

BRCS025N03ZC

Rev.A Jul.-2025

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

$V_{DS}(V)=30\text{ V}$ $I_D=124\text{ A}$

$R_{DS(ON)}@10\text{V}\leq 2.5\text{ m}\Omega$ (Typ.1.4mR)

$R_{DS(ON)}@4.5\text{V}\leq 4.0\text{ m}\Omega$ (Typ.2.5mR)

无卤产品。HF Product.

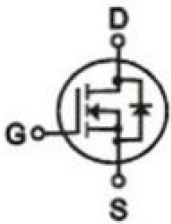
用途 / Applications

电池管理，MB/NB/UMPC/VGA 高频负载点同步 Buck 变换器，联网直流-直流电力系统，负荷开关。

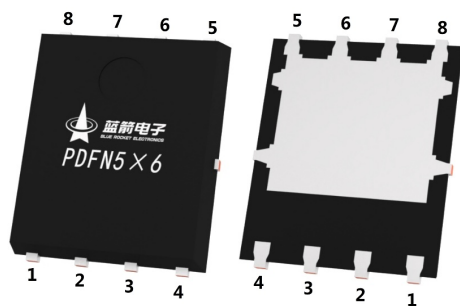
Battery Management, High Frequency Point-of-Load Synchronous Buck Converter for

MB/NB/UMPC/VGA, Networking DC-DC Power System, Load Switch.

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(T_a=25°C)

参数 Parameter	符号 Symbol	数值 Rating	单位 Unit
Drain-Source Voltage	V _{DS}	30	V
Continuous Drain Current	I _D (T _c =25°C)	124	A
Pulsed Drain Current	I _{DM}	248	A
Gate-Source Voltage	V _{GS}	±20	V
Power Dissipation	P _D (T _c =25°C)	65	W
Avalanche energy(L=0.5mH)	E _{AS}	810	mJ
Avalanche Current(L=0.5mH)	I _{AS}	46.5	A
Junction and Storage Temperature Range	T _j , T _{stg}	-55 to 150	°C
Maximum Junction-to-Ambient	R _{θJA}	50	°C/W
Maximum Junction-to-Case	R _{θJC}	1.92	

电性能参数 / Electrical Characteristics(T_a=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}	I _D =250uA, V _{GS} =0V	30	33.5		V
Zero Gate Voltage Drain Current	I _{DSS}	V _{DS} =30V, V _{GS} =0V			1.0	uA
Gate-Body leakage current	I _{GSS}	V _{DS} =0V, V _{GS} =±20V			±100	nA
Gate Threshold Voltage	V _{GS(th)}	V _{DS} =V _{GS} , I _D =250uA	1	1.5	2.5	V
Static Drain-Source On-Resistance	R _{DS(ON)}	V _{GS} =10V, I _D =20A		1.4	2.5	mΩ
		V _{GS} =4.5V, I _D =10A		2.5	4.0	
Diode Forward Voltage	V _{SD}	I _S =1A, V _{GS} =0V			1.4	V
Input Capacitance	C _{iSS}	V _{DS} =25V V _{GS} =0V f=1.0MHz		5800		pF
Output Capacitance	C _{oss}			500		
Reverse Transfer Capacitance	C _{rSS}			465		
Gate resistance	R _g	V _{GS} =0V V _{DS} =0V f=1MHz		1.1		Ω

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	$Q_{g(10V)}$	$V_{GS}=10V$ $V_{DS}=15V$ $I_D=20A$		115.2		nC
Total Gate Charge	$Q_{g(4.5V)}$			55.3		
Gate Source Charge	Q_{gs}			11.0		
Gate Drain Charge	Q_{gd}			23.6		
Turn-On Delay Time	$t_{d(on)}$	$V_{GS}=10V$ $V_{DS}=15V$ $I_D=20A$ $R_G=3\Omega$		17.2		ns
Turn-On Rise Time	t_r			53.3		
Turn-Off Delay Time	$t_{d(off)}$			80.9		
Turn-Off Fall Time	t_f			35.3		

