BRCS200N04YA

Rev.A May.-2023

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

V_{DS}=40V I_D=19A

$R_{DS(ON)}$@10V<20mΩ(Typ.18mR)

$R_{DS(ON)}$@4.5V<35mΩ(Typ.24mR)

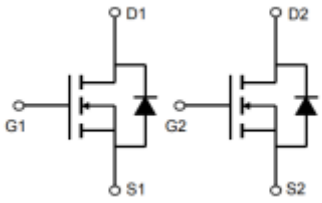
无卤产品。HF Product.

用途 / Applications

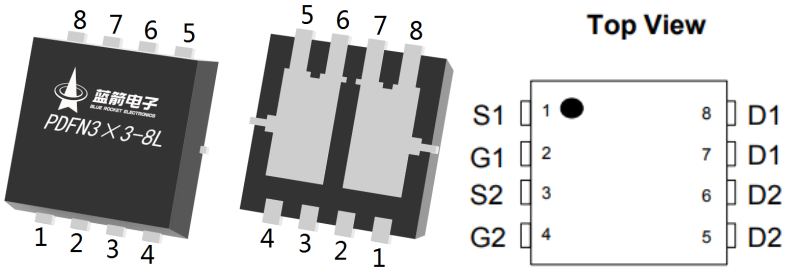
同步整流，DC/DC 转换器。

Synchronous Rectification,DC/DC Converter.

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℃)

参数 Parameter		符号 Symbol	数值 Rating	单位 Unit
Drain-Source Voltage		V_{DSS}	40	V
Drain Current		I_D(Tc=25℃)	19	A
Drain Current - Pulsed		I_{DM}	38	A
Gate-Source Voltage		V_{GS}	±20	V
Power Dissipation		P_D(Tc=25℃)	12	W
Operating and Storage Temperature Range		T_J,T_{stg}	-55 to 150	℃
Junction-to-Ambient	Steady-State	$R_{\theta JA}$	95	℃/W
Junction-to-Case	Steady-State	$R_{\theta JC}$	10.4	

电性能参数 / 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	40	45		V
Zero Gate Voltage Drain Current	I_{DSS}	V_{DS}=40V	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	1.8	3	V
Static Drain-Source On-Resistance	$R_{DS(on)}$	V_{GS}=10V	I_D=6.0A		18	20	mΩ
		V_{GS}=4.5V	I_D=5.0A		24	35	mΩ
Diode Forward Voltage	V_{SD}	V_{GS}=0V	I_S=1.0A			1.2	V
Input Capacitance	C_{iss}	V_{DS}=25V f=1.0MHz	V_{GS}=0V		1200		pF
Output Capacitance	C_{oss}				350		pF
Reverse Transfer Capacitance	C_{rss}				250		pF
Gate resistance	R_g	V_{DS}=0V f=1.0MHz	V_{GS}=0V		2.5		Ω
Total Gate Charge	$Q_{g(10V)}$	V_{GS}=10V I_D=6A	V_{DS}=20V		9.2		nC
Total Gate Charge	$Q_{g(4.5V)}$				4.5		
Gate-Source Charge	Q_{gs}				2.5		nC
Gate-Drain Charge	Q_{gd}				1.5		nC

电性能参数 / 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
Turn-On Delay Time	$t_{d(on)}$	V_{DS}=20V V_{GS}=10V R_L=3.3Ω R_{GEN}=3Ω		6.5		ns
Turn-On Rise Time	t_r			3.7		ns
Turn-Off Delay Time	$t_{d(off)}$			18.2		ns
Turn-Off Fall Time	t_f			7.1		ns

