

# BRCs004N04SSL

Rev.C Jan.-2026

## 描述 / Descriptions

LFPAK5×6 封装 N 沟道场效应管。

N-Channel MOSFET in a LFPAK5×6 Plastic Package.

## 特征 / Features

$V_{DS} (V) = 40V$      $I_D = 325A$

$R_{DS(ON)}@10V \leq 0.46m\Omega$  (Typ. 0.41m $\Omega$ )

$R_{DS(ON)}@4.5V \leq 0.75m\Omega$  (Typ. 0.65m $\Omega$ )

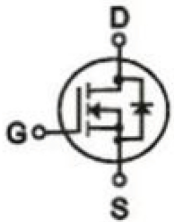
无卤产品。HF Product.

## 用途 / Applications

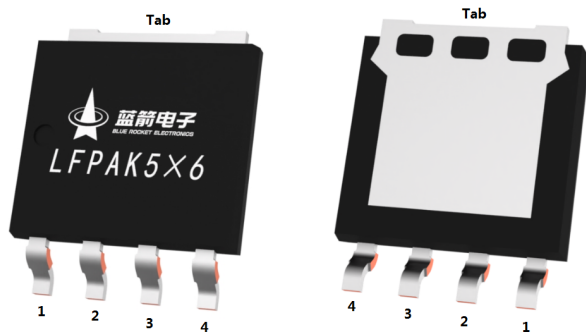
电机驱动器，DC-DC 转换器。

Motor drivers, DC - DC Converter.

## 内部等效电路 / Equivalent Circuit



## 引脚排列 / Pinning



PIN1、2、3: S    PIN4: G    Tab: 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	$V_{DS}$	40	V
Drain Current <sup>①③</sup>	$I_D(T_C=25^\circ C)$	325	A
	$I_D(T_C=100^\circ C)$	325	A
Pulsed Drain Current <sup>①②</sup>	$I_{DM}$	1300	A
Gate-Source Voltage	$V_{GS}$	$\pm 20$	V
Single Pulsed Avalanche Energy L=1.0mH	$E_{AS}$	1250	mJ
Continuous-Source Current	$I_S(T_C=25^\circ C)$	300	A
Total Power Dissipation <sup>①</sup>	$P_D(T_C=25^\circ C)$	375	W
Junction and Storage Temperature Range	$T_J, T_{STG}$	-55 to 175	°C
Thermal Resistance-Junction to Ambient <sup>①</sup>	$R_{\theta JA}$	60	°C/W
Thermal Resistance-Junction to Case <sup>①</sup>	$R_{\theta JC}$	0.4	

Notes:

- ① Pulse width  $\leq 300 \mu s$ , duty cycle  $\leq 2\%$   
 ② Surface Mounted on 1 in<sup>2</sup> pad area,  $t \leq 10$  sec  
 ③ Limited by bonding wire

