

# BRCS100N10SZC

Rev.A Jun.-2024

## 描述 / Descriptions

PDFN5×6 封装 N 沟道场效应管。  
N-Channel MOSFET in a PDFN5×6 Plastic Package.

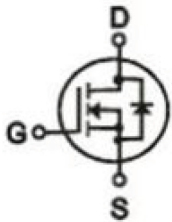
## 特征 / Features

$V_{DS} (V) = 100V$      $I_D = 62.5A$   
 $R_{DS(ON)}@10V \leq 10m\Omega$  (Typ. 9mΩ)  
 $R_{DS(ON)}@4.5V \leq 15m\Omega$  (Typ. 11mΩ)  
 无卤产品。HF Product.

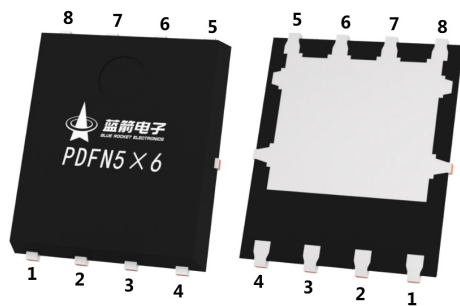
## 用途 / Applications

高频开关和同步整流。  
High Frequency Switching and Synchronous Rectification.

## 内部等效电路 / Equivalent Circuit



## 引脚排列 / Pinning



PIN1、2、3: S    PIN4: G    PIN5、6、7、8: 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 <sub>DSS</sub>	100	V
Drain Current	I <sub>D</sub> (Tc=25°C)	62.5	A
Pulsed Drain Current	I <sub>DM</sub>	161	A
Gate-Source Voltage	V <sub>GS</sub>	±20	V
Single Pulsed Avalanche Energy L=0.5mH	E <sub>AS</sub>	1200	mJ
Avalanche Current	I <sub>AS</sub>	25	A
Total Power Dissipation	P <sub>D</sub> (Tc=25°C)	78	W
Junction and Storage Temperature Range	T <sub>J</sub> , T <sub>STG</sub>	-55 to 150	°C
Thermal Resistance-Junction to Ambient	t ≤ 10s	25	°C/W
	Steady-State	55	
Thermal Resistance-Junction to Case	Steady-State	1.6	

**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 <sub>DSS</sub>	V <sub>GS</sub> =0V I <sub>D</sub> =250μA	100	108		V
Zero Gate Voltage Drain Current	I <sub>DSS</sub>	V <sub>DS</sub> =100V V <sub>GS</sub> =0V			1.0	μA
Gate-Body Leakage Current Forward	I <sub>GSS</sub>	V <sub>GS</sub> =±20V V <sub>DS</sub> =0V			±100	nA
Gate Threshold Voltage	V <sub>GS(th)</sub>	V <sub>DS</sub> =V <sub>GS</sub> I <sub>D</sub> =250μA	1	1.8	2.5	V
Static Drain-Source On-Resistance	R <sub>DS(on)</sub>	V <sub>GS</sub> =10V I <sub>D</sub> =20A		9	10	mΩ
	R <sub>DS(on)</sub>	V <sub>GS</sub> =4.5V I <sub>D</sub> =10A		11	15	mΩ
Drain-Source Diode Forward Voltage	V <sub>SD</sub>	V <sub>GS</sub> =0V I <sub>S</sub> =1A			1.2	V
Gate resistance	R <sub>g</sub>	V <sub>GS</sub> =0V V <sub>DS</sub> =0V, f=1MHz		1.3		Ω
Input Capacitance	C <sub>iss</sub>	V <sub>DS</sub> =25V V <sub>GS</sub> =0V f=1.0MHz		2200		pF
Output Capacitance	C <sub>oss</sub>			800		
Reverse Transfer Capacitance	C <sub>rss</sub>			70		
Total Gate Charge	Q <sub>g(10V)</sub>	V <sub>GS</sub> =10V, I <sub>D</sub> =20A V <sub>DS</sub> =50V,		26		nC
Total Gate Charge	Q <sub>g(4.5V)</sub>			12.9		
Gate Source Charge	Q <sub>gs</sub>			6.5		
Gate Drain Charge	Q <sub>gd</sub>			4.2		