电参数曲线图 / Electrical Characteristic Curve

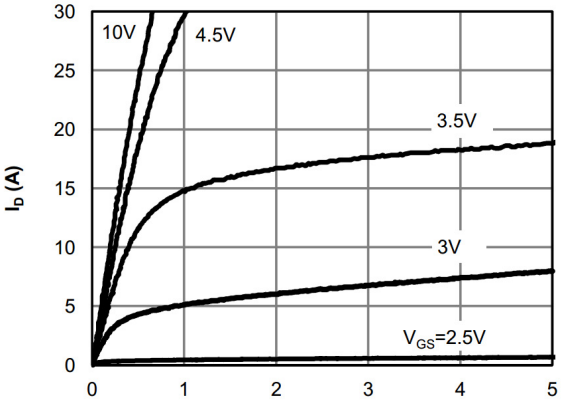


Fig 1: On-Region Characteristics

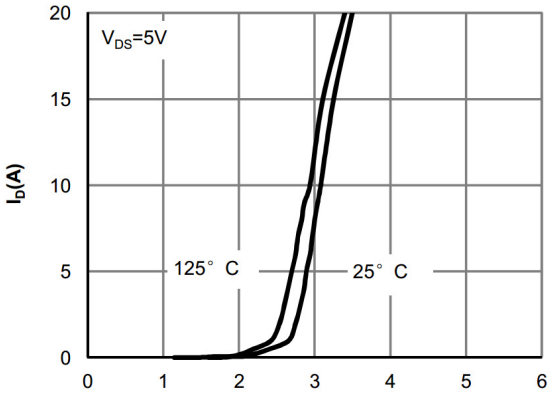


Figure 2: Transfer Characteristics

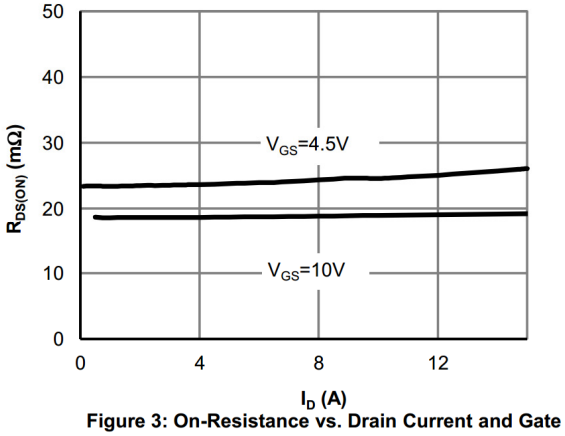


Figure 3: On-Resistance vs. Drain Current and Gate Voltage

