

BRCS120N03YM

Rev.A May.-2023

描述 / Descriptions

PDFN5×6A 塑封封装双 N 沟道场效应管。
Dual N-CHANNEL MOSFET in a PDFN5×6A Plastic Package.

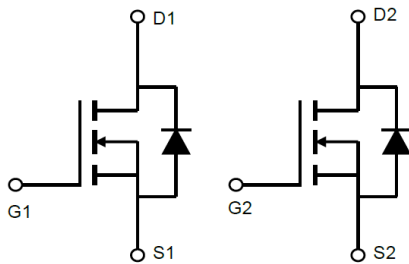
特征 / Features

Dual N-Ch
 $V_{DS}(V)=30V$
 $I_D=33A$
 $R_{DS(ON)}<12m\Omega(V_{GS}=10V)$
 $R_{DS(ON)}<20m\Omega(V_{GS}=4.5V)$
 无卤产品。HF Product.

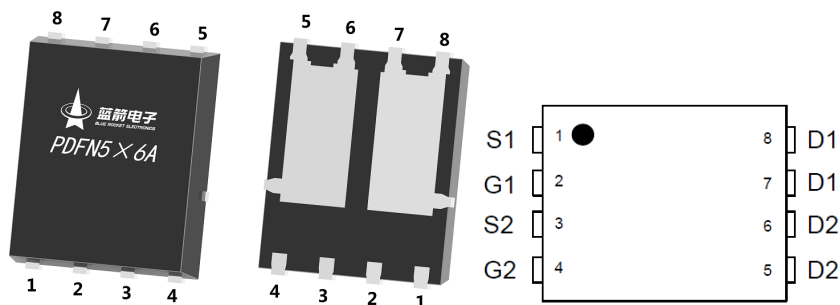
用途 / Applications

PWM 应用、负载开关、电源管理、LED 调光。
PWM Application, Load Switch, Power Management, Dimming LED.

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($T_a=25^{\circ}\text{C}$)

参数 Parameter		符号 Symbol	数值 Rating	单位 Unit
Drain-Source Voltage		V_{DSS}	30	V
Drain Current		$I_D(T_c=25^{\circ}\text{C})$	33	A
Drain Current - Pulsed		I_{DM}	104	A
Gate-Source Voltage		V_{GSS}	± 20	V
Single Pulsed Avalanche Energy		E_{AS}	115	mJ
Avalanche Current		I_{AS}	17	A
Power Dissipation		$P_D(T_c=25^{\circ}\text{C})$	21	W
Operating and Storage Temperature Range		T_J, T_{stg}	-55 to 150	$^{\circ}\text{C}$
Junction-to-Ambient	$t \leq 10\text{s}$	$R_{\theta JA}$	45	$^{\circ}\text{C/W}$
Junction-to-Ambient	Steady-State		80	
Junction-to-Case	Steady-State	$R_{\theta JC}$	5.95	

电性能参数 / Electrical Characteristics($T_a=25^{\circ}\text{C}$)

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}	$V_{GS}=0\text{V}$	$I_D=250\mu\text{A}$	30	
Zero Gate Voltage Drain Current	I_{DSS}	$V_{DS}=30\text{V}$	$V_{GS}=0\text{V}$			1	μA
Gate-Body Leakage Current Forward	I_{GSS}	$V_{GS}=\pm 20\text{V}$	$V_{DS}=0\text{V}$			± 0.1	μA
Gate Threshold Voltage	$V_{GS(th)}$	$V_{DS}=V_{GS}$	$I_D=250\mu\text{A}$	1.0	1.7	2.5	V
Static Drain-Source On-Resistance	$R_{DS(on)}$	$V_{GS}=10\text{V}$	$I_D=20\text{A}$		8.8	12	$\text{m}\Omega$
		$V_{GS}=4.5\text{V}$	$I_D=10\text{A}$		14	20	$\text{m}\Omega$
Drain-Source Diode Forward Voltage	V_{SD}	$V_{GS}=0\text{V}$	$I_S=1\text{A}$			1.2	V
Input Capacitance	C_{iss}	$V_{DS}=25\text{V}$ $f=1.0\text{MHz}$	$V_{GS}=0\text{V}$		930		pF
Output Capacitance	C_{oss}				100		
Reverse Transfer Capacitance	C_{rss}				70		
Gate resistance	R_g	$V_{GS}=0\text{V}$ $f=1\text{MHz}$	$V_{DS}=0\text{V}$		2.8		Ω
Total Gate Charge	$Q_{g(10V)}$	$V_{GS}=10\text{V}$ $I_D=10\text{A}$	$V_{DS}=15\text{V}$		14		nC
Total Gate Charge	$Q_{g(4.5V)}$				6.5		
Gate Source Charge	Q_{gs}				2.3		
Gate Drain Charge	Q_{gd}				3		

