

BRCS080N04YBQ

Rev.A May.-2023

ATA 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

$V_{DS} (V) = 40V$

$I_D = 45 A (V_{GS} = \pm 20V)$

$R_{DS(ON)} @ 10V \leq 8mR (Typ. 6.4mR)$

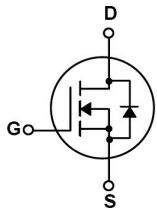
符合 AEC-Q101 标准高可靠性要求，无卤产品。Qualified to AEC-Q101 Standards for High Reliability, HF Product.

用途 / Applications

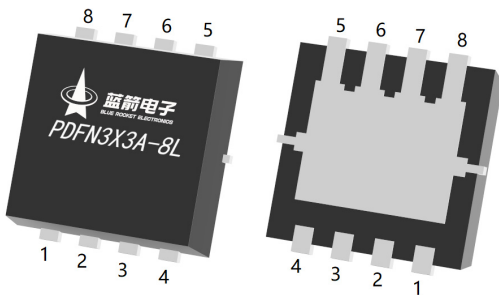
用于高功率 DC/DC 转换和功率开关，满足汽车应用的严格要求。

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°C)

参数 Parameter		符号 Symbol	数值 Rating	单位 Unit
Drain-Source Voltage		V _{DSS}	40	V
Drain Current		I _D (T _C =25°C)	45	A
Drain Current - Pulsed		I _{DM}	105	A
Gate-Source Voltage		V _{GSS}	±20	V
Single Pulsed Avalanche Energy		E _{AS}	67.6	mJ
Avalanche Current		I _{AS}	13	A
Power Dissipation		P _D (T _C =25°C)	27	W
Operating and Storage Temperature Range		T _J , T _{stg}	-55 to 150	°C
Junction-to-Ambient	t ≤ 10	R _{θJA}	25	°C/W
Junction-to-Ambient	Steady-State		55	
Junction-to-Case	Steady-State	R _{θJC}	4.6	

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		
Drain-Source Breakdown Voltage	BV_{DSS}	$V_{GS}=0V$	$I_D=250\mu A$	40	47		V		
Zero Gate Voltage Drain Current	I_{DSS}	$V_{DS}=40V$	$V_{GS}=0V$			1	μA		
Gate-Body Leakage Current Forward	I_{GSS}	$V_{GS}=\pm 20V$	$V_{DS}=0V$			± 0.1	μA		
Gate Threshold Voltage	$V_{GS(th)}$	$V_{DS}=V_{GS}$	$I_D=250\mu A$	1.0	1.6	2.5	V		
Static Drain-Source On-Resistance	$R_{DS(on)}$	$V_{GS}=10V$	$I_D=20A$		6.4	8	$m\Omega$		
		$V_{GS}=4.5V$	$I_D=10A$		10	13	$m\Omega$		
Drain-Source Diode Forward Voltage	V_{SD}	$V_{GS}=0V$	$I_S=1A$			1.2	V		
Input Capacitance	C_{iss}	$V_{DS}=25V$	$V_{GS}=0V$		850		pF		
Output Capacitance	C_{oss}				115				
Reverse Transfer Capacitance	C_{rss}				30				
Gate resistance	R_g	$V_{GS}=0V$	$V_{DS}=0V$		2.4		Ω		
Total Gate Charge	$Q_{g(10V)}$	$V_{GS}=10V$	$V_{DS}=20V$	$I_D=15A$		21	nC		
Total Gate Charge	$Q_{g(4.5V)}$					8.6			
Gate Source Charge	Q_{gs}					5.7			
Gate Drain Charge	Q_{gd}					3			
Turn-On Delay Time	$t_{d(on)}$	$V_{GS}=10V$	$V_{DS}=20V$	$R_L=1.18\Omega$	$R_{GEN}=3.0\Omega$		ns		
Turn-On Rise Time	t_r							2.1	
Turn-Off Delay Time	$t_{d(off)}$							23	
Turn-Off Fall Time	t_f							3	

