Descriptions

This is P-Channel Enhancement Mode Field Effect Transistor in a PDFN 3×3A-8L Plastic Package.

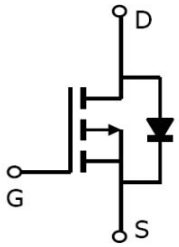
Features

- V_{DS} (V) = -40V
- I_D =-41A (V_{GS} = ±20V)
- $R_{DS(ON)}$@-10V≤13.5mR(Typ.11.6mR)
- HF Product.

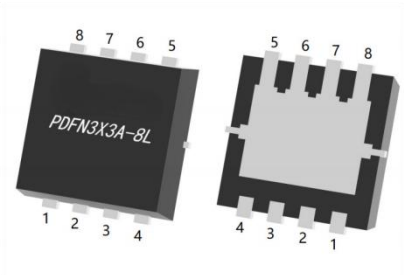
Applications

- Notebook AC-in load switch
- Battery protection charge/discharge.

Equivalent Circuit



Pinning



Pin1	S
Pin2	S
Pin3	S
Pin4	G
Pin5	D
Pin6	D
Pin7	D
Pin8	D

Marking

See Marking Instructions.

Absolute Maximum Ratings(Ta=25℃)

Parameter		Symbol	Rating	Unit
Drain-Source Voltage		V_{DS}	-40	V
Drain Current - Continuous		I_D(T_C=25℃)	-41	A
Drain Current – Pulsed		I_{DM}	-72	A
Gate-Source Voltage		V_{GS}	±20	V
Power Dissipation		P_D(T_C=25℃)	30	W
Single Pulse Avalanche Energy(L=0.5mH)		E_{AS}	317.5	mJ
Avalanche Current(L=0.5mH)		I_{AS}	-31.5	A
Junction and Storage Temperature Range		T_j, T_{stg}	-55 to 150	℃
Thermal resistance, junction - ambient	t ≤ 10s	$R_{\theta JA}$	22	℃/ W
	Steady-State		55	
Thermal resistance, junction - 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}	I_D=-250μA V_{GS}=0V	-40	-48		V
Zero Gate Voltage Drain Current	I_{DSS}	V_{DS}=-40V V_{GS}=0V			-1	uA
Gate-Body leakage current	I_{GSS}	V_{DS}=0V, V_{GS}= ±20V			±100	nA
Gate Threshold Voltage	$V_{GS(th)}$	V_{DS}=VGS I_D=-250μA	-1	-1.7	-2.5	V
Static Drain-Source On-Resistance	$R_{DS(ON)}$	V_{GS}=-10V, I_D=-20A		11.6	13.5	mΩ
		V_{GS}=-4.5V, I_D=-10A		15	25	
Diode Forward Voltage	V_{SD}	I_S=-1A, V_{GS}=0V			-1.2	V
Input Capacitance	C_{iss}	V_{DS}=-25V V_{GS}=0V f=1.0MHz		4760		pF
Output Capacitance	C_{oss}			2800		
Reverse Transfer Capacitance	C_{rss}			1960		
Gate resistance	R_g	V_{GS}=0V V_{DS}=0V f=1MHz		17.5		Ω
Total Gate Charge	$Q_{g(10V)}$	V_{GS}=-10V, V_{DS}=-20V, I_D=-20A		34		nC
Total Gate Charge	$Q_{g(4.5V)}$			17.5		
Gate Source Charge	Q_{gs}			5.8		
Gate Drain Charge	Q_{gd}			9		

Electrical Characteristics(Ta=25℃)

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Turn-On Delay Time	$t_{d(on)}$	V_{GS}=-10V V_{DS}=-20V R_L=0.75 Ω R_{GEN}=3 Ω		11		ns
Turn-On Rise Time	t_r			7.8		
Turn-Off Delay Time	$t_{d(off)}$			44		
Turn-Off Fall Time	t_f			18		

