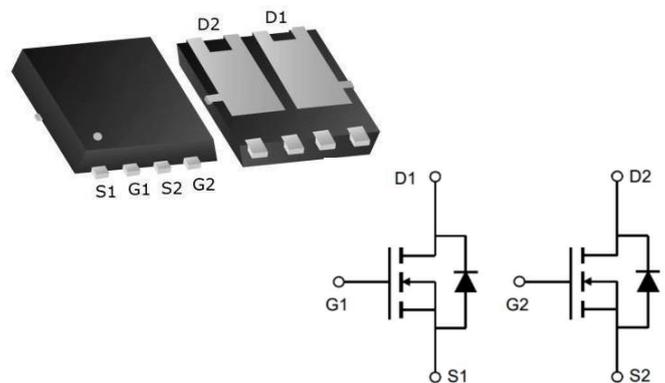
The 100N03ND is the high cell density trenched N-ch MOSFETs, which provide excellent R_{DS(on)} and gate charge for most of the synchronous buck converter applications.

The 3006M meet the RoHS and Green Product requirement 100% EAS guaranteed with full function reliability approved.

Product Summary

BVDSS	R _{DS(on)}	I _D
30V	3.3mΩ	100A

PDFN5*6-8 Pin Configuration



Absolute Maximum Ratings

Symbol	Parameter	Rating	Units
V _{DS}	Drain-Source Voltage	30	V
V _{GS}	Gate-Source Voltage	±20	V
I _D @T _A =25°C	Continuous Drain Current, V _{GS} @ 10V ¹	100	A
I _D @T _A =70°C	Continuous Drain Current, V _{GS} @ 10V ¹	30	A
I _{DM}	Pulsed Drain Current ²	150	A
EAS	Single Pulse Avalanche Energy ³	24.2	mJ
I _{AS}	Avalanche Current	22	A
P _D @T _A =25°C	Total Power Dissipation ⁴	1.5	W
T _{STG}	Storage Temperature Range	-55 to 150	°C
T _J	Operating Junction Temperature Range	-55 to 150	°C

Thermal Data

Symbol	Parameter	Typ.	Max.	Unit
R _{θJA}	Thermal Resistance Junction-Ambient ¹	---	85	°C/W

Electrical Characteristics (T_J=25 °C, unless otherwise noted)

Symbol	Parameter	Test Condition	Min.	Typ.	Max.	Units
V _{(BR)DSS}	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,	-	-	1.0	μA
I _{GSS}	Gate to Body Leakage Current	V _{DS} =0V, V _{GS} =±20V	-	-	±100	nA
V _{GS(th)}	Gate Threshold Voltage	V _{DS} =V _{GS} , I _D =250μA	1.0	1.5	2.5	V
R _{DS(on)}	Static Drain-Source on-Resistance <small>note3</small>	V _{GS} =10V, I _D =20A	-	3.3	5.5	mΩ
		V _{GS} =4.5V, I _D =10A	-	5.0	8.5	
C _{iss}	Input Capacitance	V _{DS} =15V, V _{GS} =0V, f=1.0MHz	-	3614	-	pF
C _{oss}	Output Capacitance		-	2118	-	pF
C _{rss}	Reverse Transfer Capacitance		-	98	-	pF
Q _g	Total Gate Charge	V _{DS} =15V, I _D =11A, V _{GS} =10V	-	16	-	nC
Q _{gs}	Gate-Source Charge		-	2.7	-	nC
Q _{gd}	Gate-Drain("Miller") Charge		-	4.5	-	nC
t _{d(on)}	Turn-on Delay Time	V _{DS} =15V, R _L =1.35Ω, R _{GEN} =3Ω, V _{GS} =10V	-	6	-	ns
t _r	Turn-on Rise Time		-	10	-	ns
t _{d(off)}	Turn-off Delay Time		-	30	-	ns
t _f	Turn-off Fall Time		-	6.5	-	ns
I _S	Maximum Continuous Drain to Source Diode Forward Current		-	-	30	A
I _{SM}	Maximum Pulsed Drain to Source Diode Forward Current		-	-	60	A
V _{SD}	Drain to Source Diode Forward Voltage	V _{GS} =0V, I _S =15A	-	-	1.2	V
t _{rr}	Body Diode Reverse Recovery Time	I _F =11A, di/dt=500A/μs T _J =25°C	-	7	-	ns
Q _{rr}	Body Diode Reverse Recovery Charge		-	10	-	nC

