描述 / Descriptions

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

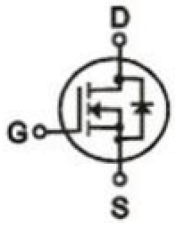
特征 / Features

低电阻可最大地降低导电损耗；低栅极电荷，可实现快速切换；低热阻，无卤产品。
Low $R_{DS(ON)}$ to minimize conductive loss;low Gate Charge for fast switching;Low Thermal resistance, HF Product.

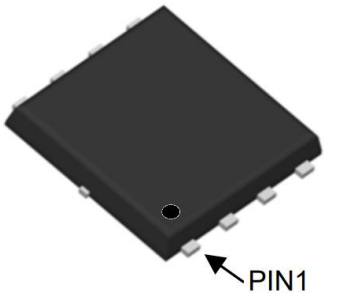
用途 / Applications

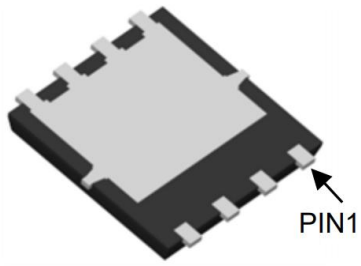
适用于用户、电信、工业电源和 LED 背光的升压转换器和同步整流器。
For boost converters and synchronous rectifiers for consumer, telecom, industrial power supplies and LED backlighting.

内部等效电路 / Equivalent Circuit



引脚排列 / Pinning





PIN1、2、3： S　　PIN4：G　　PIN5、6、7、8：D

Pin	极性
1	S
2	S
3	S
4	G
5	D
6	D
7	D
8	D

放大及印章代码 / h_{FE} Classifications & 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_{DS}	100	V
Drain Current - Continuous		I_D	47	A
Drain Current – Pulsed		I_{DM}	105	A
Gate-Source Voltage		V_{GS}	±20	V
Power Dissipation		P_D(T_c=25℃)	48	W
Single Pulse Avalanche Energy(L=0.5mH)		E_{AS}	78.7	mJ
Avalanche Current(L=0.5mH)		I_{AS}	15	A
Junction and Storage Temperature Range		T_j, T_{stg}	-55 to 150	℃
Thermal resistance, junction - ambient	t ≤ 10s	$R_{\theta JA}$	25	℃/ W
	Steady-State		55	
Thermal resistance, junction - case	Steady-State	$R_{\theta JC}$	2.6	

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}	I_D=250uA, V_{GS}=0V	100			V
Zero Gate Voltage Drain Current	I_{DSS}	V_{DS}=100V, 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	1.2	1.9	2.5	V
Static Drain-Source On-Resistance	$R_{DS(ON)}$	V_{GS}=10V, I_D=20A		8.3	12	mΩ
	$R_{DS(ON)}$	V_{GS}=4.5V, I_D=10A		11.5	15	mΩ
Drain–Source Diode Forward Voltage	V_{SD}	V_{GS}=0V I_S=1A		0.67	1.2	V

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
Input Capacitance	C_{iss}	V_{DS}=25V V_{GS}=0V f=1.0MHz		2200		pF
Output Capacitance	C_{oss}			950		
Reverse Transfer Capacitance	C_{rss}			110		
Gate resistance	R_g	V_{GS}=0V V_{DS}=0V f=1MHz		3.3		Ω
Total Gate Charge	$Q_{g(10V)}$	V_{GS}=10V, V_{DS}=50V I_D=20A		25		nC
Total Gate Charge	$Q_{g(4.5V)}$			12.5		
Gate Source Charge	Q_{gs}			6		
Gate Drain Charge	Q_{gd}			3.5		
Turn-On Delay Time	$t_{D(on)}$	V_{GS}=10V, V_{DS}=50V, R_L=2.5Ω, R_{GEN}=3Ω		8.5		ns
Turn-On Rise Time	t_r			3		
Turn-Off Delay Time	$t_{D(off)}$			23		
Turn-Off Fall Time	t_f			3.5		

