描述 / Descriptions

PDFN3×3A-8L 塑封封装 P 沟道 MOS 场效应管。
P-Channel Enhancement Mode Field Effect Transistor in a PDFN3×3A-8L Plastic Package.

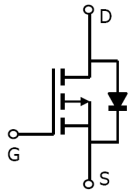
特征 / Features

V_{DS} (V) = -30V
I_D =-34 A (V_{GS} = ±20V)
$R_{DS(ON)}$@10V≤14mR(Typ.12.8mR)
符合 AEC-Q101 标准高可靠性要求，无卤产品。Qualified to AEC-Q101 Standards for High Reliability, HF Product.

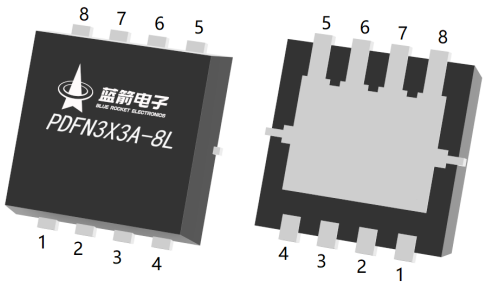
用途 / Applications

用于高功率 DC/DC 转换和功率开关，满足汽车应用的严格要求。
These devices are well suited for high efficiency switching DC/DC converters and switch mode power supplies, Meet the stringent requirements of automotive applications.

内部等效电路 / Equivalent Circuit



引脚排列 / Pinning



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

印章代码 / Marking

见印章说明。
See Marking Instructions.

极限参数 / Absolute Maximum Ratings(Ta=25℃)

参数 Parameter		符号 Symbol	数值 Rating	单位 Unit
Drain-Source Voltage		V_{DSS}	-30	V
Drain Current		I_D(Tc=25℃)	-34	A
Drain Current - Pulsed		I_{DM}	-80	A
Gate-Source Voltage		V_{GS}	±20	V
Single Pulsed Avalanche Energy		E_{AS}	210	mJ
Avalanche Current		I_{AS}	-20	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	

电性能参数 / Electrical Characteristics(Ta=25℃)

参数 Parameter	符号 Symbol	测试条件 Test Conditions	最小值 Min	典型值 Typ	最大值 Max	单位 Unit
Drain-Source Breakdown Voltage	BV_{DSS}	I_D=-250μA V_{GS}=0V	-30			V
Zero Gate Voltage Drain Current	I_{DSS}	V_{DS}=-30V V_{GS}=0V			-1	μA
Gate-Body leakage current	I_{GSS}	V_{DS}=0V V_{GS}=±20V			±100	nA
Gate Threshold Voltage	$V_{GS(th)}$	V_{DS}=V_{GS} I_D=-250μA	-1	-1.45	-2.5	V
Static Drain-Source On-Resistance	$R_{DS(ON)}$	V_{GS}=-10V I_D=-20A		12.8	14	mΩ
		V_{GS}=-4.5V I_D=-10A		17.9	20	
Diode Forward Voltage	V_{SD}	I_S=-1A V_{GS}=0V			1.2	V
Gate resistance	R_g	f=1MHz		5		Ω
Input Capacitance	C_{iss}	V_{GS}=0V V_{DS}=-25V f=1MHz		2300		pF
Output Capacitance	C_{oss}			370		
Reverse Transfer Capacitance	C_{rss}			350		
Total Gate Charge	$Q_{g(10V)}$	V_{GS}=-10V V_{DS}=-15V I_D=-12A		21		nC
Total Gate Charge	$Q_{g(4.5V)}$			11		
Gate-Source Charge	Q_{gs}			6		
Gate-Drain Charge	Q_{gd}			3		
Turn-on Delay Time	$t_{d(ON)}$	V_{GS}=-10V V_{DS}=-15V R_L=1.3Ω R_{GEN}=3Ω		10.5		ns
Turn-on Rise Time	t_r			8.5		
Turn-off Delay Time	$t_{d(OFF)}$			30		
Turn-off Fall Time	t_f			11.5		

