

# BRFL7N65

Rev.H Mar.-2023

## 描述 / Descriptions

TO-220FL 塑封封装 N 沟道 MOS 场效应管。N-CHANNEL MOSFET in a TO-220FL Plastic Package.

## 特征 / Features

低栅电荷,低反馈电容,开关速度快。

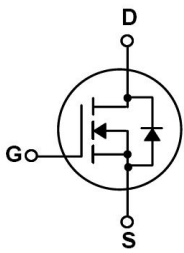
Low gate charge, low crss, fast switching.

## 用途 / Applications

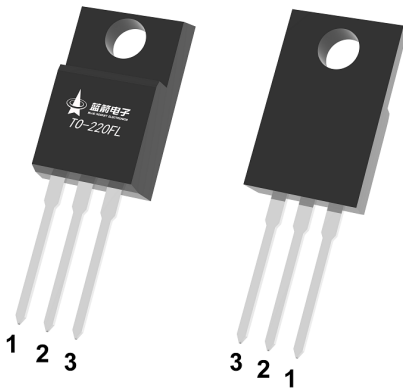
用于高功率 DC/DC 转换和功率开关。

These devices are well suited for high efficiency switching DC/DC converters and switch mode power supplies.

## 内部等效电路 / Equivalent Circuit



## 引脚排列 / Pinning



PIN1 : G

PIN 2 : D

PIN 3 : S

## 印章代码 / Marking

见印章说明。See Marking Instructions.

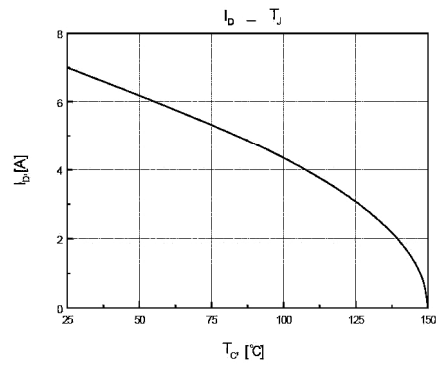
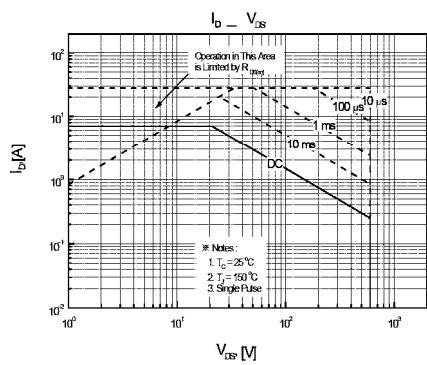
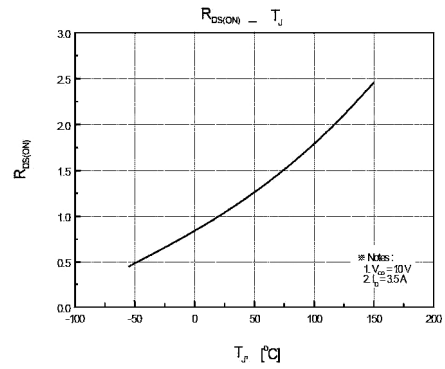
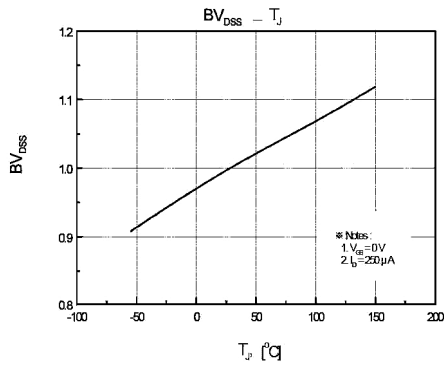
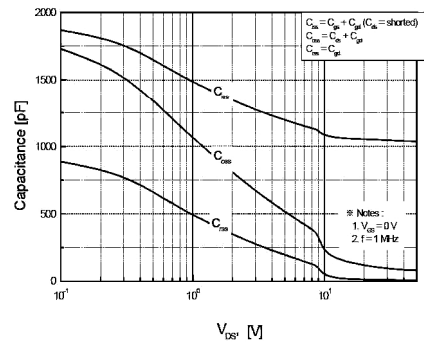
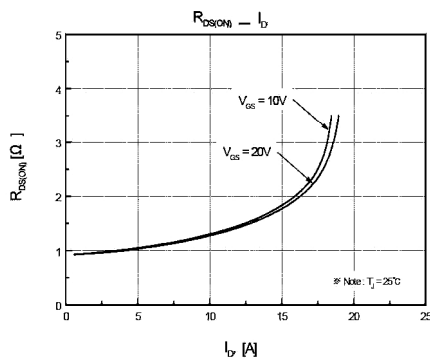
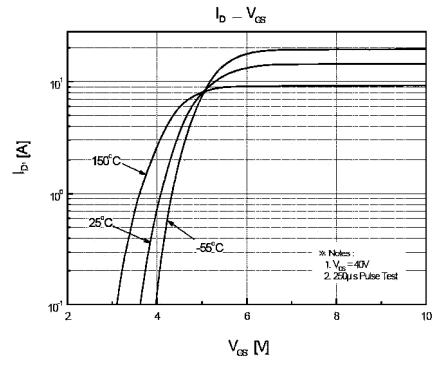
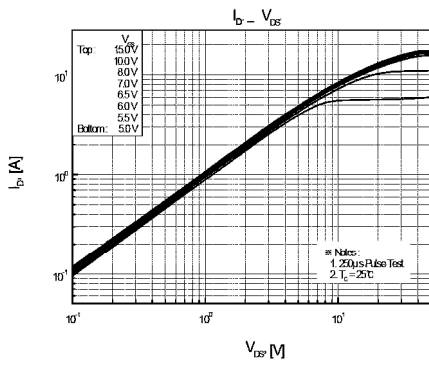
极限参数 / Absolute Maximum Ratings(Ta=25°C)

