Description

This 40A,30V N-Channel MOSFET in a PDFN 3×3-8L Plastic Package.

Applications

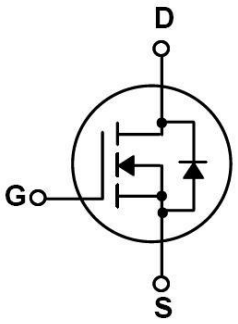
These devices are well suited for high efficiency switching DC/DC converters and switch mode power supplies.

Features

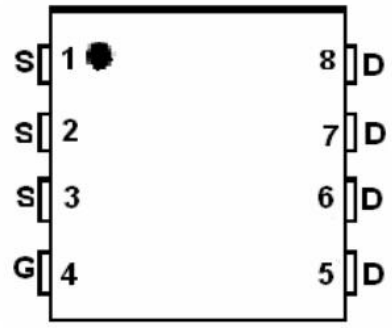
- V_{DS} (V) = 30V
- I_D =40 A (V_{GS} = ±20V)
- $R_{DS(ON)}$@10V≤6mR(Typ.4.7mR)
- Halogen-Free Product

V_{DSS}	$R_{DS(on)}$ (Typ)	I_D
30V	4.7mΩ	40A

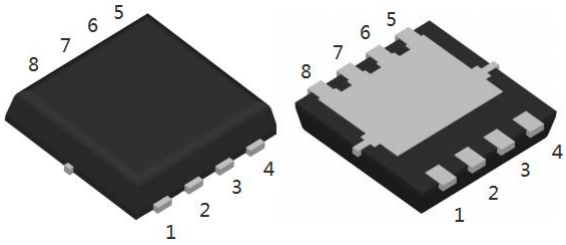
Equivalent Circuit & Pinning



Schematic diagram



Pin assignment



PDFN3X3-8L

Absolute Maximum Ratings(Ta=25℃)

Parameter		Symbol	Rating	Unit
Drain-Source Voltage		V_{DSS}	30	V
Drain Current		I_D(Tc=25℃)	40	A
Drain Current - Pulsed		I_{DM}	130	A
Gate-Source Voltage		V_{GSS}	±20	V
Single Pulsed Avalanche Energy		E_{AS}	211	mJ
Avalanche Current		I_{AS}	23	A
Power Dissipation		P_D(Tc=25℃)	29	W
Operating and Storage Temperature Range		T_J,T_{stg}	-55 to 150	℃
Junction-to-Ambient	t≤10	$R_{\theta JA}$	40	℃/W
Junction-to-Ambient	Steady-State		75	
Junction-to-Case	Steady-State	$R_{\theta JC}$	4.2	

Electrical Characteristics(Ta=25℃)

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Drain-Source Breakdown Voltage	BV_{DSS}	V_{GS}=0V I_D=250μA	30	32		V
Zero Gate Voltage Drain Current	I_{DSS}	V_{DS}=30V V_{GS}=0V			1	μA
Gate-Body Leakage Current Forward	I_{GSS}	V_{GS}=±20V V_{DS}=0V			±0.1	μA
Gate Threshold Voltage	$V_{GS(th)}$	V_{DS}=V_{GS} I_D=250μA	1.0	1.8	2.5	V
Static Drain-Source On-Resistance	$R_{DS(on)}$	V_{GS}=10V I_D=20A		4.7	6	mΩ
		V_{GS}=4.5V I_D=10A		7.1	9	mΩ
Drain-Source Diode Forward Voltage	V_{SD}	V_{GS}=0V I_S=10A		0.75	1.2	V
Input Capacitance	C_{iss}	V_{DS}=25V V_{GS}=0V f=1.0MHz		2090		pF
Output Capacitance	C_{oss}			790		
Reverse Transfer Capacitance	C_{rss}			634		
Gate resistance	R_g	V_{GS}=0V V_{DS}=0V f=1MHz		1.9		Ω
Total Gate Charge	$Q_{g(10V)}$	V_{GS}=10V V_{DS}=15V I_D=18A		33		nC
Total Gate Charge	$Q_{g(4.5V)}$			16		
Gate Source Charge	Q_{gs}			5.2		
Gate Drain Charge	Q_{gd}			6.2		
Turn-On Delay Time	$t_{d(on)}$	V_{DD}=10V V_{DS}=15V R_L=0.83Ω R_{GEN}=3Ω		6		ns
Turn-On Rise Time	t_r			4		
Turn-Off Delay Time	$t_{d(off)}$			33		
Turn-Off Fall Time	t_f			7.5		