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	$t_{d(on)}$	$V_{GS}=10V$ $V_{DS}=15V$ $R_L=1.25\Omega$ $R_{GEN}=3\Omega$		4.5		ns
Turn-On Rise Time	t_r			10		
Turn-Off Delay Time	$t_{d(off)}$			15		
Turn-Off Fall Time	t_f			6		

电参数曲线图 / Electrical Characteristic Curve

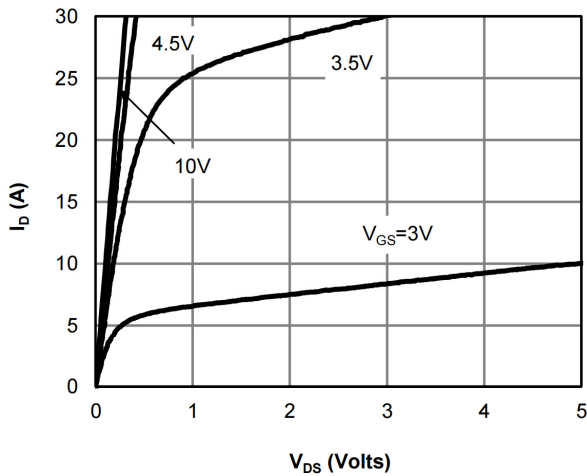


Figure 1: On-Region Characteristics

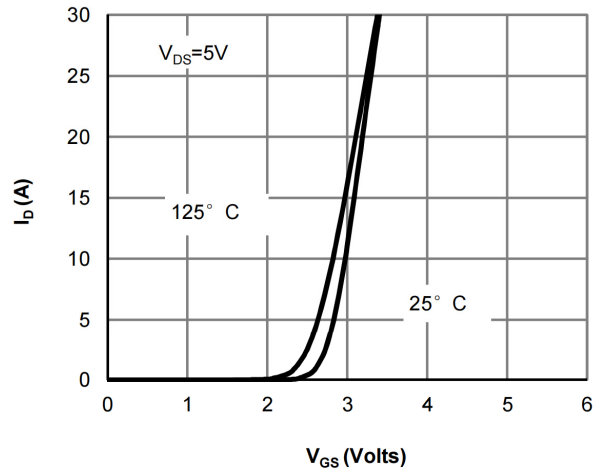


Figure 2: Transfer Characteristics

