

BRCS250N03YAQ

Rev.A Jun.-2023

DATA SHEET

描述 / Descriptions

PDFN3×3-8L 塑封封装双 N 沟道 MOS 场效应管。
 Double N-CHANNEL MOSFET in a PDFN3×3-8L Plastic Package.

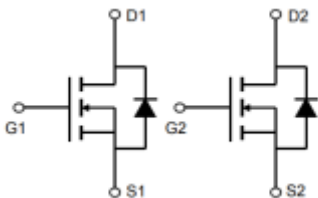
特征 / Features

N-channel
 $V_{DS}(V)=30V$
 $I_D=20A$
 $R_{DS(ON)}<25m\Omega (V_{GS}=10V)$
 $R_{DS(ON)}<40m\Omega (V_{GS}=4.5V)$
 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.

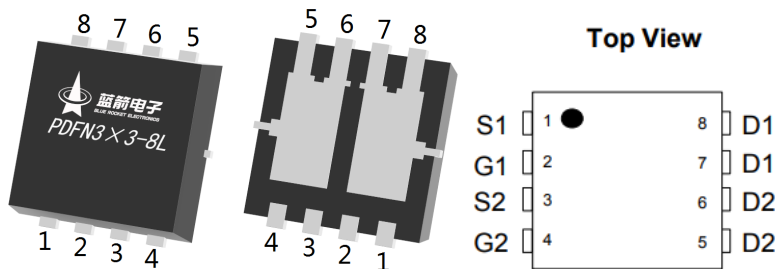
用途 / Applications

用作一般的开关和相位控制，满足汽车应用的严格要求。
 Intended for use in general purpose switching and phase control 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
Drain-Source Voltage	V _{DSS}	30	V
Gate-Source Voltage	V _{GSS}	±20	V
Continuous Drain Current	I _D (T _A =25°C)	20	A
Power Dissipation	P _D (T _A =25°C)	11.2	W
Junction and Storage Temperature Range	T _J , T _{STG}	-55 to +150	°C
Maximum Junction-to-Case	R _{θJC} (Steady-State)	11.2	°C/W
Maximum Junction-to-Ambient	R _{θJA} (Steady-State)	45	°C/W

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 =250μA	30	35		V
Zero Gate Voltage Drain Current	I _{DSS}	V _{DS} =30V V _{GS} =0V			1.0	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} =15V 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