电参数曲线图 / Electrical Characteristic Curve

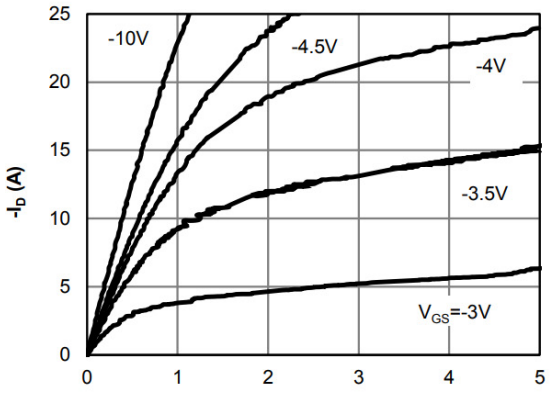


Figure 1: On-Region Characteristics

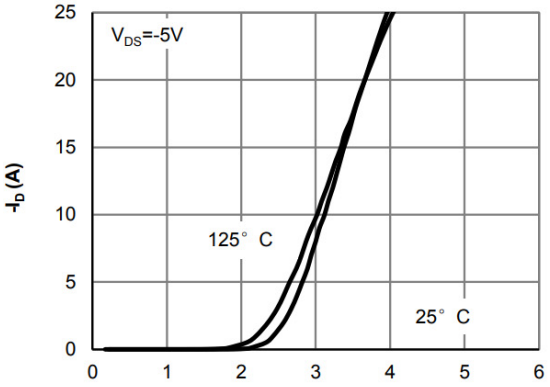


Figure 2: Transfer Characteristics

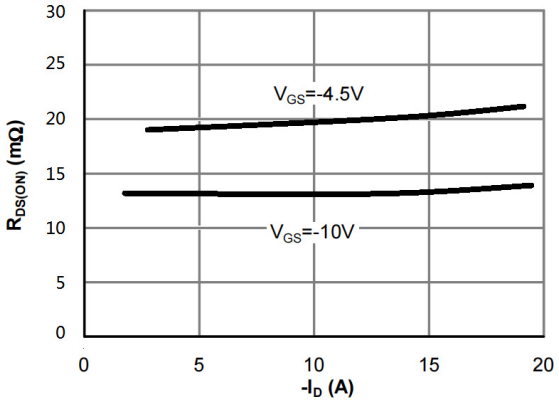


Figure 3: On-Resistance vs. Drain Current and Gate Voltage

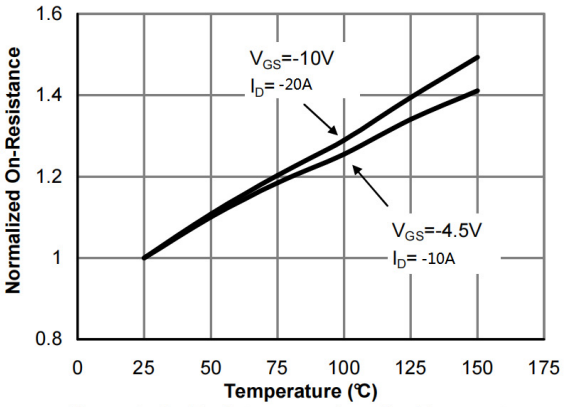


