

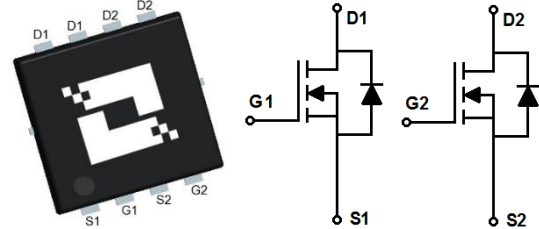
**Features**

- Low  $R_{DS(on)}$  @  $V_{GS}=10V$
- 5V Logic Level Control
- 100% UIS Tested
- Pb-Free, RoHS Compliant

$V_{(BR)DSS}$	$R_{DS(ON)}$ Typ	$I_D$ Max
30V	10m $\Omega$ @ 10V	42A
	14.5m $\Omega$ @ 4.5V	

**Applications**

- DC/DC Converters
- Wireless Charging
- Power Management Applications
- Load Switch
- Hand-Held Instruments


**PDFN3X3-Dual**
**Order Information**

Product	Package	Marking	Packing
DWT009M03B	PDFN3X3	009M03	5000PCS/Reel

**Absolute Maximum Ratings**

Stresses exceeding Maximum Ratings may damage the device. Maximum Ratings are stress ratings only. Functional operation above the Recommended Operating Conditions is not implied. Extended exposure to stresses above the Recommended Operating Conditions may affect device reliability.

Symbol	Parameter	Rating	Unit	
<b>Common Ratings (T<sub>C</sub>=25°C Unless Otherwise Noted)</b>				
$V_{GS}$	Gate-Source Voltage	±20	V	
$V_{(BR)DSS}$	Drain-Source Breakdown Voltage	30	V	
$T_J$	Maximum Junction Temperature	150	°C	
$T_{STG}$	Storage Temperature Range	-50 to 150	°C	
<b>Mounted on Large Heat Sink</b>				
$I_{DM}$	Pulse Drain Current Tested①	$T_C=25^\circ C$	130	A
$I_D$	Continuous Drain Current	$T_C=25^\circ C$	42	A
		$T_C=25^\circ C$	33.6	
$P_D$	Maximum Power Dissipation	34.7	W	
$R_{\theta JC}$	Thermal Resistance-Junction to Case	3.6	°C/W	