电参数曲线图 / Electrical Characteristic Curve

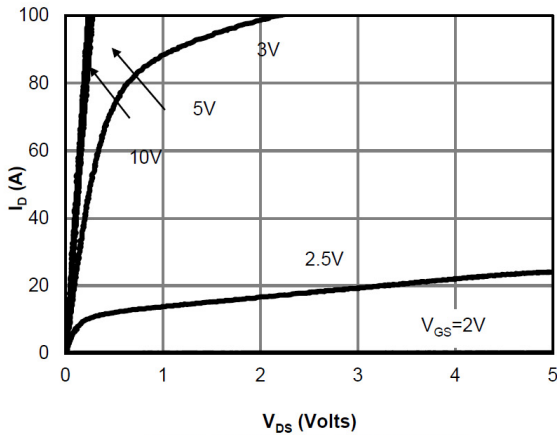


Figure 1: On-Region Characteristics

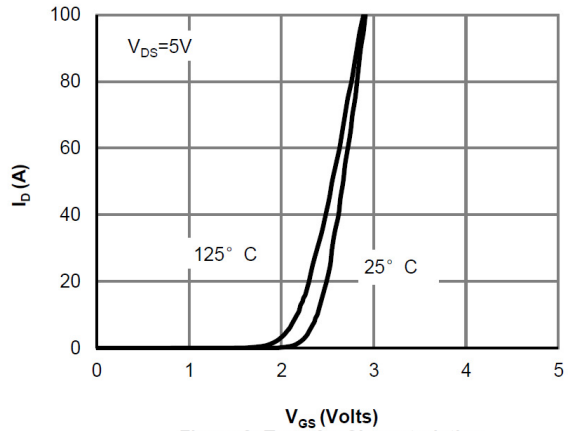


Figure 2: Transfer Characteristics

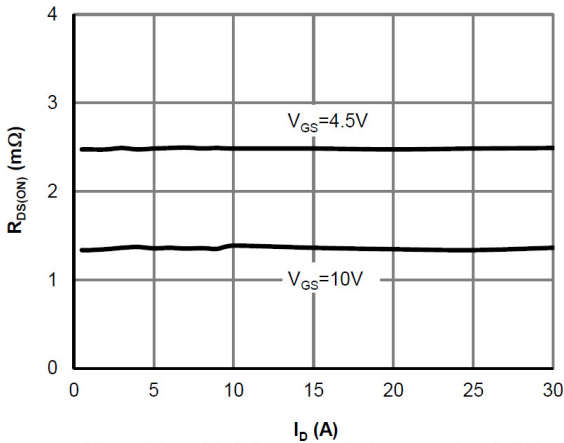


Figure 3: On-Resistance vs. Drain Current and Gate Voltage

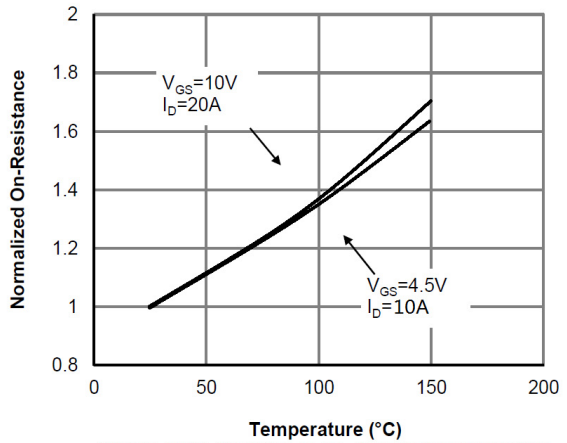


Figure 4: On-Resistance vs. Junction Temperature

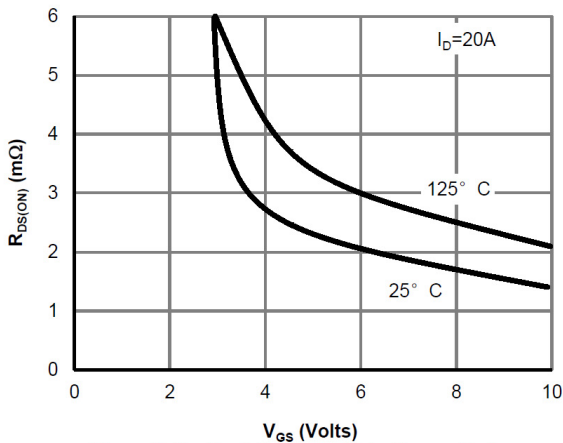


Figure 5: On-Resistance vs. Gate-Source Voltage (Note E)

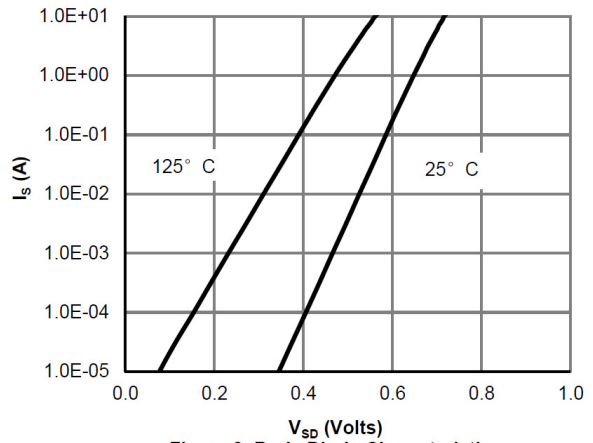


Figure 6: Body-Diode Characteristics (Note E)

