

描述 / Descriptions

PDFN3×3-8L 塑封封装互补增强模式 MOS 场效应管。

Complementary Enhancement MOSFET in a PDFN3×3-8L Plastic Package.

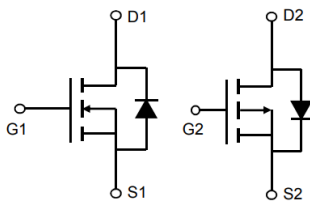
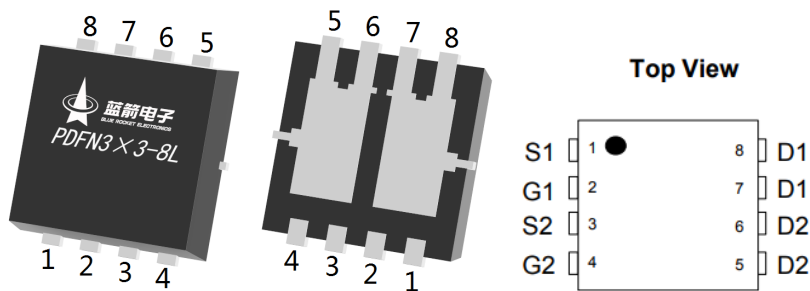
特征 / Features

N-channel	P-channel
VDS(V)=30V	VDS(V)=-30V
ID=20A	ID=-12A
RDS(ON)<25mΩ (VGS=10V)	RDS(ON)<60mΩ (VGS=-10V)
RDS(ON)<40mΩ (VGS=4.5V)	RDS(ON)<85mΩ (VGS=-4.5V)
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。适用于作负载开关或脉宽调制应用，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. And suitable for use as a load switch or in PWM applications, Meet the stringent requirements of automotive applications.

内部等效电路 / Equivalent Circuit**引脚排列 / Pinning****印章代码 / Marking**

见印章说明。See Marking Instructions.

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

参数 Parameter	符号 Symbol	数值 Rating		单位 Unit
		N-CHANNE	P-CHANNE	
Drain-Source Voltage	V _{DSS}	±30		V
Gate-Source Voltage	V _{GSS}	±20		V
Continuous Drain Current	I _D (T _A =25°C)	20	12	A
Power Dissipation	P _D (T _A =25°C)	11.2	10	W
Junction and Storage Temperature Range	T _J , T _{STG}	-55 to +150		°C
Maximum Junction-to-Case	R _{θJC} (Steady-State)	11.2	12.5	°C/W
Maximum Junction-to-Ambient	R _{θJA} (Steady-State)	45		°C/W

N-沟道电性能参数/N-CHANNEL 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}	V _{GS} =0V I _D =250μA	30	35		V
Zero Gate Voltage Drain Current	I _{DSS}	V _{DS} =30V V _{GS} =0V			1.0	μA
		V _{DS} =30V V _{GS} =0V T _J =55℃			5.0	μA
Gate-Body leakage current	I _{GSS}	V _{GS} =±20V V _{DS} =0V			100	nA
Gate Threshold Voltage	V _{GS(th)}	V _{DS} =V _{GS} I _D =250μA	1.0	1.6	2.5	V
Static Drain-Source On-Resistance	R _{DS(on)}	V _{GS} =10V I _D =6.9A		20	25	mΩ
		V _{GS} =4.5V I _D =5.0A		28	40	mΩ
Diode Forward Voltage	V _{SD}	V _{GS} =0V I _S =1.0A		0.78	1.2	V
Input Capacitance	C _{iss}	V _{DS} =25V V _{GS} =0V f=1.0MHz		690		pF
Output Capacitance	C _{oss}			200		pF
Reverse Transfer Capacitance	C _{rss}			130		pF
Gate resistance	R _g	V _{DS} =0V V _{GS} =0V f=1.0MHz		2.7		Ω
Total Gate Charge(10V)	Q _g	V _{GS} =10V V _{DS} =15V I _D =6A		5.2		nC
Total Gate Charge(4.5V)				2.5		nC
Gate-Source Charge	Q _{gs}			0.8		nC
Gate-Drain Charge	Q _{gd}			1.3		nC
Turn-On Delay Time	t _{d(on)}	V _{DS} =15 V V _{GS} =10V R _L =2.5Ω R _{GEN} =3Ω		4.5		ns
Turn-On Rise Time	t _r			2.5		ns
Turn-Off Delay Time	t _{d(off)}			14.5		ns
Turn-Off Fall Time	t _f			3.5		ns

