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.

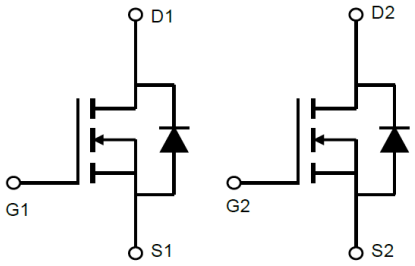
特征 / Features

Dual N-Ch
VDS(V)=60V
ID=24.5A
RDS(ON)<13mΩ(VGS=10V)
RDS(ON)<18mΩ(VGS=4.5V)
无卤产品。HF Product.

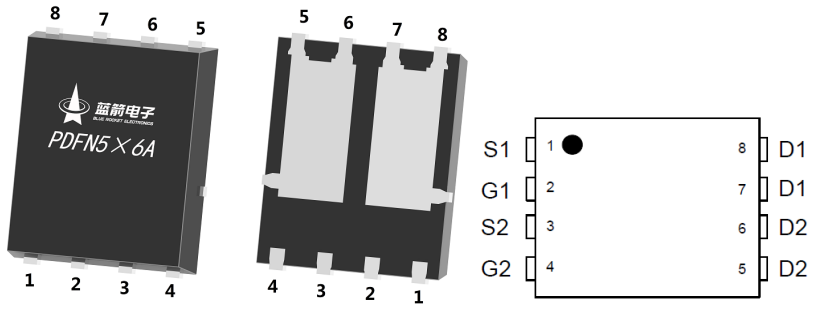
用途 / Applications

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℃)

参数 Parameter		符号 Symbol	数值 Rating	单位 Unit
Drain-Source Voltage		V_{DSS}	60	V
Drain Current		I_D(Tc=25℃)	24.5	A
Drain Current - Pulsed		I_{DM}	95	A
Gate-Source Voltage		V_{GSS}	±20	V
Single Pulsed Avalanche Energy		E_{AS}	70	mJ
Avalanche Current		I_{AS}	20	A
Power Dissipation		P_D(Tc=25℃)	12.5	W
Operating and Storage Temperature Range		T_J,T_{stg}	-55 to 150	℃
Junction-to-Ambient	t≤10	$R_{\theta JA}$	35	℃/W
Junction-to-Ambient	Steady-State		70	
Junction-to-Case	Steady-State	$R_{\theta JC}$	10	

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	60	64		V
Zero Gate Voltage Drain Current	I_{DSS}	V_{DS}=60V V_{GS}=0V			1	μA
Gate-Body Leakage Current Forward	I_{GSS}	V_{GS}=±20V V_{DS}=0V			±0.1	μA
Gate Threshold Voltage	$V_{GS(th)}$	V_{DS}=V_{GS} I_D=250μA	1.0	1.6	2.5	V
Static Drain-Source On-Resistance	$R_{DS(on)}$	V_{GS}=10V I_D=20A		11.5	13	mΩ
		V_{GS}=4.5V I_D=10A		15.5	18	mΩ
Drain-Source Diode Forward Voltage	V_{SD}	V_{GS}=0V I_S=1A			1.2	V
Input Capacitance	C_{iss}	V_{DS}=25V V_{GS}=0V f=1.0MHz		1010		pF
Output Capacitance	C_{oss}			250		
Reverse Transfer Capacitance	C_{rss}			280		
Gate resistance	R_g	V_{GS}=0V V_{DS}=0V f=1MHz		2.3		Ω
Total Gate Charge	$Q_{g(10V)}$	V_{GS}=10V V_{DS}=30V I_D=13A		13.5		nC
Total Gate Charge	$Q_{g(4.5V)}$			6.5		
Gate Source Charge	Q_{gs}			2.5		
Gate Drain Charge	Q_{gd}			3.0		

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_{GS}=10V V_{DS}=30V R_L=2.3Ω R_{GEN}=3Ω		5		ns
Turn-On Rise Time	t_r			3		
Turn-Off Delay Time	$t_{d(off)}$			19		
Turn-Off Fall Time	t_f			3		

