

# BRCS200P03YB

Rev.A May.-2022

## 描述 / Descriptions

PDFN3×3A-8L 封装 P 沟道场效应管。

P-Channel MOSFET in a PDFN3×3A-8L Plastic Package .

## 特征 / Features

低电阻可最大地降低导电损耗；低栅极电荷，可实现快速切换；低热阻；无卤产品。

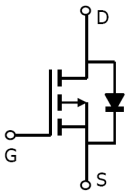
Low  $R_{DS(ON)}$  to minimize conductive loss; low Gate Charge for fast switching; Low Thermal resistance; HF Product.

## 用途 / Applications

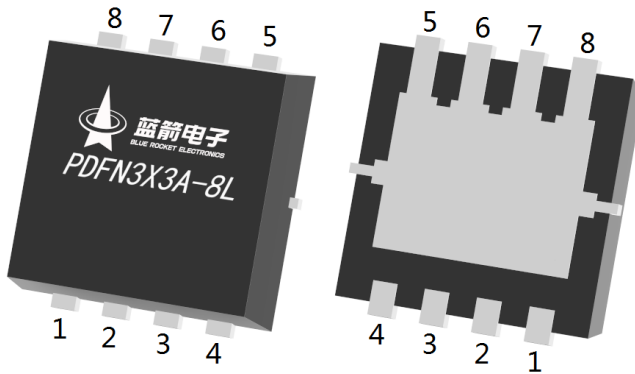
笔记本电脑交流输入负载开关，电池保护充电/放电。

Notebook AC-in Load Switch, Battery Protection Charge/Discharge

## 内部等效电路 / Equivalent Circuit



## 引脚排列 / Pinning



PIN1、2、3: S      PIN4: G      PIN5、6、7、8: D

## 印章代码 / Marking

见印章说明。 See Marking Instructions.

**极限参数 / Absolute Maximum Ratings( $T_a=25^\circ\text{C}$ )**

参数 Parameter	符号 Symbol	数值 Rating	单位 Unit
Drain-Source Voltage	$V_{DS}$	-30	V
Drain Current - Continuous	$I_D(T_c=25^\circ\text{C})$	-24	A
Drain Current – Pulsed	$I_{DM}$	-80	A
Gate-Source Voltage	$V_{GS}$	$\pm 20$	V
Power Dissipation	$P_D(T_c=25^\circ\text{C})$	20	W
Single Pulse Avalanche Energy(L=0.5mH)	$E_{AS}$	152	mJ
Avalanche Current(L=0.5mH)	$I_{AS}$	19.5	A
Junction and Storage Temperature Range	$T_j, T_{stg}$	-55 to 150	$^\circ\text{C}$
Thermal resistance, junction - ambient	$t \leq 10\text{s}$	$R_{\theta JA}$	$^\circ\text{C/W}$
	Steady-State		
Thermal resistance, junction - case	Steady-State	$R_{\theta JC}$	7

**电性能参数 / Electrical Characteristics( $T_a=25^\circ\text{C}$ )**

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	$BV_{DSS}$	$I_D=-250\mu\text{A}$ $V_{GS}=0\text{V}$	-30	-33		V
Zero Gate Voltage Drain Current	$I_{DSS}$	$V_{DS}=-30\text{V}$ $V_{GS}=0\text{V}$			-1.0	$\mu\text{A}$
Gate-Body leakage current	$I_{GSS}$	$V_{DS}=0\text{V}$ , $V_{GS}=\pm 20\text{V}$			$\pm 100$	nA
Gate Threshold Voltage	$V_{GS(th)}$	$V_{DS}=V_{GS}$ $I_D=-250\mu\text{A}$	-1.0	-1.3	-3.0	V
Static Drain-Source On-Resistance	$R_{DS(ON)}$	$V_{GS}=-10\text{V}$ , $I_D=-10\text{A}$		17.5	20	m $\Omega$
		$V_{GS}=-4.5\text{V}$ , $I_D=-10\text{A}$		25.5	30	
Diode Forward Voltage	$V_{SD}$	$I_S=-1\text{A}$ , $V_{GS}=0\text{V}$			-1.2	V
Input Capacitance	$C_{iss}$	$V_{DS}=-25\text{V}$ $V_{GS}=0\text{V}$ $f=1.0\text{MHz}$		1430		pF
Output Capacitance	$C_{oss}$			580		
Reverse Transfer Capacitance	$C_{rss}$			350		
Gate resistance	$R_g$	$V_{GS}=0\text{V}$ $V_{DS}=0\text{V}$ $f=1\text{MHz}$		13		$\Omega$
Total Gate Charge	$Q_{g(10V)}$	$V_{GS}=-10\text{V}$ , $V_{DS}=-15\text{V}$ , $I_D=-9.7\text{A}$		20		nC
Total Gate Charge	$Q_{g(4.5V)}$			9.5		
Gate Source Charge	$Q_{gs}$			3.5		
Gate Drain Charge	$Q_{gd}$			4.5		

