

BRCS120N06HA

Rev.A Nov.-2018

描述 / Descriptions

TO-247 塑封封装 N 沟道场效应管。N-CHANNEL MOSFET in a TO-247 Plastic Package.

特征 / Features

低栅电荷最小开关损耗和快速恢复。无卤产品。

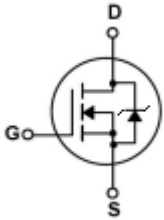
Low gate charge minimize switching loss and fast recovery body diode.HF Product.

用途 / Applications

用于高效 DC/DC 转换，同步整流和 UPS 逆变器。

These devices are well suited for high efficiency switching DC/DC converters, Synchronous rectification and UPS inverter.

内部等效电路 / Equivalent Circuit



引脚排列 / Pinning



PIN1 : G PIN 2 : D PIN 3 : S

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°C)

参数 Parameter	符号 Symbol	数值 Rating	单位 Unit
Drain-Source Voltage	V_{DSS}	60	V
Drain Current	$I_D(T_c=25^\circ\text{C})$	120	A
	$I_D(T_c=100^\circ\text{C})$	88	A
Pulsed Drain Current	I_{DM}	480	A
Gate-Source Voltage	V_{GSS}	± 20	V
Avalanche Current	I_{AR}	76.7	A
Avalanche energy L=0.5mH	E_{AS}	1200	mJ
Total Power Dissipation	$P_D(T_c=25^\circ\text{C})$	300	W
Junction and Storage Temperature Range	T_J, T_{STG}	-55 to 175	$^\circ\text{C}$

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
Zero Gate Voltage Drain Current	BV_{DSS}	$V_{GS}=0V$ $I_D=250\mu A$	60	66		V
Zero Gate Voltage Drain Current	I_{DSS}	$V_{DS}=60V$ $V_{GS}=0V$			1	μA
Gate-Body Leakage Current Forward	I_{GSS}	$V_{GS}=\pm 20V$ $V_{DS}=0V$			± 0.1	μA
Gate Threshold Voltage	$V_{GS(th)}$	$V_{DS}=V_{GS}$ $I_D=250\mu A$	2		4	V
Static Drain-Source On-Resistance	$R_{DS(on)}$	$V_{GS}=10V$ $I_D=60A$		7	8	m Ω
Forward Transconductance	g_{FS}	$V_{DS}=10V$ $I_D=60A$	60			S
Forward On Voltage	V_{SD}	$V_{GS}=0V$ $I_S=60A$			1.3	V
Input Capacitance	C_{iss}	$V_{DS}=25V$ $V_{GS}=0V$ $f=1MHz$		2800		pF
Output Capacitance	C_{oss}			1030		
Reverse Transfer Capacitance	C_{rss}			520		
Total Gate Charge	Q_g	$V_{DD}=30V$ $I_D=60A$ $V_{GS}=0V-10V$		110		nC
Gate-Source charge	Q_{gs}			13		
Gate-Drain charge	Q_{gd}			52		
Gate Series Resistan	R_g	$f=1.0MHz$		0.8		Ω
Turn-On Delay Time	$t_{d(on)}$	$V_{DD}=30V$ $I_D=60A$ $V_{GS}=10V$ $R_G=2.5\Omega$		23		ns
Turn-On Rise Time	t_r			38		
Turn-Off Delay Time	$t_{d(off)}$			54		
Turn-Off Fall Time	t_f			26		