Diode Characteristics

Symbol	Parameter	Conditions	Min.	Typ.	Max.	Unit
I _S	Continuous Source Current ^{1,5}	V _G =V _D =0V, Force Current	---	---	30	A
V _{SD}	Diode Forward Voltage ²	V _{GS} =0V, I _S =1A, T _J =25°C	---	---	1	V
t _{rr}	Reverse Recovery Time	I _F =8A, di/dt=100A/μs, T _J =25°C	---	8	---	nS
Q _{rr}	Reverse Recovery Charge		---	2.9	---	nC

Note :

Typical Performance Characteristics

Figure 1: Output Characteristics

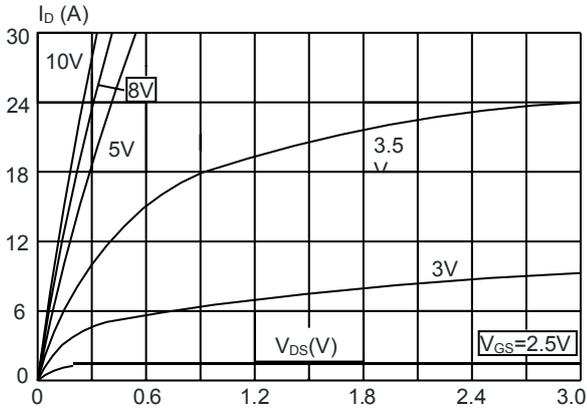


Figure 2: Typical Transfer Characteristics

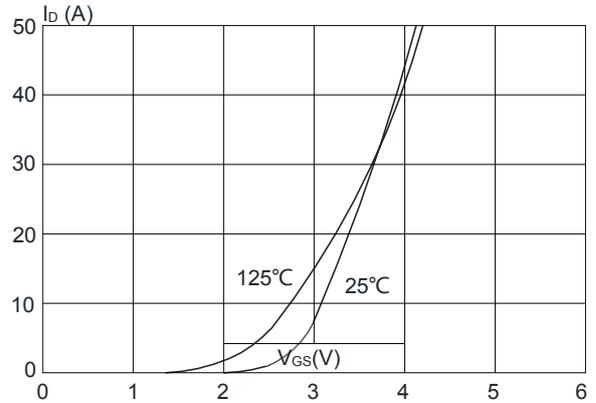


Figure 3: On-resistance vs. Drain Current

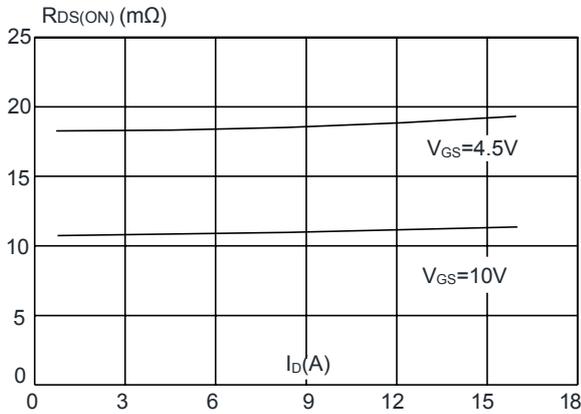


Figure 4: Body Diode Characteristics

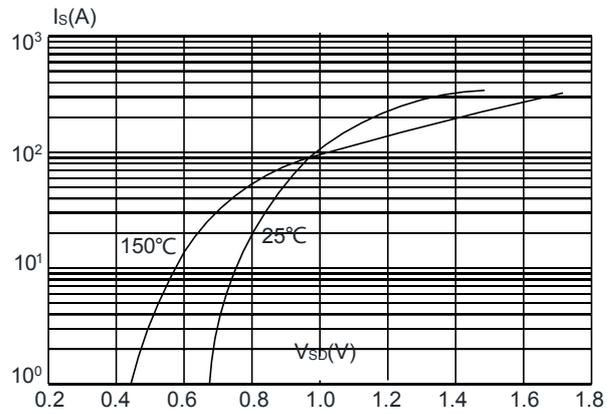


Figure 5: Gate Charge Characteristics

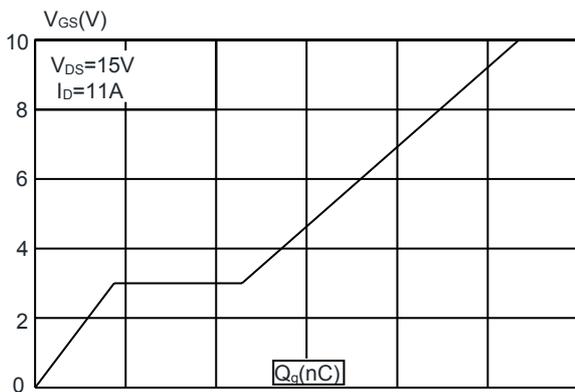
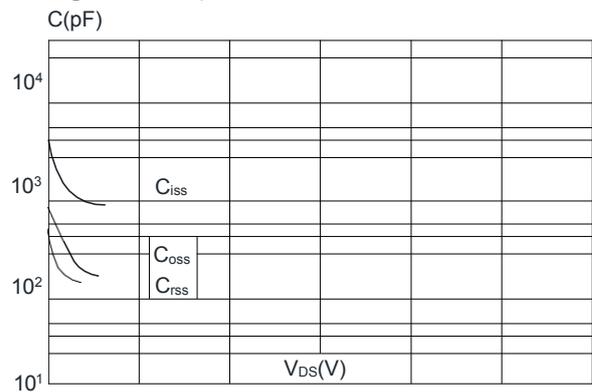