## 电性能参数 / Electrical Characteristics(Ta=25°C)

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
Turn-On Delay Time	$t_{d(on)}$	$V_{GS}=-10V$ $V_{DS}=-15V$ $R_L=1.5\Omega$ $R_{GEN}=3\Omega$		10		ns
Turn-On Rise Time	$t_r$			5.5		
Turn-Off Delay Time	$t_{d(off)}$			26.1		
Turn-Off Fall Time	$t_f$			9.1		

**电参数曲线图 / Electrical Characteristic Curve**

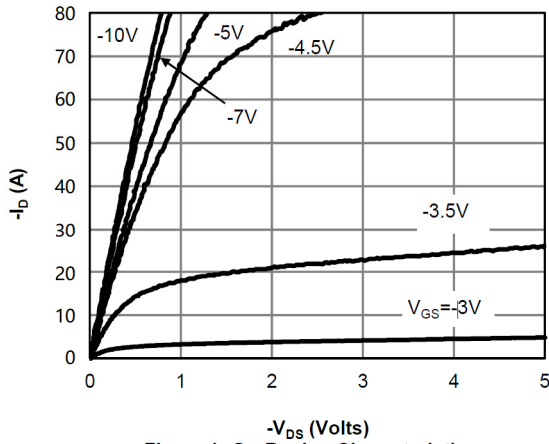


Figure 1: On-Region Characteristics

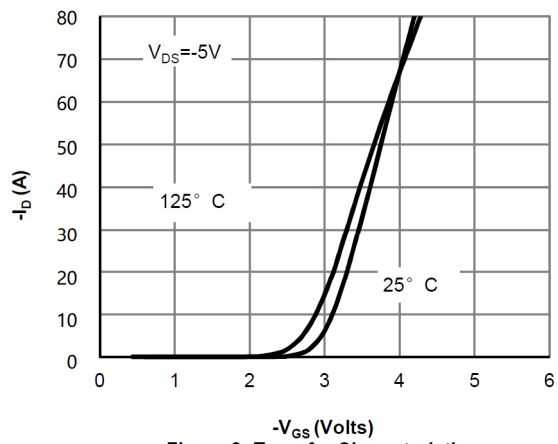