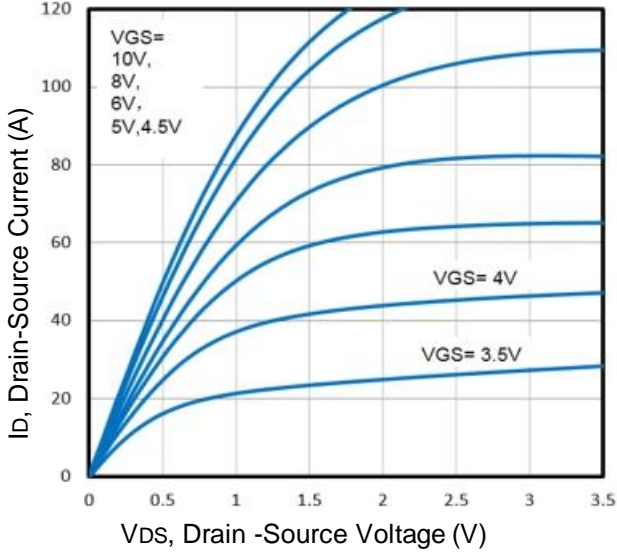
Symbol	Parameter	Condition	Min	Typ	Max	Unit
<b>Static Electrical Characteristics @ T<sub>J</sub> = 25°C (unless otherwise stated)</b>						
V <sub>(BR)DSS</sub>	Drain-Source Breakdown Voltage	V <sub>GS</sub> =0V I <sub>D</sub> =250μA	30	-	-	V
I <sub>DSS</sub>	Zero Gate Voltage Drain Current(T <sub>C</sub> =25°C)	V <sub>DS</sub> =30V, V <sub>GS</sub> =0V	-	-	1	μA
	Zero Gate Voltage Drain Current(T <sub>C</sub> =125°C)	V <sub>DS</sub> =24V, V <sub>GS</sub> =0V	-	-	100	μA
I <sub>GSS</sub>	Gate-Body Leakage Current	V <sub>GS</sub> =±20V, V <sub>DS</sub> =0V	-	-	±100	nA
V <sub>GS(TH)</sub>	Gate Threshold Voltage	V <sub>DS</sub> =V <sub>GS</sub> , I <sub>D</sub> =250μA	0.8	1.5	2.0	V
R <sub>DS(ON)</sub>	Drain-Source On-State Resistance <sup>③</sup>	V <sub>GS</sub> =10V, I <sub>D</sub> =10A	-	10	13	mΩ
R <sub>DS(ON)</sub>	Drain-Source On-State Resistance <sup>③</sup>	V <sub>GS</sub> =4.5V, I <sub>D</sub> =5A	-	14.5	18	mΩ
<b>Dynamic Electrical Characteristics @ T<sub>J</sub> = 25°C (unless otherwise stated)</b>						
C <sub>iss</sub>	Input Capacitance	V <sub>DS</sub> =15V, V <sub>GS</sub> =0V, f=1MHz	-	925	-	pF
C <sub>oss</sub>	Output Capacitance		-	139	-	pF
C <sub>rss</sub>	Reverse Transfer Capacitance		-	108	-	pF
R <sub>g</sub>	Gate Resistance	f=1MHz		3.7		Ω
Q <sub>g</sub>	Total Gate Charge	V <sub>DS</sub> =15V I <sub>D</sub> =5A, V <sub>GS</sub> =10V	-	21	-	nC
Q <sub>gs</sub>	Gate Source Charge		-	3.0	-	nC
Q <sub>gd</sub>	Gate Drain Charge		-	4.5	-	nC
<b>Switching Characteristics @ T<sub>J</sub> = 25°C (unless otherwise stated)</b>						
t <sub>d(on)</sub>	Turn on Delay Time	V <sub>DD</sub> =15V, I <sub>D</sub> =1A, R <sub>G</sub> =3.3Ω, V <sub>GS</sub> =10V	-	6.7	-	ns
t <sub>r</sub>	Turn on Rise Time		-	3.3	-	ns
t <sub>d(off)</sub>	Turn Off Delay Time		-	21	-	ns
t <sub>f</sub>	Turn Off Fall Time		-	6.2	-	ns
<b>Source Drain Diode Characteristics @ T<sub>J</sub> = 25°C (unless otherwise stated)</b>						
I <sub>SD</sub>	Source drain current(Body Diode)	T <sub>C</sub> =25°C	-	-	42	A
V <sub>SD</sub>	Forward on voltage <sup>③</sup>	T <sub>J</sub> =25°C, I <sub>SD</sub> =2A, V <sub>GS</sub> =0V	-	0.82	1.2	V

Notes: ① Pulse width limited by maximum allowable junction temperature

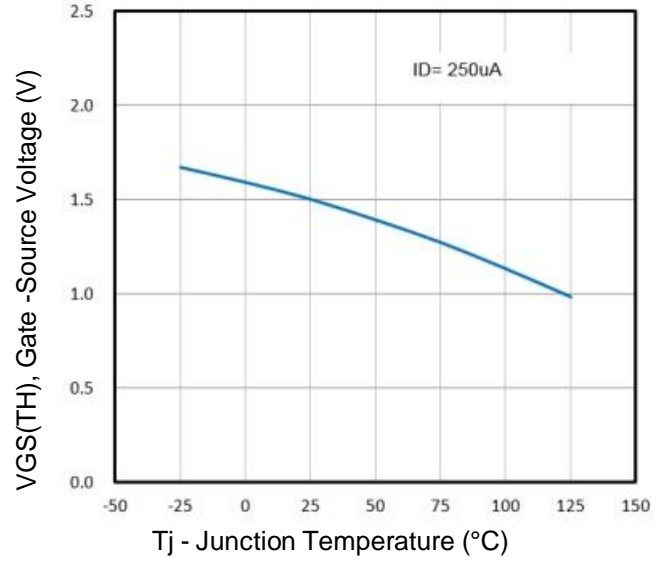
② Limited by T<sub>Jmax</sub>, starting T<sub>J</sub> = 25°C, L = 0.1mH, R<sub>G</sub> = 25Ω, I<sub>AS</sub> = 30A, V<sub>GS</sub> = 10V. Part not recommended for use above this value

③ Pulse width ≤ 300μs; duty cycles ≤ 2%.

