

N-Channel Enhancement Mode MOSFET

Features

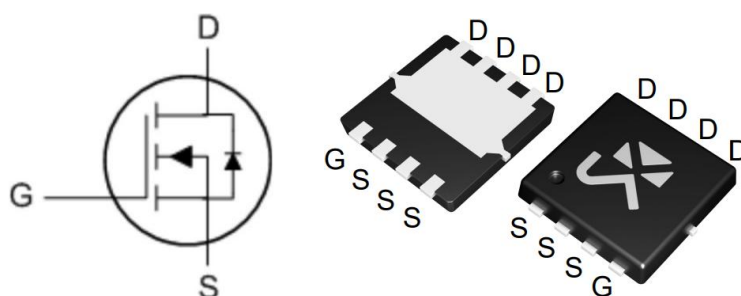
- $R_{DS(ON)}=5.6m\Omega(Max)@V_{GS}=10V$
 $R_{DS(ON)}=8.5m\Omega(Max)@V_{GS}=4.5V$
- Reliable and rugged

Marking:60N04

Applications

- Portable Appliances
- Power Management

$BV_{DSS}, T_A=25^{\circ}C$	$R_{DS(ON),max}@4.5V$	$I_D, T_A=25^{\circ}C$
40V	8.5m Ω	60A



PDFN3*3

Absolute Maximum Ratings($T_A=25^{\circ}C$, unless otherwise noted.)

Parameter	Symbol	Limit	Unit
Drain-Source Voltage	V_{DS}	40	V
Gate-Source Voltage	V_{GS}	± 20	V
Continuous Drain Current	I_D	60	A
Pulsed Drain Current	I_{DM}	135	A
Power Dissipation	P_D	32	W
Single Pulsed Avalanche Energy@L=0.5mH	E_{AS}	90.25	mJ
Maximum Junction Temperature	T_J	150	$^{\circ}C$
Storage Temperature Range	T_{STG}	-55~+150	$^{\circ}C$
Thermal Resistance from Junction to Case	$R_{\theta JC}$	3.9	$^{\circ}C/W$

Electrical Characteristics($T_A=25^{\circ}C$, unless otherwise noted.)

Parameter	Symbol	Condition	Min	Typ	Max	Unit
Off Characteristics						
Drain-Source Breakdown Voltage	BV_{DSS}	$V_{GS}=0V, I_D=250\mu A$	40			V
Drain-Source Leakage Current	I_{DSS}	$V_{DS}=40V, V_{GS}=0V$			1	μA

Gate-Source Leakage Current	I _{GSS}	V _{GS} =±20V,V _{DS} =0V			±100	nA
On Characteristics						
Gate Threshold Voltage	V _{GS(th)}	V _{DS} =V _{GS} ,I _D =250μA	1		2.5	V
Drain-Source On Resistance	R _{DS(on)}	V _{GS} =10V,I _D =20A		4.5	5.6	mΩ
		V _{GS} =4.5V,I _D =10A		6.8	8.5	
Forward Transconductance	g _{FS}	V _{DS} =10V,I _D =20A	15			S
Dynamic Characteristics						
Input Capacitance	C _{iss}	V _{DS} =20V,V _{GS} =0V, f=1MHz		780		pF
Output Capacitance	C _{oss}			302		pF
Reverse Transfer Capacitance	C _{rss}			44		pF
Total Gate Charge	Q _g	V _{DS} =20V,I _D =20A, V _{GS} =10V		21		nC
Gate Source Charge	Q _{gs}			3		nC
Gate Drain Charge	Q _{gd}			6		nC
Drain-Source Diode Characteristics						
Diode Forward Voltage	V _{SD}	V _{GS} =0V,I _S =20A			1.2	V