电参数曲线图 / Electrical Characteristic Curve

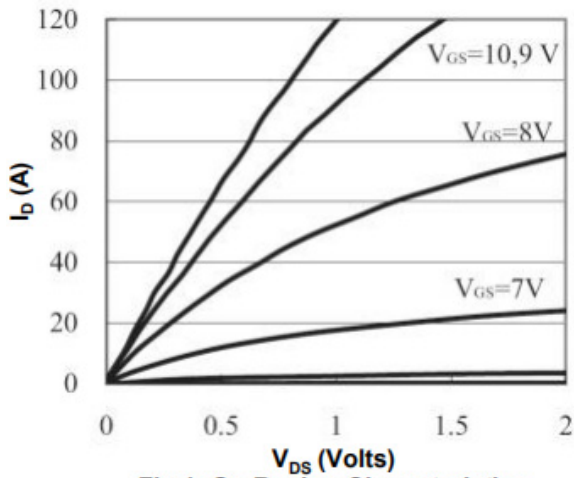


Fig 1: On-Region Characteristics

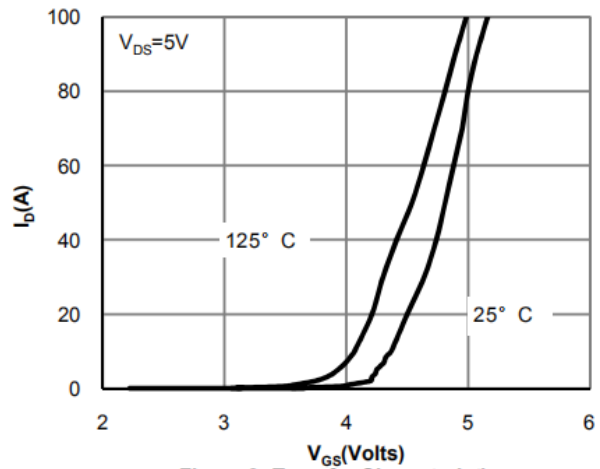


Figure 2: Transfer Characteristics

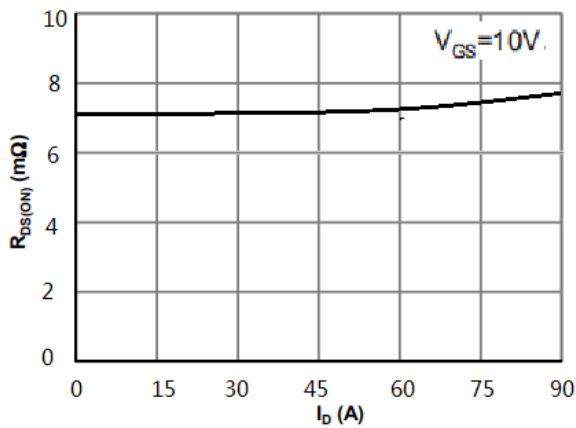


Figure 3: On-Resistance vs. Drain Current and Gate Voltage