Figure 2: Transfer Characteristics

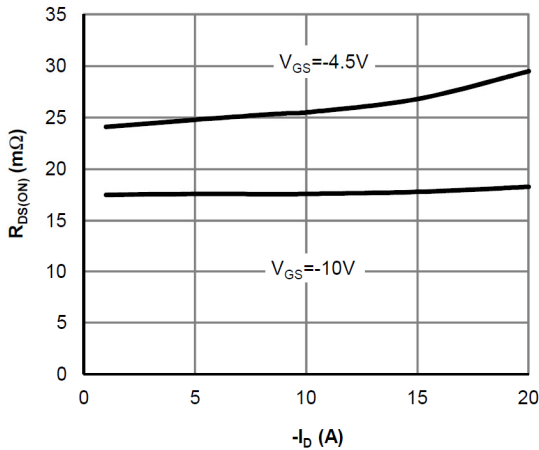


Figure 3: On-Resistance vs. Drain Current and Gate Voltage

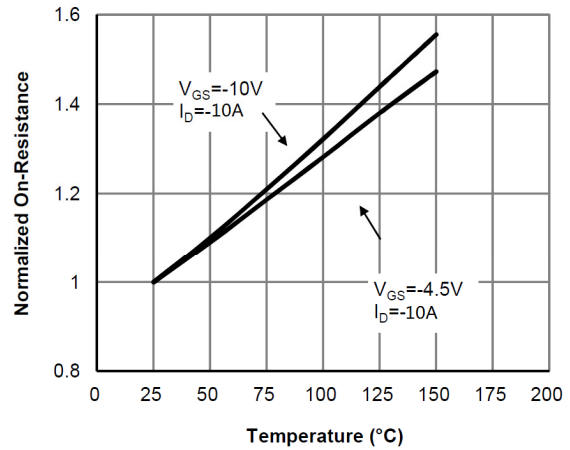


Figure 4: On-Resistance vs. Junction Temperature

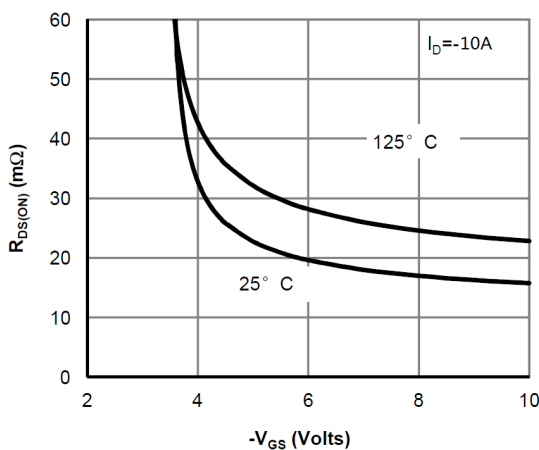


Figure 5: On-Resistance vs. Gate-Source Voltage

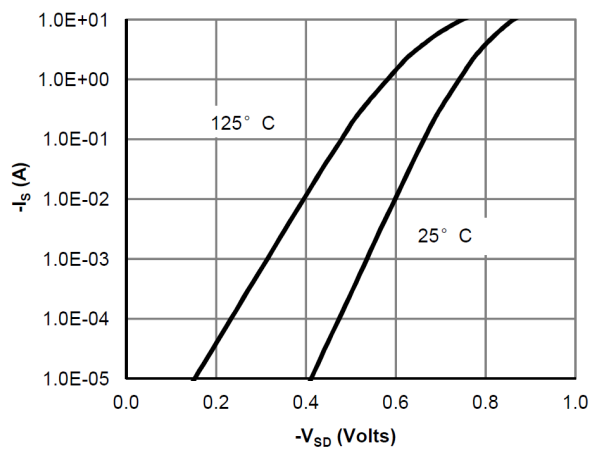


Figure 6: Body-Diode Characteristics