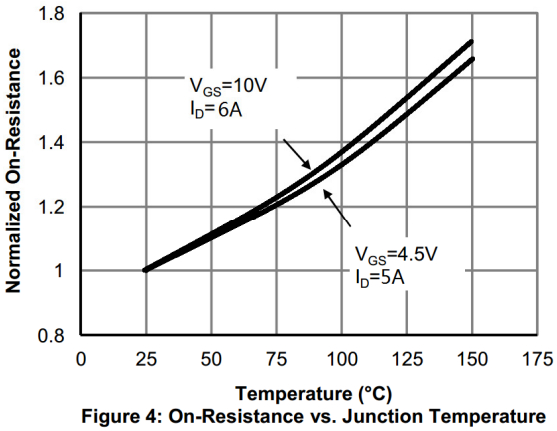


Figure 4: On-Resistance vs. Junction Temperature

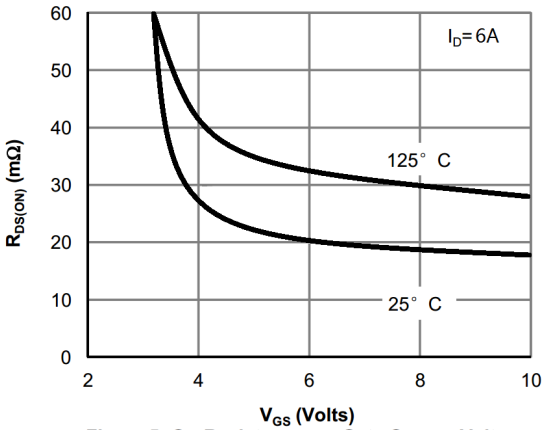


Figure 5: On-Resistance vs. Gate-Source Voltage

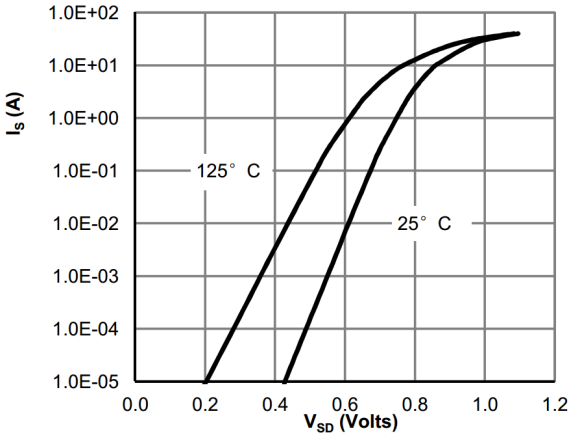


Figure 6: Body-Diode Characteristics

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

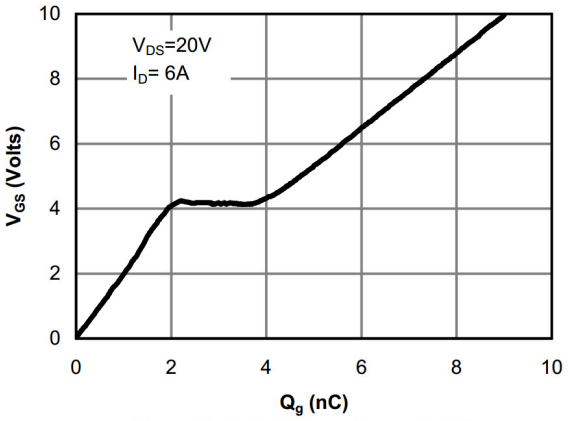