电参数曲线图 / Electrical Characteristic Curve

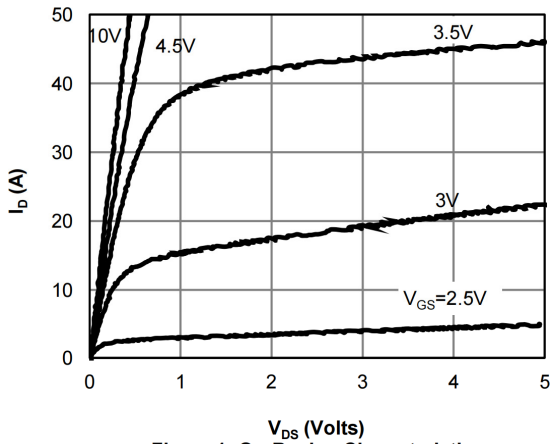


Figure 1: On-Region Characteristics

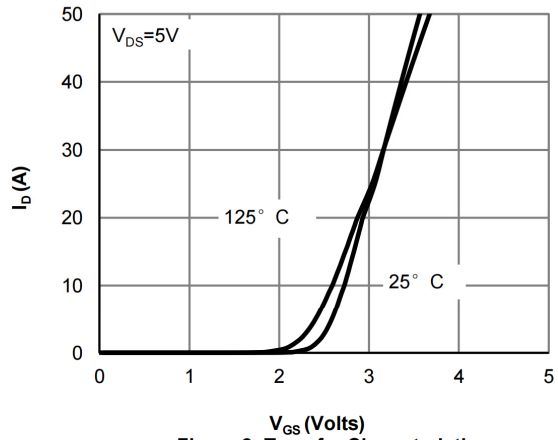


Figure 2: Transfer Characteristics

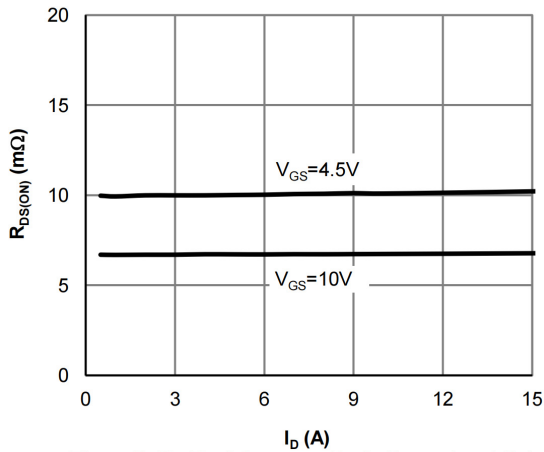


Figure 3: On-Resistance vs. Drain Current and Gate Voltage

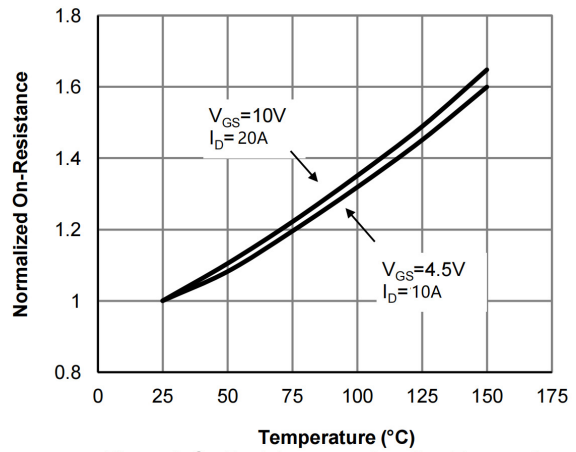