电参数曲线图 / Electrical Characteristic Curve

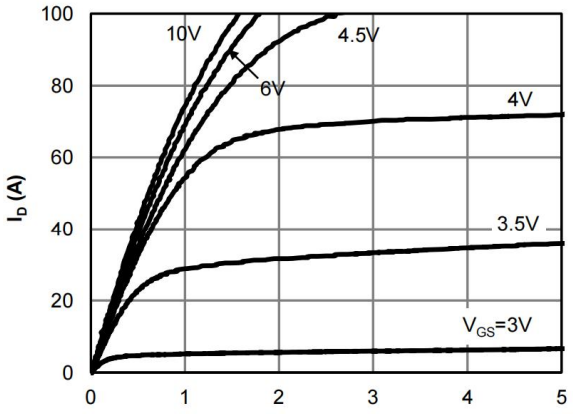


Figure 1: On-Region Characteristics

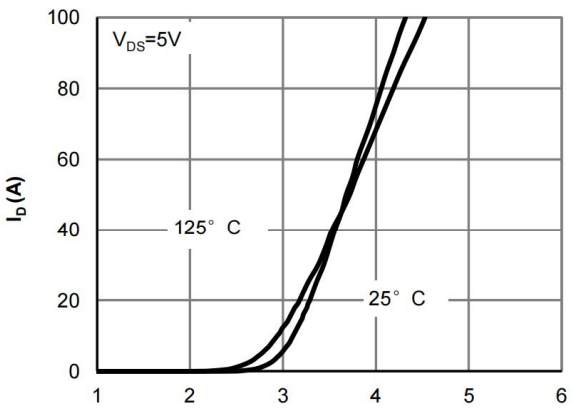


Figure 2: Transfer Characteristics

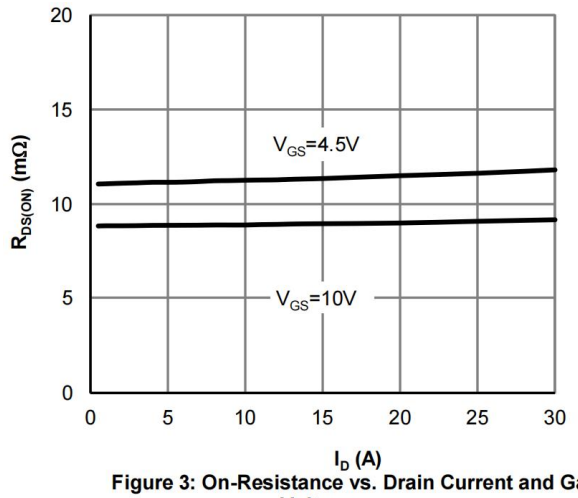


Figure 3: On-Resistance vs. Drain Current and Gate Voltage

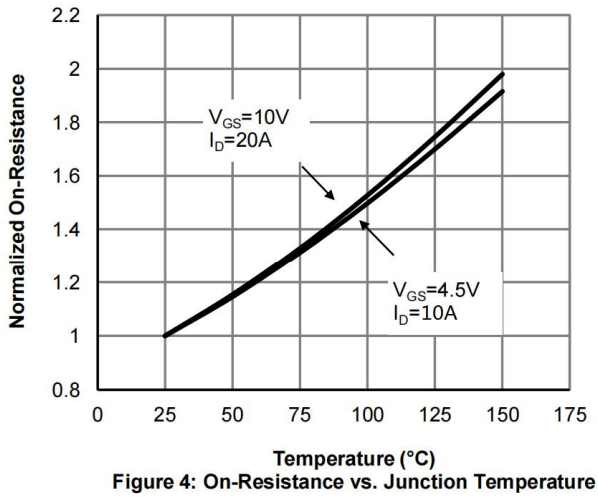


Figure 4: On-Resistance vs. Junction Temperature

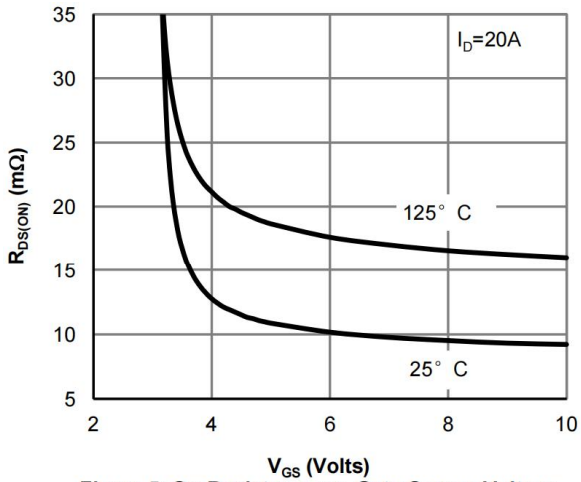


Figure 5: On-Resistance vs. Gate-Source Voltage

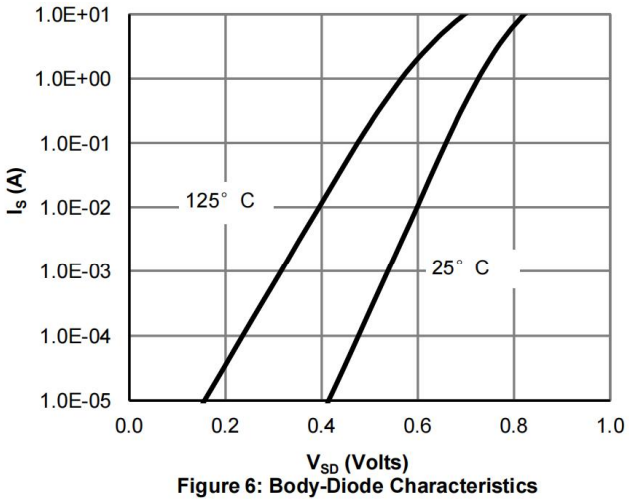


Figure 6: Body-Diode Characteristics

电参数曲线图 / Electrical Characteristic Curve