Figure 4: On-Resistance vs. Junction Temperature

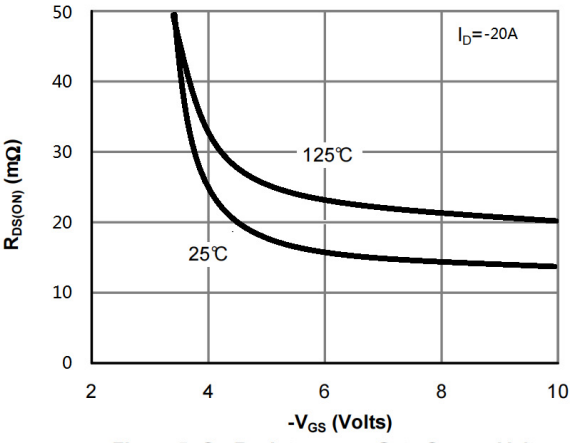


Figure 5: On-Resistance vs. Gate-Source Voltage

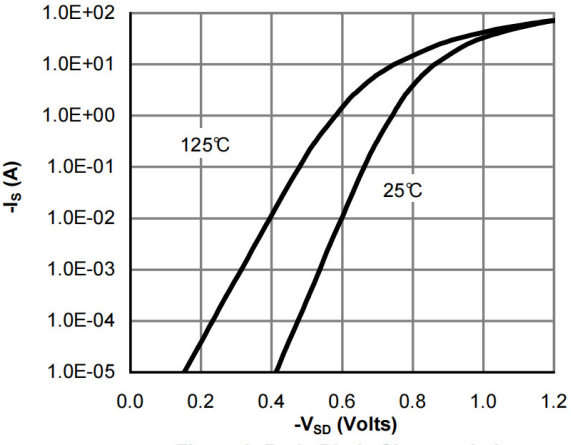


Figure 6: Body-Diode Characteristics

电参数曲线图 / Electrical Characteristic Curve

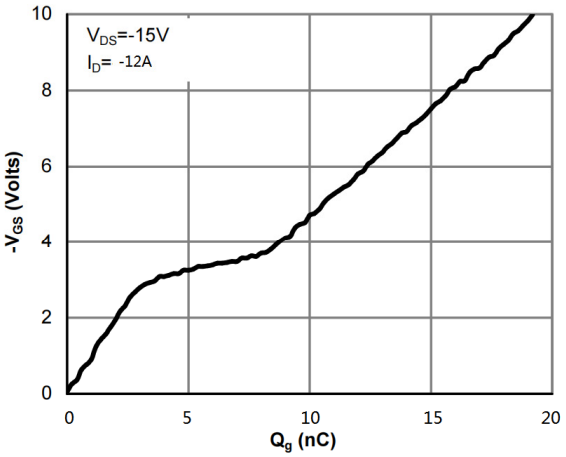


Figure 7: Gate-Charge Characteristics