## 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
Turn-On Delay Time	$t_{d(on)}$	$V_{GS}=10V$ $V_{DS}=50V$ $R_L=2.5\Omega$ $R_{GEN}=3\Omega$		8.7		ns
Turn-On Rise Time	$t_r$			3.5		
Turn-Off Delay Time	$t_{d(off)}$			25		
Turn-Off Fall Time	$t_f$			4.2		

## 电参数曲线图 / Electrical Characteristic Curve

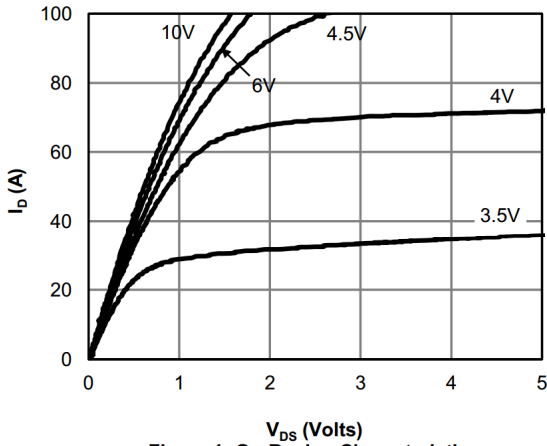


Figure 1: On-Region Characteristics

