

BRCS040N03YB

Rev.B Sep.-2024

DATA SHEET

描述 / Descriptions

PDFN3×3A-8L 塑封封装 N 沟道 MOS 场效应管。

N-Channel Enhancement Mode Field Effect Transistor in a PDFN3×3A-8L Plastic Package.

特征 / Features

$V_{DS} (V) = 30V$ $I_D = 66A (V_{GS} = \pm 20V)$

$R_{DS(ON)}@10V \leq 4.2mR (Typ. 4.0mR)$

$R_{DS(ON)}@4.5V \leq 8.0mR (Typ. 5.3mR)$

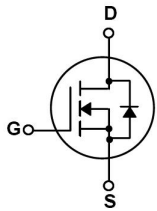
无卤产品。HF Product.

用途 / Applications

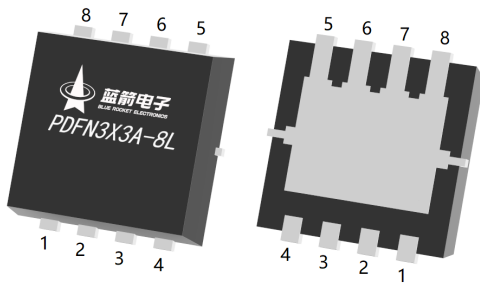
负载开关应用、电池电源管理。

Load Switch Applications, Battery Power Management.

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°C)

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°C)	66	A
Peak Drain Current	I _{DM}	170	A
Gate-Source Voltage	V _{GS}	±20	V
Avalanche Current	I _{AS}	24.3	A
Single Pulsed Avalanche Energy	E _{AS}	295	mJ
Total Power Dissipation	P _D (Tc=25°C)	33	W
Junction and Storage Temperature Range	T _J , T _{STG}	-55 to 150	°C
Thermal resistance, junction - ambient	t ≤ 10s	R _{θJA}	°C/W
	Steady-State		
Thermal resistance, junction - case	Steady-State	R _{θJC}	3.8

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
Zero Gate Voltage Drain Current	BV _{DSS}	V _{GS} =0V I _D =250μA	30	36		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	1.7	2.5	V
Forward On Voltage	V _{SD}	I _S =1A V _{GS} =0V			1.4	V
Static Drain-Source On-Resistance	R _{DS(on)}	V _{GS} =10V I _D =20A		4.0	4.2	mΩ
		V _{GS} =4.5V I _D =10A		5.3	8.0	mΩ
Gate resistance	R _g	V _{GS} =0V V _{DS} =0V f=1MHz		2.8		Ω
Input Capacitance	C _{iss}	V _{GS} =0V V _{DS} =25V f=1.0MHz		2000		pF
Output Capacitance	C _{oss}			240		pF
Reverse Transfer Capacitance	C _{rss}				185	

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
Total Gate Charge	$Q_{g(10V)}$	$V_{GS}=10V,$ $I_D=20A$ $V_{DS}=15V,$		49.5		nC
Total Gate Charge	$Q_{g(4.5V)}$			27.6		
Gate Source Charge	Q_{gs}			12.3		
Gate Drain Charge	Q_{gd}			9.8		
Turn-On Delay Time	$t_{d(on)}$	$V_{GS}=10V$ $R_L=0.75\Omega$ $V_{DS}=15V$ $R_{GEN}=3\Omega$		13.3		ns
Turn-On Rise Time	t_r			3.3		ns
Turn-Off Delay Time	$t_{d(off)}$			29		ns
Turn-Off Fall Time	t_f			5.1		ns