N-沟道电参数曲线图 / N-CHANNEL Electrical Characteristic Curve

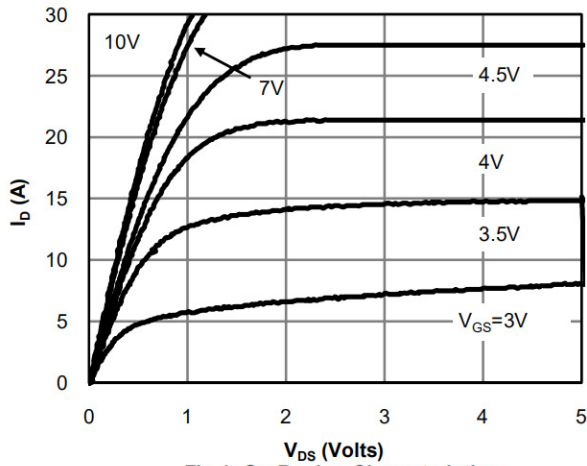


Fig 1: On-Region Characteristics

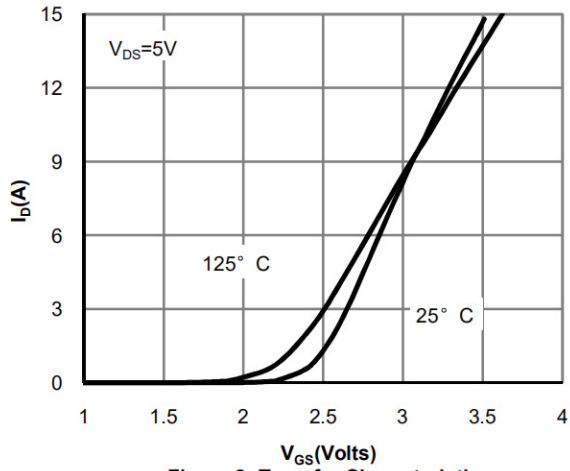


Figure 2: Transfer Characteristics

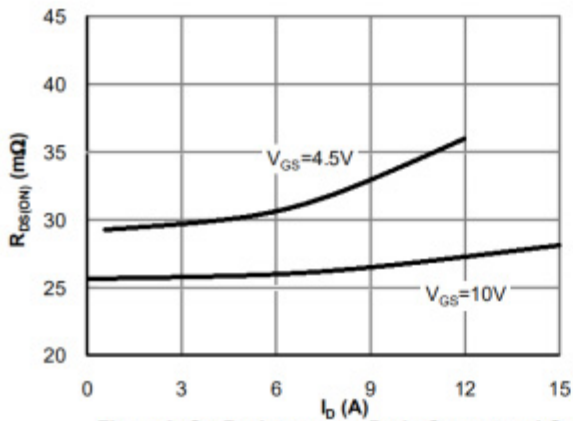


Figure 3: On-Resistance vs. Drain Current and Gate Voltage