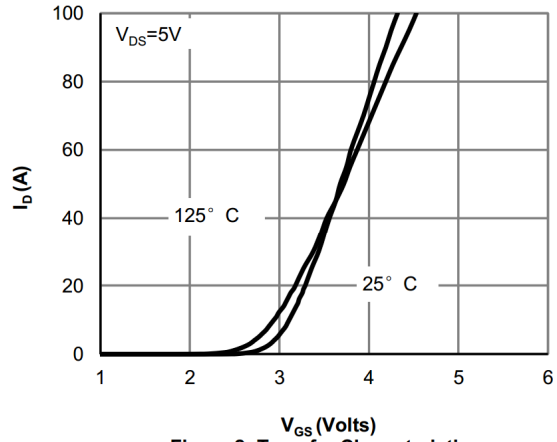


Figure 2: Transfer Characteristics

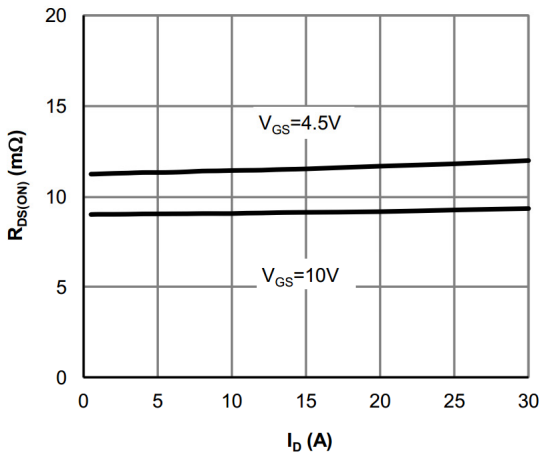


Figure 3: On-Resistance vs. Drain Current and Gate Voltage

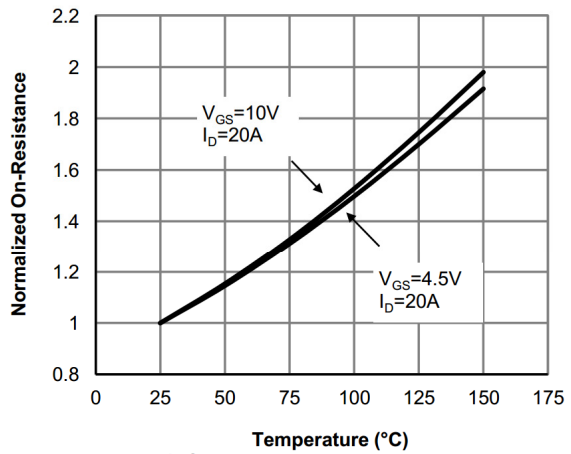


Figure 4: On-Resistance vs. Junction Temperature

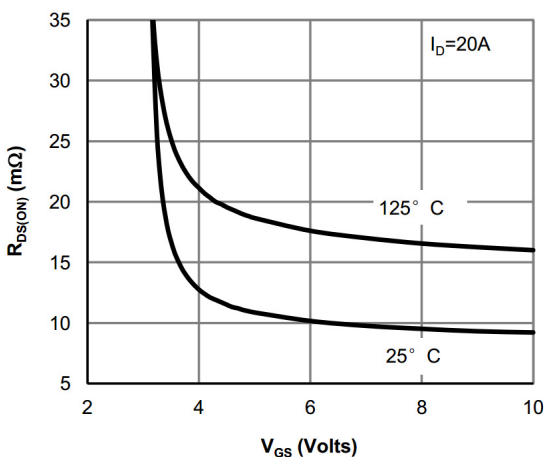


Figure 5: On-Resistance vs. Gate-Source Voltage

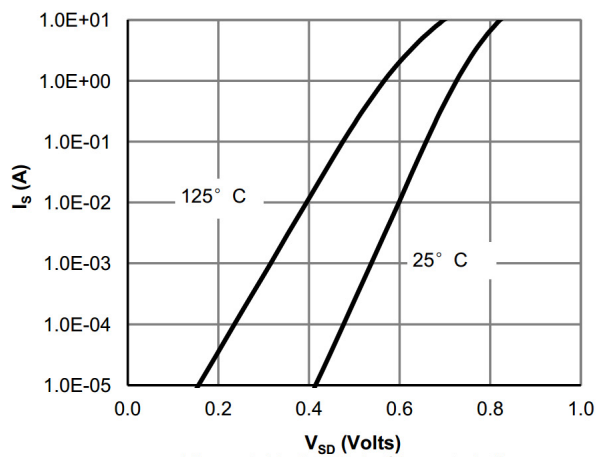


Figure 6: Body-Diode Characteristics