电参数曲线图 / Electrical Characteristic Curve

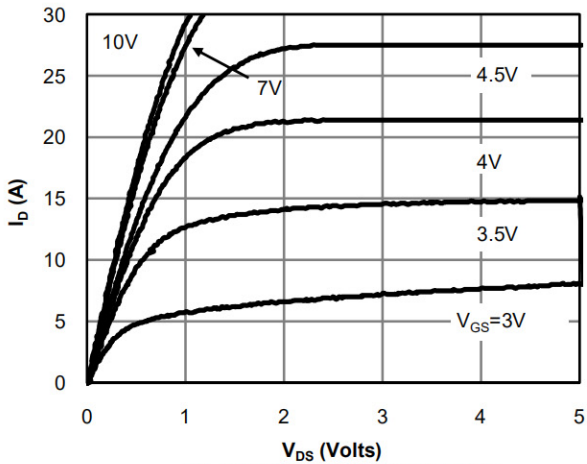


Fig 1: On-Region Characteristics

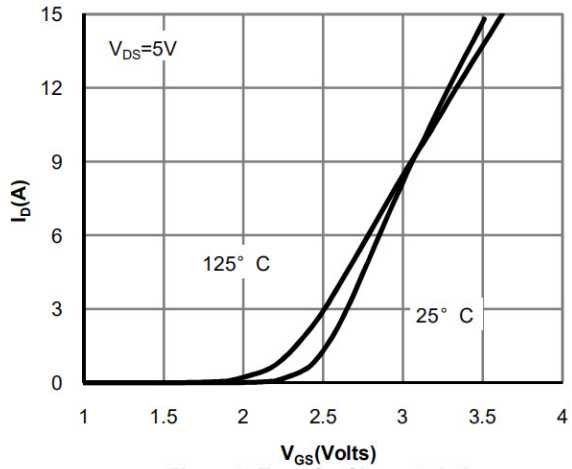


Figure 2: Transfer Characteristics

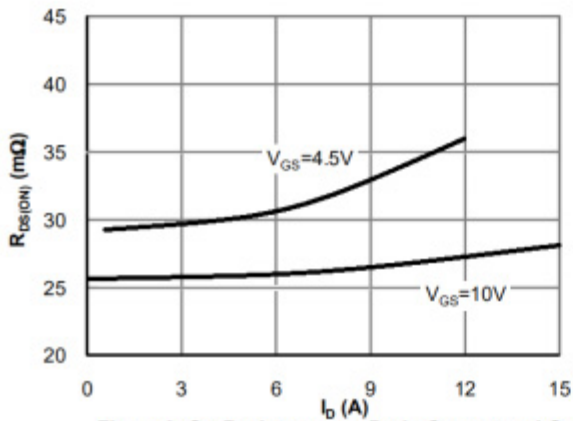


Figure 3: On-Resistance vs. Drain Current and Gate Voltage

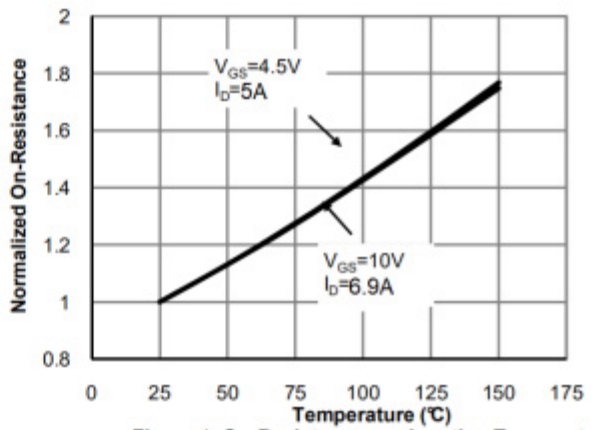


Figure 4: On-Resistance vs. Junction Temperature