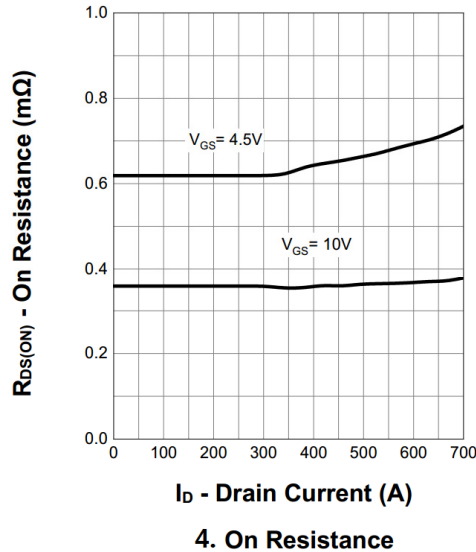
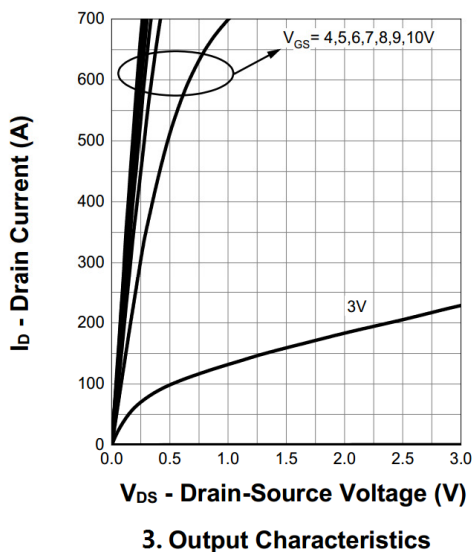
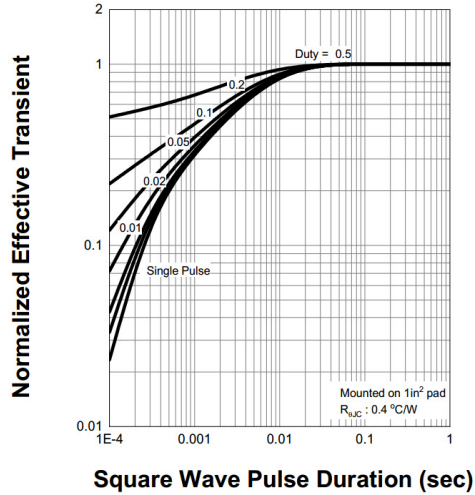
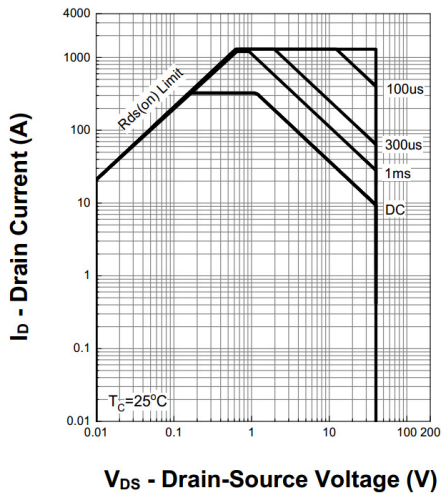
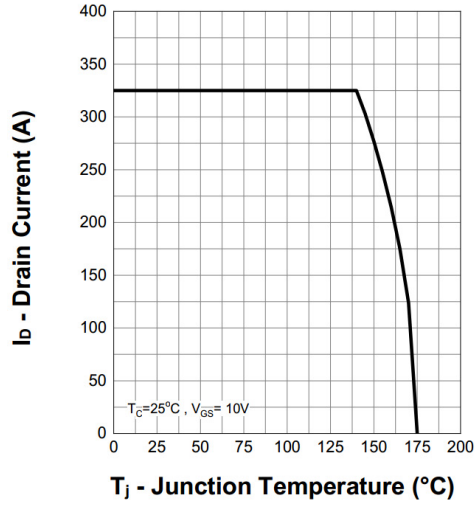
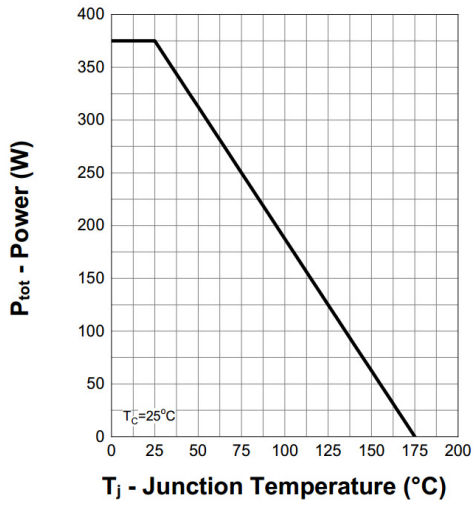
**电性能参数 / Electrical Characteristics(Ta=25°C)**

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			V
Zero Gate Voltage Drain Current	$I_{DSS}$	$V_{DS}=32V$ $V_{GS}=0V$			1	$\mu A$
Gate-Body Leakage Current Forward	$I_{GSS}$	$V_{GS}=\pm 20V$ $V_{DS}=0V$			$\pm 100$	nA
Gate Threshold Voltage	$V_{GS(th)}$	$V_{DS}=V_{GS}$ $I_D=250\mu A$	1		2	V
Static Drain-Source On-Resistance <sup>①</sup>	$R_{DS(on)}$	$V_{GS}=10V$ $I_D=50A$		0.41	0.46	m $\Omega$
	$R_{DS(on)}$	$V_{GS}=4.5V$ $I_D=30A$		0.65	0.75	m $\Omega$
Drain-Source Diode Forward Voltage <sup>①</sup>	$V_{SD}$	$V_{GS}=0V$ $I_S=50A$			1.3	V
Reverse Recovery Time	$t_{rr}$	$I_{DS} = 50A, V_{GS} = 0V$ $di_{SD}/dt = 100 A/\mu s$		65		nS
Reverse Recovery Charge	$Q_{rr}$			58		nC
Input Capacitance	$C_{iss}$	$V_{DS}=20V$ $V_{GS}=0V$ $f=1.0MHz$		8375		pF
Output Capacitance	$C_{oss}$			2536		
Reverse Transfer Capacitance	$C_{rss}$			213		