Electrical Characteristic Curve

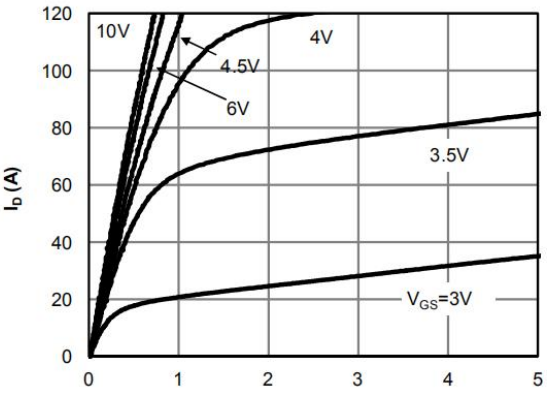


Fig 1: On-Region Characteristics

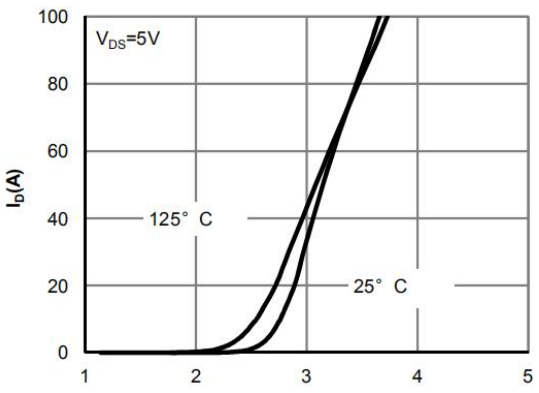


Figure 2: Transfer Characteristics

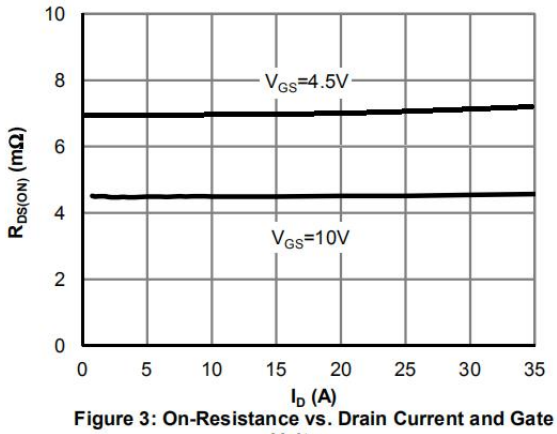


Figure 3: On-Resistance vs. Drain Current and Gate Voltage

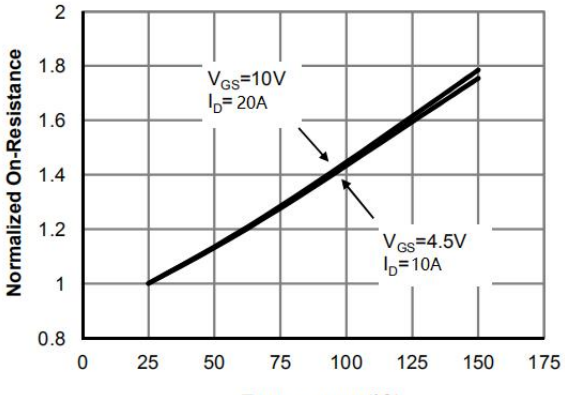


Figure 4: On-Resistance vs. Junction Temperature

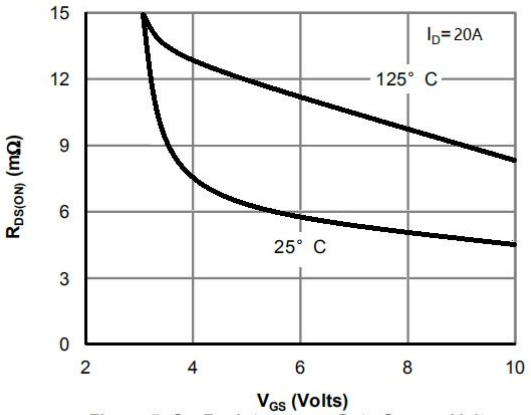


Figure 5: On-Resistance vs. Gate-Source Voltage

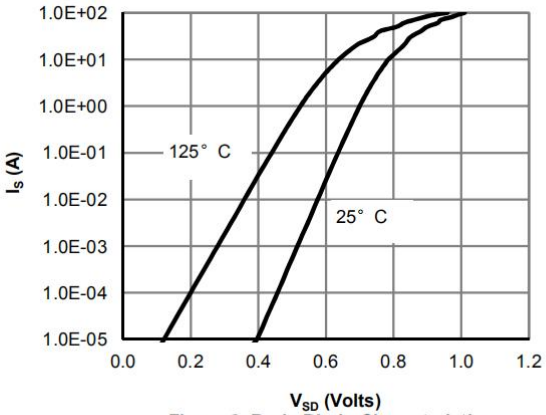