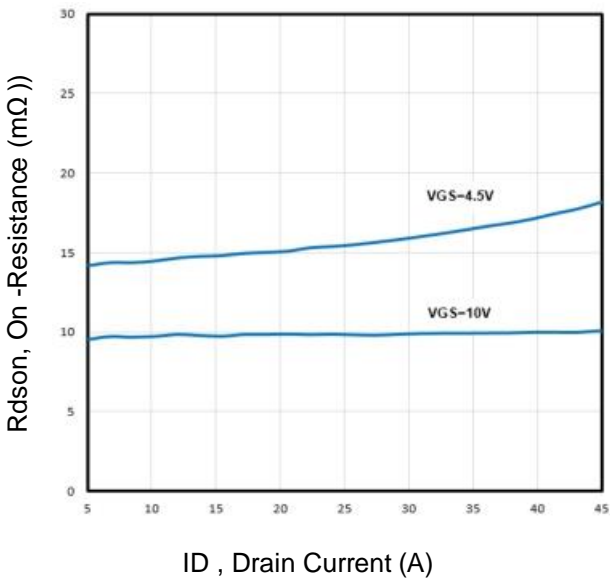
**Typical Characteristics**



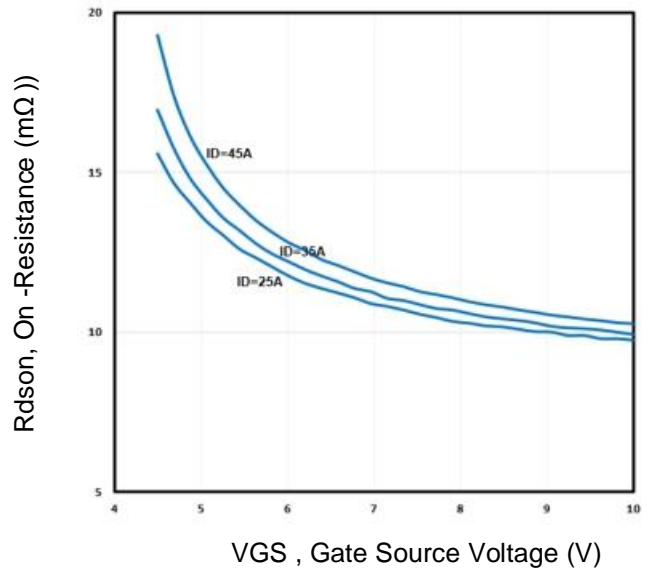
**Fig1.** Typical Output Characteristics



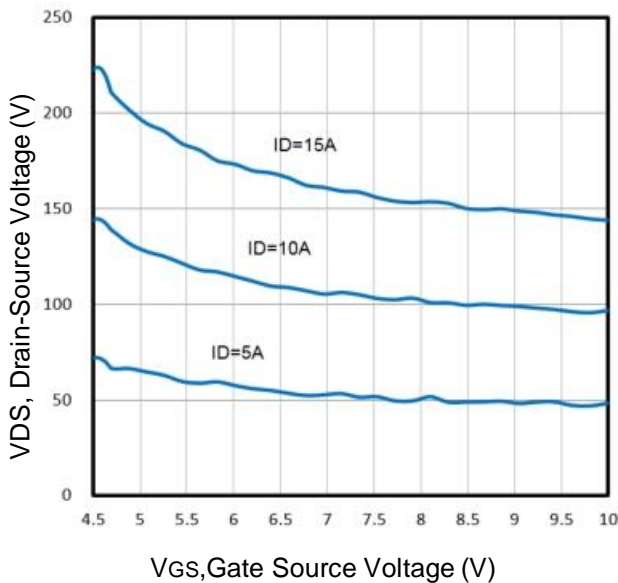
**Fig2.** VGS(TH) Voltage Vs. Temperature



