

描述 / Descriptions

PDFN5×6-Clip 封装 N 沟道场效应管。

N-Channel MOSFET in a PDFN5×6–Clip Plastic Package.

特征 / Features

$V_{DS}(V)=150V$ $I_D=54A$

$R_{DS(ON)}@10V<12.5m\Omega$ (TYP. 10.5m Ω)

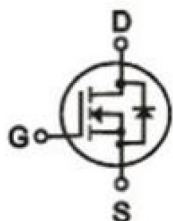
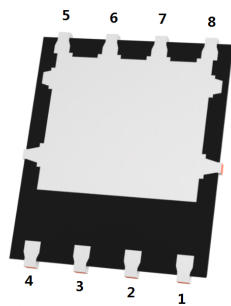
$R_{DS(ON)}@6V<18.5m\Omega$ (TYP. 16.5m Ω)

无卤产品。HF Product.

用途 / Applications

电机驱动器，DC - DC 转换器。

Motor drivers, DC - DC Converter.

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

参数 Parameter	符号 Symbol	数值 Rating	单位 Unit
Drain-Source Voltage	V_{DS}	150	V
Drain Current*	$I_D(T_C=25^{\circ}\text{C})$	54	A
	$I_D(T_C=100^{\circ}\text{C})$	38	A
Drain Current – Pulsed**	I_{DM}	216	A
Gate-Source Voltage	V_{GS}	± 20	V
Power Dissipation	$P_D(T_C=25^{\circ}\text{C})$	93	W
Diode Forward Current	$I_S(T_C=25^{\circ}\text{C})$	54	A
Single Pulse Avalanche Energy($L=1.0\text{mH}$)	E_{AS}	450	mJ
Junction and Storage Temperature Range	T_j, T_{stg}	-55 to 175	$^{\circ}\text{C}$
Thermal resistance, junction – ambient*	$R_{\theta JA}$	59	$^{\circ}\text{C/W}$
Thermal resistance, junction – case*	$R_{\theta JC}$	1.6	$^{\circ}\text{C/W}$

Note:

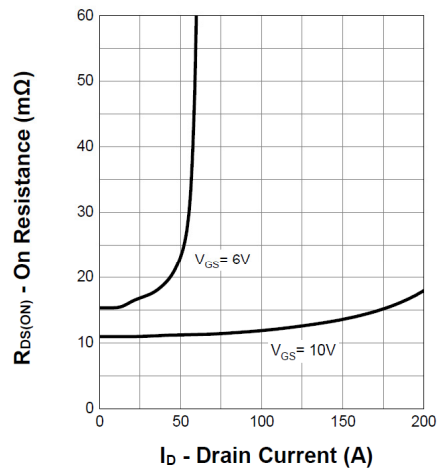
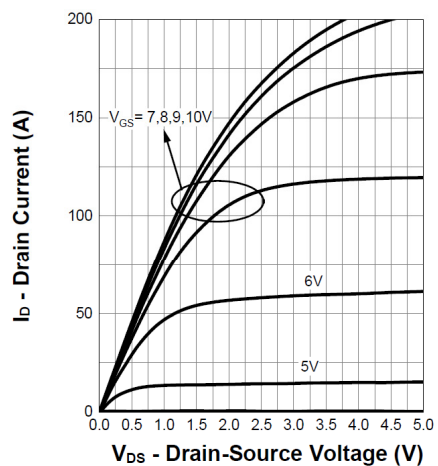
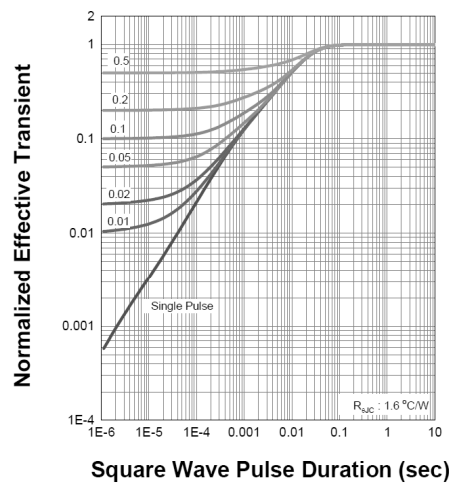
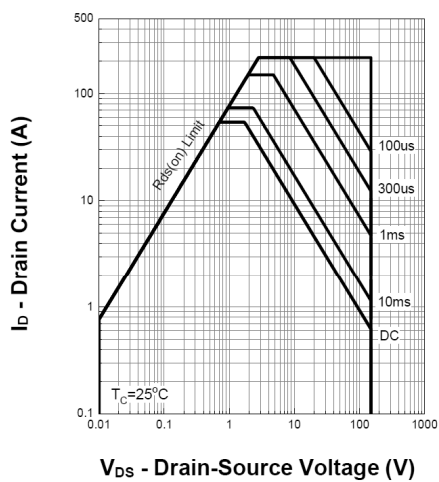
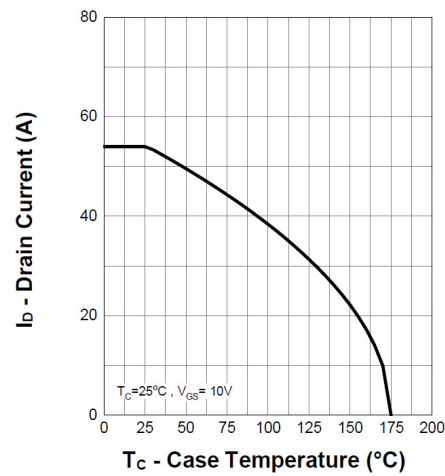
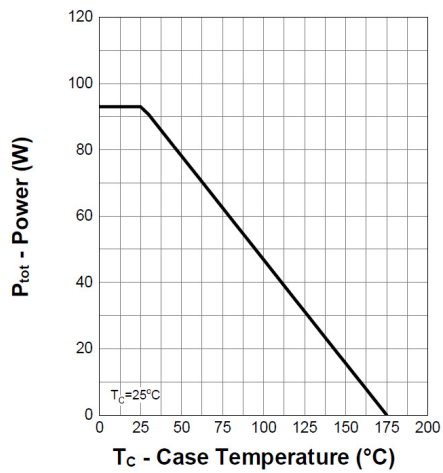
*: Surface Mounted on 1 in2 pad area, $t \leq 10 \text{ sec}$ **: Pulse width $\leq 300 \mu\text{s}$, duty cycle $\leq 2 \%$ 电性能参数 / Electrical Characteristics($T_a=25^{\circ}\text{C}$)