电参数曲线图 / Electrical Characteristic Curve

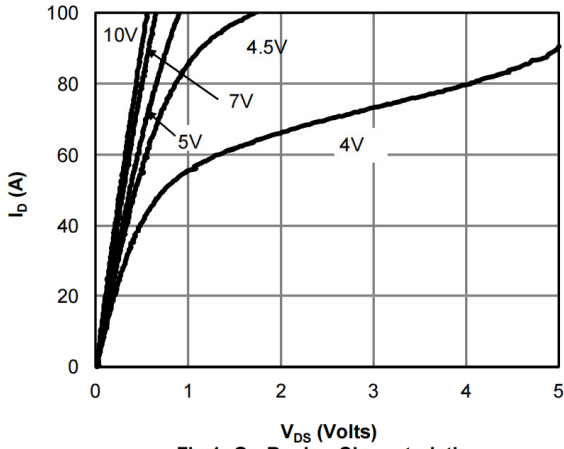


Fig 1: On-Region Characteristics

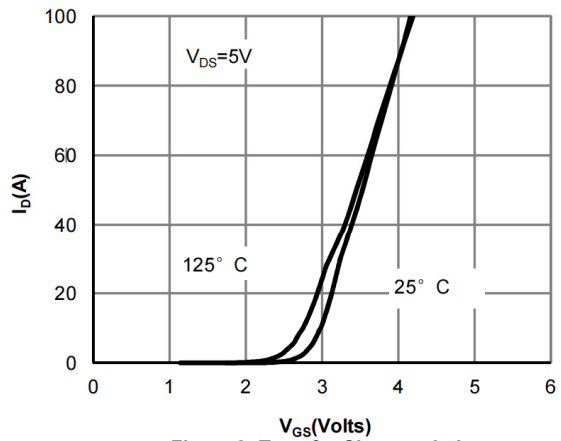


Figure 2: Transfer Characteristics

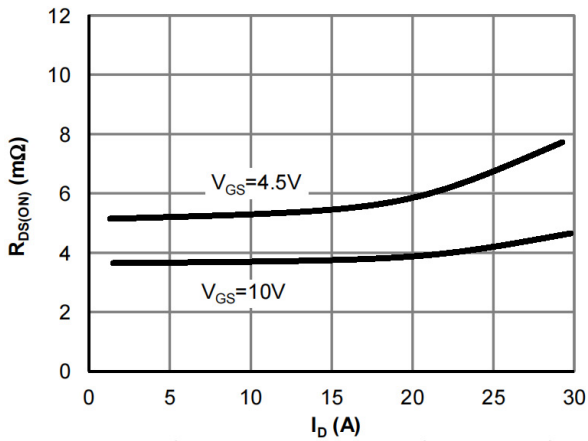


Figure 3: On-Resistance vs. Drain Current and Gate Voltage