Figure 6: Capacitance Characteristics



Dual N-Ch 30V MOSFETs

Figure 7: Normalized Breakdown Voltage vs. Junction Temperature

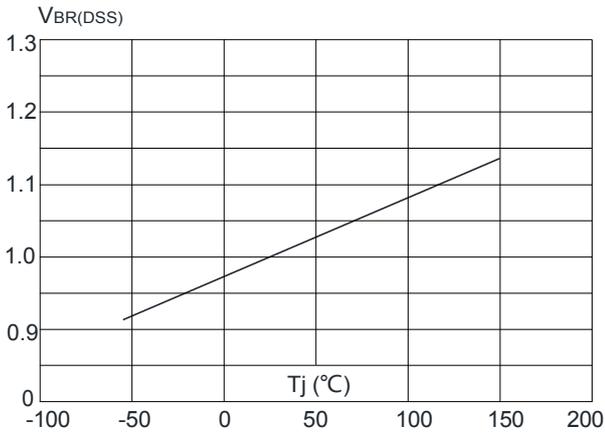


Figure 8: Normalized on Resistance vs. Junction Temperature

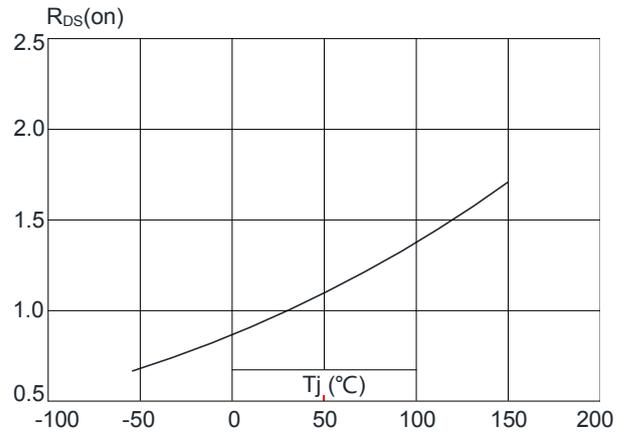


Figure 9: Maximum Safe Operating Area

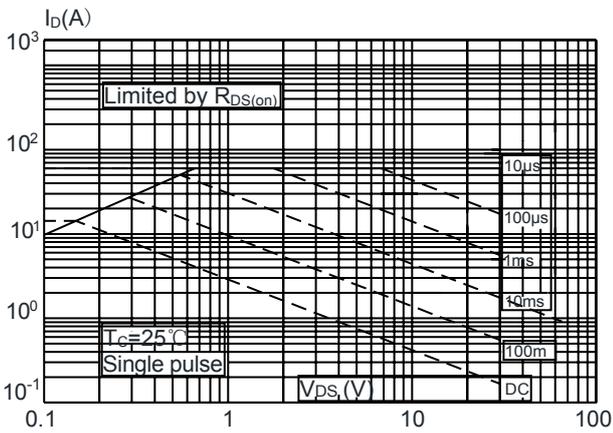


Figure 10: Maximum Continuous Drain Current vs. Case Temperature

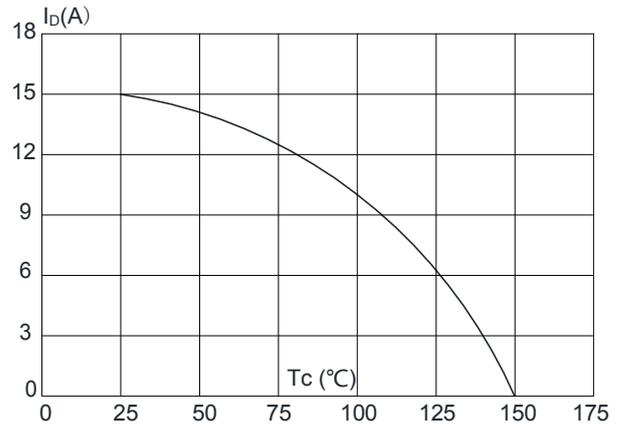
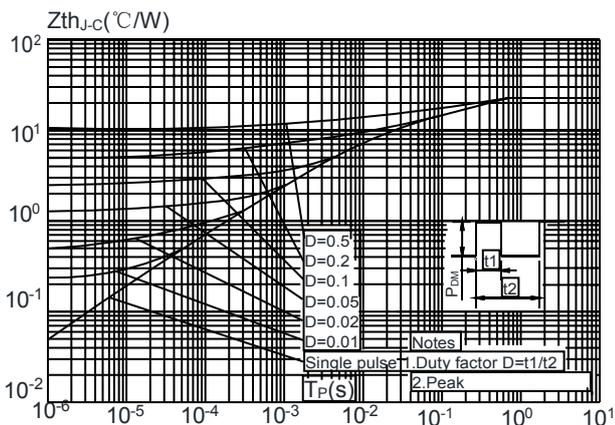


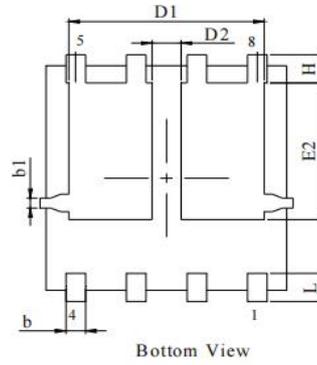
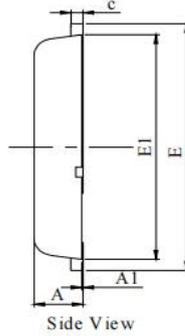
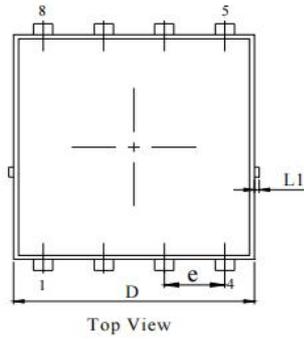
Figure.11: Maximum Effective Transient Thermal Impedance, Junction-to-Case