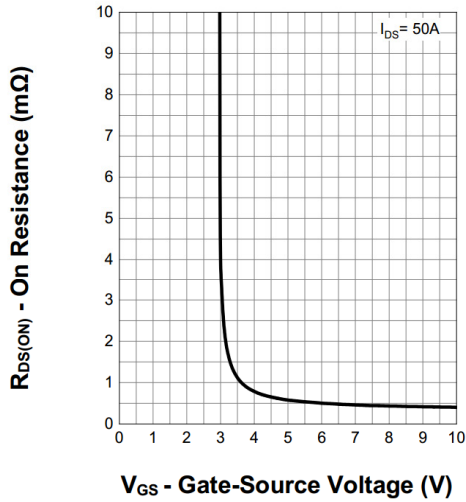
**电性能参数 / Electrical Characteristics(Ta=25°C)**

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	$Q_g$	$V_{GS}=10V, V_{DS}=20V, I_D=50A$		169		nC
Gate Source Charge	$Q_{gs}$			27		
Gate Drain Charge	$Q_{gd}$			37		
Turn-On Delay Time	$t_{d(on)}$	$V_{GEN}=10V, V_{DS}=20V, R_L=0.4\Omega, R_G=3.9\Omega, I_{DS}=50A$		14		ns
Turn-On Rise Time	$t_r$			92		
Turn-Off Delay Time	$t_{d(off)}$			178		
Turn-Off Fall Time	$t_f$			144		

电参数曲线图 / Electrical Characteristic Curve

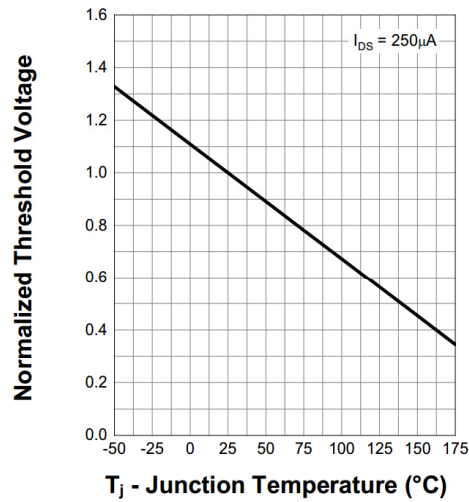


电参数曲线图 / Electrical Characteristic Curve



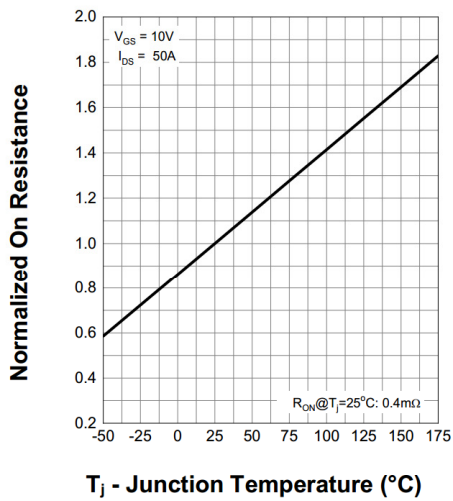
V<sub>GS</sub> - Gate-Source Voltage (V)

7. Transfer Characteristics



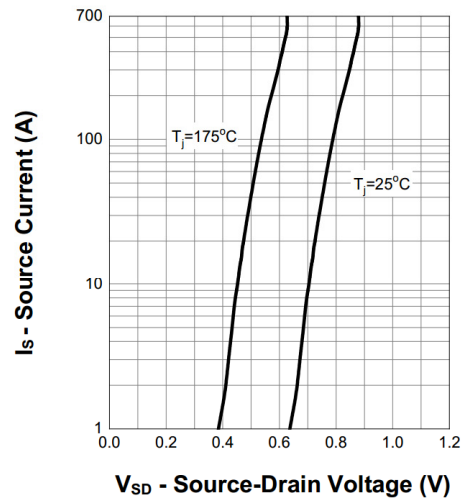
T<sub>J</sub> - Junction Temperature (°C)