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}	$I_D=250\mu\text{A}, V_{GS}=0\text{V}$	150			V
Zero Gate Voltage Drain Current	I_{DSS}	$V_{DS}=120\text{V}, V_{GS}=0\text{V}$			1.0	μA
Gate-Body leakage current	I_{GSS}	$V_{DS}=0\text{V}, V_{GS}=\pm 20\text{V}$			± 100	nA
Gate Threshold Voltage	$V_{GS(th)}$	$V_{DS}=V_{GS}, I_D=250\mu\text{A}$	2		4	V
Static Drain-Source On-Resistance	$R_{DS(ON)}$	$V_{GS}=10\text{V}, I_D=30\text{A}$		10.5	12.5	m Ω
		$V_{GS}=6\text{V}, I_D=20\text{A}$		16.5	18.5	
Diode Forward Voltage	V_{SD}	$I_{SD} = 30 \text{ A}, V_{GS} = 0 \text{ V}$			1.3	V
Reverse Recovery Time	t_{rr}	$I_{DS} = 30 \text{ A}, V_{GS} = 0 \text{ V}$ $dI_{SD}/dt = 100 \text{ A}/\mu\text{s}$		77		nS
Reverse Recovery Charge	Q_{rr}			237		nC
Input Capacitance	C_{iss}	$V_{DS}=75\text{V} \quad V_{GS}=0\text{V}$ $f=1.0\text{MHz}$		1548		pF
Output Capacitance	C_{oss}			227		
Reverse Transfer Capacitance	C_{rss}			14		

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	$V_{GS}=10V, V_{DS}=75V,$ $I_D=30A$		23		nC
Gate Source Charge	Q_{gs}			10		
Gate Drain Charge	Q_{gd}			4		
Turn-On Delay Time	$t_{d(on)}$	$V_{GEN}=10V, V_{DS}=75V,$ $R_L=2.5\Omega, R_G=3.9\Omega$ $I_{DS}=30A$		13		ns
Turn-On Rise Time	t_r			21		
Turn-Off Delay Time	$t_{d(off)}$			27		
Turn-Off Fall Time	t_f			15		

