

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

$V_{DS}=200V$; $I_D=18A$; $V_{GS}=\pm 20V$

$R_{DS(on)}@10V \leq 170m\Omega$ (Type.130m Ω)

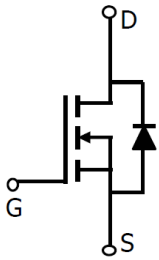
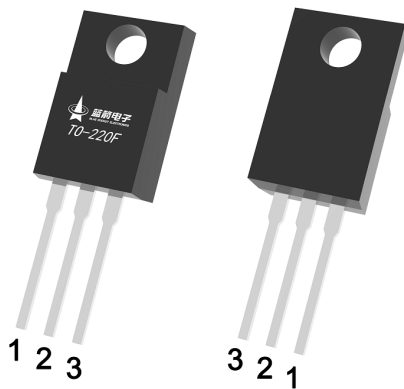
$R_{DS(on)}@4.5V \leq 200m\Omega$ (Type.150m Ω)

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**

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_{DS}	200	V
Drain Current	$I_D(T_c=25^{\circ}\text{C})$	18	A
Drain Current - Pulsed	I_{DM}	28	A
Gate-Source Voltage	V_{GS}	± 20	V
Single Pulsed Avalanche Energy(L=10mH)	E_{AS}	125	mJ
Avalanche Current(L=10mH)	I_{AS}	9.5	A
Power Dissipation	$P_D(T_c=25^{\circ}\text{C})$	50	W
Operating and Storage Temperature Range	T_J, T_{STG}	-55 to 150	$^{\circ}\text{C}$
Maximum Junction-to-Ambient	$t \leq 10\text{s}$	$R_{\theta JA}$	$^{\circ}\text{C/W}$
Maximum Junction-to-Ambient	Steady-State		
Maximum Junction-to-Case	Steady-State		
		$R_{\theta JC}$	

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}	$V_{GS}=0\text{V}$ $I_D=250\mu\text{A}$	200			V
Zero Gate Voltage Drain Current	I_{DSS}	$V_{DS}=200\text{V}$ $V_{GS}=0\text{V}$			1	μA
Gate-Body Leakage Current Forward	I_{GSS}	$V_{GS}=\pm 20\text{V}$ $V_{DS}=0\text{V}$			± 100	nA
Gate Threshold Voltage	$V_{GS(th)}$	$V_{DS}=V_{GS}$ $I_D=250\mu\text{A}$	1.0	1.5	2.0	V
Total gate charge	$R_{DS(on)}$	$V_{GS}=10\text{V}$ $I_D=10\text{A}$		130	170	$\text{m}\Omega$
		$V_{GS}=4.5\text{V}$ $I_D=10\text{A}$		150	200	$\text{m}\Omega$
Drain-Source Diode Forward Voltage	V_{SD}	$V_{GS}=0\text{V}$ $I_S=1\text{A}$			1.2	V
Gate resistance	R_g	$V_{GS}=0\text{V}$ $V_{DS}=0\text{V}$, $f=1\text{MHz}$		6.5		Ω
Input Capacitance	C_{iss}	$V_{DS}=25\text{V}$ $V_{GS}=0\text{V}$ $f=1\text{MHz}$		830		pF
Output Capacitance	C_{oss}			150		
Reverse Transfer Capacitance	C_{rss}			65		
Total Gate Charge	$Q_{g(10V)}$	$V_{GS}=10\text{V}$ $V_{DS}=100\text{V}$, $I_D=18\text{A}$		27		nC
Total Gate Charge	$Q_{g(4.5V)}$			12		
Gate Source Charge	Q_{gs}			7		
Gate Drain Charge	Q_{gd}			3		

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} =75V R _L =2.5 Ω R _{GEN} =3 Ω		8		ns
Turn-On Rise Time	t _r			10		
Turn-Off Delay Time	t _{d(off)}			30		
Turn-Off Fall Time	t _f			4		

