

BRCS630FA

Rev.A Sep.-2023

描述 / Descriptions

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

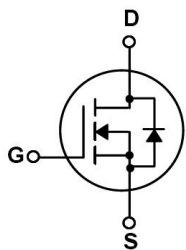
特征 / Features

$V_{DS}=200V$; $I_D=9A$
 $R_{DS(on)}@10V \leq 0.4\Omega$ (Type.0.35 Ω)
无卤产品。HF Product.

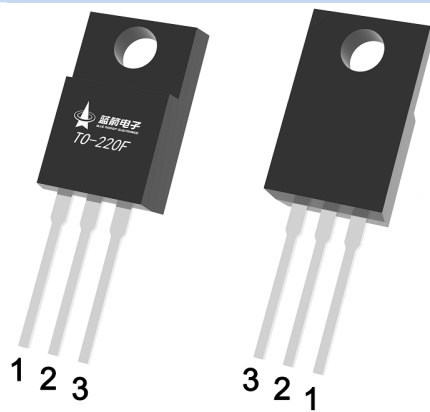
用途 / Applications

网络、负载开关、LED 应用。
Networking, Load Switch, LED applications.

内部等效电路 / Equivalent Circuit



引脚排列 / Pinning



PIN 1 : 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}	200	V
Drain Current	I _D (T _c =25°C)	9	A
Drain Current - Pulsed	I _{DM}	36	A
Gate-Source Voltage	V _{GS}	±20	V
Single Pulsed Avalanche Energy(L=10mH)	E _{AS}	166	mJ
Avalanche Current(L=10mH)	I _{AS}	5	A
Power Dissipation	P _D (T _c =25°C)	30	W
Operating and Storage Temperature Range	T _J , T _{STG}	-55 to 150	°C
Maximum Junction-to-Ambient	R _{θJA}	100	°C/W
Maximum Junction-to-Case	R _{θJC}	4.17	

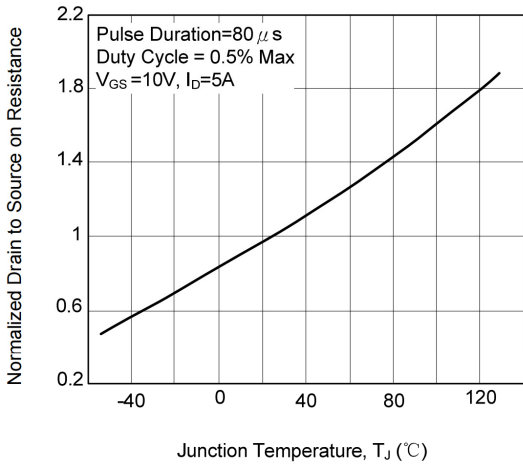
电性能参数 / Electrical Characteristics(Ta=25°C)

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 _{DSS}	V _{GS} =0V I _D =250μA	200			V
Zero Gate Voltage Drain Current	I _{DSS}	V _{DS} =200V V _{GS} =0V			1	μA
Gate-Body Leakage Current Forward	I _{GSS}	V _{GS} =±20V V _{DS} =0V			±100	nA
Gate Threshold Voltage	V _{GS(th)}	V _{DS} =V _{GS} I _D =250μA	2	3	4	V
Total gate charge	R _{DS(on)}	V _{GS} =10V I _D =4.5A		0.35	0.4	Ω
Gate resistance	R _g	V _{GS} =0V V _{DS} =0V, f=1MHz		1.7		Ω
Input Capacitance	C _{iss}	V _{DS} =25V V _{GS} =0V f=1MHz		630		pF
Output Capacitance	C _{oss}			270		
Reverse Transfer Capacitance	C _{rss}			50		
Total Gate Charge	Q _g	V _{GS} =10V, V _{DS} =160V, I _G =1.5mA, I _D =9A		21	30	nC
Gate Source Charge	Q _{gs}			11.2	20	
Gate Drain Charge	Q _{gd}			9.5	15	