Electrical Characteristic Curve

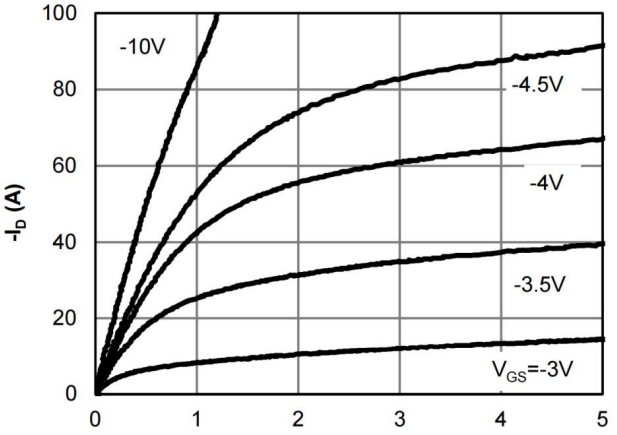


Figure 1: On-Region Characteristics

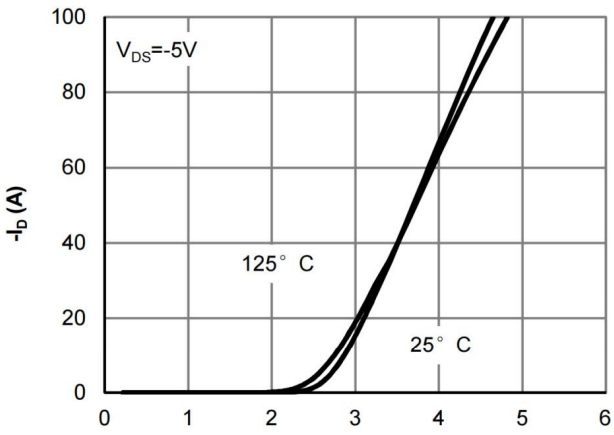


Figure 2: Transfer Characteristics

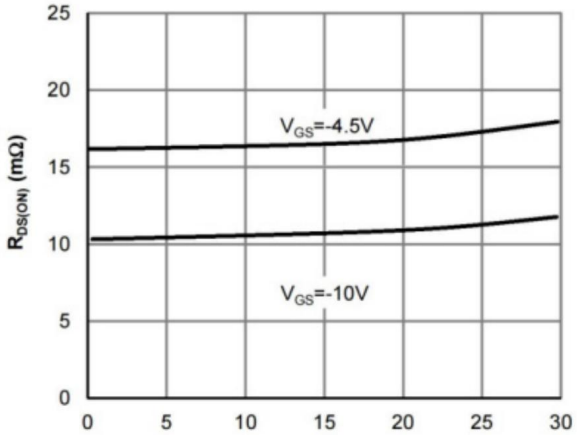


Figure 3: On-Resistance vs. Drain Current and Gate Voltage

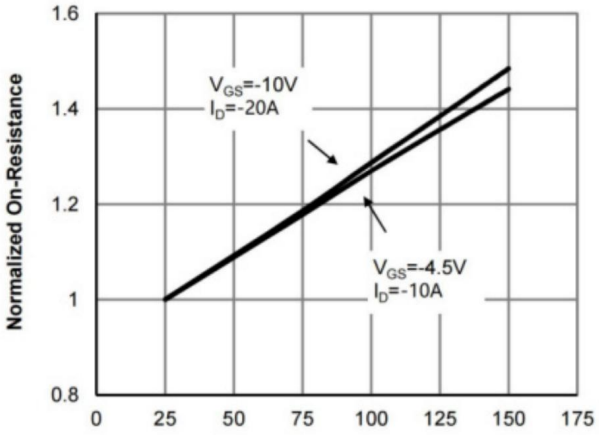


Figure 4: On-Resistance vs. Junction Temperature

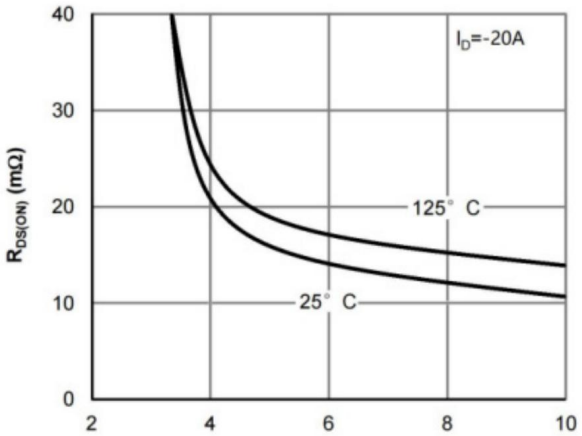


Figure 5: On-Resistance vs. Gate-Source Voltage