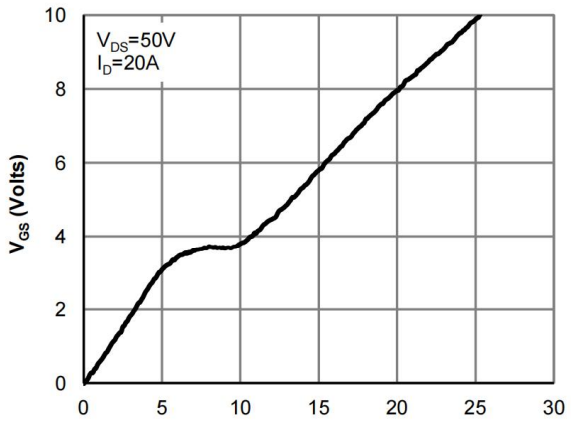


Figure 7: Gate-Charge Characteristics

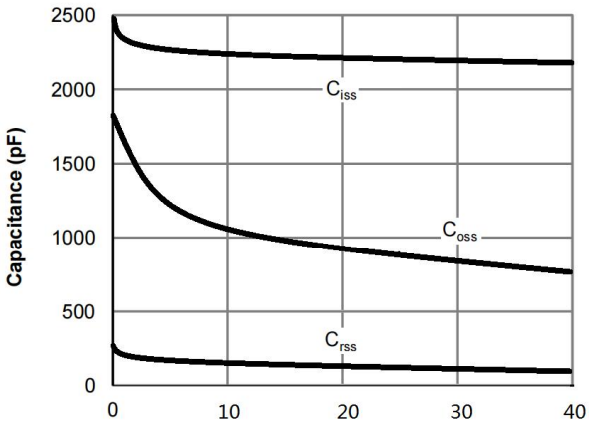


Figure 8: Capacitance Characteristics

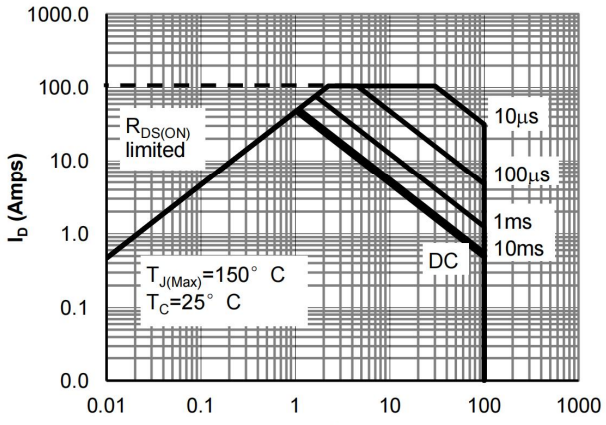


Figure 9: Maximum Forward Biased Safe Operating Area

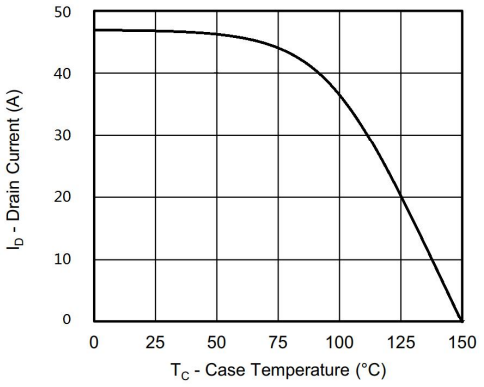


Figure10. Maximum Continuous Drain Current vs Case Temperature

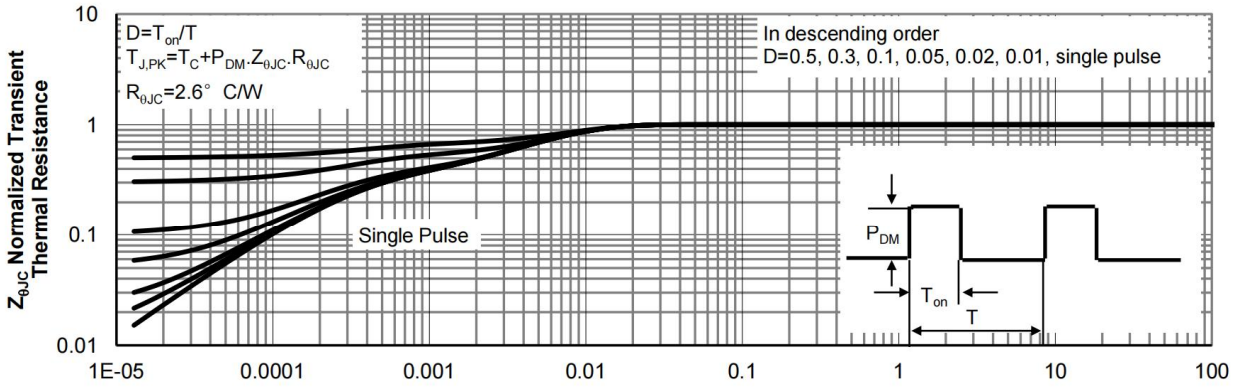
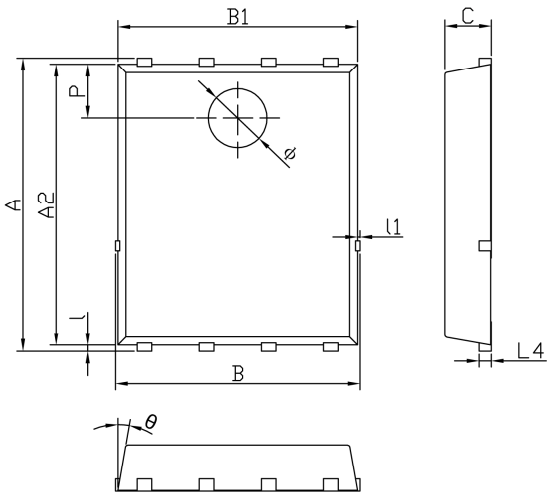


Figure 11: Normalized Maximum Transient Thermal Impedance

外形尺寸图 / Package Dimensions

PDFN5×6

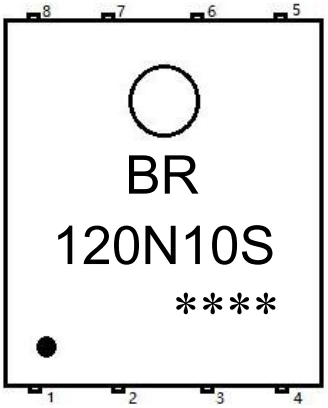
Unit:mm



Dimensions In Millimeterer			