电参数曲线图 / Electrical Characteristic Curve

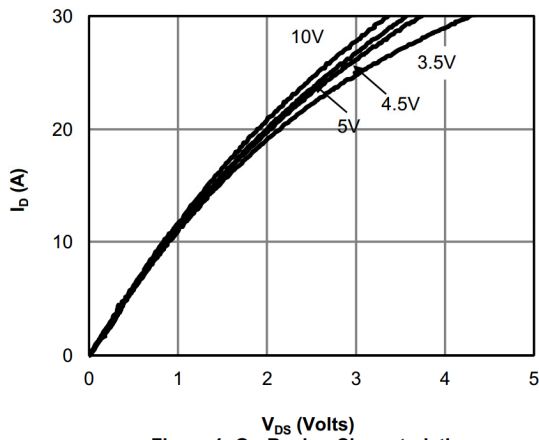


Figure 1: On-Region Characteristics

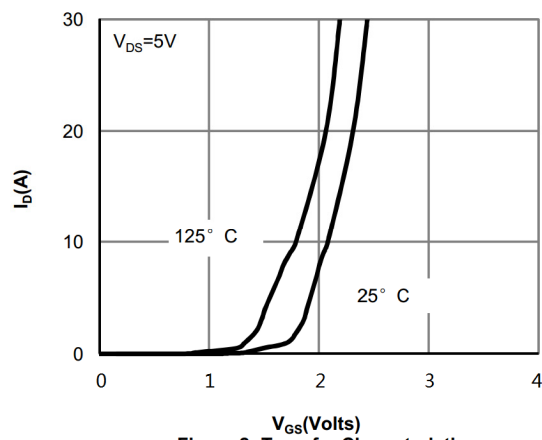


Figure 2: Transfer Characteristics

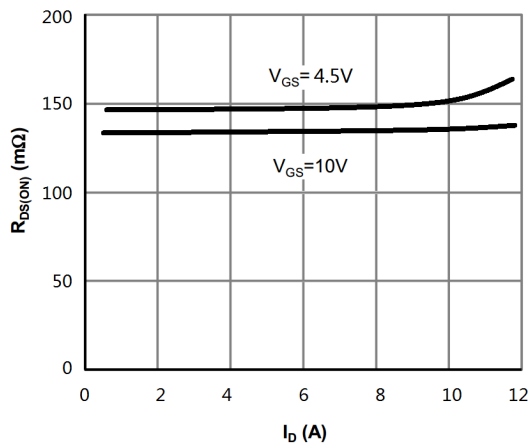


Figure 3: On-Resistance vs. Drain Current and Gate Voltage

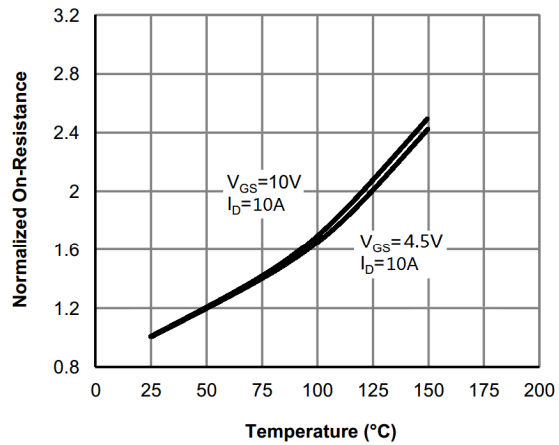


Figure 4: On-Resistance vs. Junction Temperature