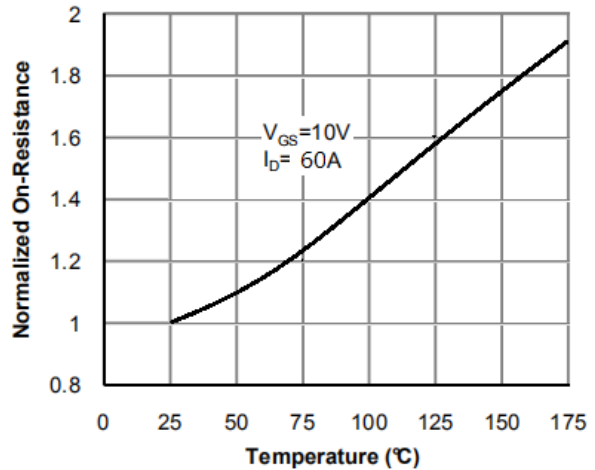


Figure 4: On-Resistance vs. Junction Temperature

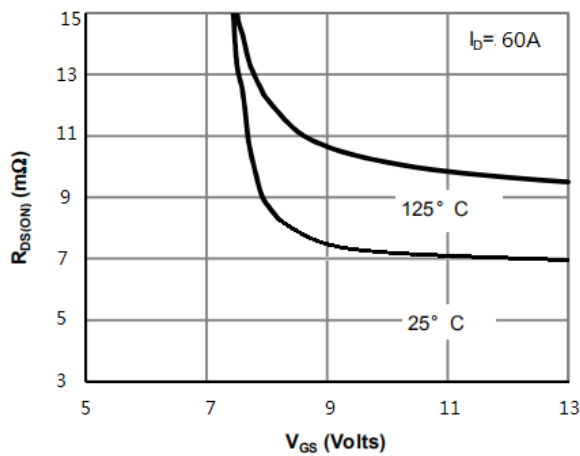


Figure 5: On-Resistance vs. Gate-Source Voltage

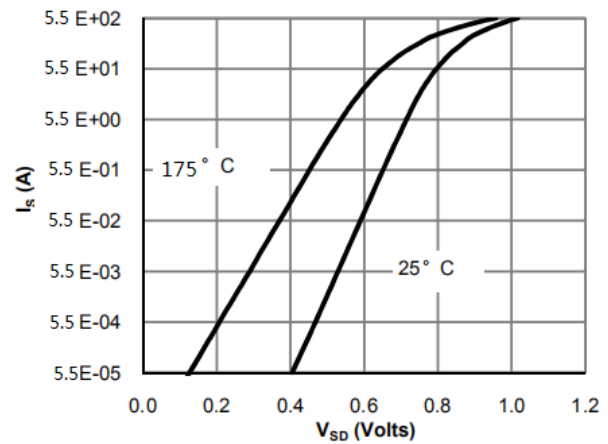


Figure 6: Body-Diode Characteristics

电参数曲线图 / Electrical Characteristic Curve

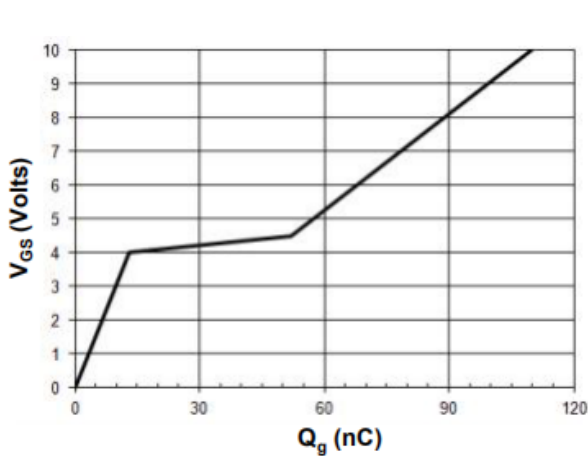