Typical Characteristics

Figure 1. Output Characteristics

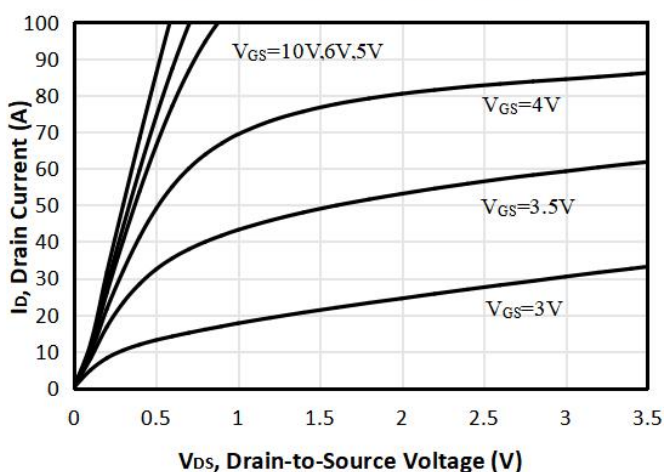


Figure 2. Transfer Characteristics

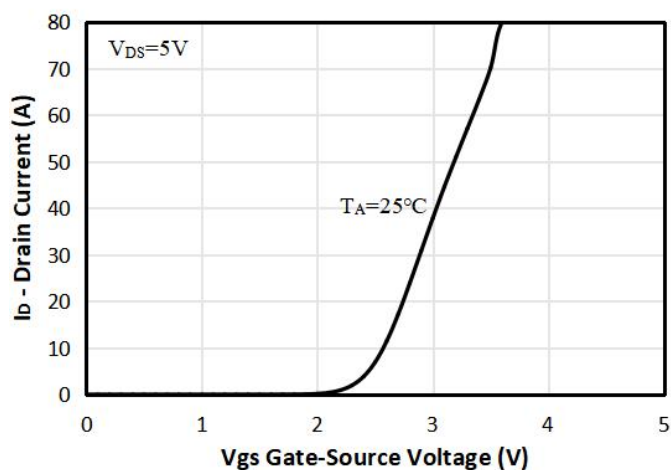


Figure 3. On-Resistance vs. Drain Current

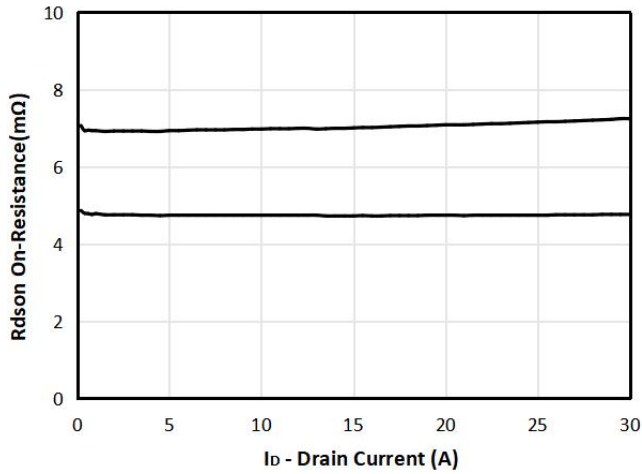


Figure 4. Source Current vs. Source-Drain Voltage

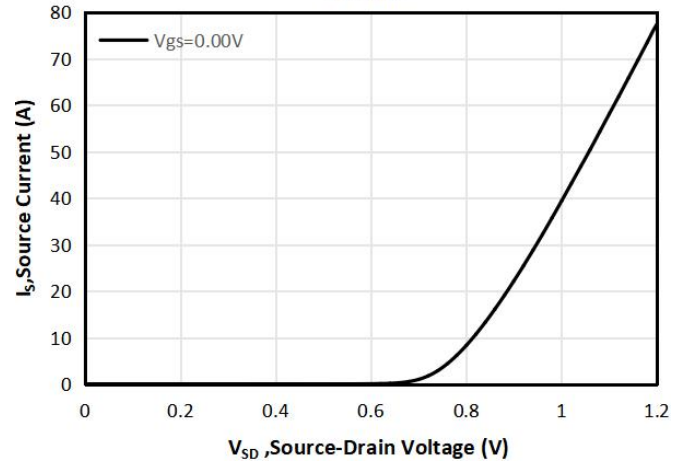


Figure 5. Capacitance Characteristics

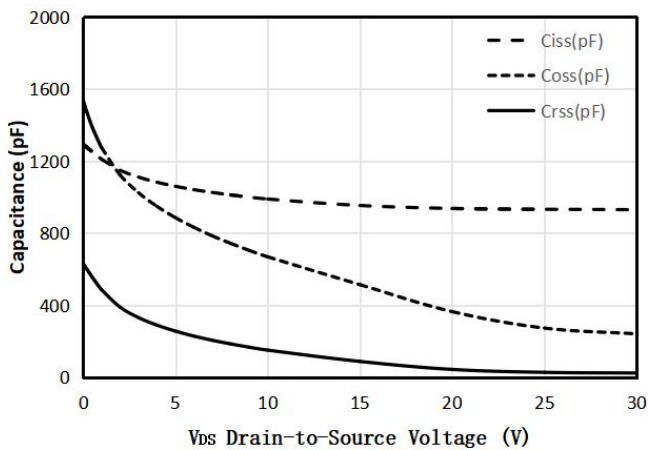


Figure 6. Gate Charge Characteristics

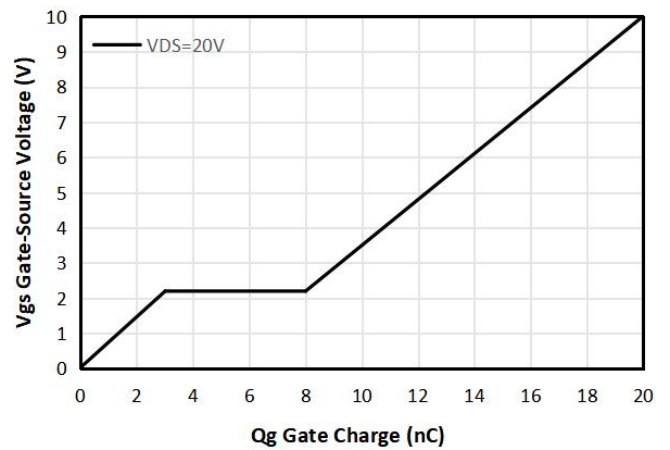


Figure 7. Vds Drain-Source Voltage vs Gate Voltage

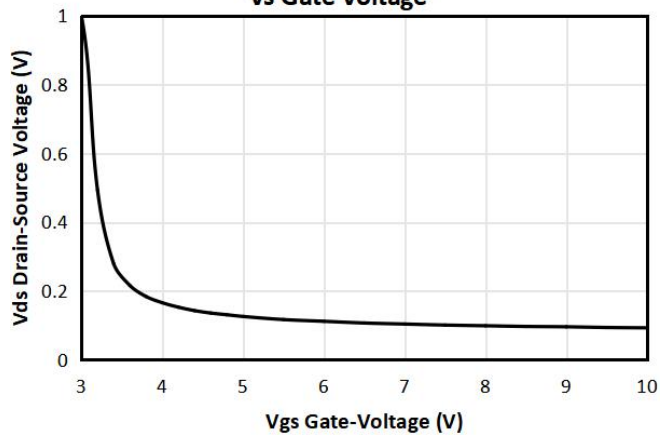