Dual PDFN5*6 Package Outline Data

PDFN5x6-8L-D Package Information

Package Outline



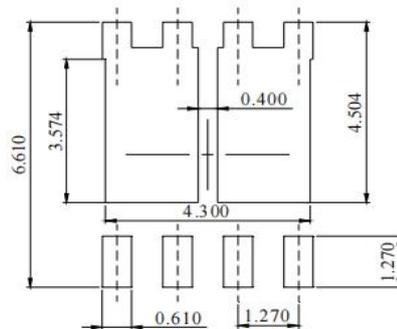
Front View

NOTES:

1. DIMENSIONING AND TOLERANCING PER ASME Y14.5M,1994.
2. ALL DIMENSIONS IN MILLIMETER (ANGLE IN DEGREE).
3. DIMENSIONS D1 AND E1 DO NOT INCLUDE MOLD FLASH PROTRUSIONS OR GATE BURRS.

DIM.	MILLIMETER		
	MIN.	NOM.	MAX.
A	0.90	1.00	1.10
A1	0.00	-	0.10
b	0.31	0.41	0.51
b1	0.15	0.25	0.35
c	0.23	-	0.33
D	4.95	5.05	5.15
D1	4.00	4.10	4.20
D2	0.50	0.60	0.70
E	6.05	6.15	6.25
E1	5.50	5.60	5.70
E2	3.31	3.41	3.51
e	1.27BSC		
H	0.60	0.70	0.80
L	0.50	0.70	0.80
L1	-	-	0.125
a	-	-	12°

Recommended Soldering Footprint



DIMENSIONS: MILLIMETERS