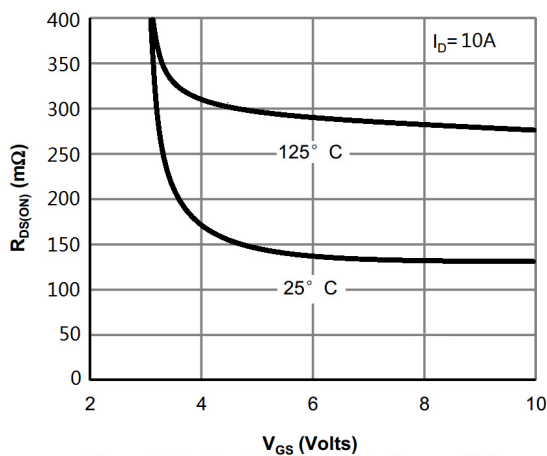


Figure 5: On-Resistance vs. Gate-Source Voltage

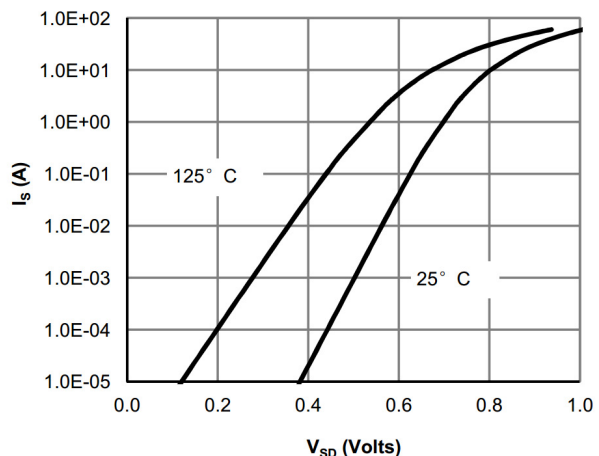
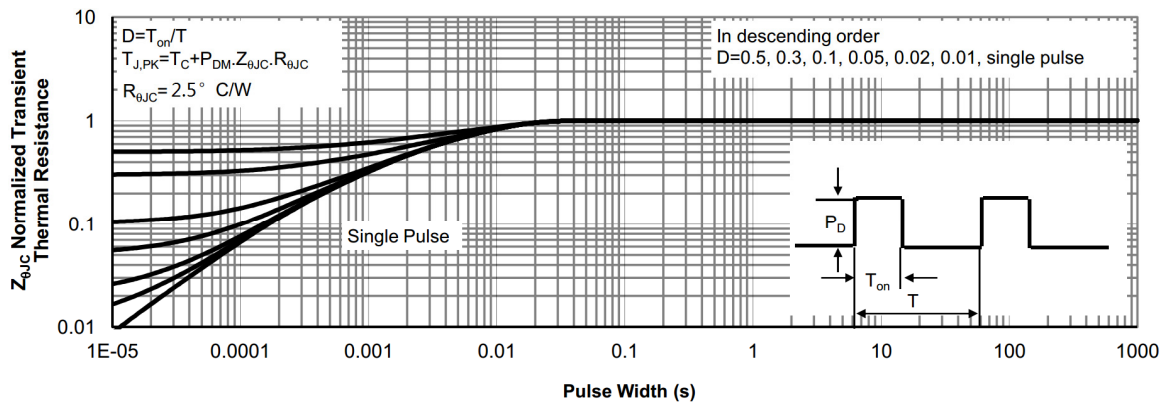
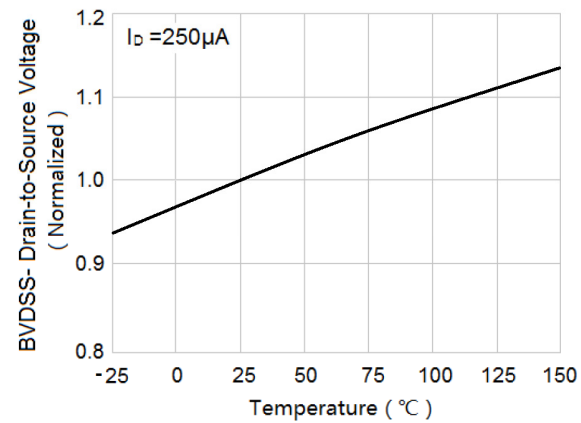
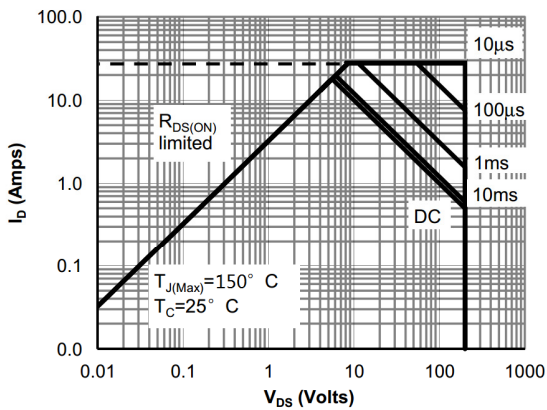
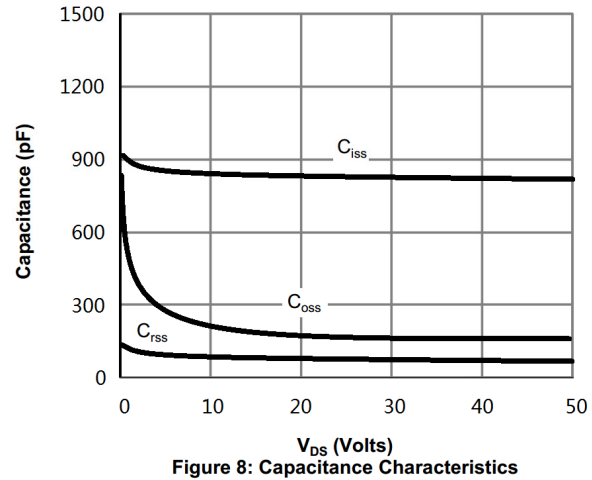
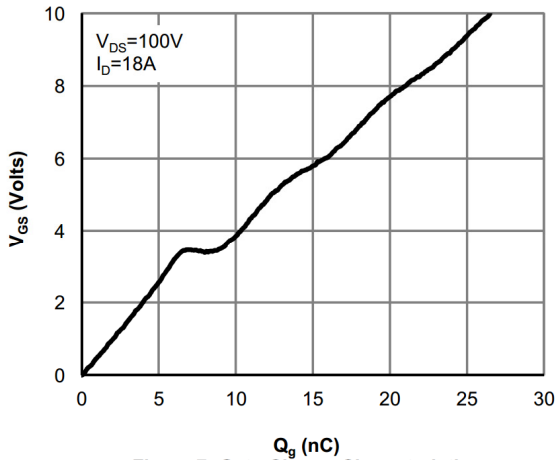
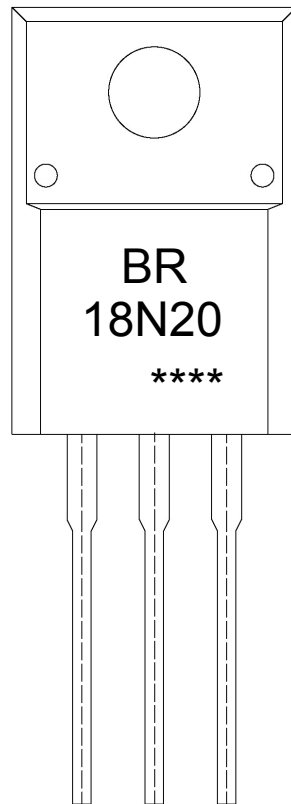