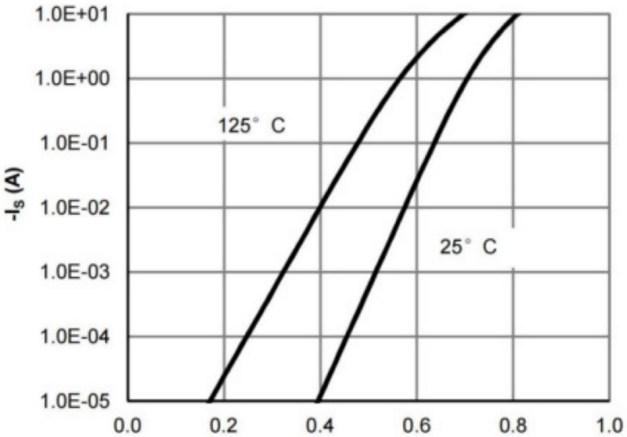


Figure 6: Body-Diode Characteristics

Electrical Characteristic Curve

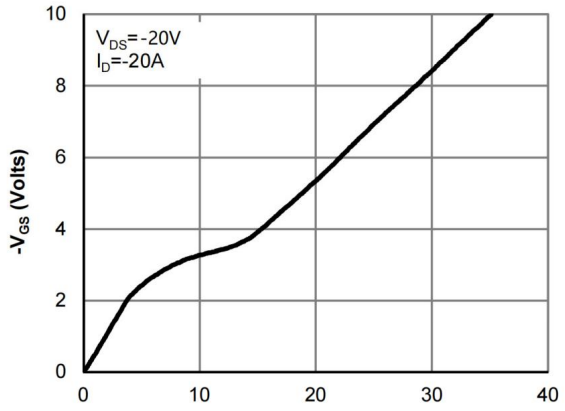


Figure 7: Gate-Charge Characteristics

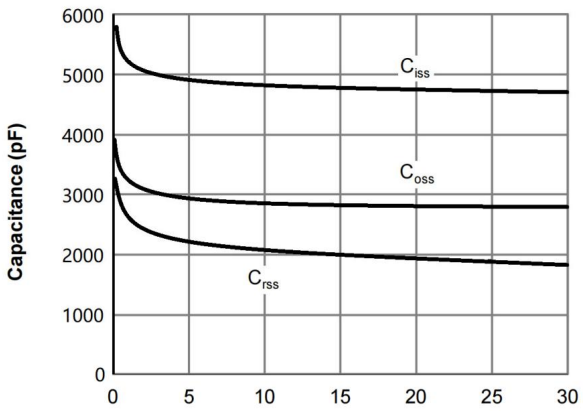


Figure 8: Capacitance Characteristics

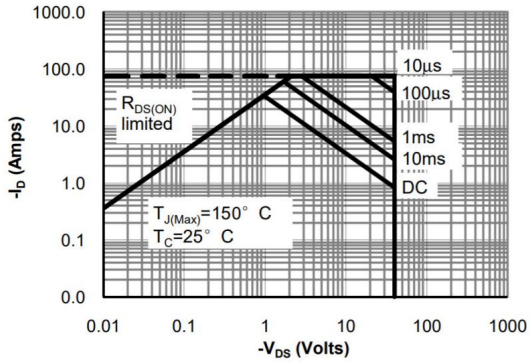


Figure 9: Maximum Forward Biased Safe Operating Area

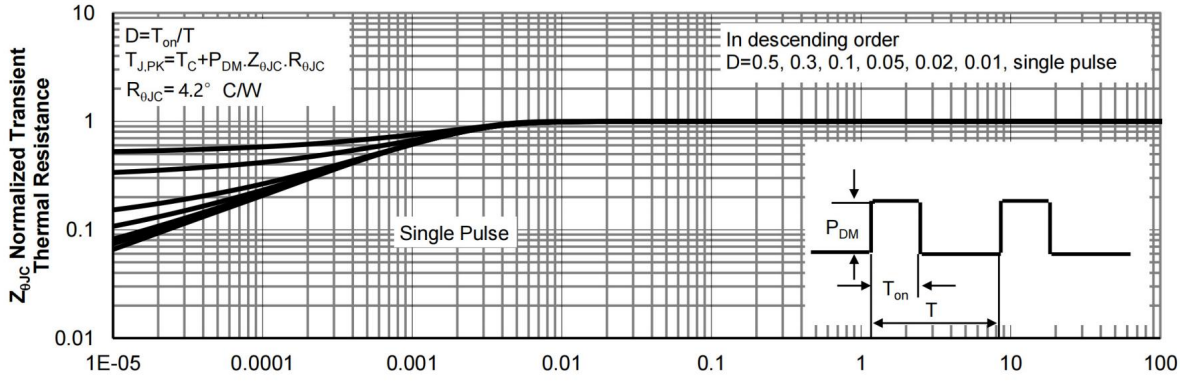
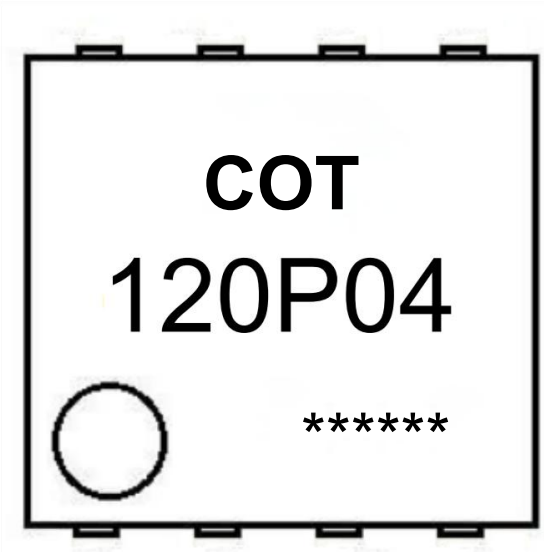