Figure 7: Gate-Charge Characteristics

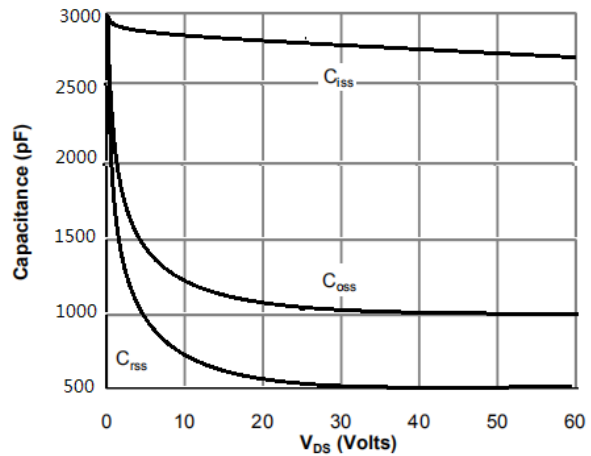


Figure 8: Capacitance Characteristics

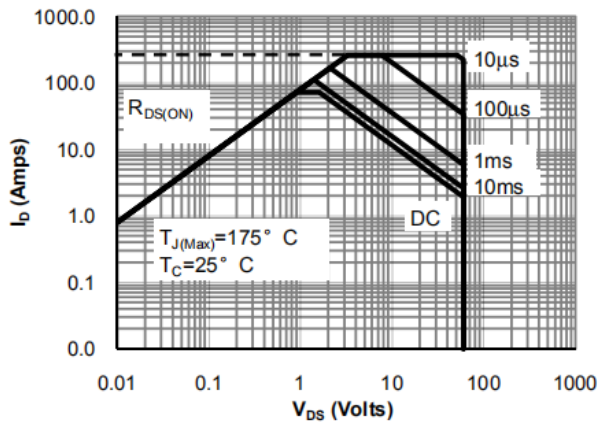


Figure 9: Maximum Forward Biased Safe Operating Area

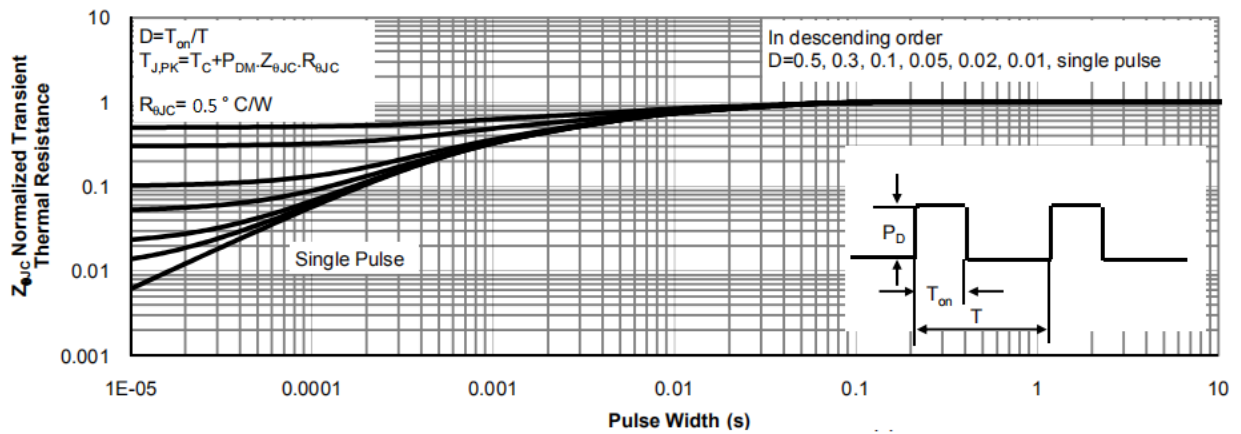
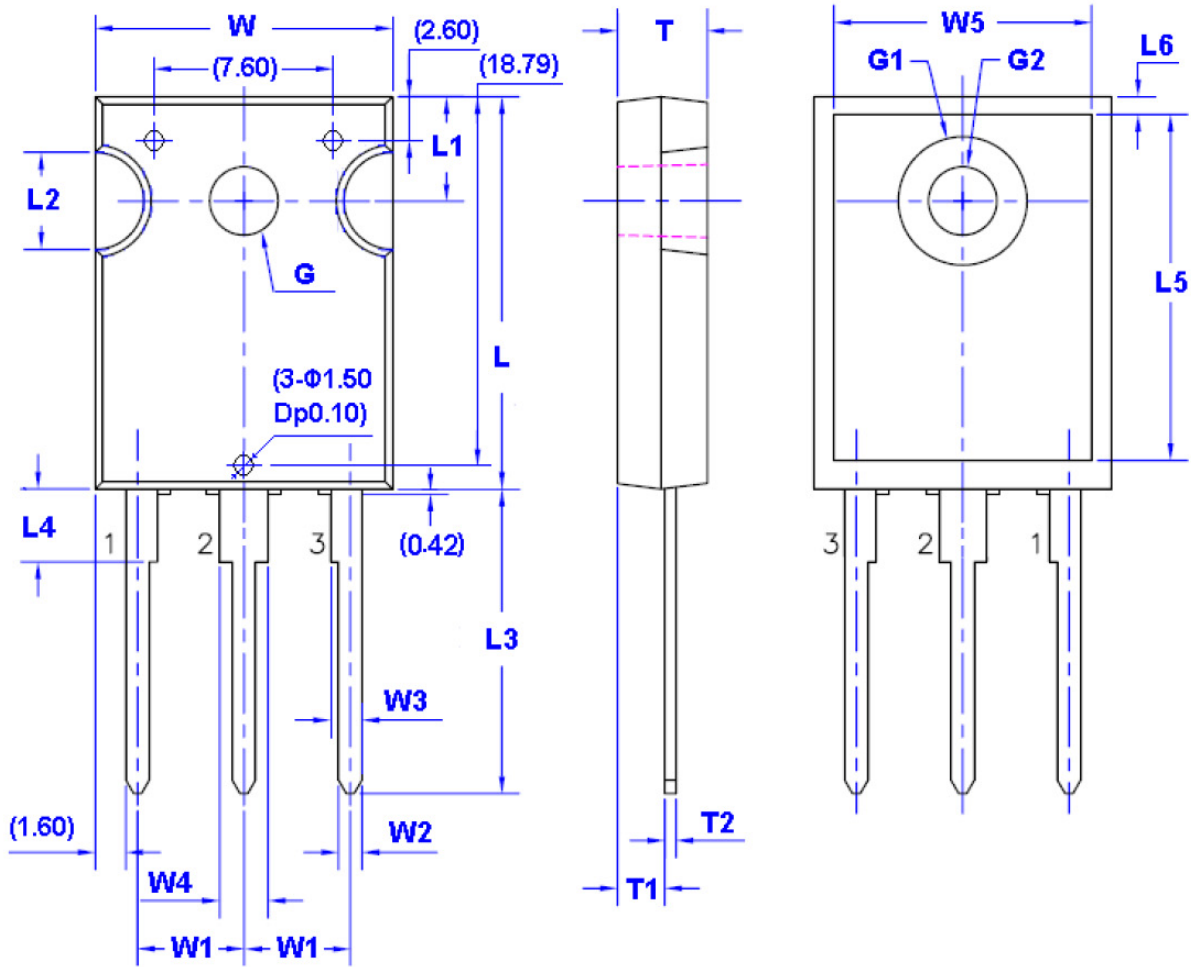