电参数曲线图 / Electrical Characteristic Curve



电参数曲线图 / Electrical Characteristic Curve

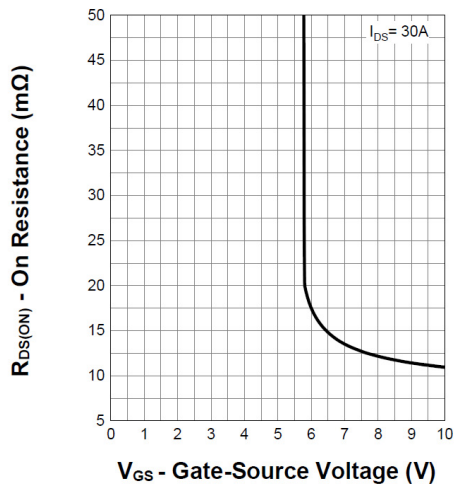


Fig 7. Transfer Characteristics

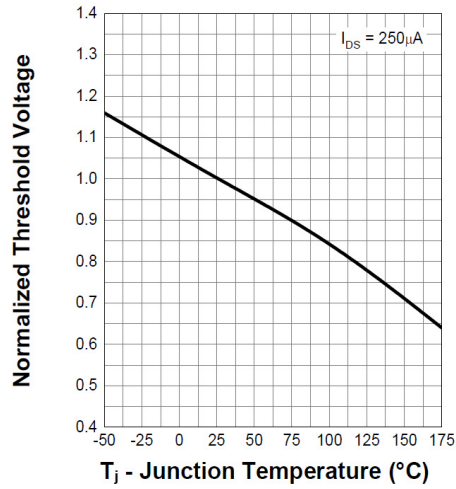


Fig 8. Normalized Threshold Voltage

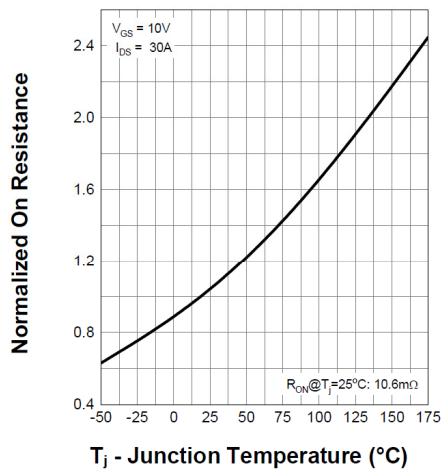


Fig 9. Normalized On Resistance

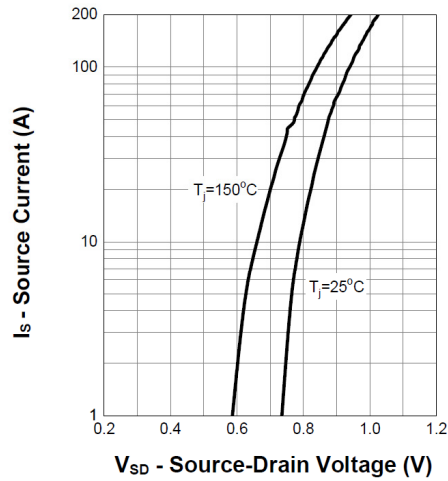


Fig 10. Diode Forward Current

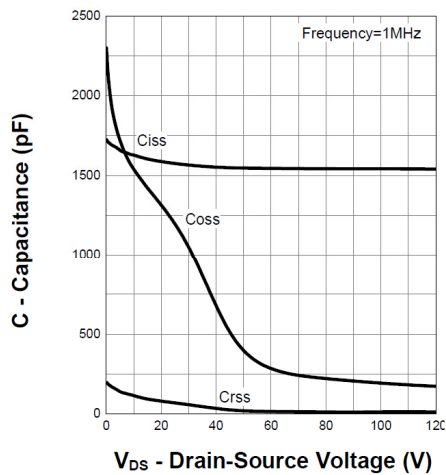


Fig 11. Capacitance

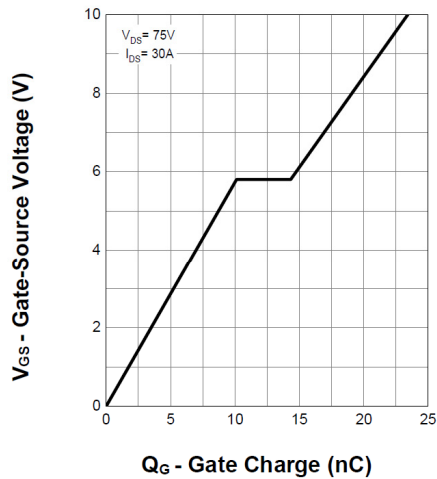
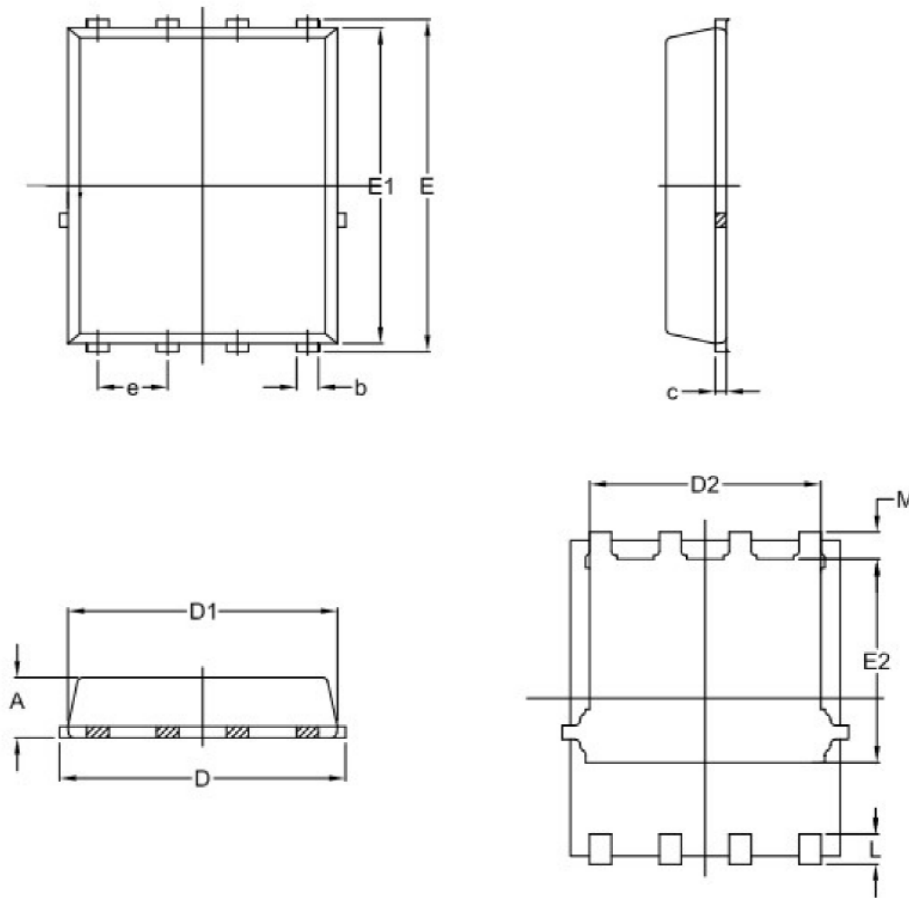


Fig 12. Gate Charge