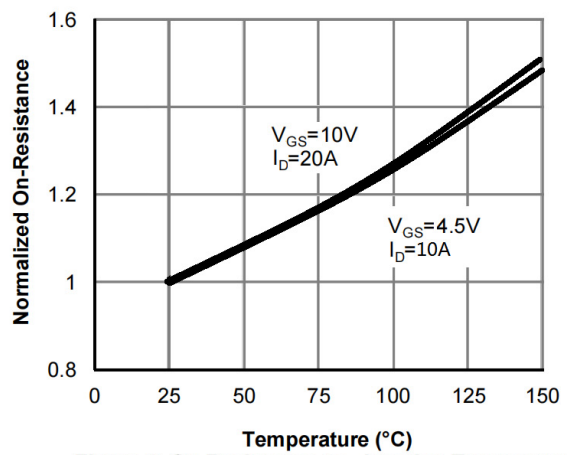


Figure 4: On-Resistance vs. Junction Temperature

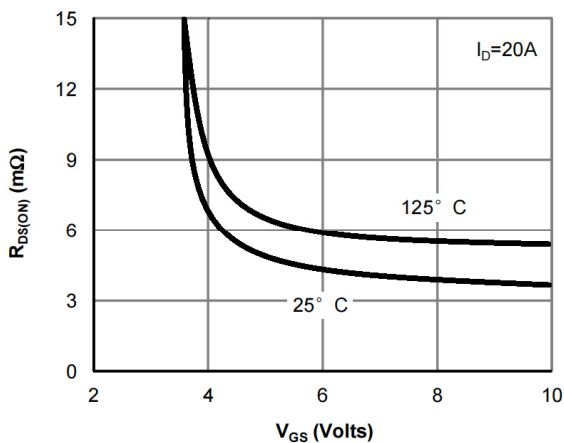


Figure 5: On-Resistance vs. Gate-Source Voltage

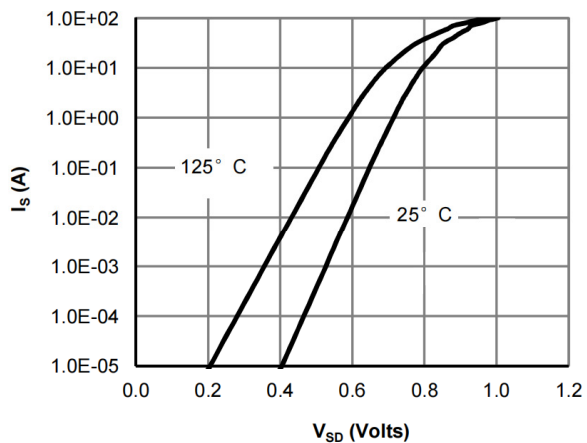


Figure 6: Body-Diode Characteristics

电参数曲线图 / Electrical Characteristic Curve

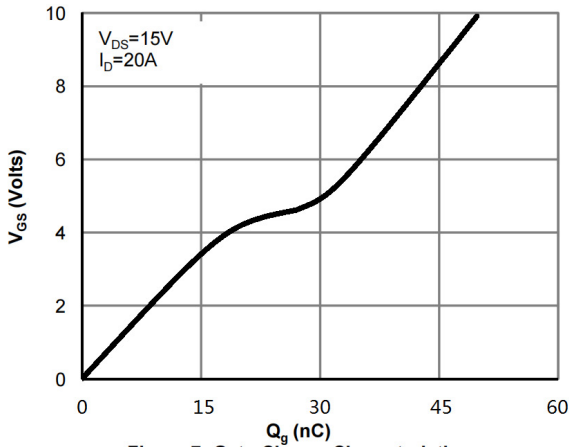