参数 Parameter	符号 Symbol	数值 Rating	单位 Unit
Drain-Source Voltage	$V_{DSS}$	650	V
Drain Current	$I_D(T_C=25^{\circ}C)$	7.0	A
Drain Current	$I_D(T_C=100^{\circ}C)$	4.4	A
Drain Current - Pulsed	$I_{DM}$	28	A
Gate-Source Voltage	$V_{GSS}$	$\pm 30$	V
Single Pulsed Avalanche Energy	$E_{AS}$	420	mJ
Repetitive Avalanche Energy	$E_{AR}$	14.7	mJ
Avalanche Current	$I_{AR}$	7.0	A
Power Dissipation	$P_D(T_C=25^{\circ}C)$	48	W
Operating and Storage Temperature Range	$T_J, T_{STG}$	-55 to 150	$^{\circ}C$

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
Drain-Source Breakdown Voltage	BV <sub>DSS</sub>	V <sub>GS</sub> =0V I <sub>D</sub> =250μA	650			V
Zero Gate Voltage Drain Current	I <sub>DSS</sub>	V <sub>DS</sub> =650V V <sub>GS</sub> =0V			1.0	μA
		V <sub>DS</sub> =520V T <sub>C</sub> =125°C			100	μA
Gate-Body Leakage Current, Forward	I <sub>GSS</sub>	V <sub>GS</sub> =±30V V <sub>DS</sub> =0V			±100	nA
Gate Threshold Voltage	V <sub>GS(th)</sub>	V <sub>DS</sub> =V <sub>GS</sub> I <sub>D</sub> =250μA	2.0		4.0	V
Static Drain-Source On-Resistance	R <sub>DS(on)</sub>	V <sub>GS</sub> =10V I <sub>D</sub> =3.5A		1.1	1.3	Ω
Forward Transconductance	g <sub>FS</sub>	V <sub>DS</sub> =40V I <sub>D</sub> =3.5A		8.2		S
Drain-Source Diode Forward Voltage	V <sub>SD</sub>	V <sub>GS</sub> =0V I <sub>S</sub> =7.0A			1.4	V
Input Capacitance	C <sub>iSS</sub>	V <sub>DS</sub> =25V V <sub>GS</sub> =0V f=1.0MHz		1100	1500	pF
Output Capacitance	C <sub>oSS</sub>			110	150	pF
Reverse Transfer Capacitance	C <sub>rSS</sub>			12	16	pF
Total Gate Charge	Q <sub>g</sub>	I <sub>D</sub> = 7.0A V <sub>DS</sub> = 520V V <sub>GS</sub> = 10V		28		nC
Gate-to-Source Charge	Q <sub>gs</sub>			7		nC
Gate-to-Drain Charge	Q <sub>gd</sub>			12		nC
Turn-On Delay Time	t <sub>d(on)</sub>	V <sub>DD</sub> =300V I <sub>D</sub> =7.0A R <sub>G</sub> =25Ω		15	40	ns
Turn-On Rise Time	t <sub>r</sub>			30	70	ns
Turn-Off Delay Time	t <sub>d(off)</sub>			110	230	ns
Turn-Off Fall Time	t <sub>f</sub>			40	90	ns