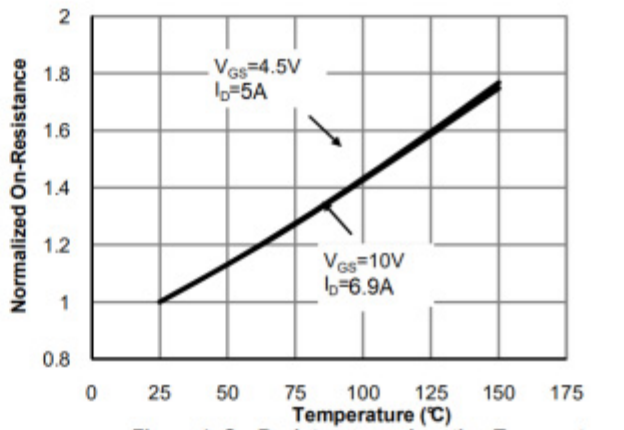


Figure 4: On-Resistance vs. Junction Temperature

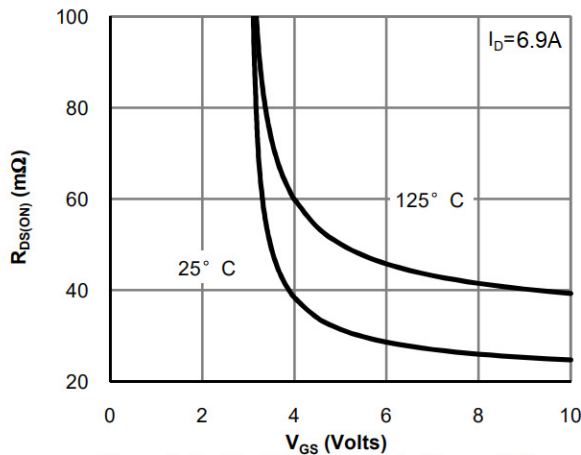


Figure 5: On-Resistance vs. Gate-Source Voltage

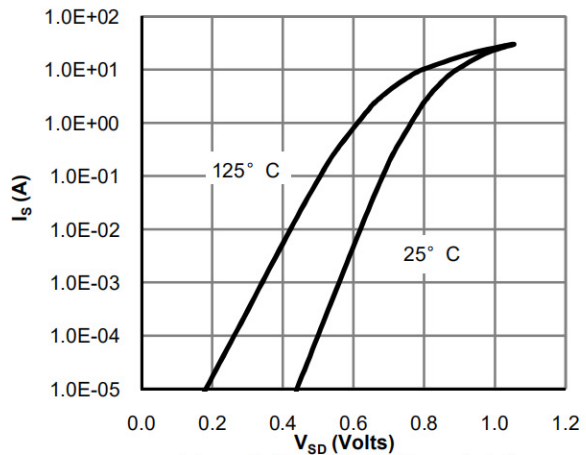
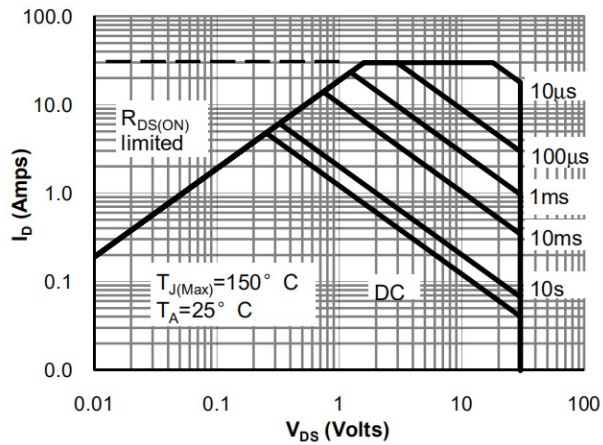
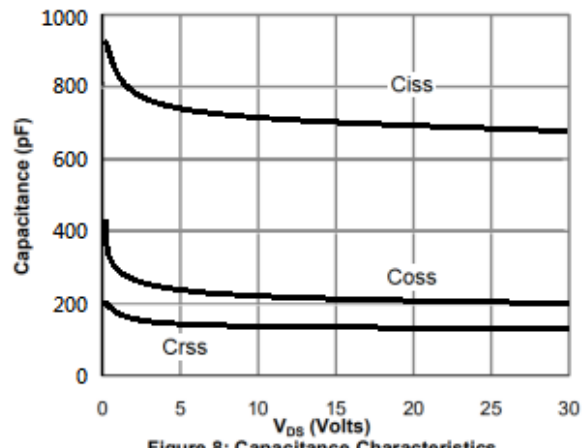
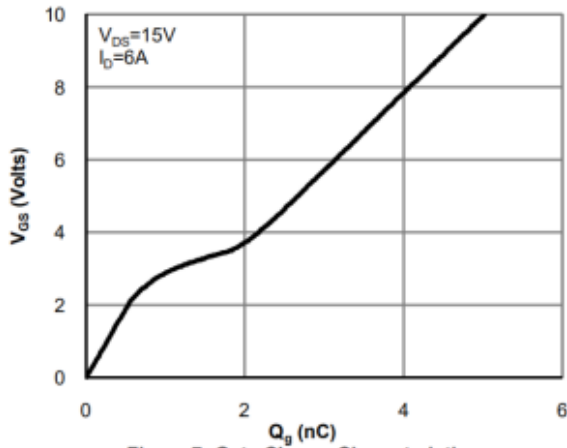