8. Normalized Threshold Voltage



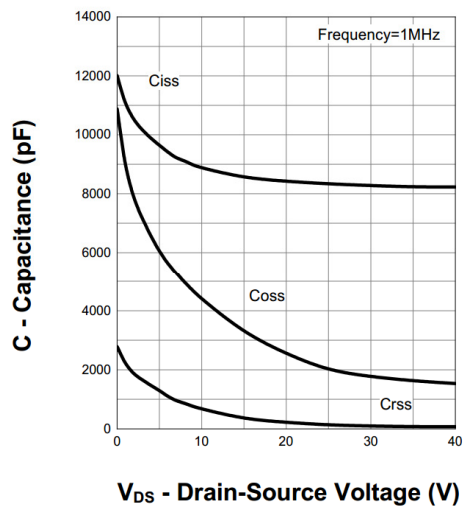
T<sub>J</sub> - Junction Temperature (°C)

9. Normalized On Resistance



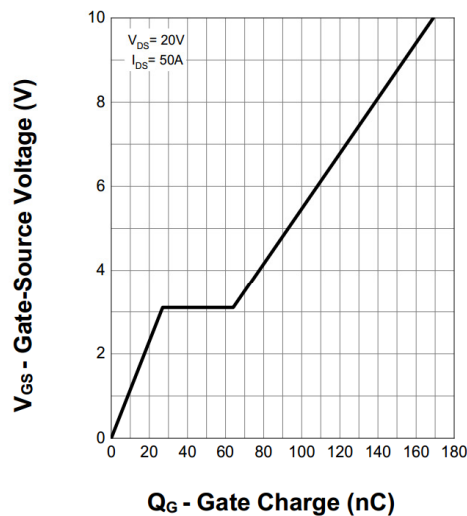
V<sub>SD</sub> - Source-Drain Voltage (V)

10. Diode Forward Current



V<sub>DS</sub> - Drain-Source Voltage (V)

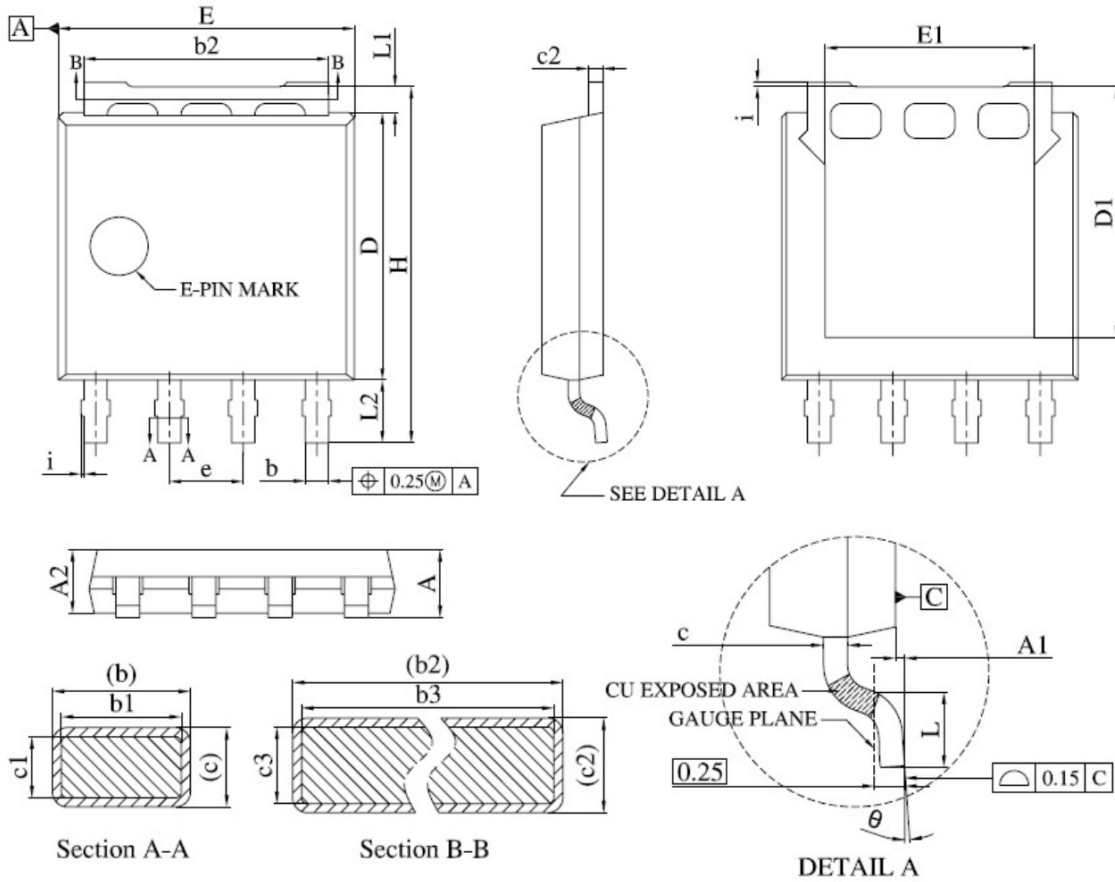
11. Capacitance



Q<sub>G</sub> - Gate Charge (nC)