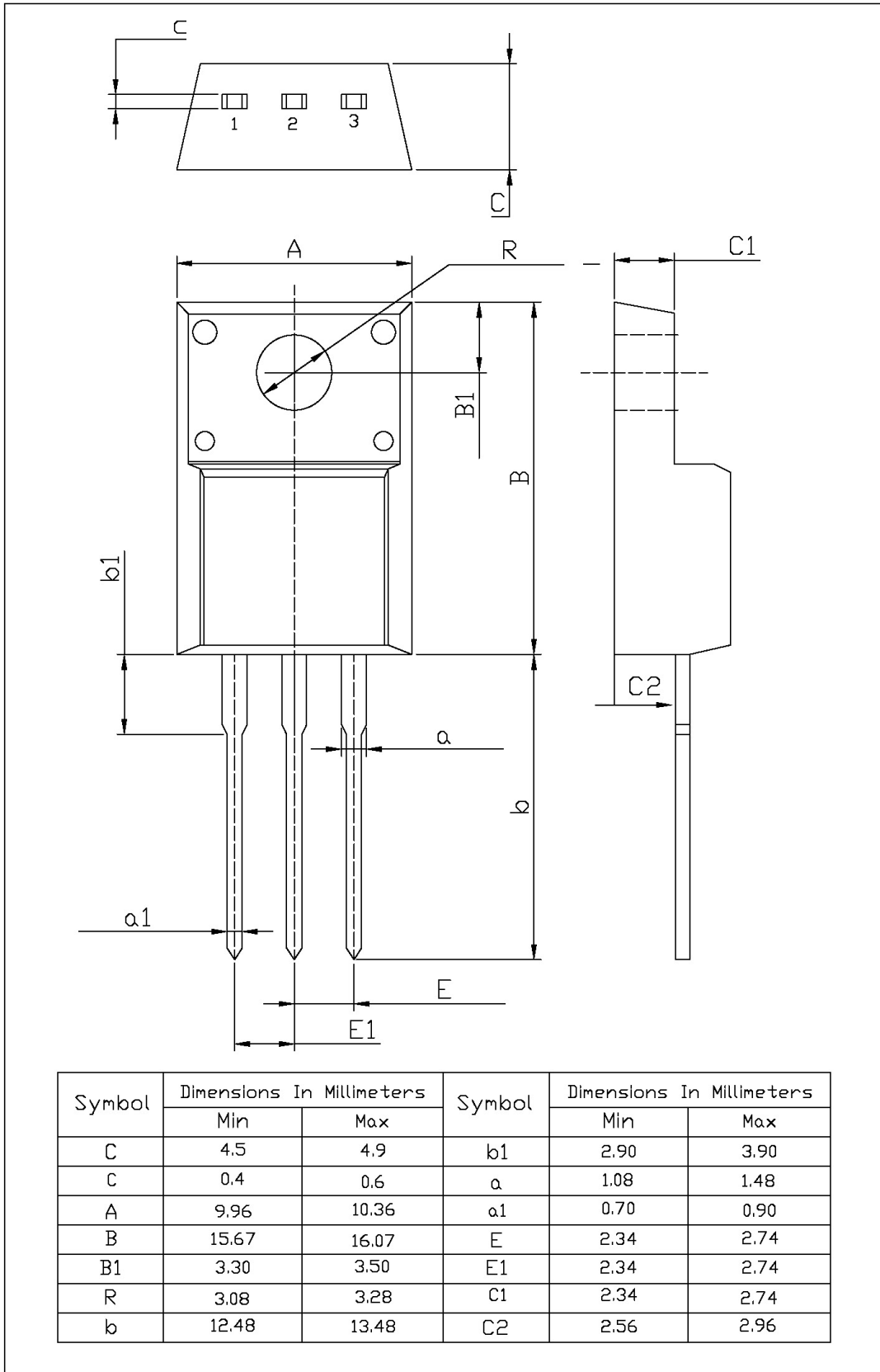
电参数曲线图 / Electrical Characteristic Curve