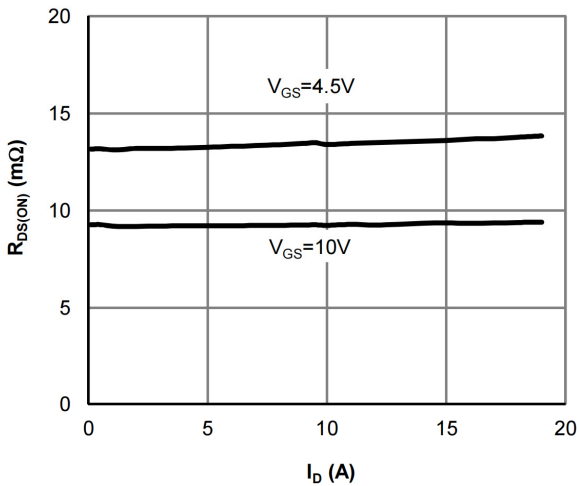


Figure 3: On-Resistance vs. Drain Current and Gate Voltage

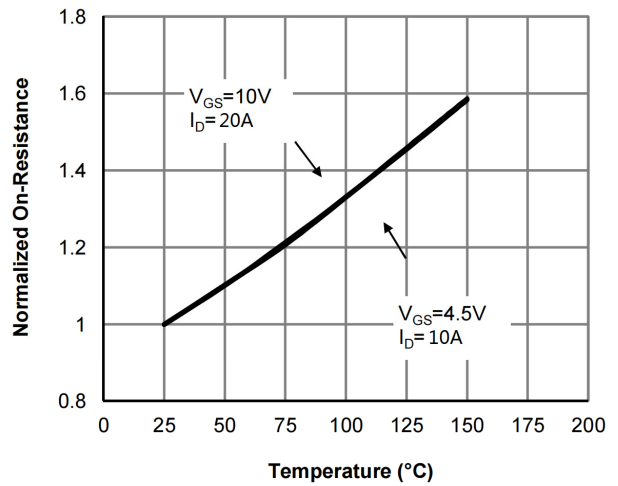


Figure 4: On-Resistance vs. Junction Temperature

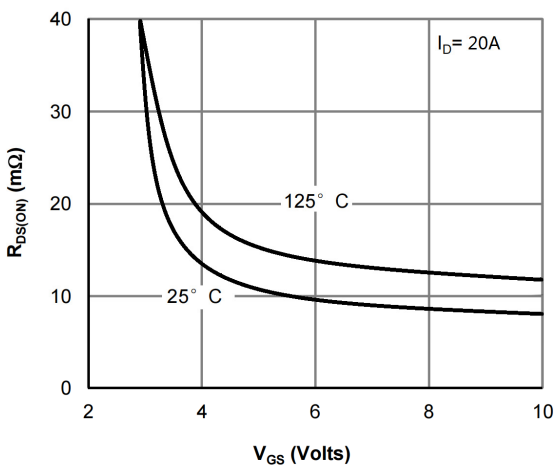


Figure 5: On-Resistance vs. Gate-Source Voltage

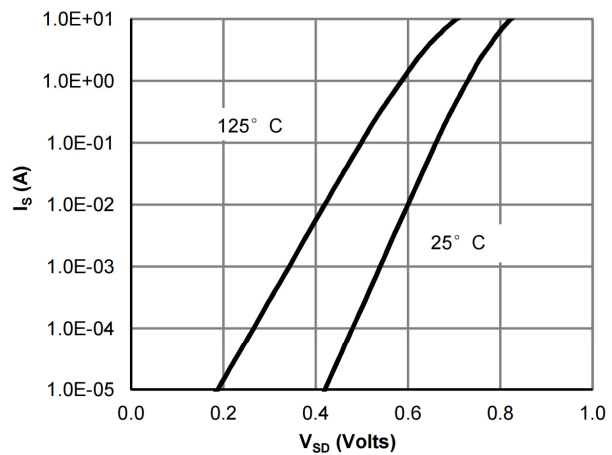


Figure 6: Body-Diode Characteristics

电参数曲线图 / Electrical Characteristic Curve