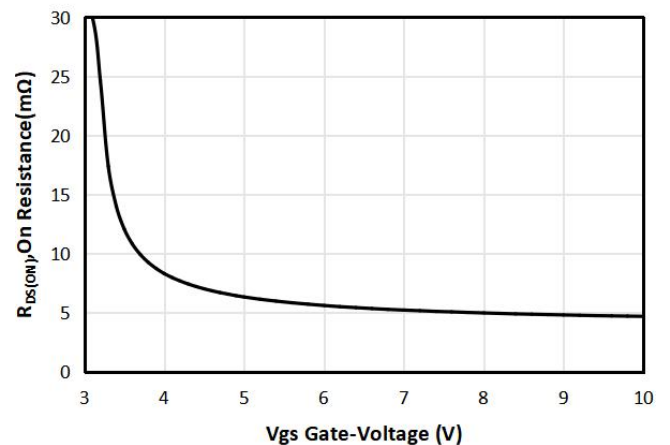


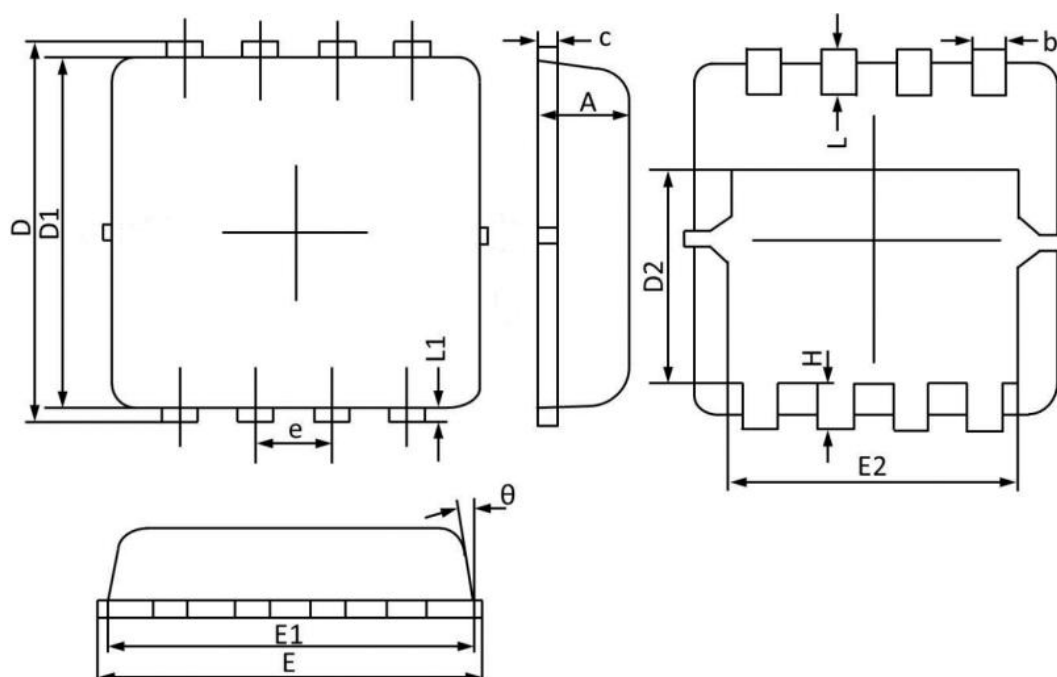
Figure 8. On-Resistance vs. Gate Voltage



Package Information

PDFN3*3

Dimensions in mm



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	MAX	MIN	MAX	MIN
A	0.900	0.700	0.035	0.028
b	0.350	0.250	0.014	0.010
c	0.250	0.100	0.010	0.004
D	3.500	3.050	0.138	0.120
D1	3.200	2.900	0.126	0.114
D2	1.950	1.350	0.077	0.053
E	3.400	3.000	0.134	0.118
E1	3.300	2.900	0.130	0.114
E2	2.600	2.350	0.102	0.093
e	0.65BSC		0.026BSC	
H	0.750	0.300	0.030	0.012
L	0.600	0.300	0.024	0.012
L1	0.200	0.060	0.008	0.002
θ	14°	6°	14°	6°

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