Figure 6: Body-Diode Characteristics

Electrical Characteristic Curve

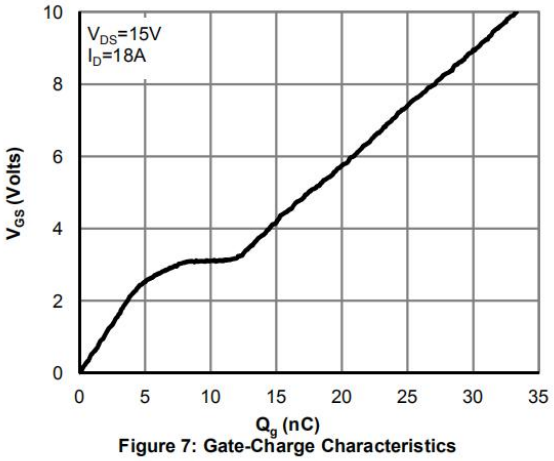


Figure 7: Gate-Charge Characteristics

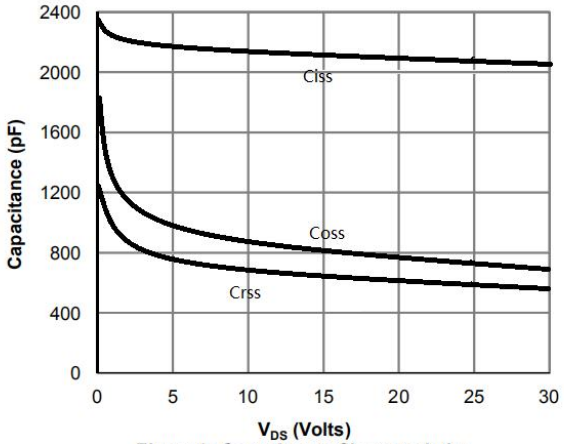


Figure 8: Capacitance Characteristics

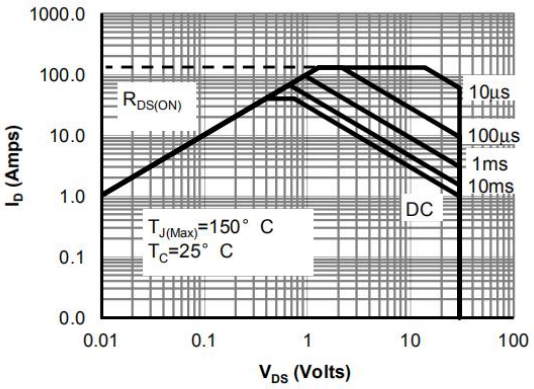


Figure 9: Maximum Forward Biased Safe Operating Area

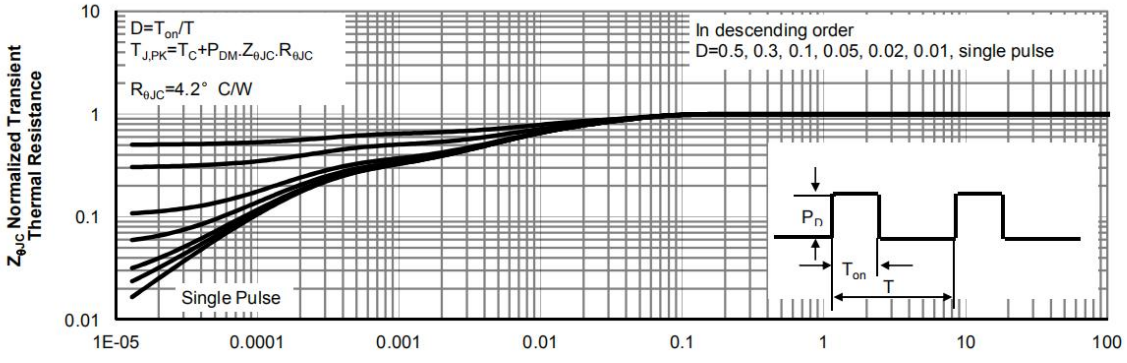


Figure 10: Normalized Maximum Transient Thermal Impedance

Marking Instructions

Note:

COT: Company Logo

060N03: Product Type.