外形尺寸图 / Package Dimensions



SYMBOL	Dimension in mm	
	MIN.	MAX.
A	0.9	1.2
b	0.3	0.51
c	0.11	0.35
D	4.7	5.35
D1	4.7	5.35
D2	3.7	4.4
e	1.17	1.37
E	5.75	6.25
E1	5.6	6
E2	3.18	3.9
L	0.35	0.71
M	0.35	0.71

印章说明 / Marking Instructions



说明：

BR： 为公司代码

120N15SH： 为型号代码

****： 为生产批号代码，随生产批号变化

Note：

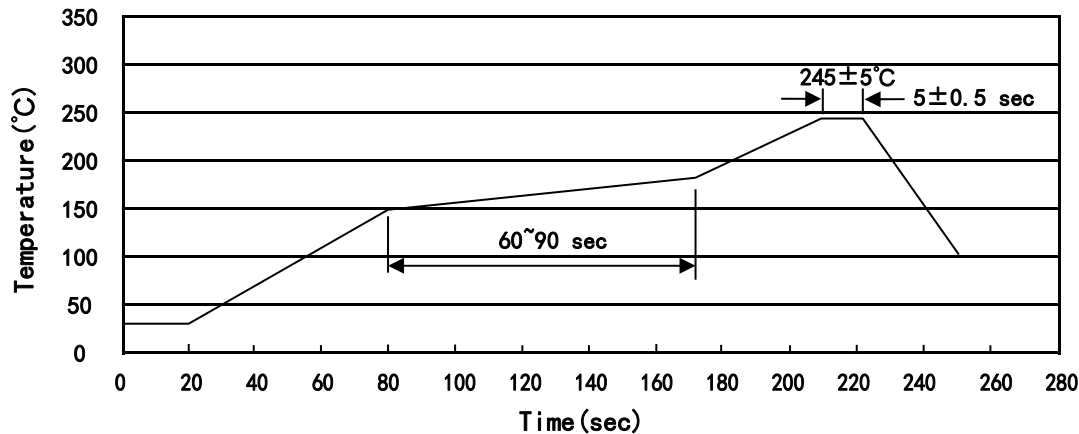
BR： Company Code

120N15SH： 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-Clip	5000	2	10000	6	60000	13"×12	360×360×50	380×335×366

使用说明 / Notices

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