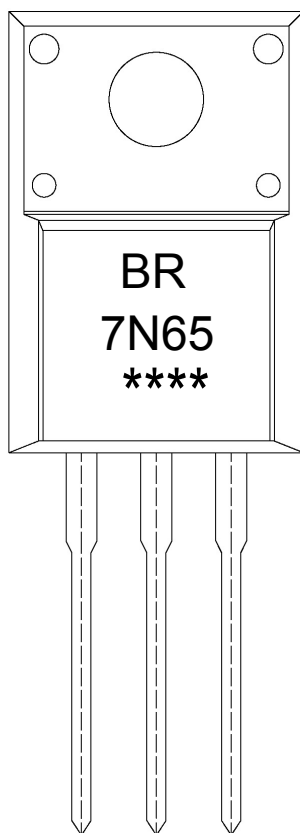
外形尺寸图 / Package Dimensions

TO-220FL

单位: mm



印章说明 / Marking Instructions



说明：

BR： 为公司代码

7N65： 为型号代码

\*\*\*\*： 为生产批号代码，随生产批号变化

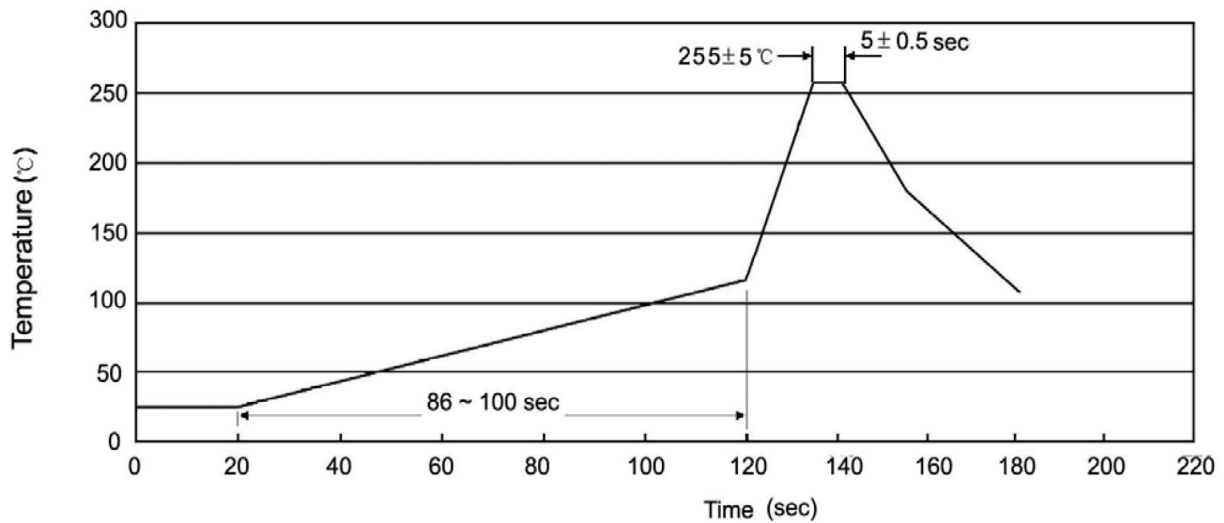
Note:

BR: Company Code

7N65: Product Type Code

\*\*\*\*: Lot No. Code, code change with Lot No

**波峰焊温度曲线图(无铅) / Temperature Profile for Dip Soldering(Pb-Free)**



说明：

- 1、预热温度 25 ~ 150°C，时间 60 ~ 90sec;
- 2、峰值温度 255±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:25~150°C, Time:60~90sec.
- 2.Peak Temp.:255±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：270±5°C      时间：10±1 sec.      Temp.:270±5°C      Time:10±1 sec

**包装规格 / Packaging SPEC.**

套管包装 / TUBE

Package Type 封装形式	Units 包装数量					Dimension 包装尺寸 (unit: mm <sup>3</sup> )		
	Units/Tube 只/套管	Tubes/Inner Box 套管/盒	Units/Inner Box 只/盒	Inner Boxes/Outer Box 盒/箱	Units/Outer Box 只/箱	Tube 套管	Inner Box 盒	Outer Box 箱
TO-220FL	50	20	1,000	5	5,000	532×33×7.0	555×164×50	575×290×180

**使用说明 / Notices**