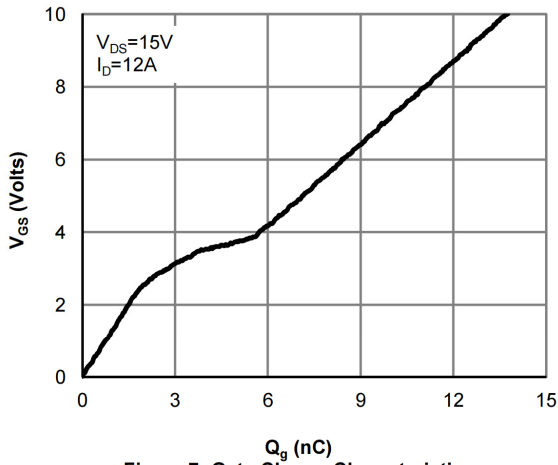


Figure 7: Gate-Charge Characteristics

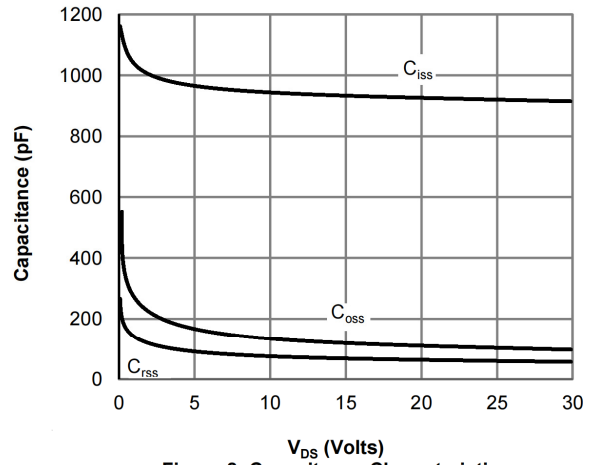


Figure 8: Capacitance Characteristics

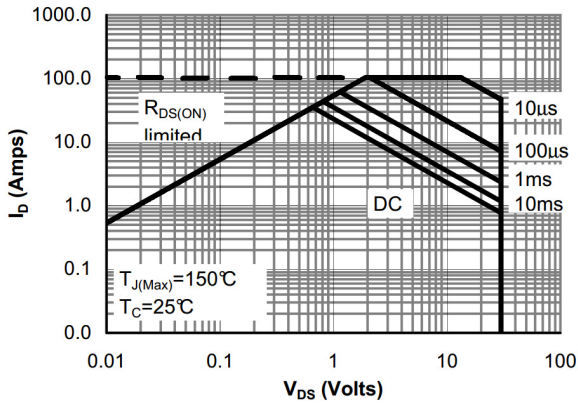


Figure 9: Maximum Forward Biased Safe Operating Area

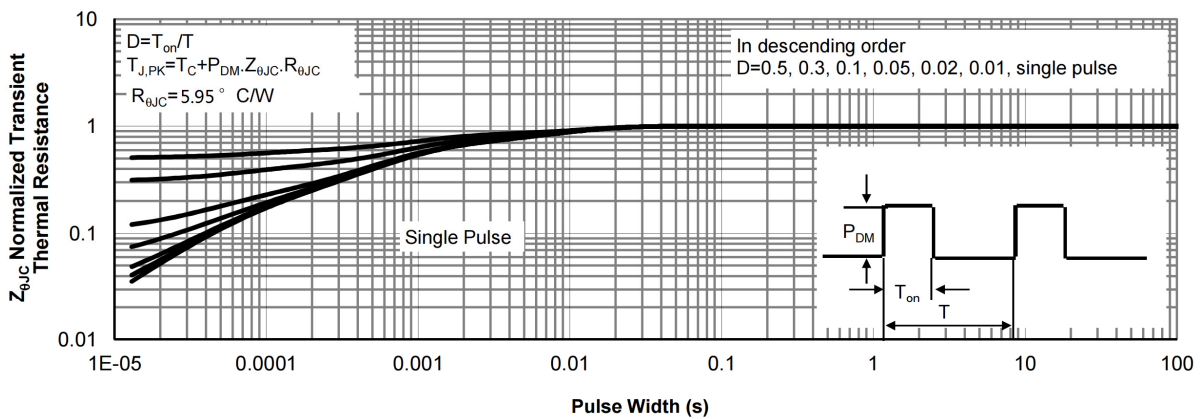


Figure 10: Normalized Maximum Transient Thermal Impedance

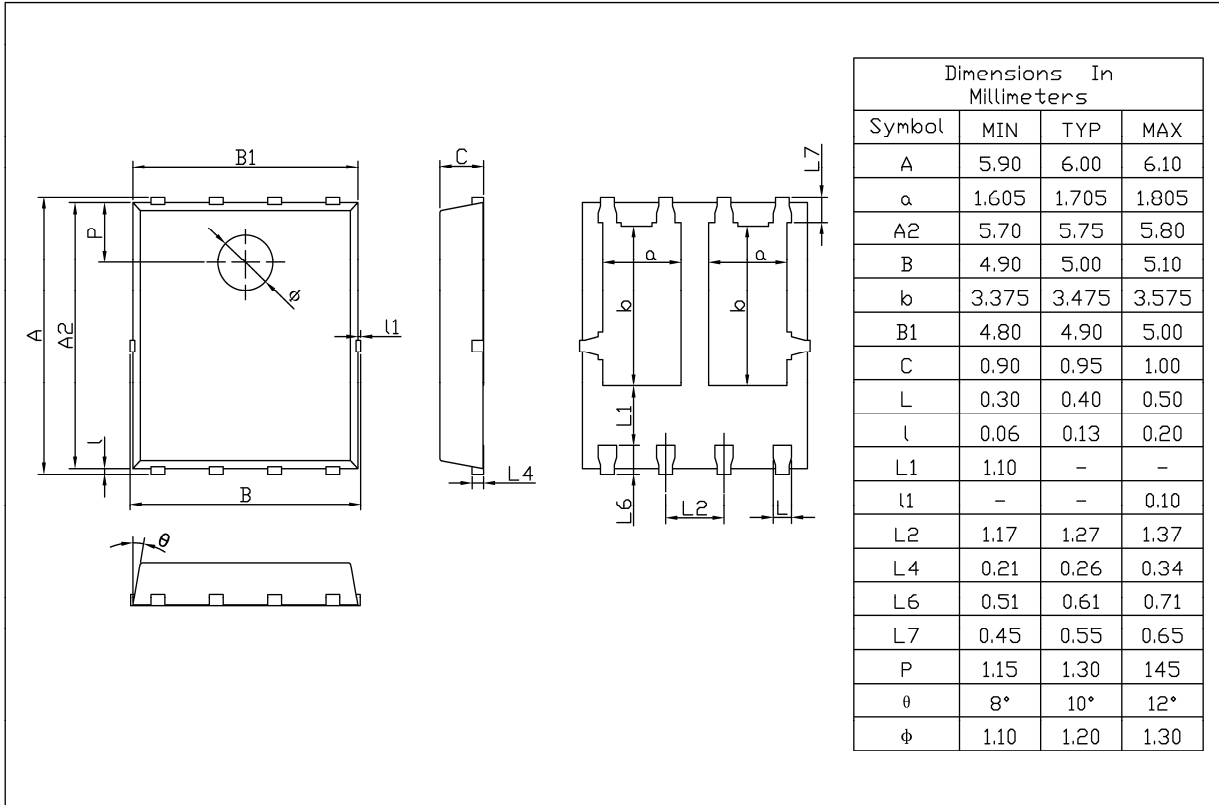