电参数曲线图 / Electrical Characteristic Curve

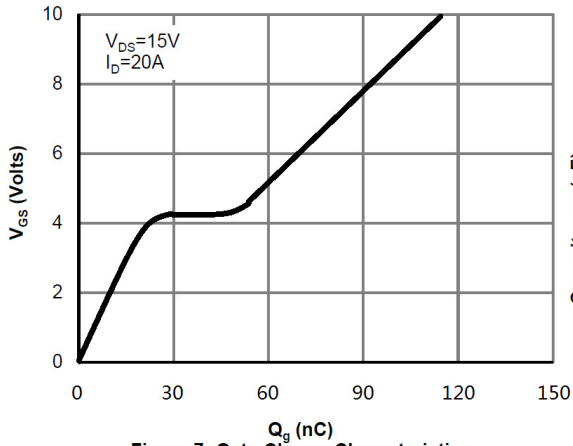


Figure 7: Gate-Charge Characteristics

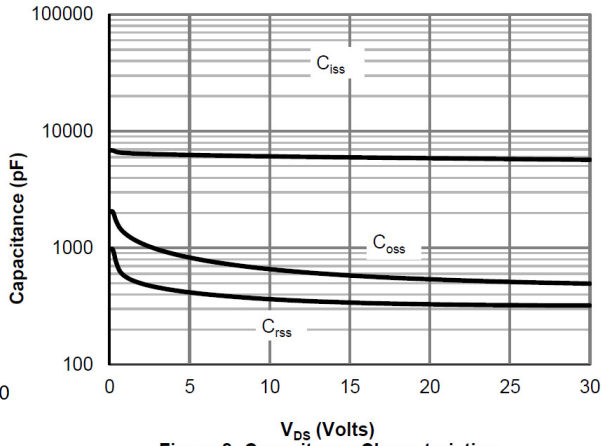


Figure 8: Capacitance Characteristics

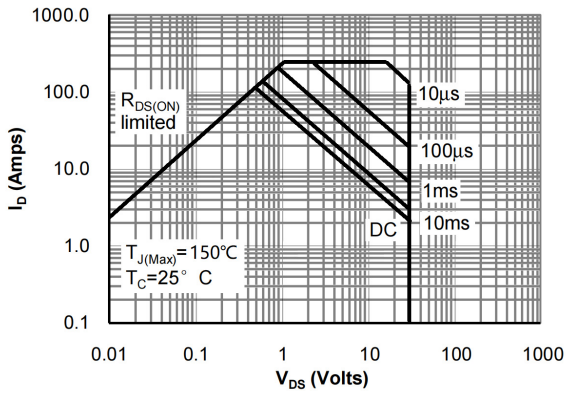