Figure 6: Body-Diode Characteristics

N-沟道电参数曲线图 / N-CHANNEL Electrical Characteristic Curve



P-沟道电性能参数/P-CHANNEL 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}	V _{GS} =0V I _D =-250μA	-30	-34		V
Zero Gate Voltage Drain Current	I _{DSS}	V _{DS} =-30V V _{GS} =0V			-1.0	μA
		V _{DS} =-30V V _{GS} =0V T _J =55℃			-5.0	μA
Gate-Body leakage current	I _{GSS}	V _{GS} =±20V V _{DS} =0V			±100	nA
Gate Threshold Voltage	V _{GS(th)}	V _{DS} =V _{GS} I _D =-250μA	-1.0	-1.85	-2.5	V
Static Drain-Source On-Resistance	R _{DS(on)}	V _{GS} =-10V I _D =-6.0A		52	60	mΩ
		V _{GS} =-4.5V I _D =-5.0A		73	85	mΩ
Diode Forward Voltage	V _{SD}	V _{GS} =0V I _S =-1.0A		-0.81	-1.2	V
Input Capacitance	C _{iss}	V _{DS} =-25V V _{GS} =0V f=1.0MHz		900		pF
Output Capacitance	C _{oss}			235		pF
Reverse Transfer Capacitance	C _{rss}			195		pF
Gate resistance	R _g	V _{DS} =0V V _{GS} =0V f=1.0MHz		26		Ω
Total Gate Charge(10V)	Q _g	V _{GS} =-10V V _{DS} =-15V I _D =-6.5A		13.6		nC
Total Gate Charge(4.5V)				6.7		nC
Gate-Source Charge	Q _{gs}			2.5		nC
Gate-Drain Charge	Q _{gd}			3.2		nC
Turn-On Delay Time	t _{d(on)}	V _{DS} =-15 V V _{GS} =-10V R _L =2.3Ω R _{GEN} =3Ω		8		ns
Turn-On Rise Time	t _r			6		ns
Turn-Off Delay Time	t _{d(off)}			17		ns
Turn-Off Fall Time	t _f			5		ns