Figure 7: Gate-Charge Characteristics

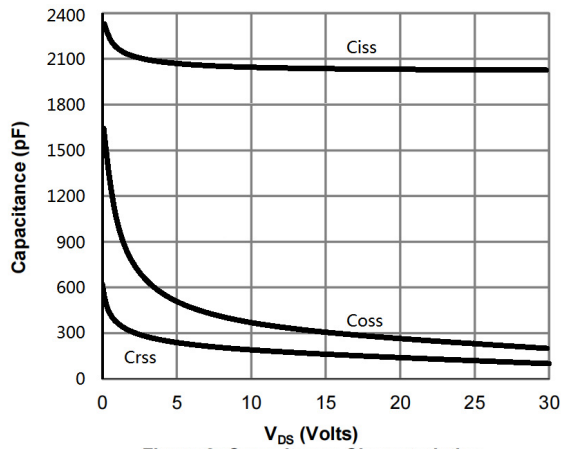


Figure 8: Capacitance Characteristics

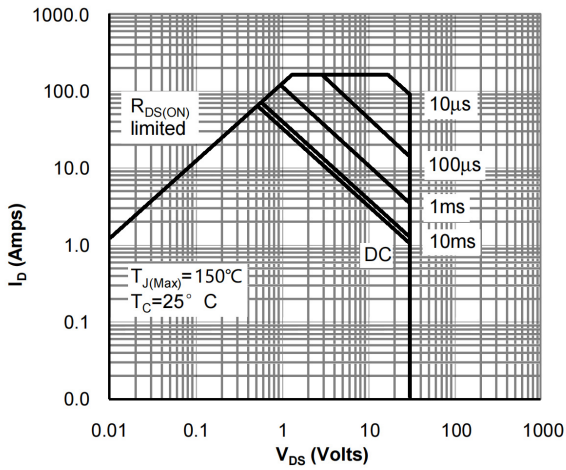


Figure 9: Maximum Forward Biased Safe Operating Area

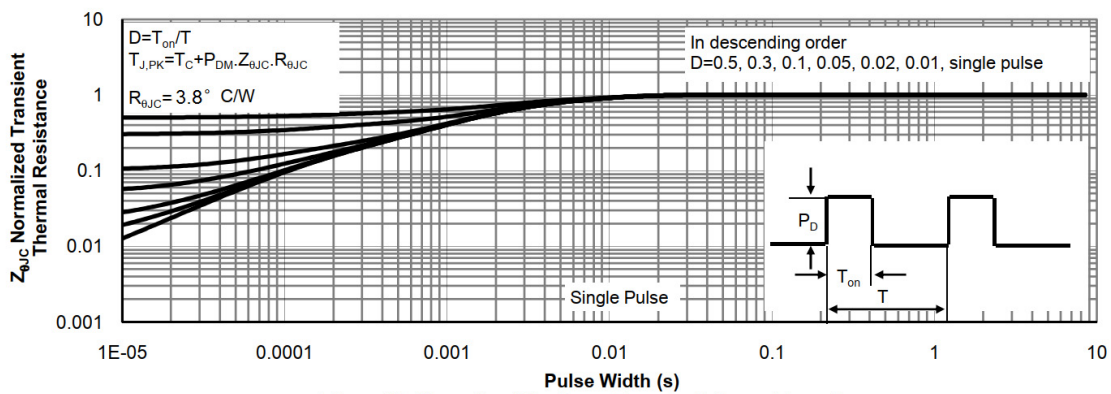
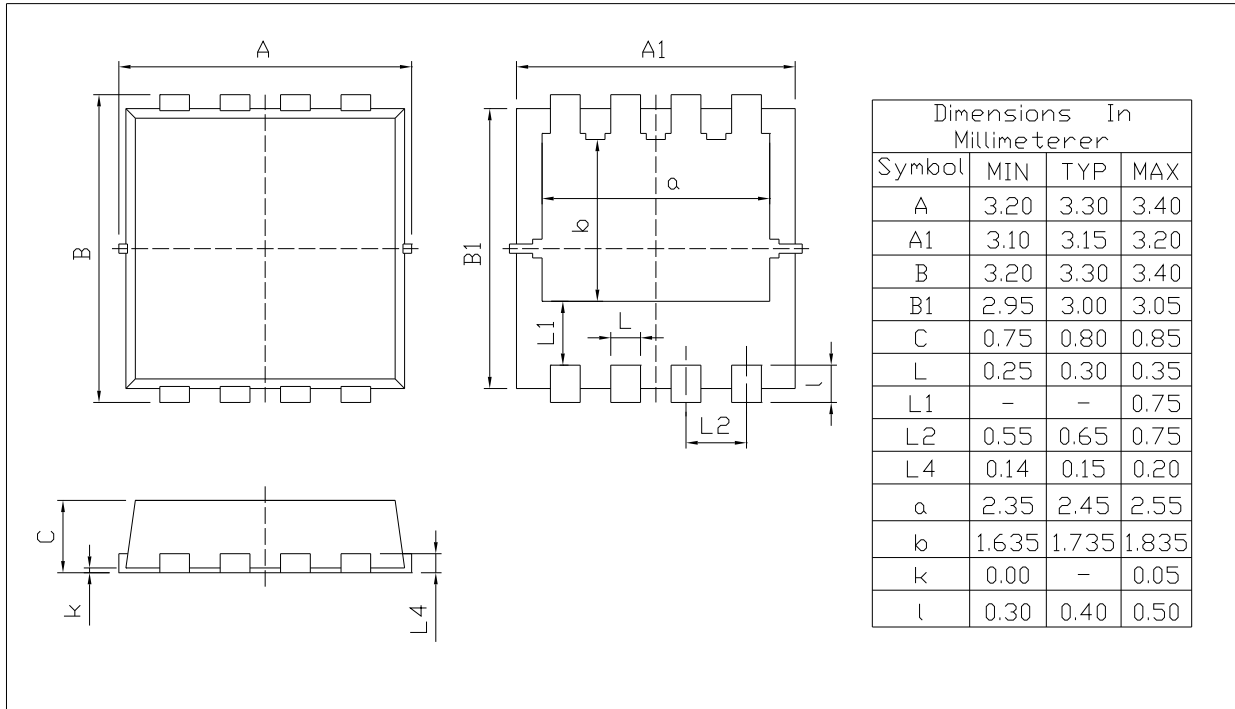