Figure 9: Maximum Forward Biased Safe Operating Area

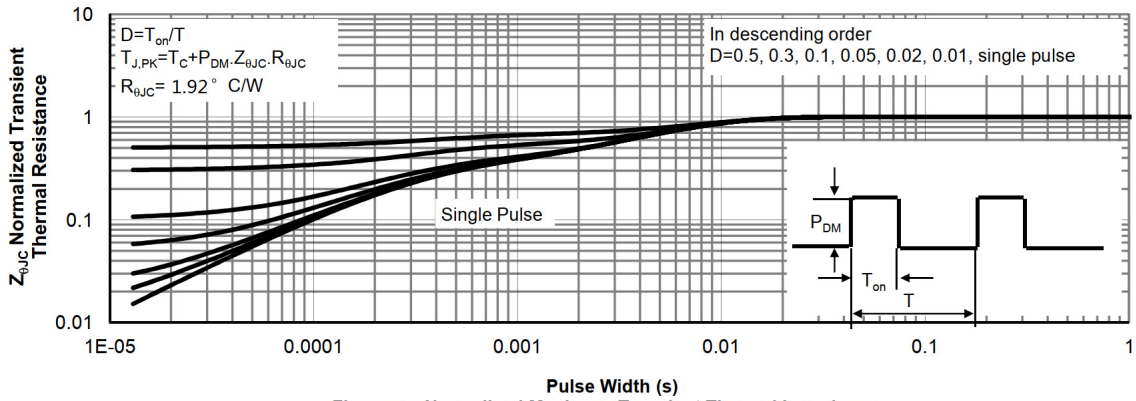


Figure 10: Normalized Maximum Transient Thermal Impedance

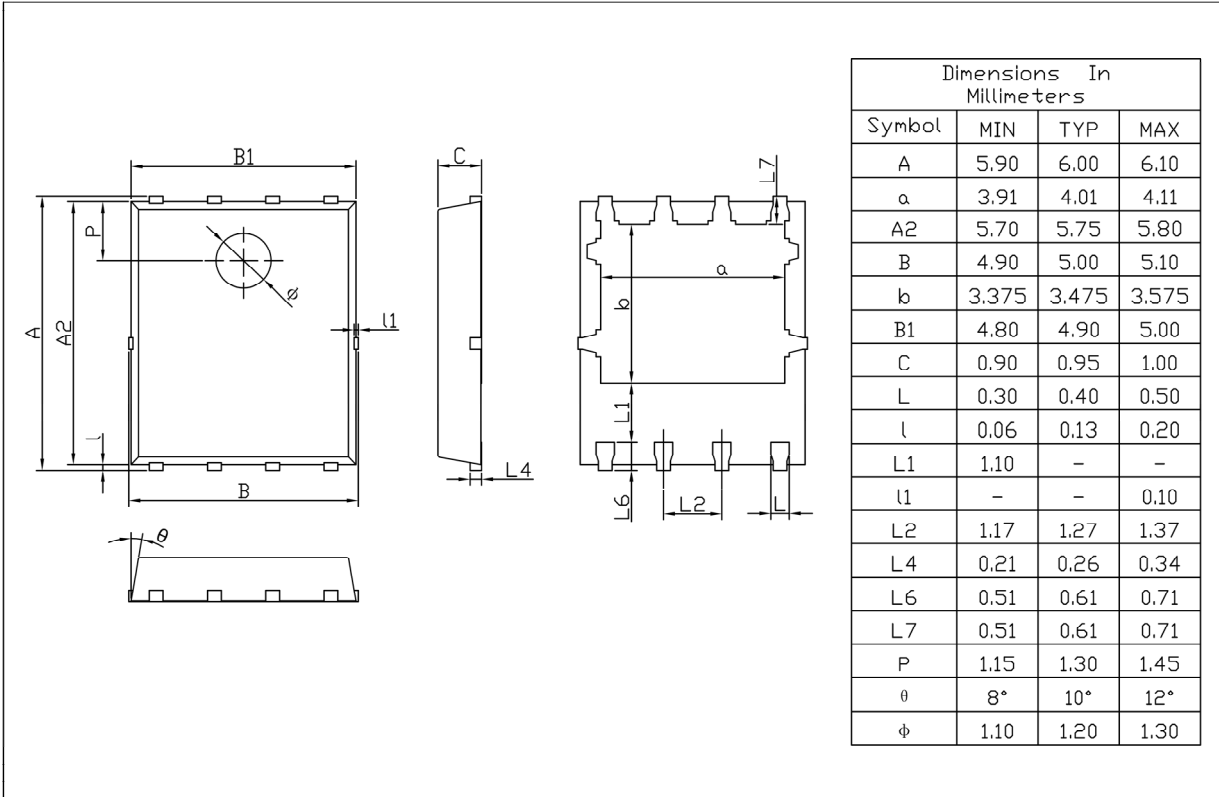
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外形尺寸图 / Package Dimensions