P-沟道电参数曲线图 / P-CHANNEL Electrical Characteristic Curve

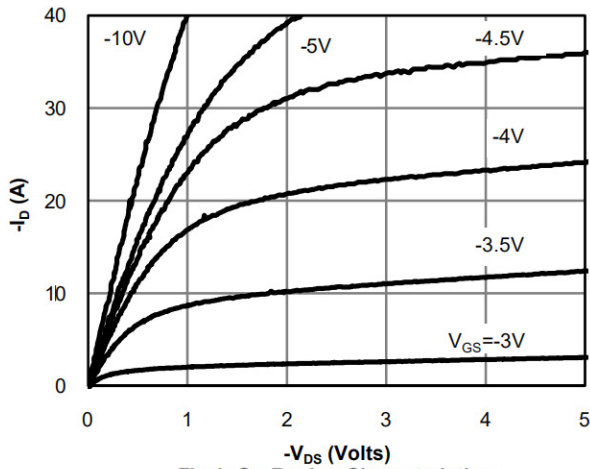


Fig 1: On-Region Characteristics

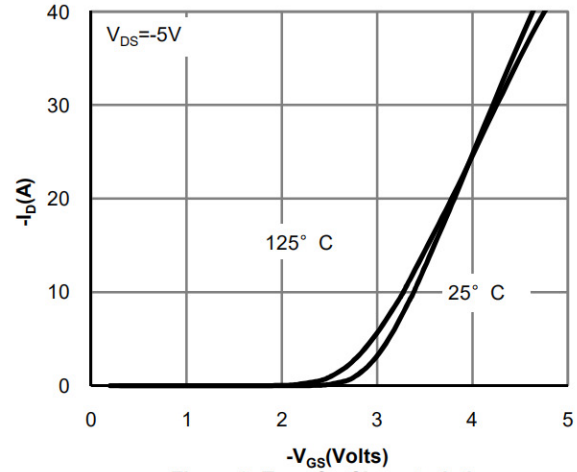


Figure 2: Transfer Characteristics

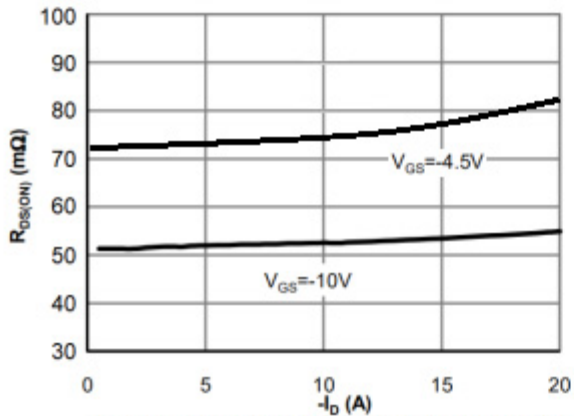


Figure 3: On-Resistance vs. Drain Current and Gate Voltage

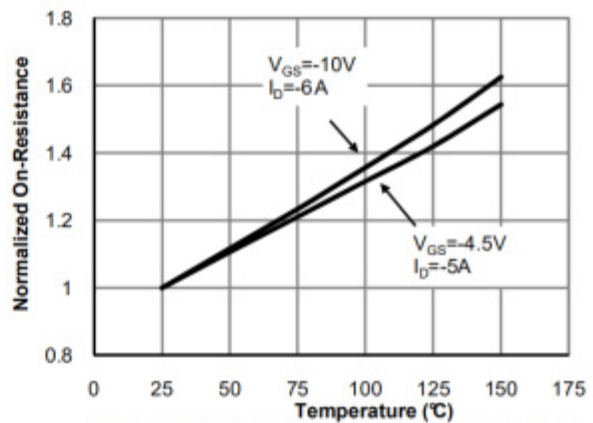


Figure 4: On-Resistance vs. Junction Temperature