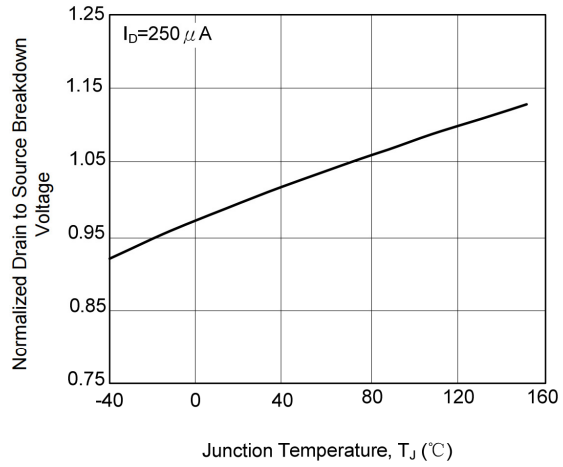
电性能参数 / Electrical Characteristics(Ta=25°C)

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	$t_{d(on)}$	$V_{GS}=10V$ $V_{DS}=90V$ $R_L=9.6\ \Omega$ $R_{GEN}=9.1\ \Omega$		15	32	ns
Turn-On Rise Time	t_r			33	53	
Turn-Off Delay Time	$t_{d(off)}$			40	55	
Turn-Off Fall Time	t_f			30	45	
Maximum Continuous Drain-Source Diode Forward Current	I_S				9	A
Maximum Pulsed Drain-Source Diode Forward Current	I_{SM}				36	A
Drain-Source Diode Forward Voltage	V_{SD}	$V_{GS} = 0 V,$ $I_S = 9.0A$			1.2	V
Reverse Recovery Time	t_{rr}	$V_{GS} = 0V,$ $I_S = 9.0A,$ $di_F/dt = 100 A/\mu s$		455		nS
Reverse Recovery Charge	Q_{rr}				3.5	

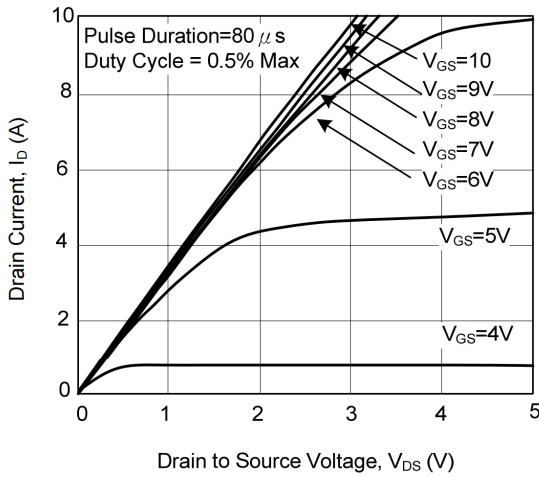
电参数曲线图 / Electrical Characteristic Curve



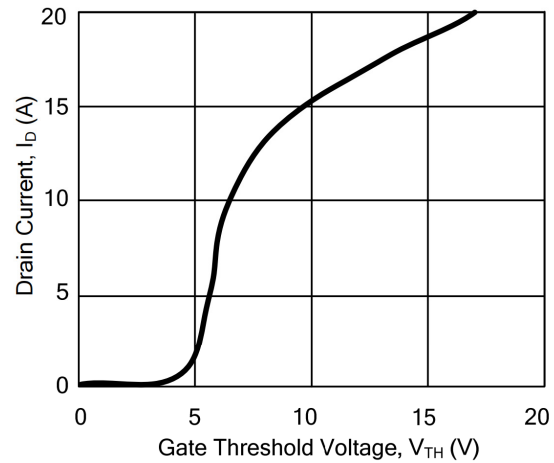
1. Normalized Drain to Source on Resistance vs. Junction Temperature



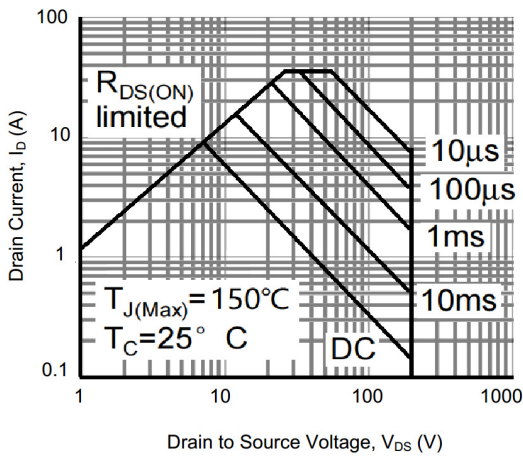
2. Normalized Drain to Source Breakdown Voltage vs. Junction Temperature