电参数曲线图 / Electrical Characteristic Curve

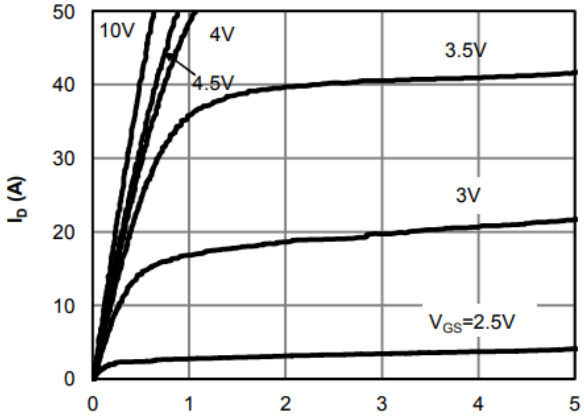


Figure 1: On-Region Characteristics

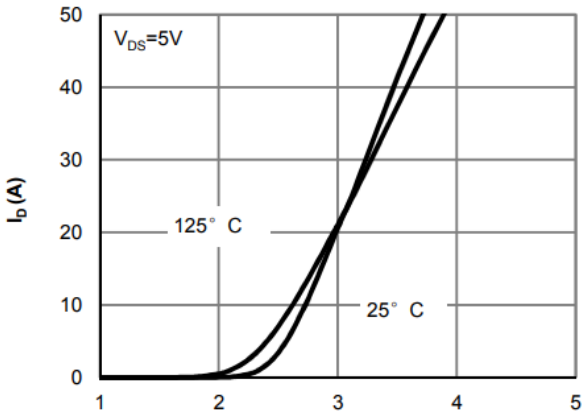


Figure 2: Transfer Characteristics

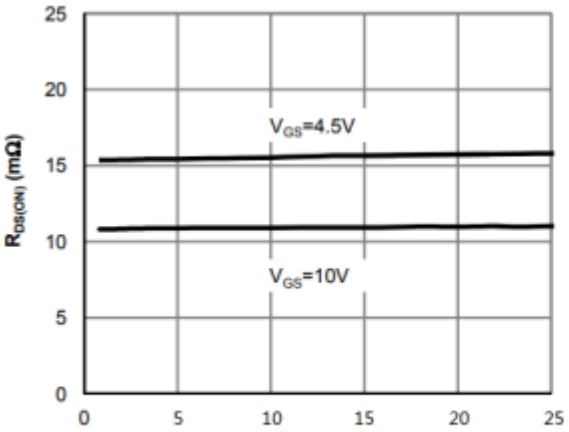


Figure 3: On-Resistance vs. Drain Current and Gate Voltage

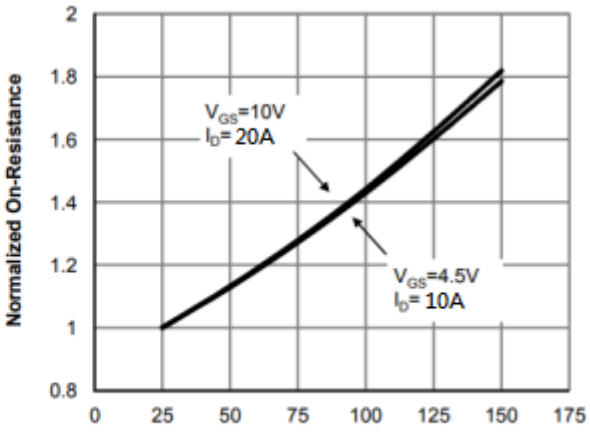


Figure 4: On-Resistance vs. Junction Temperature