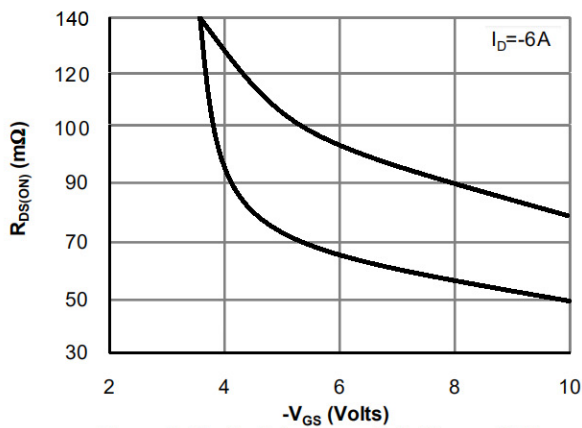


Figure 5: On-Resistance vs. Gate-Source Voltage

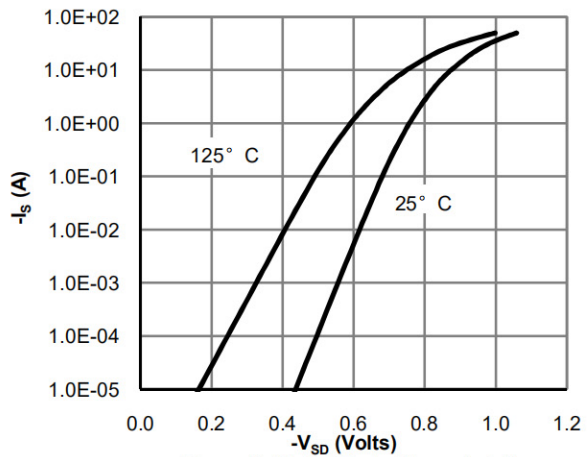
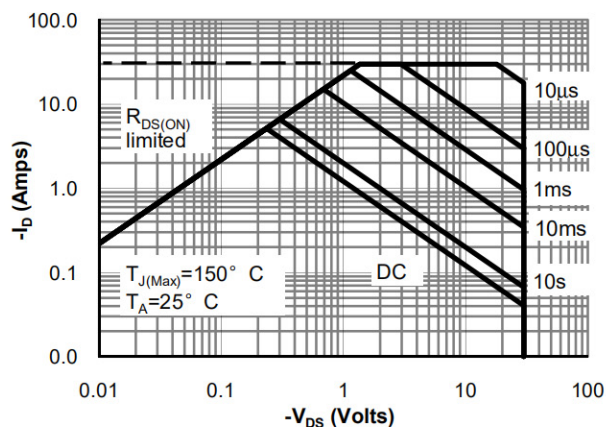
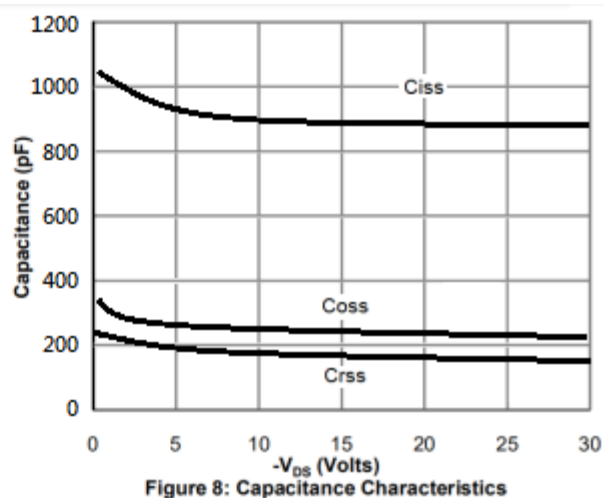
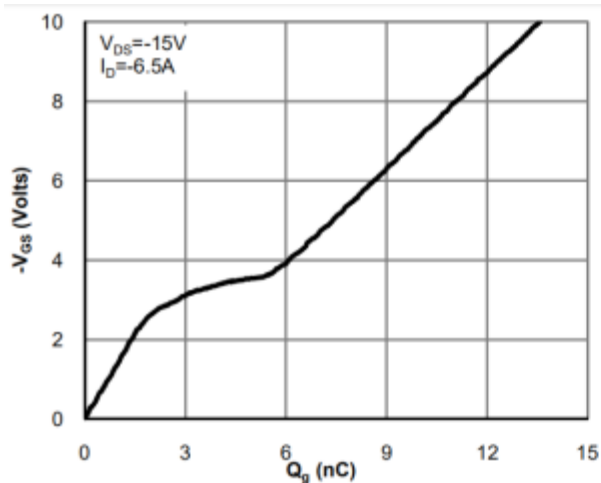


Figure 6: Body-Diode Characteristics

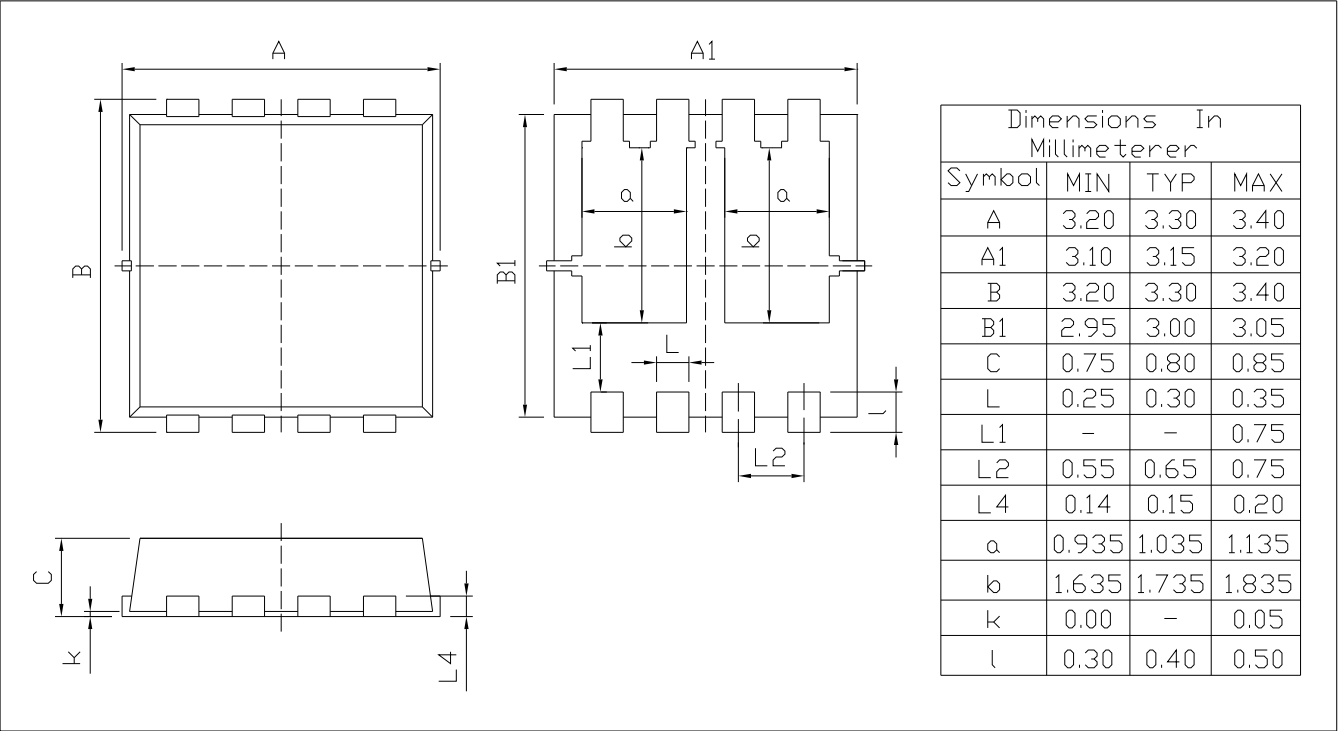
P-沟道电参数曲线图 / P-CHANNEL Electrical Characteristic Curve