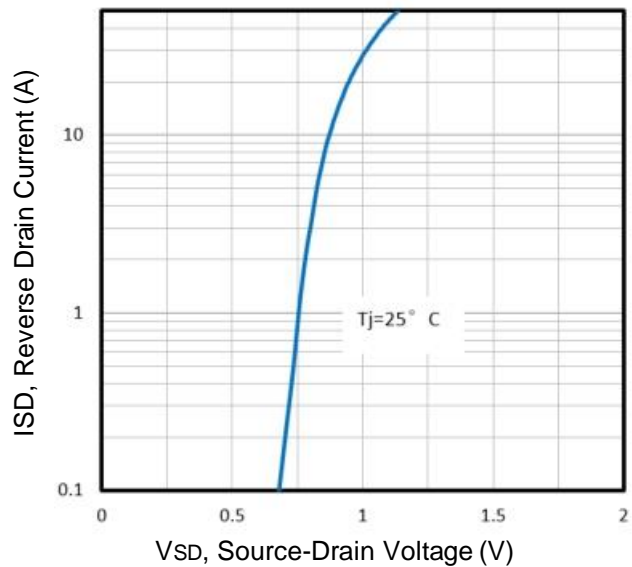
**Fig3.** On-Resistance vs. Drain Current and Gate