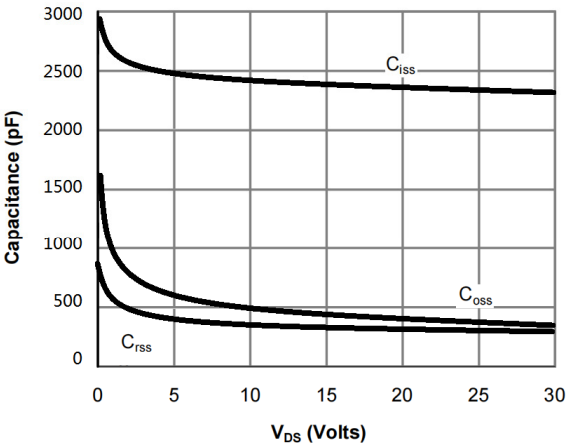


Figure 8: Capacitance Characteristics

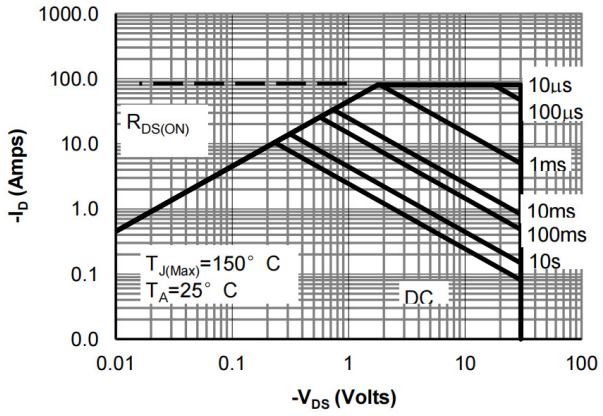


Figure 9: Maximum Forward Biased Safe Operating Area

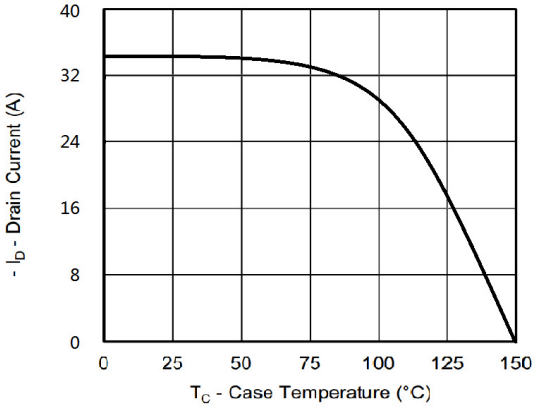


Figure10. Maximum Continuous Drain Current vs Case Temperature

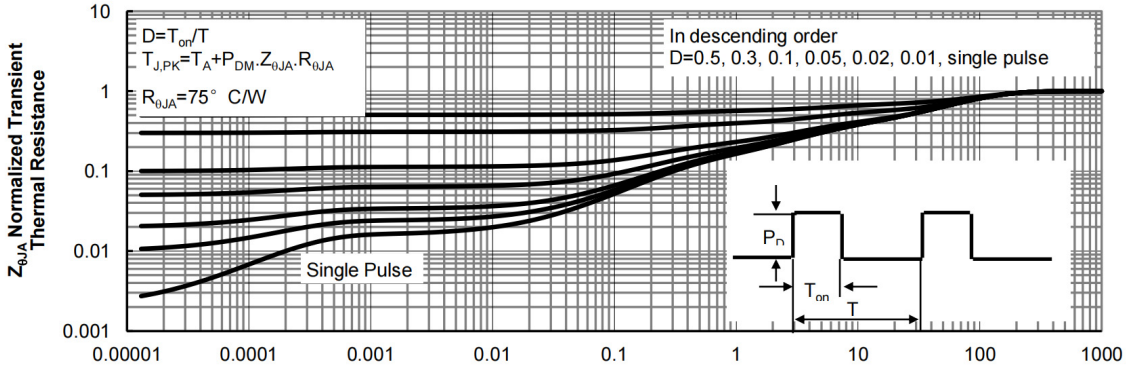
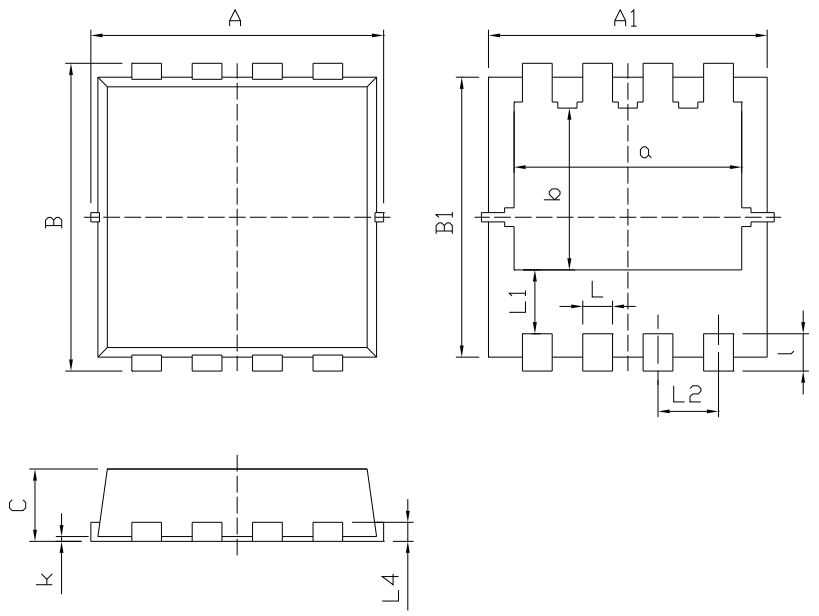