## 电参数曲线图 / Electrical Characteristic Curve

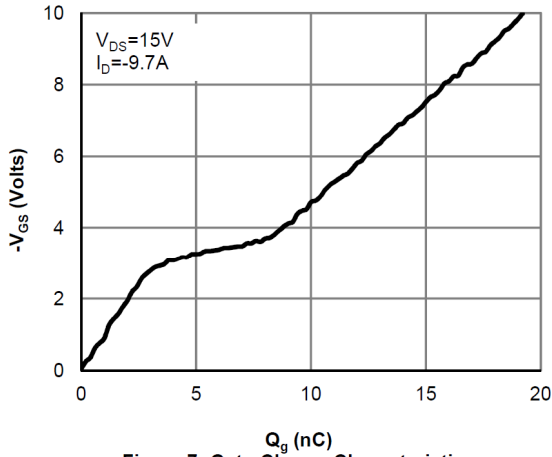


Figure 7: Gate-Charge Characteristics

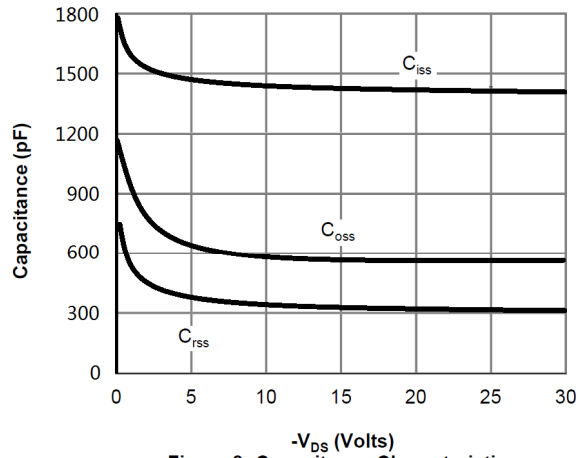


Figure 8: Capacitance Characteristics

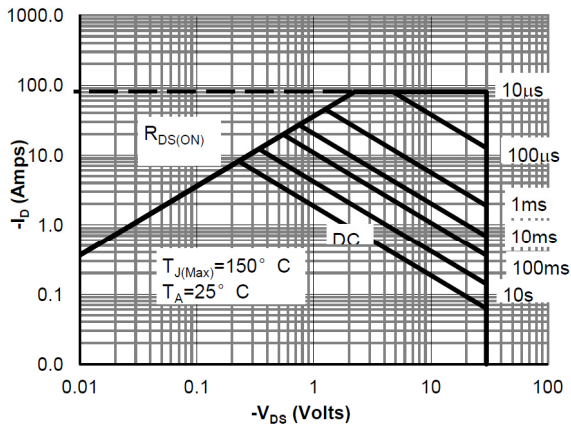


Figure 9: Maximum Forward Biased Safe Operating Area

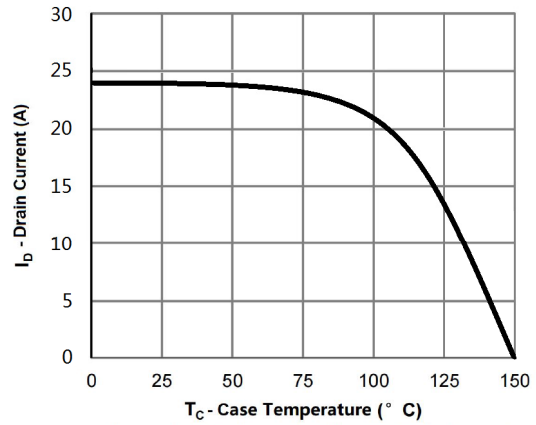


Figure 10: Maximum Continuous Drain Current vs Case Temperature

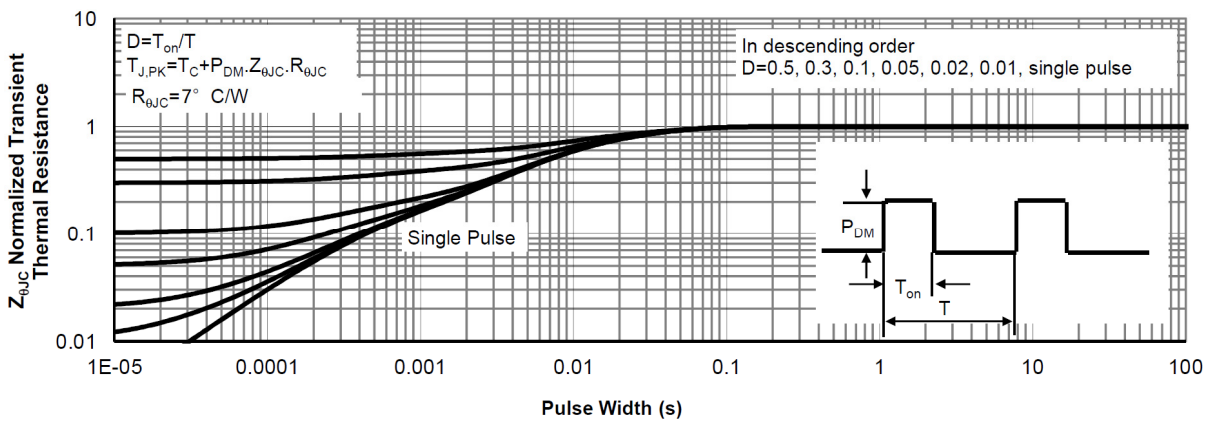
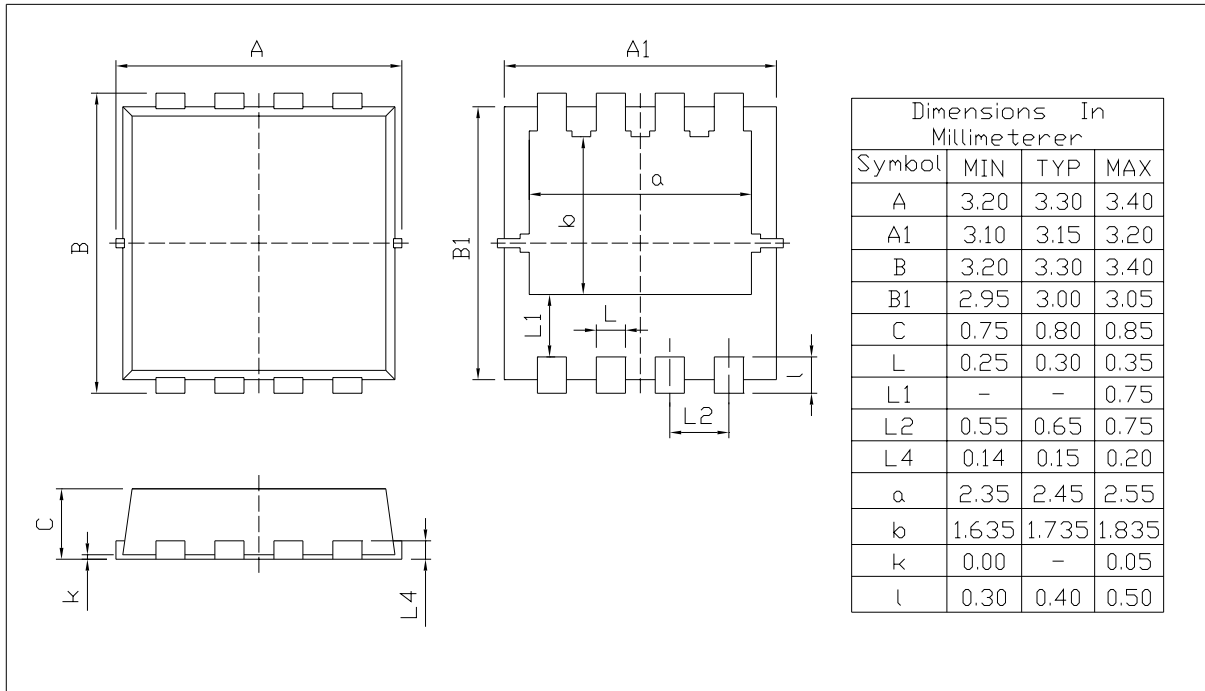