Figure 4: On-Resistance vs. Junction Temperature

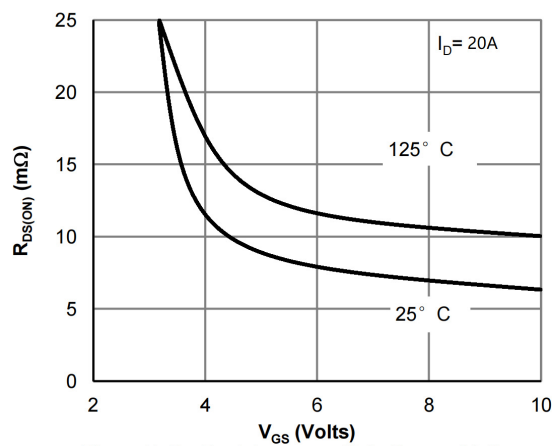


Figure 5: On-Resistance vs. Gate-Source Voltage

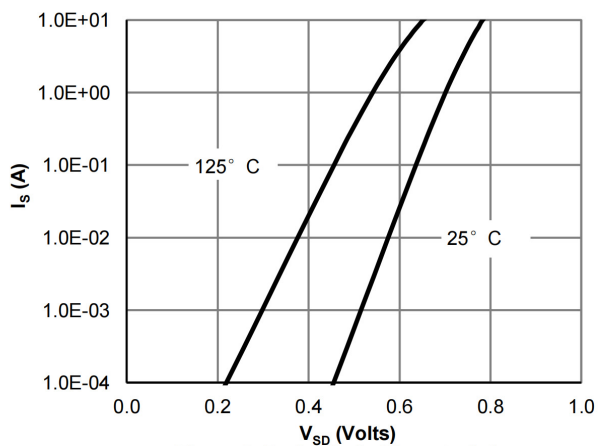
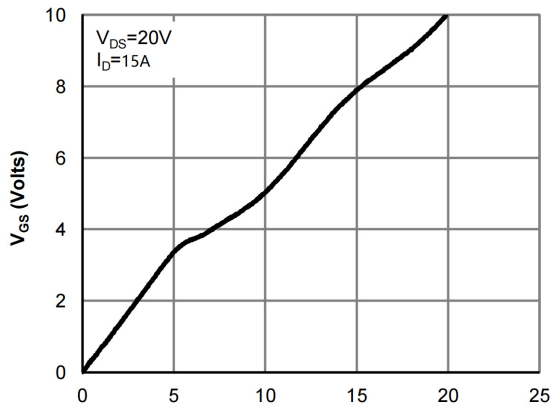
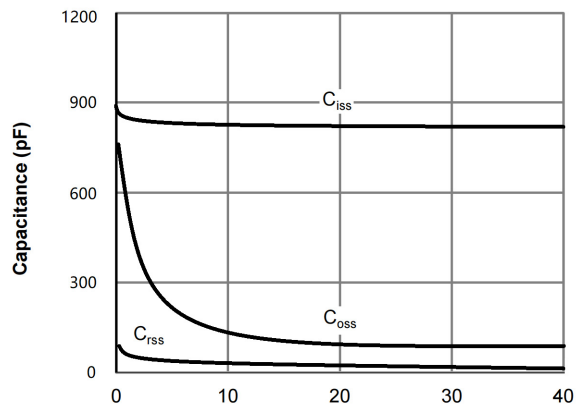
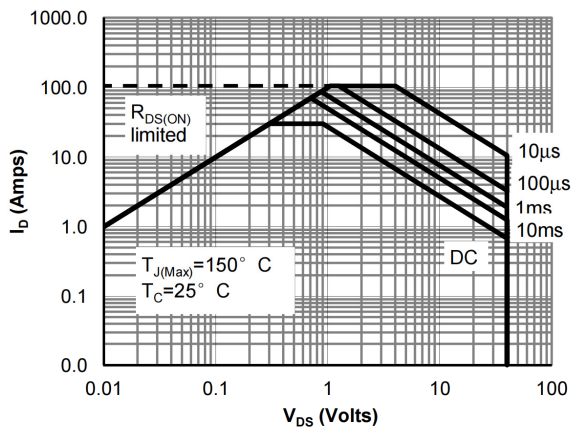
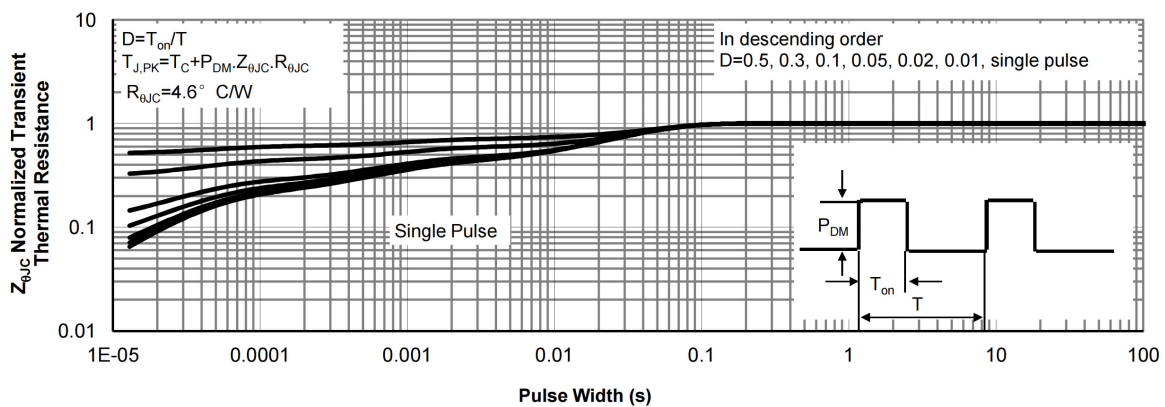