Figure 11: Normalized Maximum Transient Thermal Impedance

外形尺寸图 / Package Dimensions

PDFN3X3A-8L

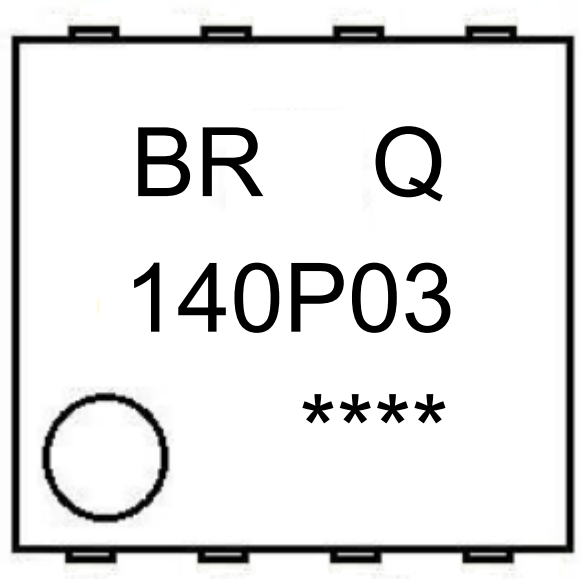
Unit:mm



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

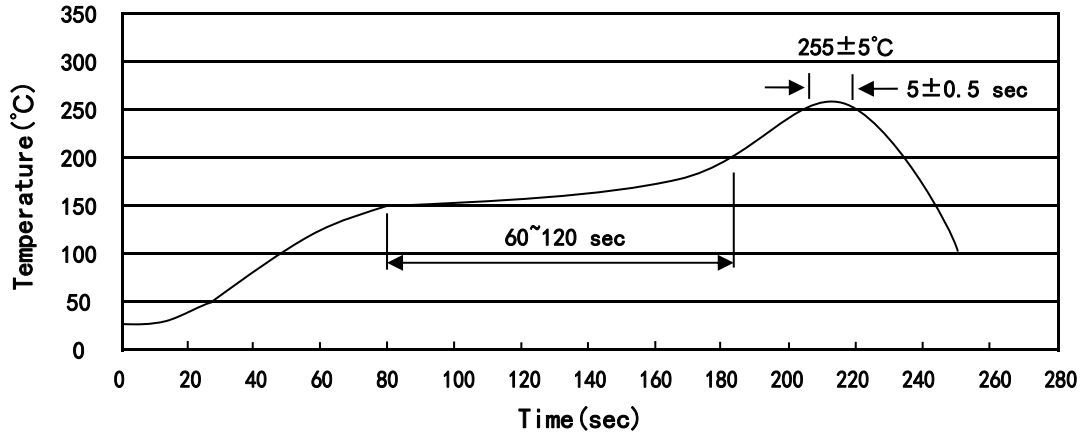
Rev.00 202011

印章说明 / Marking Instructions



说明：	
BR：	为公司代码
Q：	为汽车无卤产品标识
140P03：	为型号代码
****：	为生产批号代码，随生产批号变化
Note:	
BR:	Company Code
Q:	Automobile halogen-free product Code
140P03:	Product Type Code
****:	Lot No. Code, code change with Lot No

回流焊温度曲线图(无铅) / Temperature Profile for IR Reflow Soldering(Pb-Free)



说明：

1、预热温度 150～200℃，时间 60～120sec;

2、峰值温度 255±5℃，时间持续为 5±0.5sec;

3、焊接制程冷却速度为 2～10℃/sec.

Note:

1.Preheating:150~200℃, Time:60~120sec.

2.Peak Temp.:255±5℃, Duration:5±0.5sec.

3. Cooling Speed: 2~10℃/sec.

耐焊接热试验条件 / Resistance to Soldering Heat Test Conditions

温度：260±5℃ 时间：10±1 sec. Temp.:260±5℃ Time:10±1 sec

包装规格 / Packaging SPEC.

卷盘包装 / REEL

Package Type 封装形式	Units 包装数量					Dimension 包装尺寸 (unit：mm³)		
	Units/Reel 只/卷盘	Reels/Inner Box 卷盘/盒	Units/Inner Box 只/盒	Inner Boxes/Outer Box 盒/箱	Units/Outer Box 只/箱	Reel	Inner Box 盒	Outer Box 箱
PDFN3×3A-8L	5,000	2	10,000	6	60,000	13″ ×12	360×360×50	380×335×366

使用说明 / Notices