Figure 11: Normalized Maximum Transient Thermal Impedance

**外形尺寸图 / Package Dimensions**

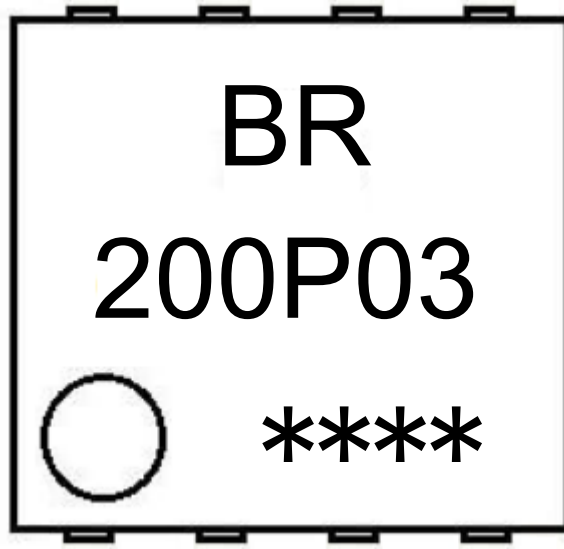
PDFN3X3A-8L

Unit:mm



Rev.00 202011

印章说明 / Marking Instructions



说明：

BR： 为公司代码

200P03： 为型号代码

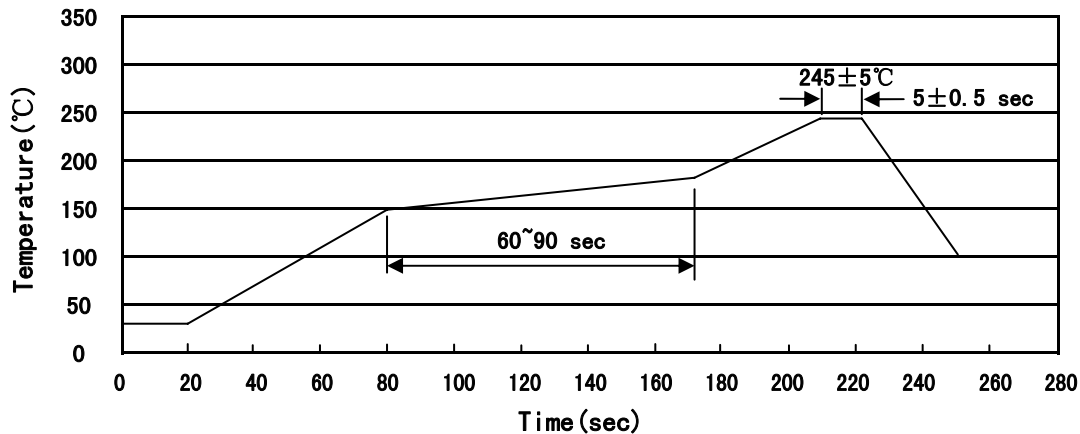
\*\*\*\*： 为生产批号代码，随生产批号变化

Note:

BR: Company Code.

200P03: 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 150~180°C，时间 60~90sec;
- 2、峰值温度 245±5°C，时间持续为 5±0.5sec;
- 3、焊接制程冷却速度为 2~10°C/sec.

Note:

- 1.Preheating:150~180°C, Time:60~90sec.
- 2.Peak Temp.:245±5°C, Duration:5±0.5sec.
3. Cooling Speed: 2~10°C/sec.

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

温度：260±5°C

时间：10±1 sec.

Temp.:260±5°C

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 <sup>3</sup> )		
	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**