12. Gate Charge

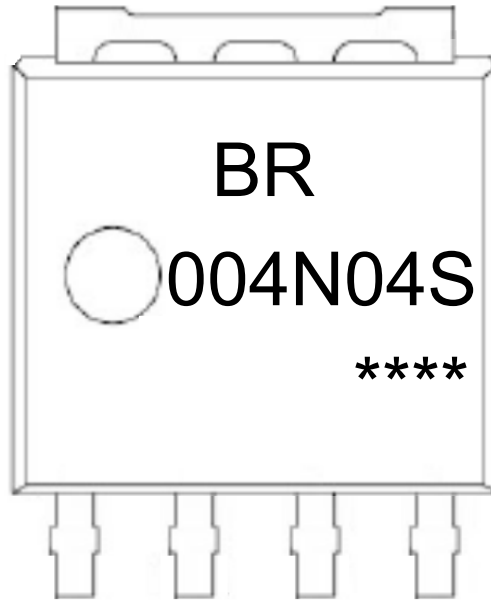
**外形尺寸图 / Package Dimensions**



Symbol	Dimensions In Millimeters	
	MIN.	MAX.
A	1.00	1.30
A1	0.00	0.15
A2	0.98	1.12
b	0.35	0.50
b1	0.32	0.46
b2	4.02	4.41
b3	4.00	4.37
c	0.19	0.25
c1	0.17	0.23
c2	0.24	0.30
c3	0.22	0.28
D	4.45	4.70
D1	-	4.45

Symbol	Dimensions In Millimeters	
	MIN.	MAX.
E	4.95	5.30
E1	3.50	3.70
e	1.27 BSC.	
H	5.95	6.25
i	-	0.25
L	0.40	0.85
L1	0.27	0.57
L2	0.80	1.30
θ	0°	8°

**印章说明 / Marking Instructions**



说明：

BR： 为公司代码

004N04S： 为型号代码

\*\*\*\*： 为生产批号代码，随生产批号变化

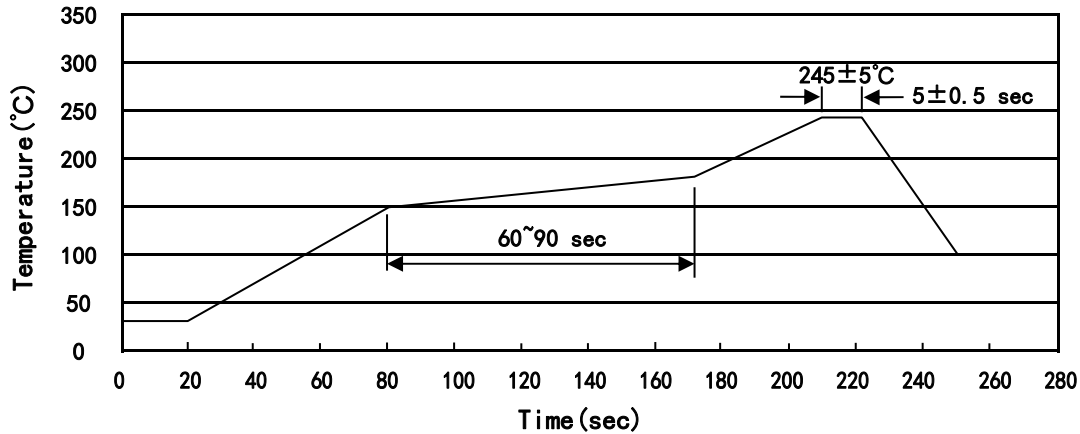
Note：

BR: Company Code

004N04S: 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
LFPAK5×6	3,000	2	6,000	5	30,000	13"×12	356×335×50	385×285×358

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
LFPAK5×6	5,000	2	10,000	5	50,000	13"×12	356×335×50	385×285×358

**使用说明 / Notices**

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