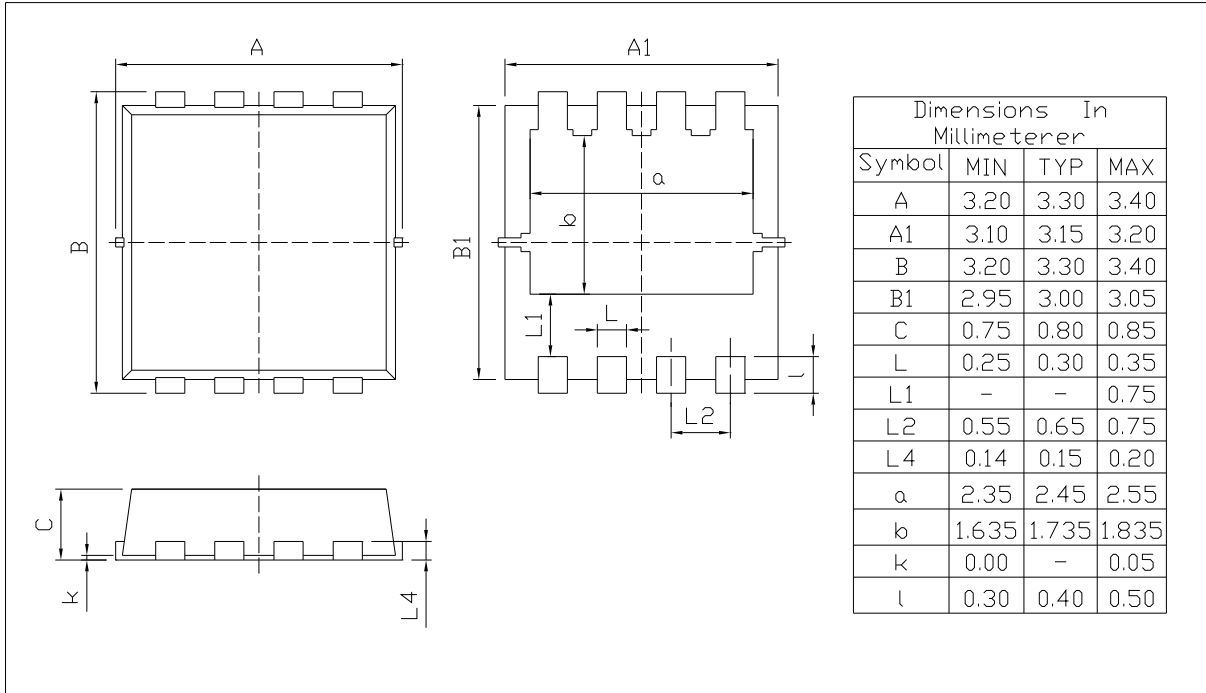
Figure 6: Body-Diode Characteristics

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: Normalized Maximum Transient Thermal Impedance

外形尺寸图 / Package Dimensions

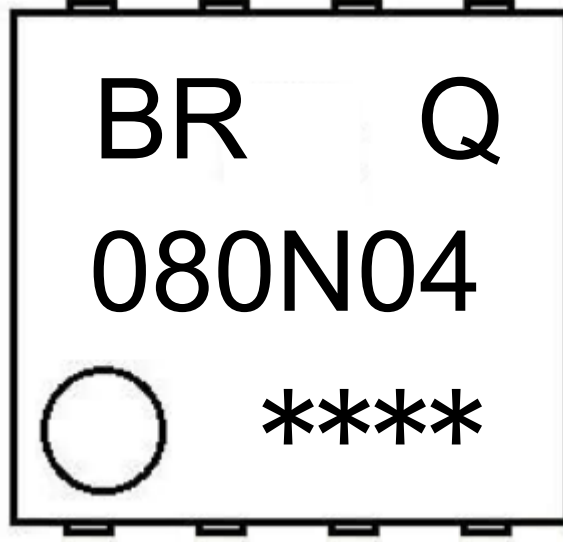
PDFN3X3A-8L

Unit:mm



Rev.00 202011

印章说明 / Marking Instructions



说明：

BR： 为公司代码

Q： 为汽车无卤产品标识

080N04： 为型号代码

****： 为生产批号代码，随生产批号变化

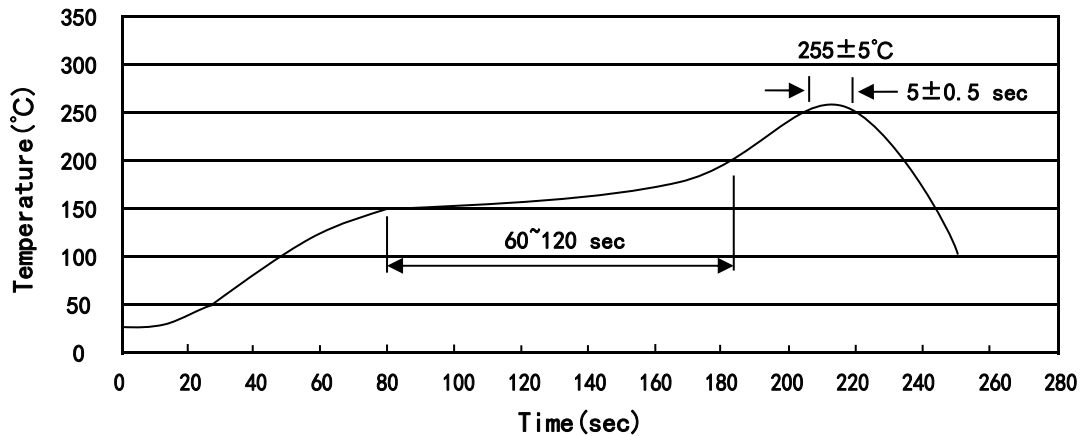
Note:

BR: Company Code

Q: Automobile halogen-free product Code

080N04: 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°C，时间 60~120sec;
- 2、峰值温度 255±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:150~200°C, Time:60~120sec.
- 2.Peak Temp.:255±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
PDFN 3×3A-8L	5,000	2	10,000	6	60,000	13" ×12	360×360×50	380×335×366

使用说明 / Notices