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外形尺寸图 / Package Dimensions

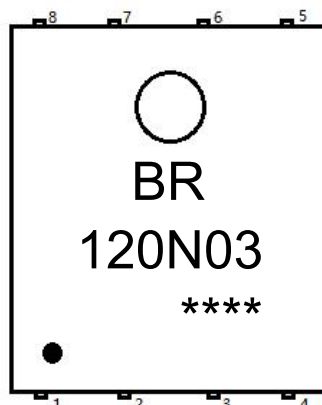
PDFN5 X6A

Unit:mm



Rev.01 202209

印章说明 / Marking Instructions



说明：

BR： 为公司代码

120N03： 为型号代码

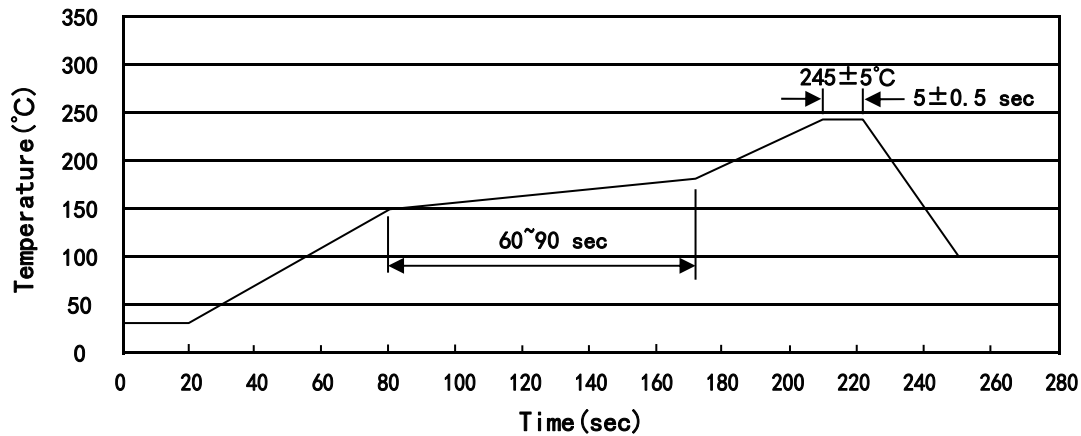
****： 为生产批号代码，随生产批号变化

Note：

BR： Company Code

120N03： 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
PDFN5×6A	5,000	2	10,000	6	60,000	13"×12	360×360×50	380×335×366

使用说明 / Notices