BRU20N90

Rev.D Nov.-2015

蓝箭电子
BLUE ROCKET ELECTRONICS

DATA SHEET

描述 / Descriptions

TO-3P 塑封封装 N 沟 MOS 场效应管。N-Channel MOSFET in a TO-3P Plastic Package.

特征 / Features

低栅极电荷，开关速度快，雪崩能量高，dv/dt 能力强。

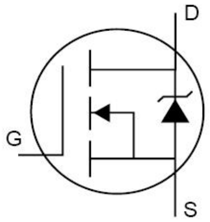
Low gate charge, Fast switching capability, Avalanche energy specified, Improved dv/dt capability.

用途 / Applications

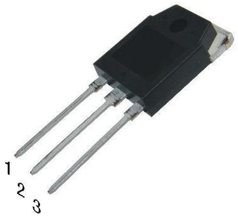
用于高电压、高速功率开关应用，如高效率开关模电源、功率因数校正。

Designed for high voltage, high speed power switching applications such as high efficiency switched mode power supplies, active power factor correction.

内部等效电路 / Equivalent Circuit



引脚排列 / Pinning



PIN1：Gate　　　PIN 2：Drain　　　PIN 3：Source

放大及印章代码 / h_{FE} Classifications & Marking

见印章说明。See Marking Instructions.

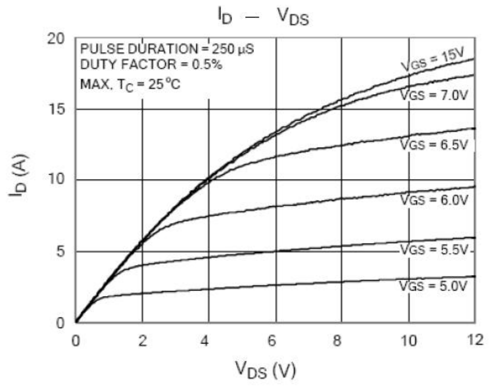
极限参数 / Absolute Maximum Ratings(Ta=25℃)

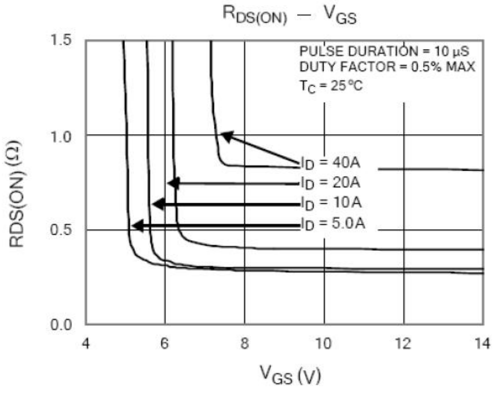
参数 Parameter	符号 Symbol	数值 Rating	单位 Unit
Drain-to-Source Breakdown Voltage	V_{DSS}	900	V
Continuous Drain Current	I_D(Tc=25℃)	20	A
Continuous Drain Current	I_D(Tc=100℃)	13	A
Drain Current Pulsed	I_{DM}	80	A
Gate-to-Source Voltage	V_{GSS}	±30	V
Repetitive Avalanche Energy	E_{AR}	100	mJ
Single Pulse Avalanche Energy	E_{AS}	1000	mJ
Peak Diode Recovery dv/dt	dv/dt	5	V/ns
Power Dissipation	P_D(Tc=25℃)	250	W
Junction Temperature Range	T_j	150	℃
Storage Temperature Range	T_{stg}	-55～150	℃
Thermal Resistance Junction-Ambient	$R_{\theta JA}$	40	℃/W
Thermal Resistance Junction-Case	$R_{\theta JC}$	0.5	℃/W

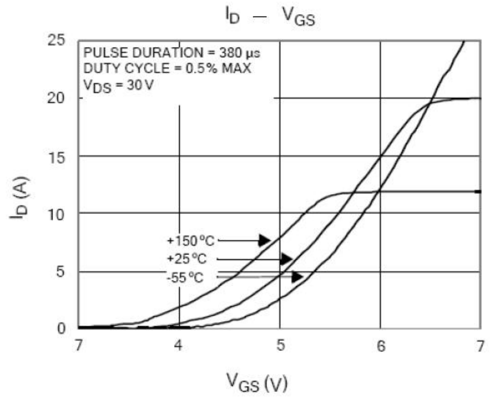
电性能参数 / Electrical Characteristics(Ta=25℃)