## 电参数曲线图 / Electrical Characteristic Curve

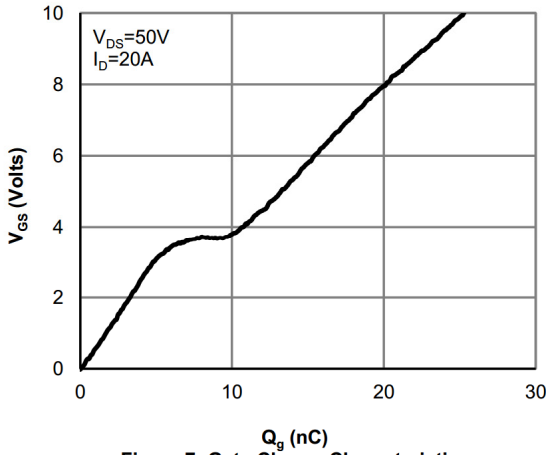


Figure 7: Gate-Charge Characteristics

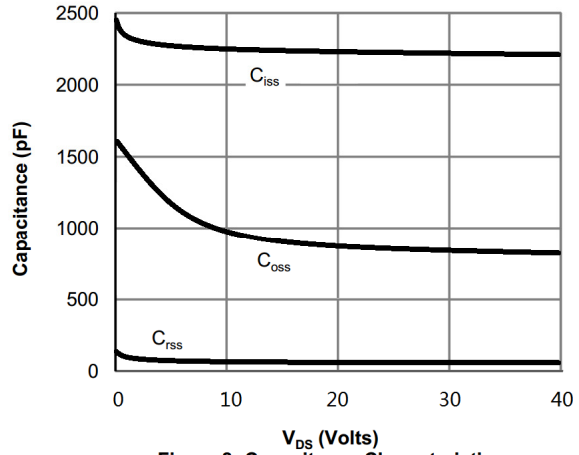


Figure 8: Capacitance Characteristics

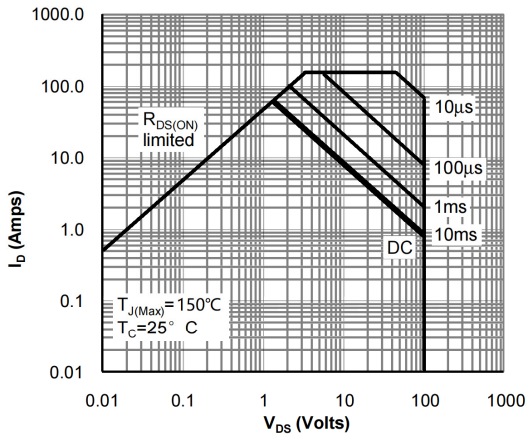


Figure 9: Maximum Forward Biased Safe Operating Area

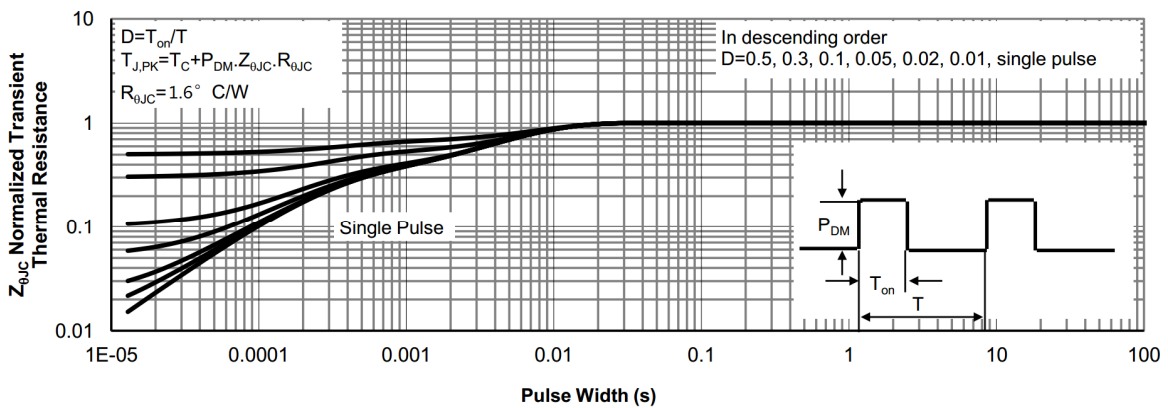
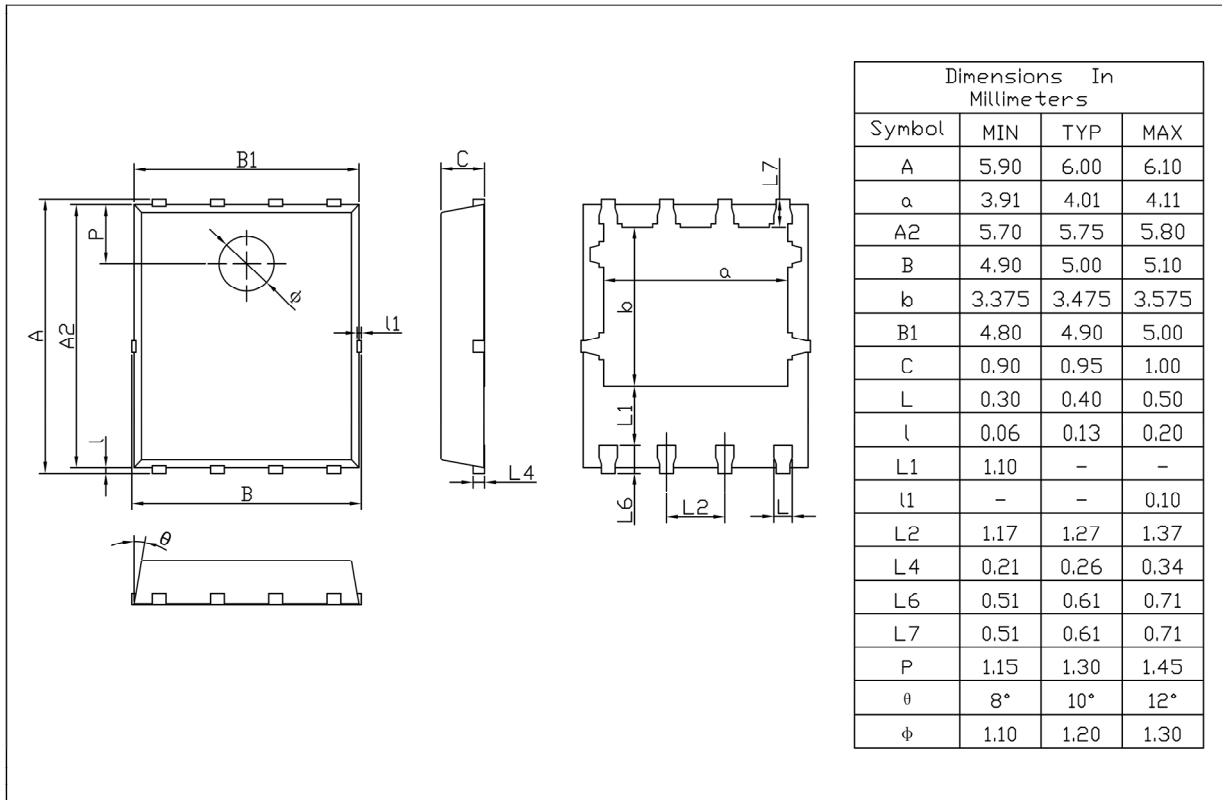