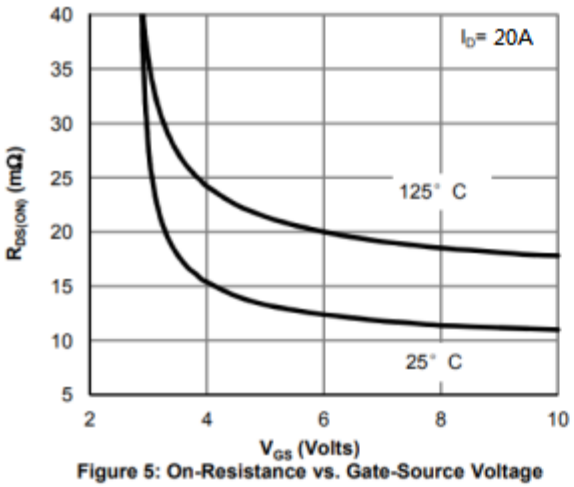


Figure 5: On-Resistance vs. Gate-Source Voltage

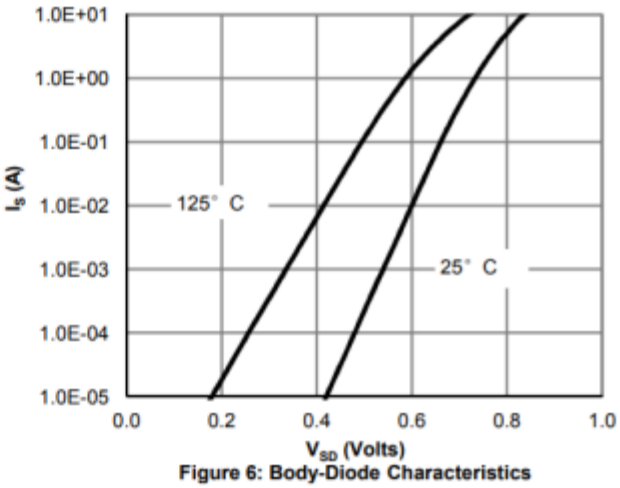


Figure 6: Body-Diode Characteristics

电参数曲线图 / Electrical Characteristic Curve

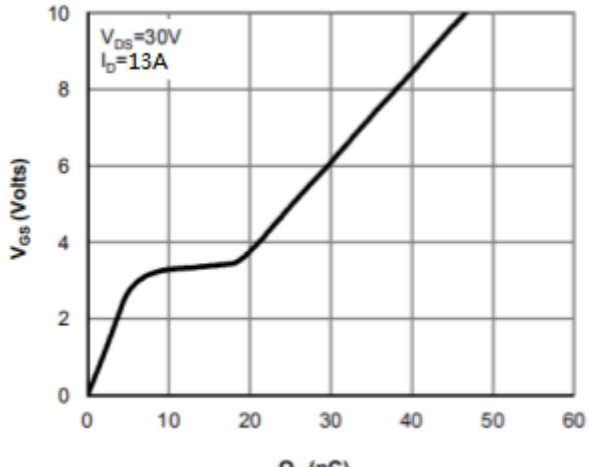


Figure 7: Gate-Charge Characteristics

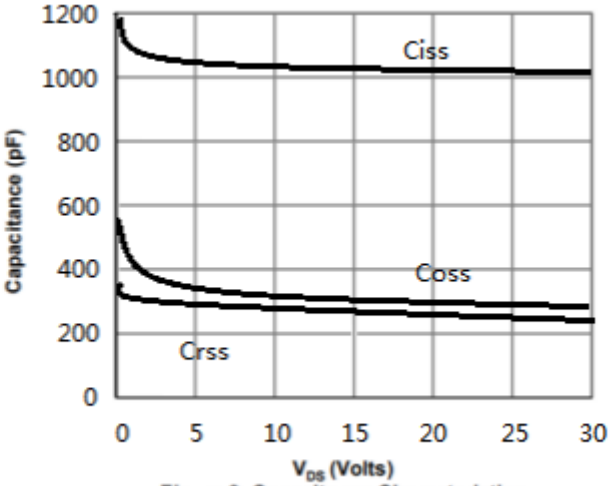
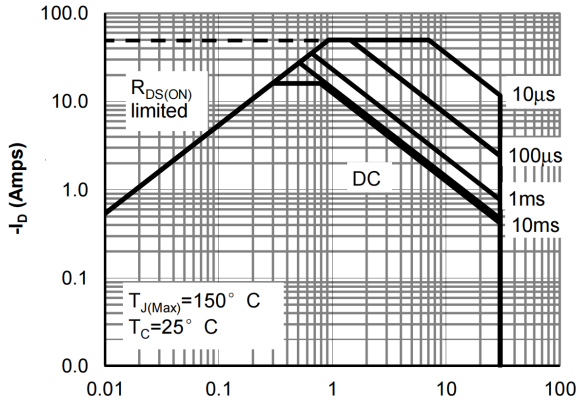