**Fig4.** On-Resistance vs. Gate Source Voltage

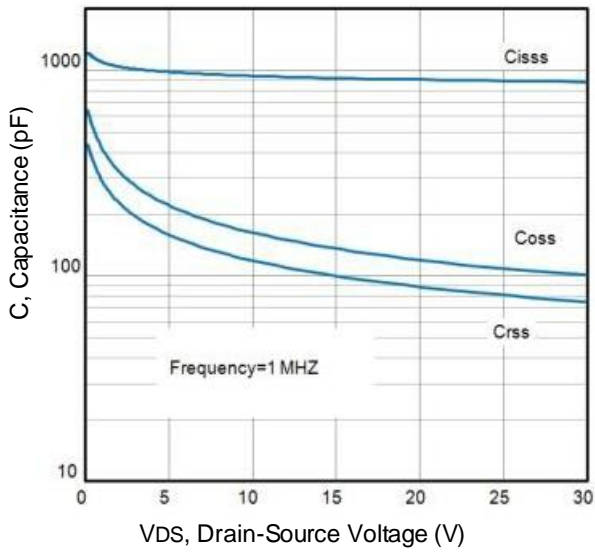


**Fig5.** Drain-Source Voltage vs Gate-Source Voltage

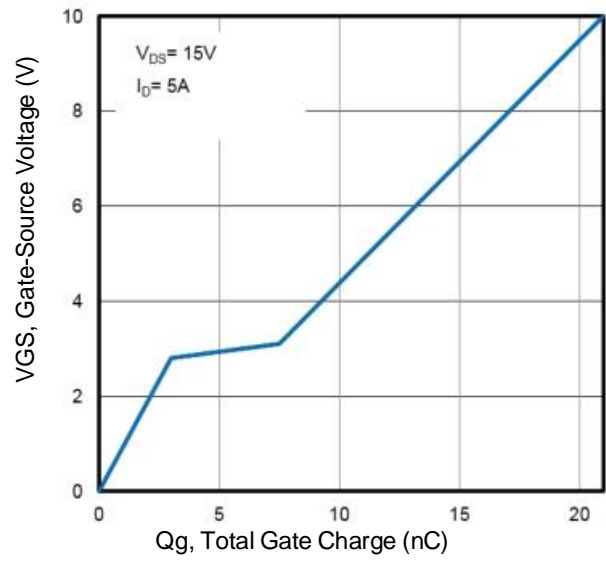


**Fig6.** Typical Source-Drain Diode Forward Voltage

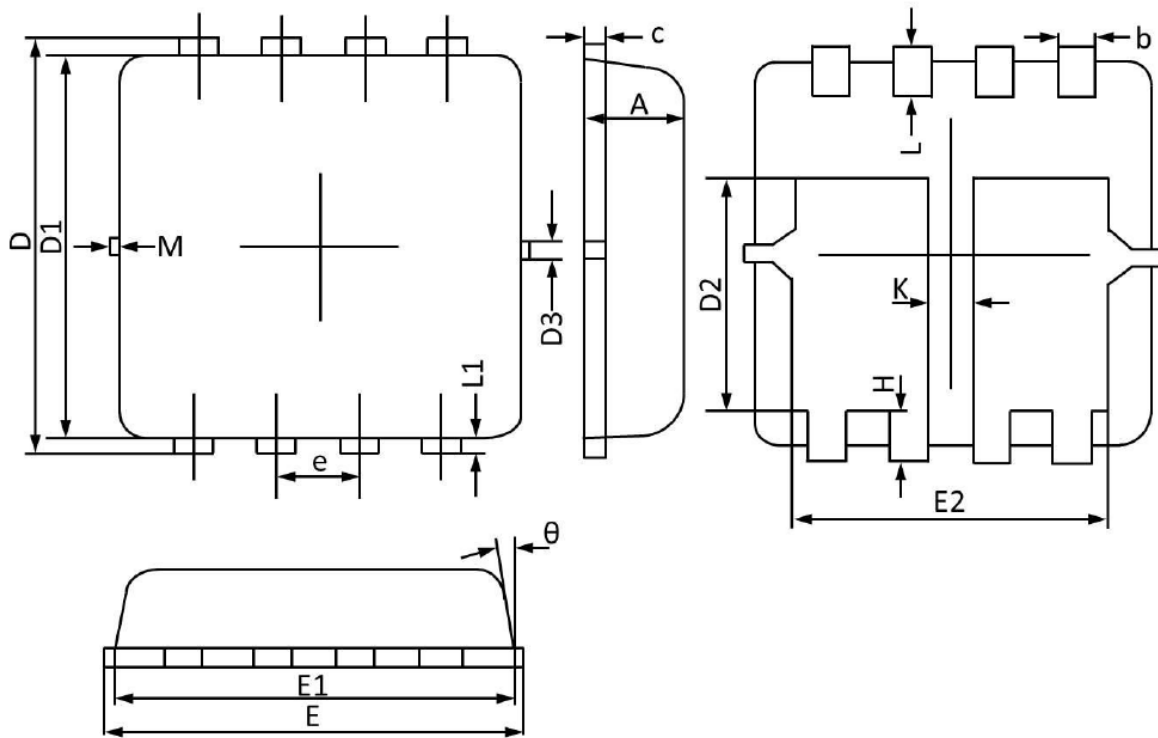
**Typical Characteristics**



**Fig7.** Typical Capacitance Vs. Drain-Source Voltage



**Fig8.** Typical Gate Charge Vs. Gate-Source Voltage

**PDFN3X3 Dual Channel Mechanical Data**


Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min	Max	Min	Max
A	0.700	0.800	0.028	0.031
b	0.250	0.350	0.010	0.013
c	0.100	0.250	0.004	0.009
D	3.250	3.450	0.128	0.135
D1	3.000	3.200	0.119	0.125
D2	1.780	1.980	0.070	0.077
D3	0.130 REF		0.005 REF	
E	3.200	3.400	0.126	0.133
E1	3.000	3.200	0.119	0.125
E2	2.390	2.590	0.094	0.102
e	0.650 BSC		0.026 BSC	
H	0.300	0.500	0.011	0.019
L	0.300	0.500	0.011	0.019
L1	0.130 REF		0.005 REF	
K	0.300 REF		0.012 REF	
$\theta$	0°	12°	0°	12°
M	0.150 REF		0.006 REF	

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