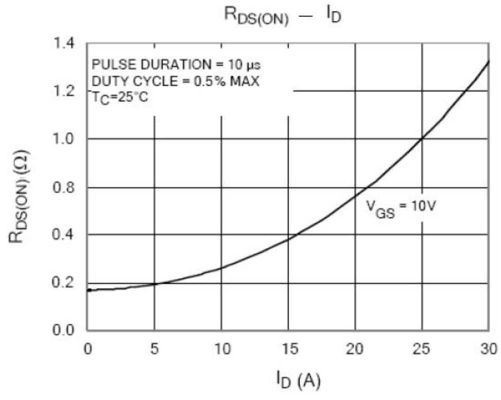
参数 Parameter	符号 Symbol	测试条件 Test Conditions	最小值 Min	典型值 Typ	最大值 Max	单位 Unit
Drain-to-Source Breakdown Voltage	V_{DSS}	V_{GS}=0V I_D=250μA	900			V
Drain-to-Source Leakage Current	I_{DSS}	V_{DS}=900V V_{GS}=0V			25	μA
		V_{DS}=720V T_C=125℃			250	
Gate-to-Source Forward Leakage	I_{GSS}	V_{GS}=±20V V_{DS}=0V			±10	μA
Gate Threshold Voltage	$V_{GS(th)}$	V_{DS}=V_{GS} I_D=250μA	2.0		4.0	V
Static Drain-to-Source On-Resistance	$R_{DS(on)}$	V_{GS}=10V I_D=10A		0.31	0.4	Ω
Diode Forward Voltage	V_{SD}	V_{GS}=0V I_{SD}=20A			1.5	V
Input Capacitance	C_{iss}	V_{DS}=25V V_{GS}=0V f=1.0MHz		9140		pF
Output Capacitance	C_{oss}			504		
Reverse Transfer Capacitance	C_{rss}			63.5		
Turn-On Delay Time	$t_{d(on)}$	V_{DD}=300V I_D=20A V_{GS}=10V R_G=4.7Ω		22		ns
Rise Time	t_r			42		
Turn-Off Delay Time	$t_{d(off)}$			153		
Fall Time	t_f			97		
Total Gate Charge	Q_g	V_{DS}=300V I_D=20A V_{GS}=10V		162		nC
Gate-Source Charge	Q_{gs}			22		
Gate-Drain Charge	Q_{gd}			59		

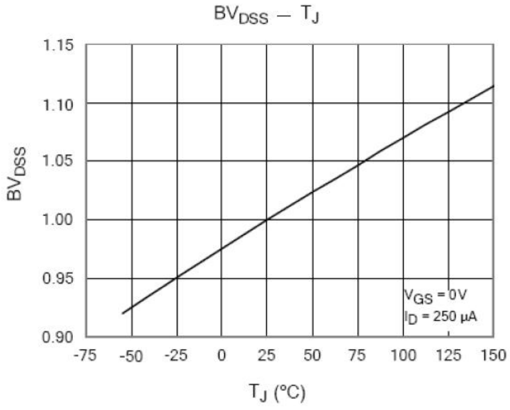
电参数曲线图 / Electrical Characteristic Curve