Figure 6: Body-Diode Characteristics

电参数曲线图 / Electrical Characteristic Curve



印章说明 / Marking Instructions



说明：

BR： 为公司代码

18N20： 为型号代码

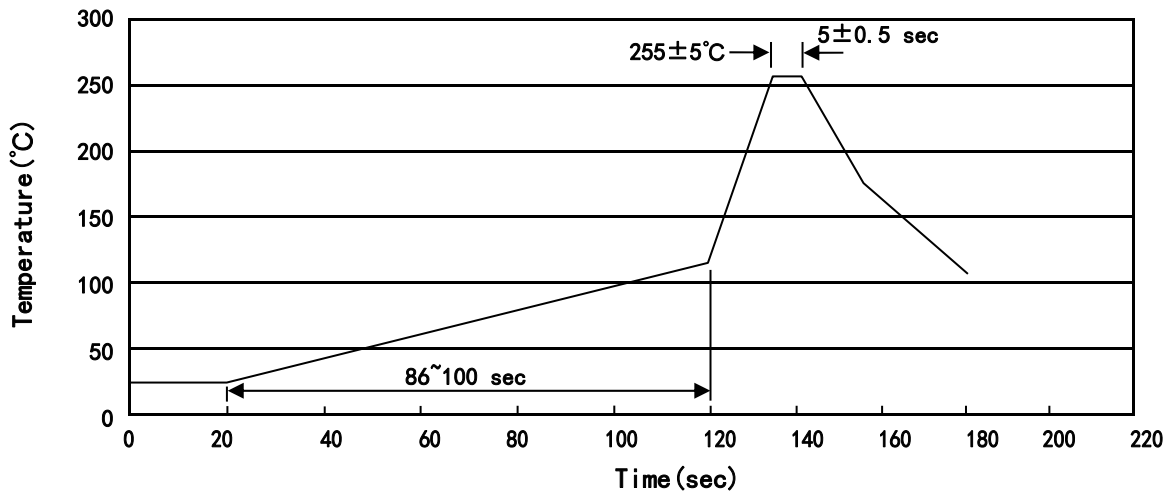
****： 为生产批号代码，随生产批号变化

Note:

BR: Company Code

18N20: 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.

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

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