Symbol	MIN	TYP	MAX
A	5.90	6.00	6.10
a	3.91	4.01	4.11
A2	5.70	5.75	5.80
B	4.90	5.00	5.10
b	3.37	3.47	3.57
B1	4.80	4.90	5.00
C	0.90	0.95	1.00
L	0.35	0.40	0.45
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	0.51	0.61	0.71
P	1.00	1.10	1.20
θ	8°	10°	12°
ϕ	1.10	1.20	1.30

Rev.00 201812

印章说明 / Marking Instructions



说明：

BR： 为公司代码

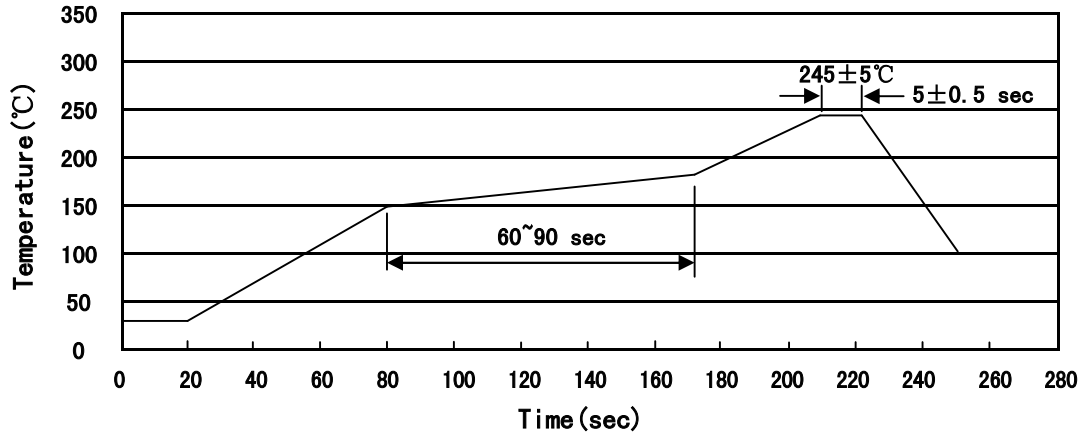
120N10S： 为为产品型号

Note：

BR： Company Code

120N10S： Product Type.

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: 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	5000	2	10000	6	60000	13”×12	360×360×50	380×335×366

使用说明 / Notices