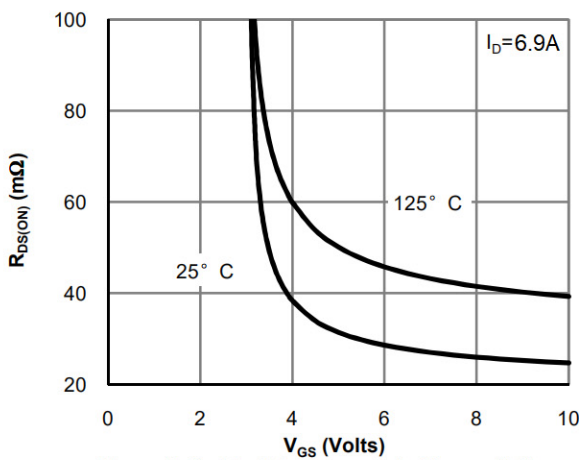


Figure 5: On-Resistance vs. Gate-Source Voltage

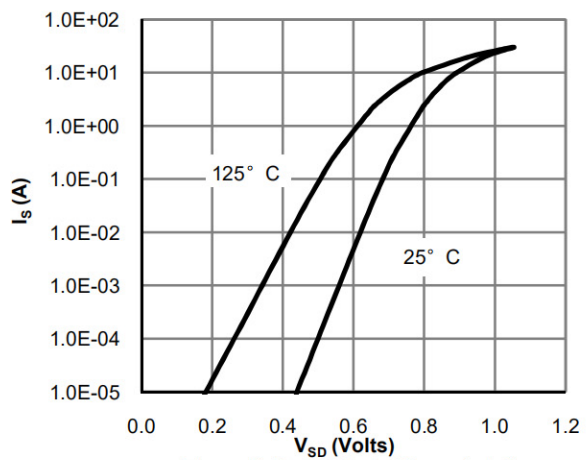
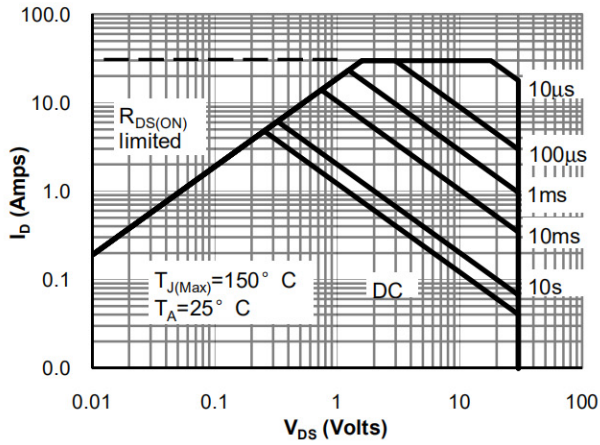
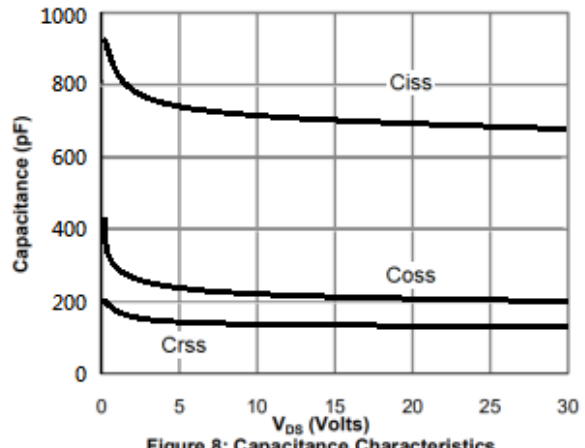
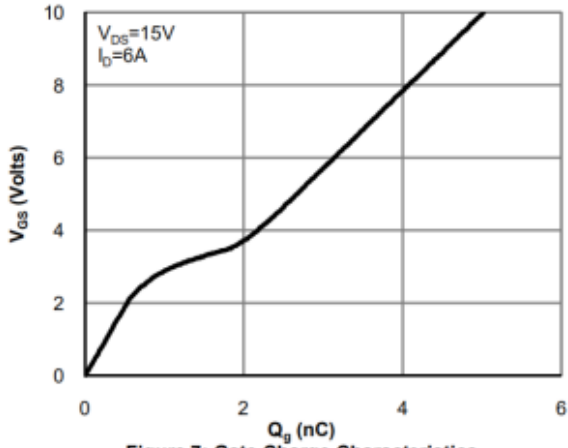


Figure 6: Body-Diode Characteristics

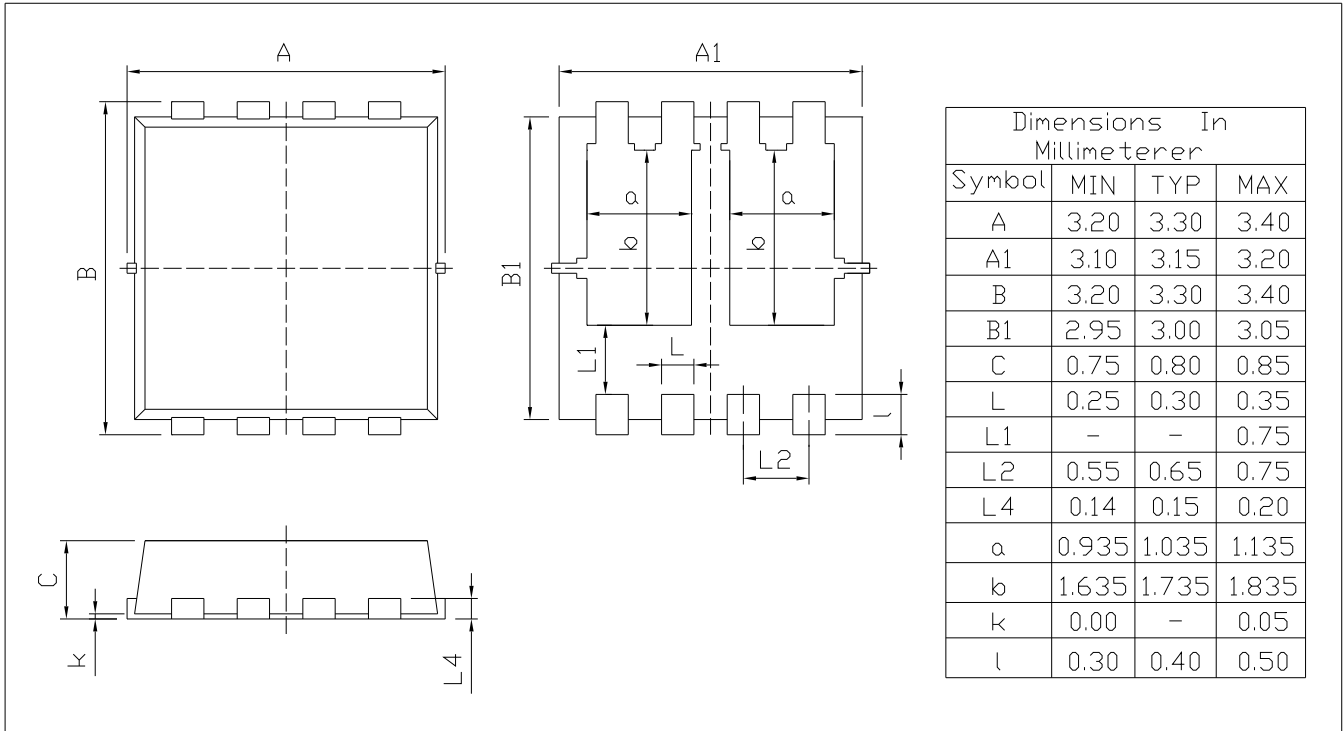
电参数曲线图 / Electrical Characteristic Curve