Figure 7: Gate-Charge Characteristics

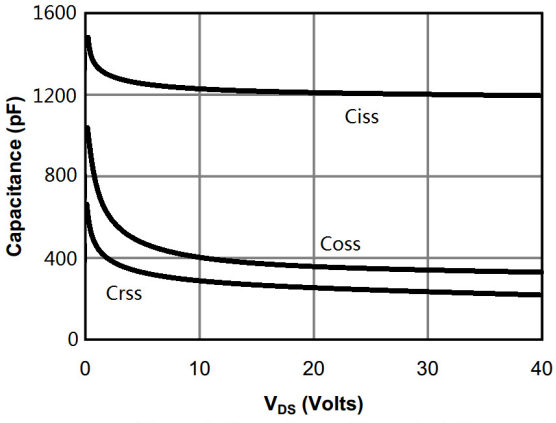


Figure 8: Capacitance Characteristics

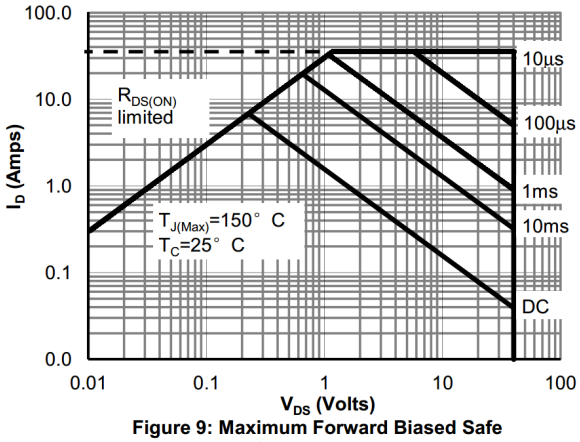


Figure 9: Maximum Forward Biased Safe Operating Area

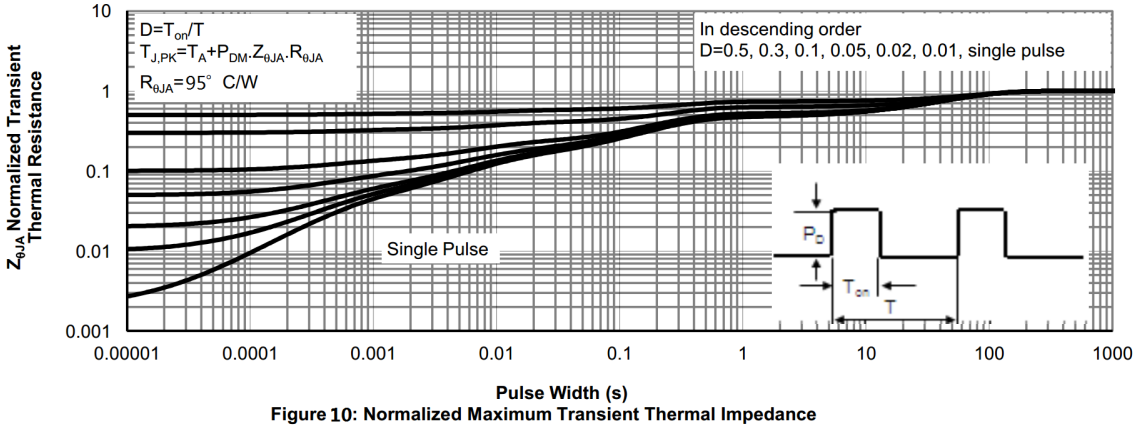
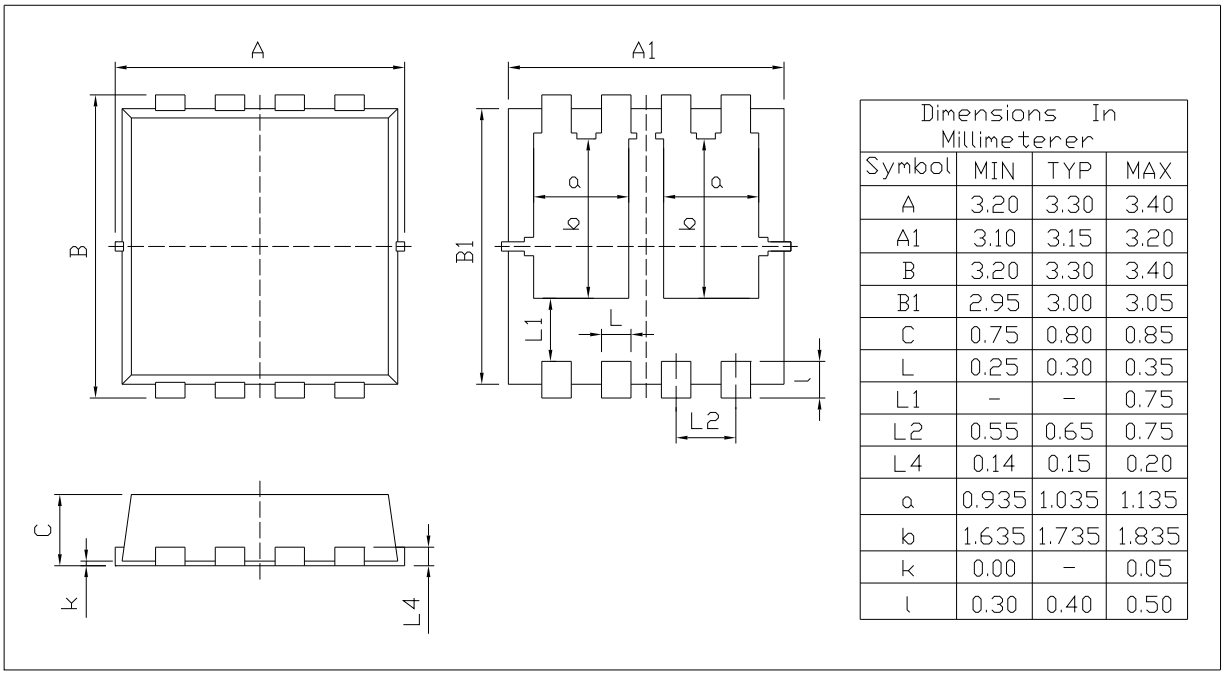