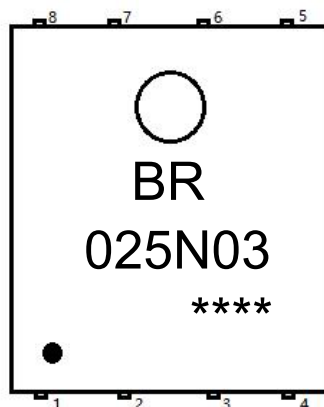
PDFN5 × 6

Unit:mm



Rev.01 202209

印章说明 / Marking Instructions



说明：

BR： 为公司代码

025N03： 为型号代码

****： 为生产批号代码，随生产批号变化

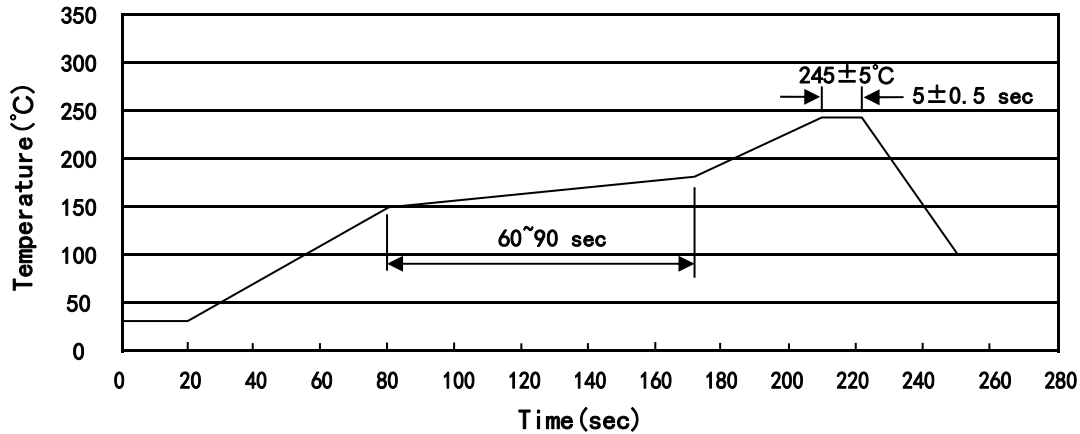
Note：

BR： Company Code

025N03： 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 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
PDFN5×6	5,000	2	10,000	6	60,000	13"×12	360×360×50	380×335×366

使用说明 / Notices

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