Figure 8: Capacitance Characteristics



$-V_{GS}$> or equal to -4.5V

Figure 9: Maximum Forward Biased Safe Operating Area

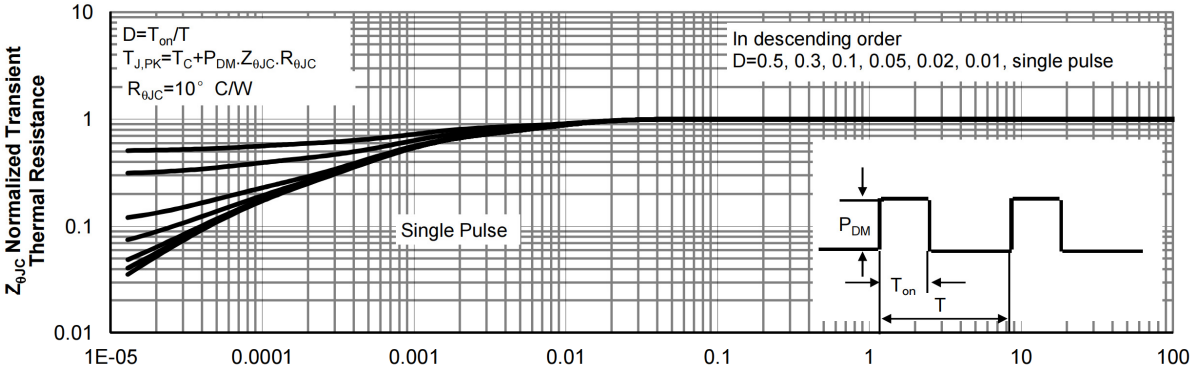
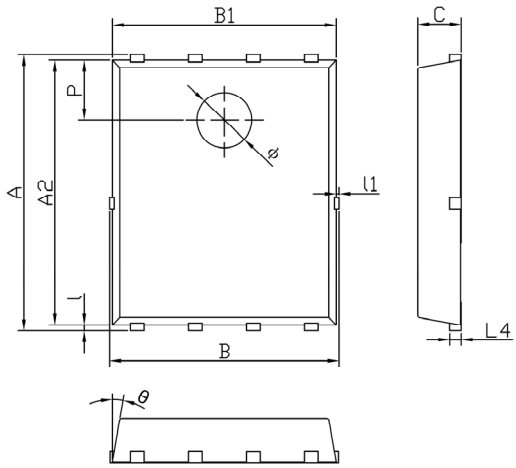


Figure 10: Normalized Maximum Transient Thermal Impedance

外形尺寸图 / Package Dimensions

PDFN5X6A

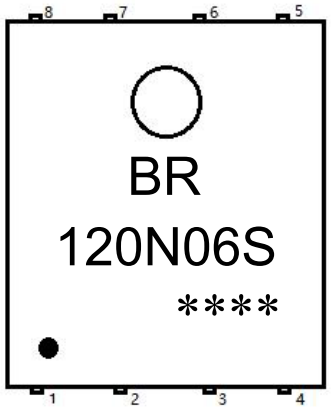
Unit:mm



Dimensions In Millimeters			
Symbol	MIN	TYP	MAX
A	5.90	6.00	6.10
a	1.605	1.705	1.805
A2	5.70	5.75	5.80
B	4.90	5.00	5.10
b	3.375	3.475	3.575
B1	4.80	4.90	5.00
C	0.90	0.95	1.00
L	0.30	0.40	0.50
l	0.06	0.13	0.20
L1	1.10	–	–
l1	–	–	0.10
L2	1.17	1.27	1.37
L4	0.21	0.26	0.34
L6	0.51	0.61	0.71
L7	0.45	0.55	0.65
P	1.15	1.30	145
θ	8°	10°	12°
Φ	1.10	1.20	1.30

Rev.01 202209

印章说明 / Marking Instructions



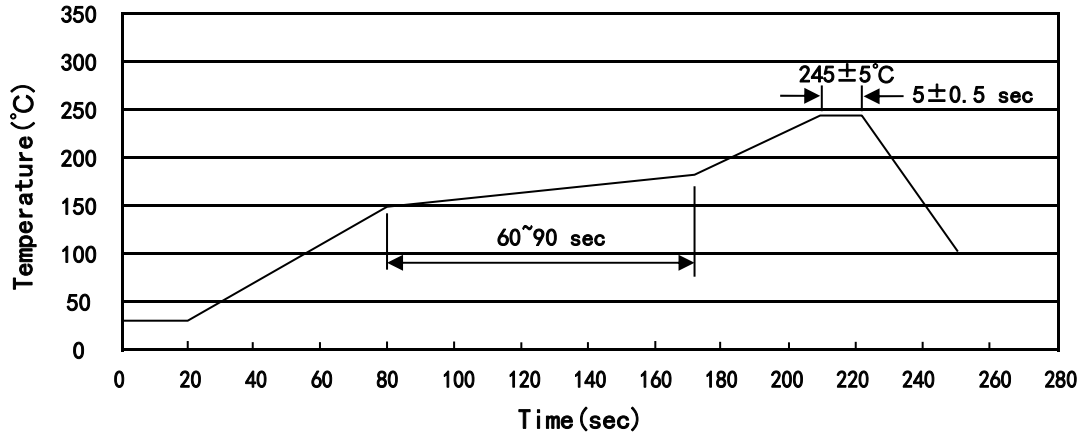
说明：

BR：	为公司代码
120N06S：	为为产品型号
****：	为生产批号代码，随生产批号变化

Note：

BR：	Company Code
120N06S：	Product Type
****:	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
PDFN5×6A	5000	2	10000	6	60000	13"×12	360×360×50	380×335×366

使用说明 / Notices