外形尺寸图 / Package Dimensions

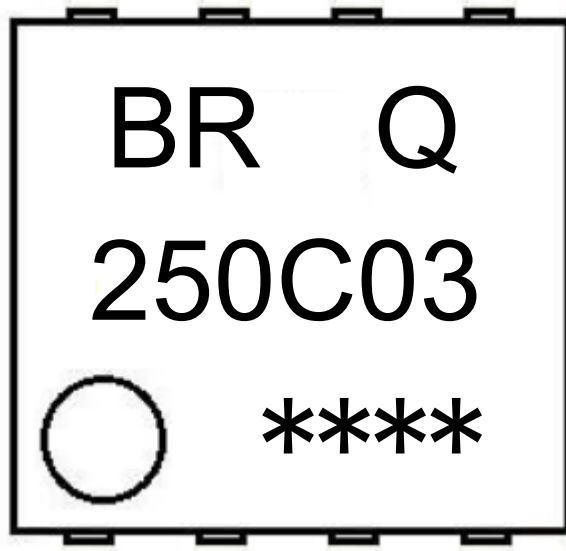
PDFN3X3-8L

Unit:mm



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

250C03： 为型号代码

*****： 为生产批号代码，随生产批号变化

Note:

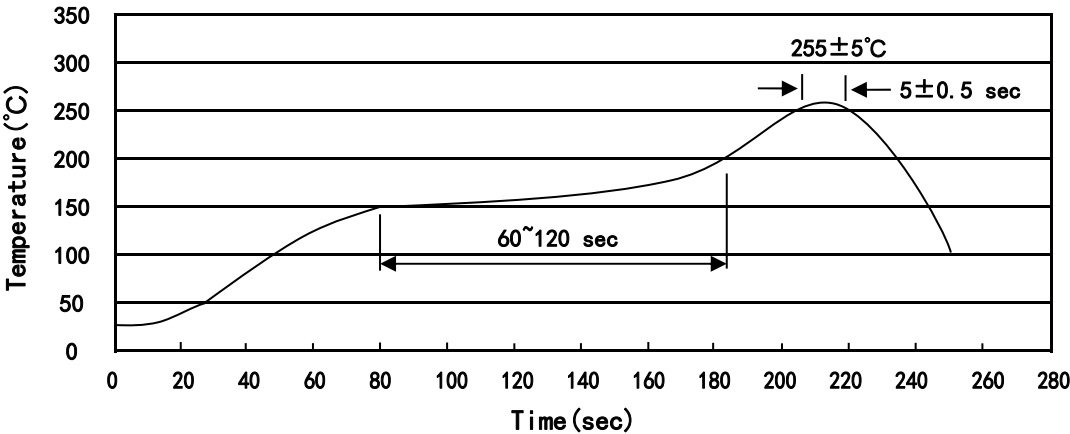
BR: Company Code

Q: Automobile halogen-free product Code

250C03: 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：
- Note:
- 1、预热温度 150 ~ 200℃，时间 60 ~ 120sec;

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

2、峰值温度 255±5℃，时间持续为 5±0.5sec;

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

3、焊接制程冷却速度为 2 ~ 10℃/sec.

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: mm ³)		
	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
PDFN 3×3-8L	5,000	2	10,000	6	60,000	13" ×12	360×360×50	380×335×366

使用说明 / Notices