外形尺寸图 / Package Dimensions

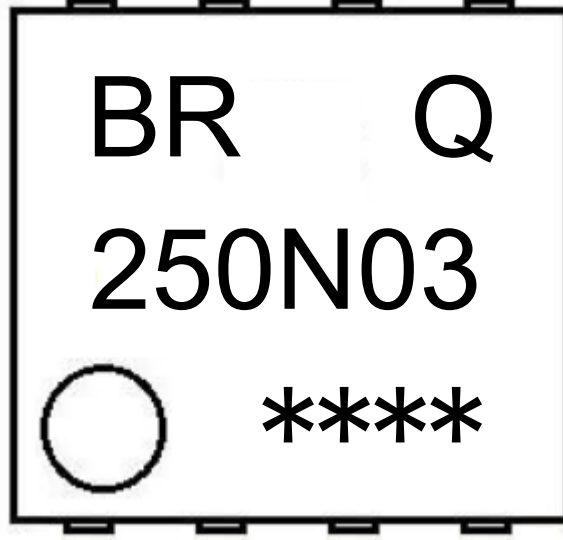
PDFN3X3-8L

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

250N03： 为型号代码

****： 为生产批号代码，随生产批号变化

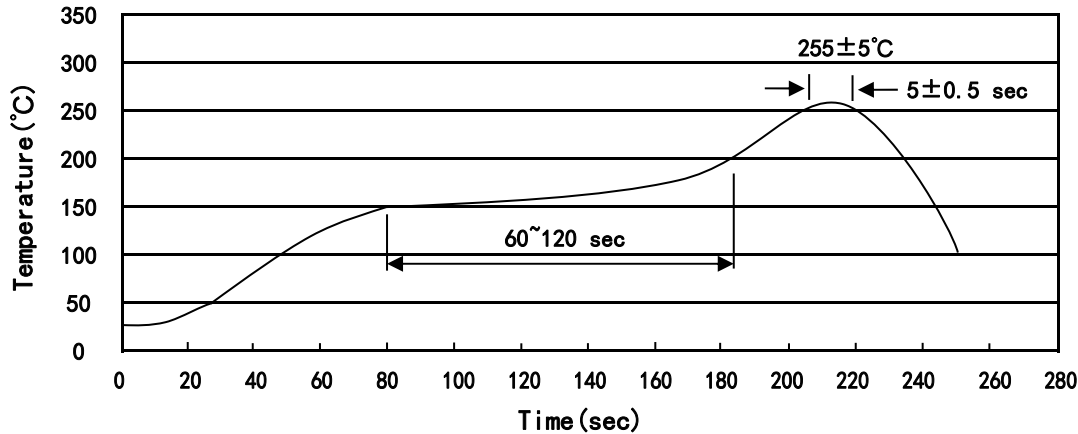
Note:

BR: Company Code

Q: Automobile halogen-free product Code

250N03: 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
PDFN3×3-8L	5,000	2	10,000	6	60,000	13" ×12	360×360×50	380×335×366

使用说明 / Notices