****: Lot No. Code, code change with Lot No.

Packaging SPEC.

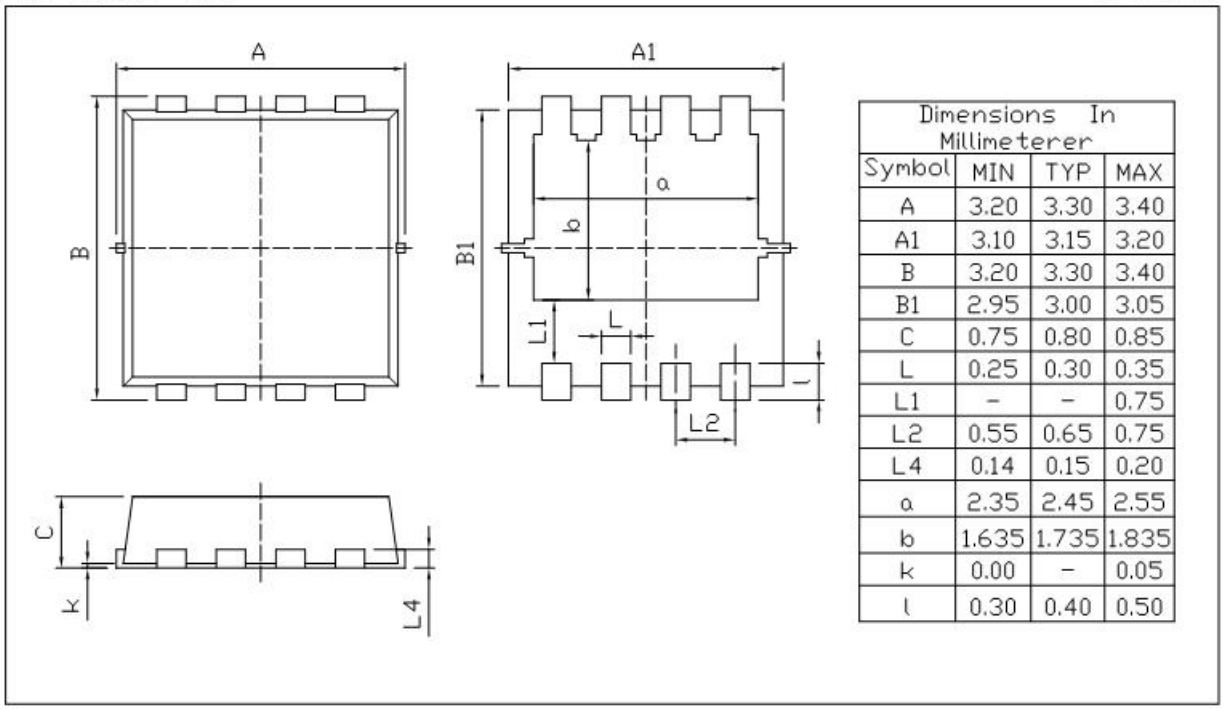
REEL INFORMATION

Package Type	Units					Dimension (unit: mm³)		
	Units/Reel	Reels/Inner Box	Units/Inner Box	Inner Boxes/Outer Box	Units/Outer Box	Reel	Inner Box	Outer Box
PDFN3×3-8L	5,000	2	10,000	6	60,000	13″ ×12	360×360×50	380×335×366

Package Outline Dimensions

PDFN3X3-8L

Unit:mm



Dimensions In Millimeterer			
Symbol	MIN	TYP	MAX
A	3.20	3.30	3.40
A1	3.10	3.15	3.20
B	3.20	3.30	3.40
B1	2.95	3.00	3.05
C	0.75	0.80	0.85
L	0.25	0.30	0.35
L1	-	-	0.75
L2	0.55	0.65	0.75
L4	0.14	0.15	0.20
a	2.35	2.45	2.55
b	1.635	1.735	1.835
k	0.00	-	0.05
l	0.30	0.40	0.50