Figure 10: Normalized Maximum Transient Thermal Impedance

**外形尺寸图 / Package Dimensions**

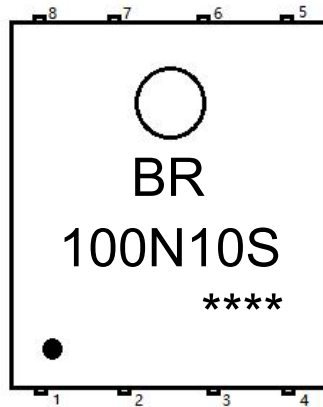
PDFN5 × 6

Unit:mm



Rev.01 202209

**印章说明 / Marking Instructions**



说明：

BR： 为公司代码

100N10S： 为型号代码

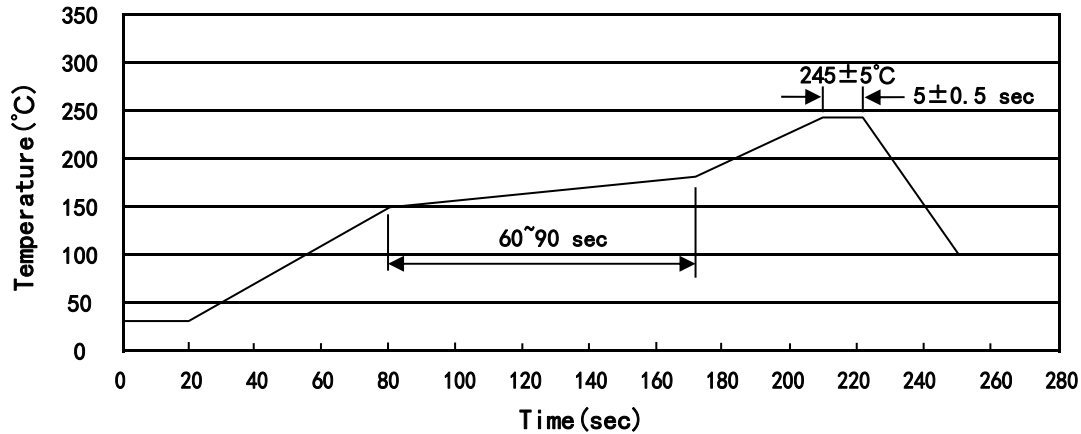
\*\*\*\*： 为生产批号代码，随生产批号变化

Note：

BR： Company Code

100N10S： 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
PDFN5×6	5,000	2	10,000	6	60,000	13"×12	360×360×50	380×335×366

**使用说明 / Notices**