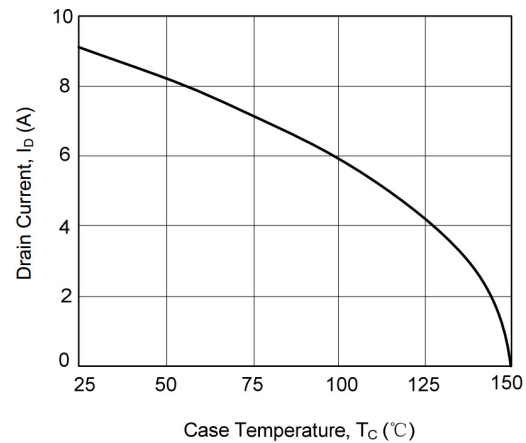
3. Saturation Characteristics



4. Drain Current vs. Gate Threshold Voltage



5. Forward Bias Safe Operating Area

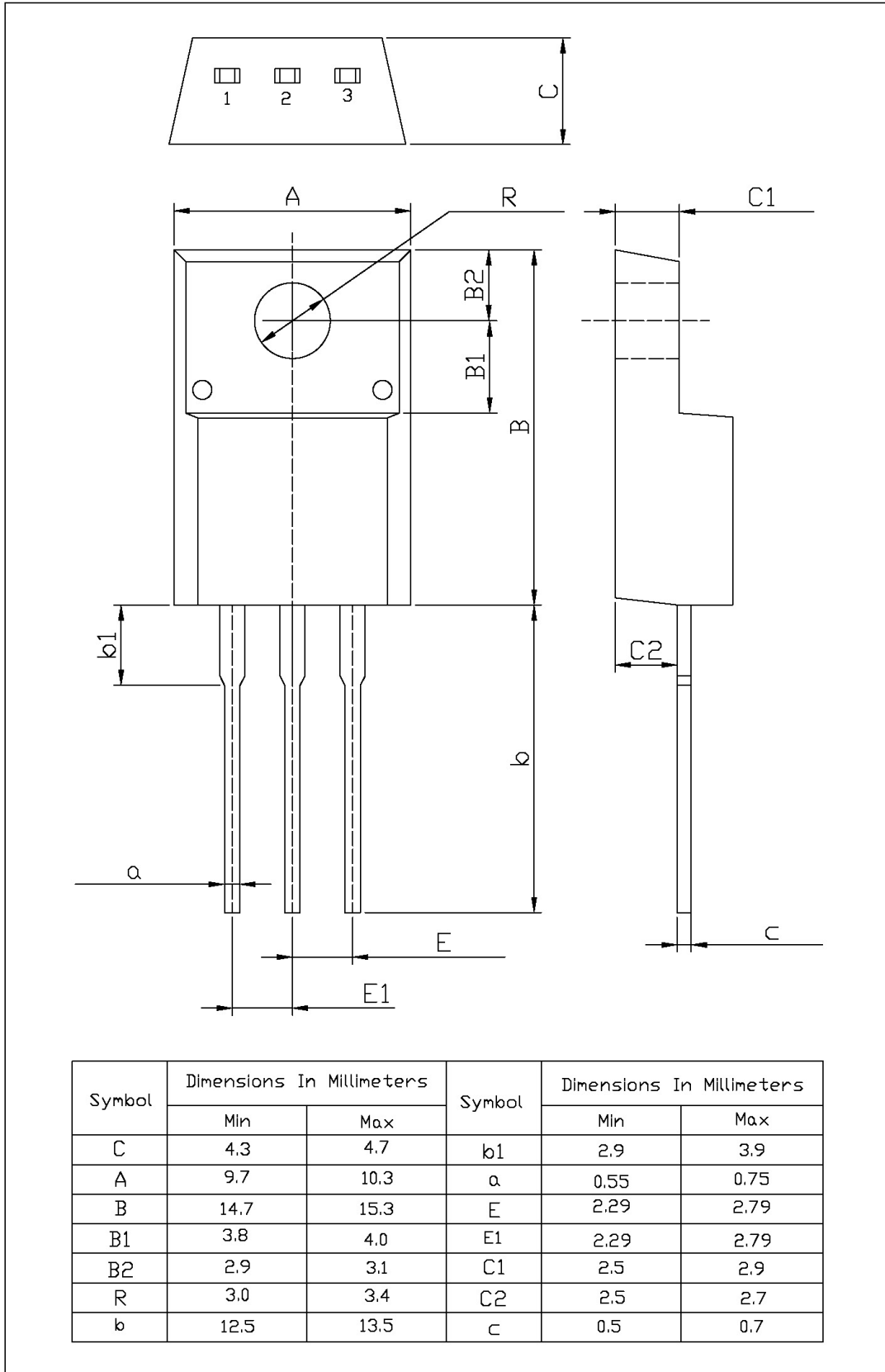


6. Maximum Continuous Drain Current vs. Case Temperature

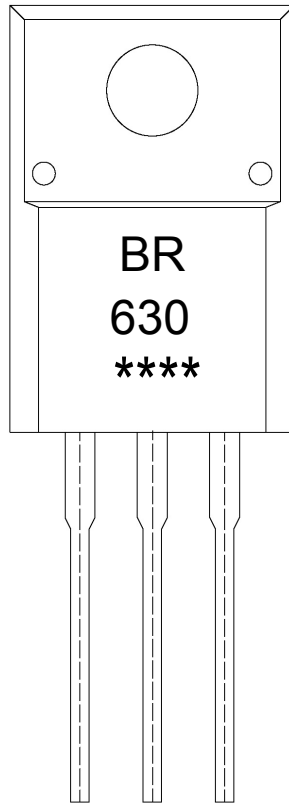
外形尺寸图 / Package Dimensions

T0-220F

单位: mm



印章说明 / Marking Instructions



说明：

BR： 为公司代码

630： 为型号代码

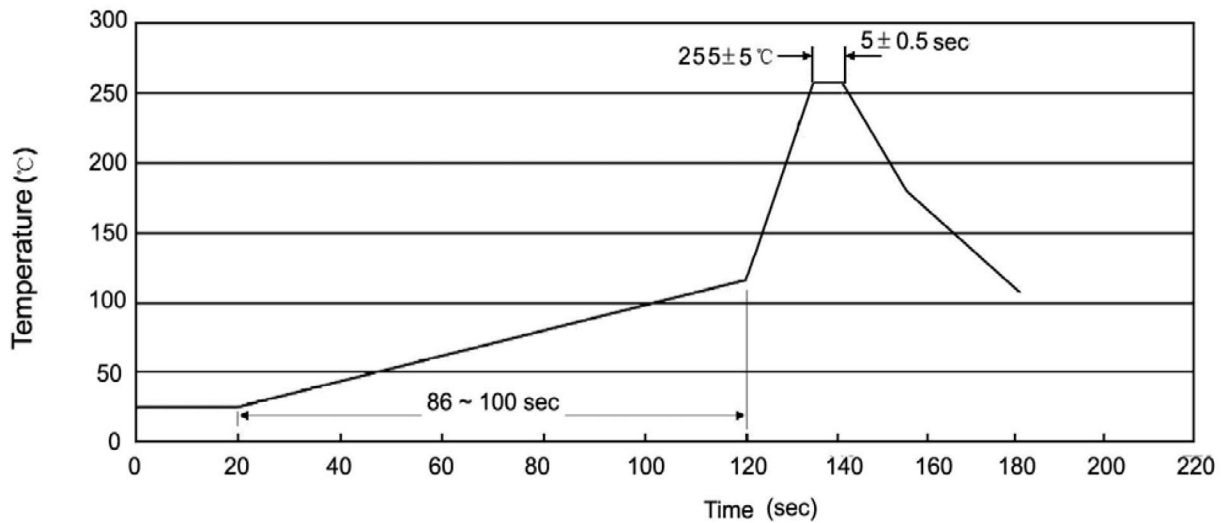
****： 为生产批号代码，随生产批号变化

Note:

BR: Company Code

630: Product Type

****: 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.

散件包装 / BULK

Package Type 封装形式	Units 包装数量					Dimension 包装尺寸 (unit: mm ³)		
	Units/Bag 只/袋	Bags/Inner Box 袋/盒	Units/Inner Box 只/盒	Inner Boxes/Outer Box 盒/箱	Units/Outer Box 只/箱	Bag 袋	Inner Box 盒	Outer Box 箱
TO-220/F	200	10	2,000	5	10,000	135×190	237×172×102	560×245×195

套管包装 / TUBE

Package Type 封装形式	Units 包装数量					Dimension 包装尺寸 (unit: mm ³)		
	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-220/F	50	20	1,000	5	5,000	532×31.4×5.5	555×164×50	575×290×180

使用说明 / Notices