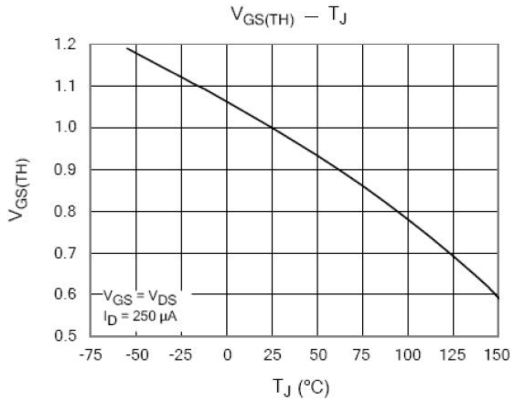

I_D — V_{DS}

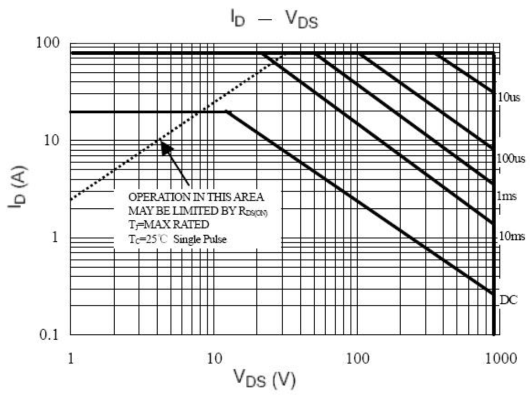

$R_{DS(ON)}$ — V_{GS}

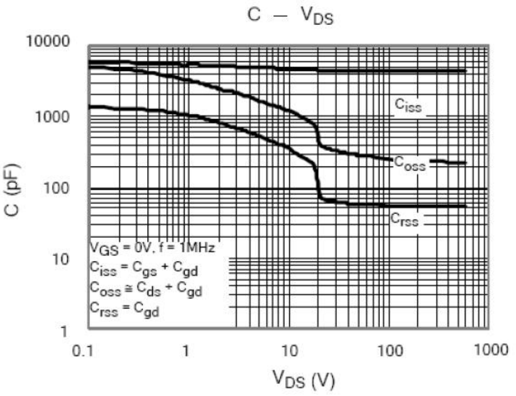

I_D — V_{GS}


$R_{DS(ON)}$ — I_D


BV_{DSS} — T_J

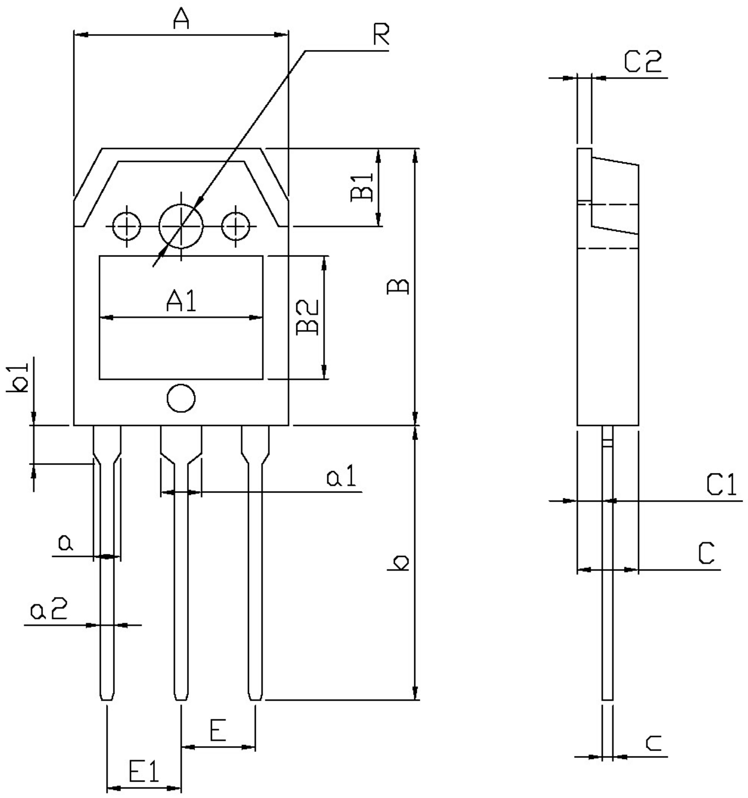

$V_{GS(TH)}$ — T_J

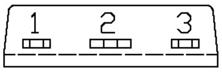

I_D — V_{DS}


C — V_{DS}

外形尺寸图 / Package Dimensions

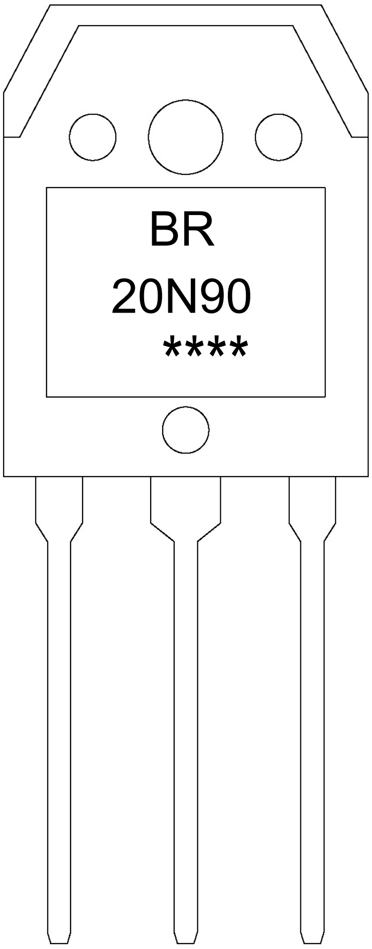
TO-3P 单位：mm





Symbol	Dimensions In Millimeters		Symbol	Dimensions In Millimeters	
	Min	Max		Min	Max
A	15.4	16.0	a2	0.8	1.2
R	3.1	3.5	E	5.45	
B	19.8	20.8	E1	5.45	
B1	5.5	5.9	C	4.3	4.7
B2	9.0		C1	1.2	1.6
A1	12.0		C2	1.4	1.6