Figure 10: Normalized Maximum Transient Thermal Impedance

Marking Instructions



Note:

COT: Company Code

120P04: Product Type Code

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

Packaging SPEC

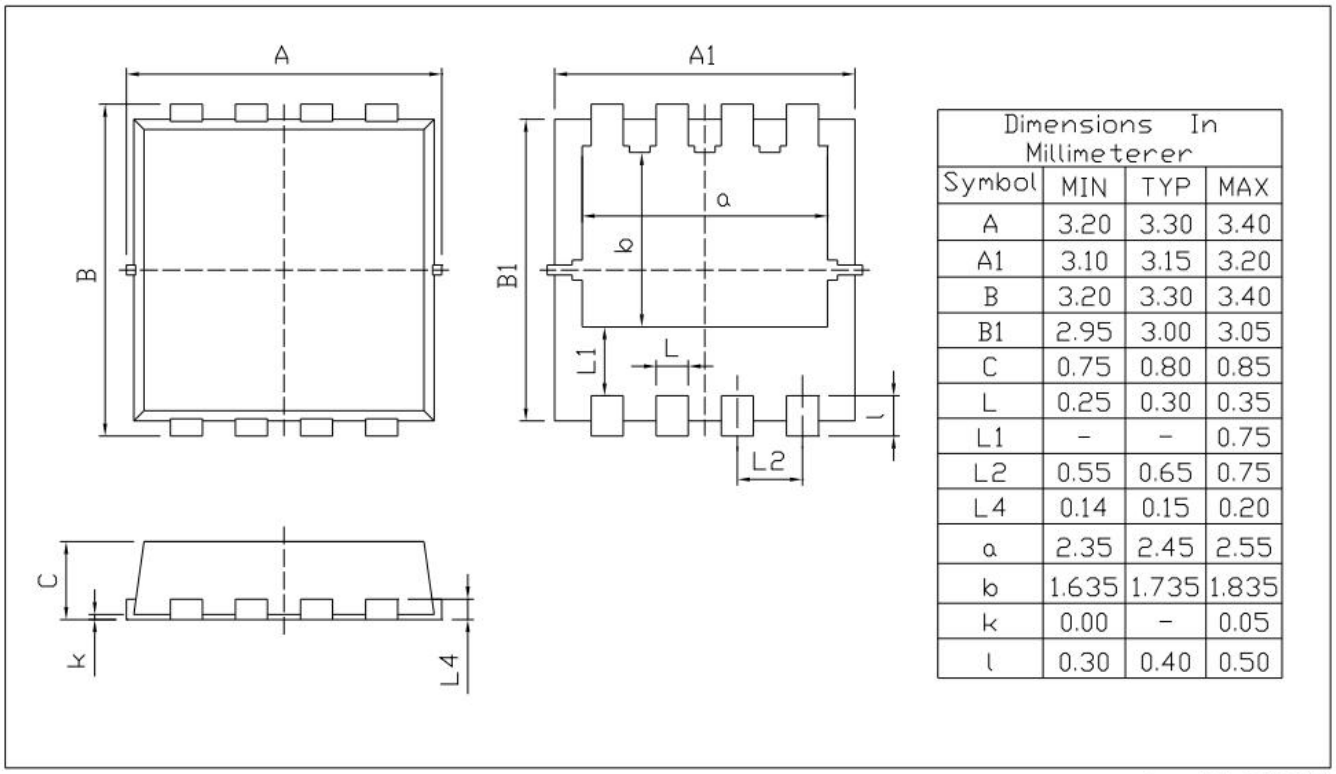
REEL

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
PDFN 3×3A-8L	5,000	2	10,000	6	60,000	13″ ×12	360×360×50	380×335×366

Package Outline Dimensions

PDFN3X3A-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

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