Figure 10: Normalized Maximum Transient Thermal Impedance

外形尺寸图 / Package Dimensions

PDFN3X3-8L

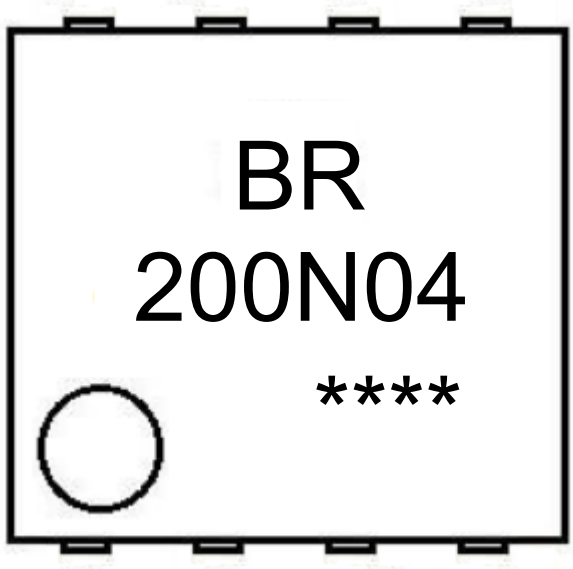
Unit:mm



Dimensions In Millimeterer			
Symbol	MIN	TYP	MAX
A	3.20	3.30	3.40
A1	3.10	3.15	3.20
B	3.20	3.30	3.40
B1	2.95	3.00	3.05
C	0.75	0.80	0.85
L	0.25	0.30	0.35
L1	-	-	0.75
L2	0.55	0.65	0.75
L4	0.14	0.15	0.20
a	0.935	1.035	1.135
b	1.635	1.735	1.835
k	0.00	-	0.05
l	0.30	0.40	0.50

Rev.00 202011

印章说明 / Marking Instructions



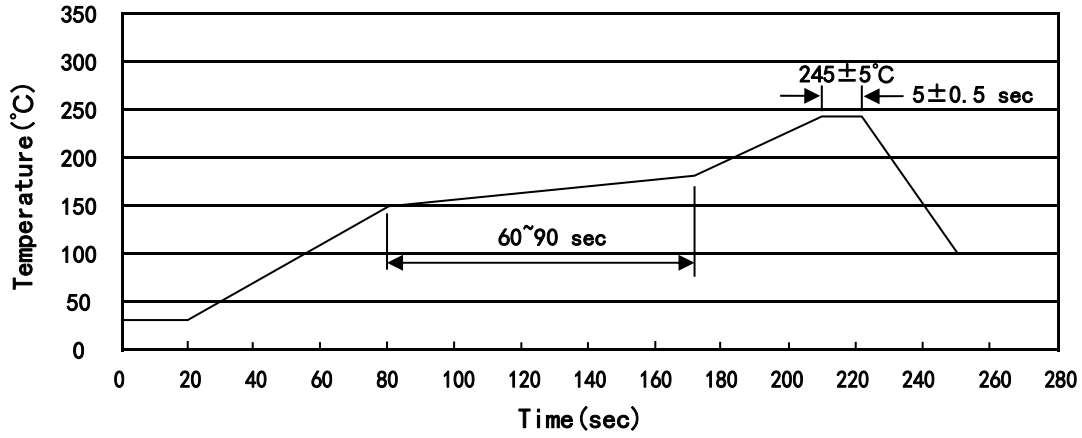
说明：

BR：	为公司代码
200N04：	为型号代码
****：	为生产批号代码，随生产批号变化

Note:

BR:	Company Code
200N04:	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℃，时间 60～90sec;

2、峰值温度 245±5℃，时间持续为 5±0.5sec;

3、焊接制程冷却速度为 2～10℃/sec.

Note:

1.Preheating:150~180℃, Time:60~90sec.

2.Peak Temp.:245±5℃, Duration:5±0.5sec.

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：mm³)		
	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