b	19.6	20.6	c	0.5	0.7
b1	3.0	3.4			
a	1.8	2.2			
a1	2.8	3.2			

印章说明 / Marking Instructions



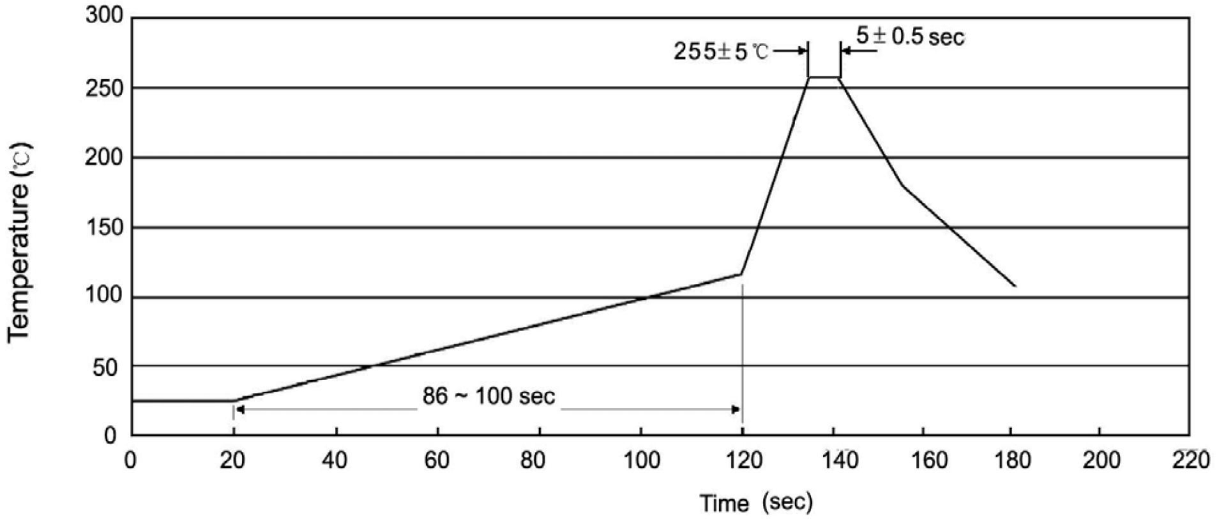
说明：

BR:	为公司代码
20N90：	为型号代码
****：	为生产批号代码，随生产批号变化。

Note:

BR:	Company Code.
20N90:	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℃，时间 60～90sec;
2、峰值温度 255±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:25~150℃, Time:60~90sec.
2.Peak Temp.:255±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：270±5℃　　时间：10±1 sec.　　Temp:270±5℃　　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^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-3P	30	15	450	5	2250	497.5×46×8	555×164×50	575×290×180

使用说明 / Notices