Figure 10: Normalized Maximum Transient Thermal Impedance

外形尺寸图 / Package Dimensions

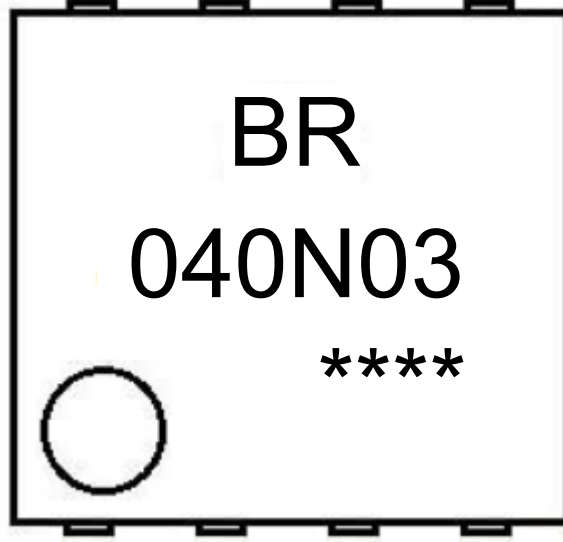
PDFN3X3A-8L

Unit:mm



Rev.00 202011

印章说明 / Marking Instructions



说明：

BR： 为公司代码

040N03： 为型号代码

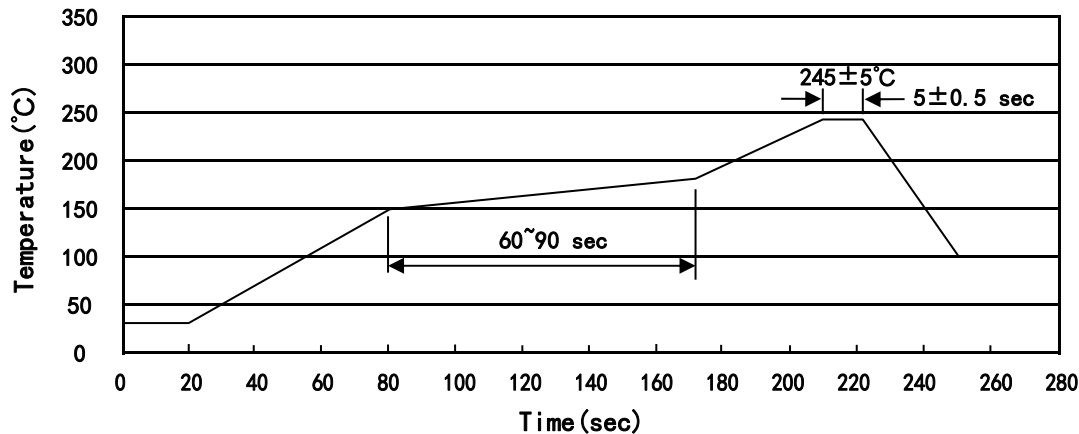
****： 为生产批号代码，随生产批号变化

Note:

BR: Company Code

040N03: 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 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
PDFN3×3A-8L	5,000	2	10,000	6	60,000	13" ×12	360×360×50	380×335×366

使用说明 / Notices