Figure 10 : Normalized Maximum Transient Thermal Impedance

外形尺寸图 / Package Dimensions

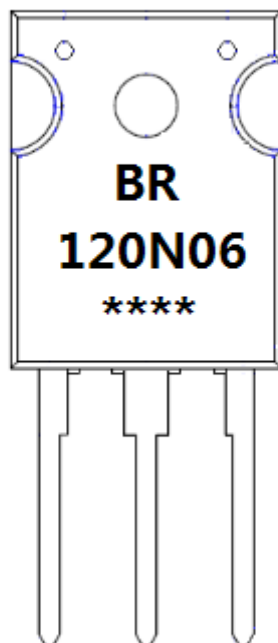


(单位: mm)

符号	尺寸		符号	尺寸		符号	尺寸		符号	尺寸	
	Min	Max		Min	Max		Min	Max		Min	Max
W	15.37	15.87	W5	12.81	--	L4	3.69	3.93	T2	0.51	0.71
W1	5.56 (TYP)		L	20.32	20.82	L5	13.08	--	G(Φ)	3.51	3.65
W2	1.17	1.35	L1	5.34	5.58	L6	0.51	1.35	G1(Φ)	6.61	6.85
W3	1.53	1.77	L2	4.96	5.20	T	4.58	4.82	G2(Φ)	3.51	3.65
W4	2.42	2.66	L3	15.75	16.25	T1	2.29	2.66			

注: () 内数值为参考值。尺寸不包含毛刺及模具溢料。

印章说明 / Marking Instructions



说明：

BR： 为公司代码

120N06： 为产品型号

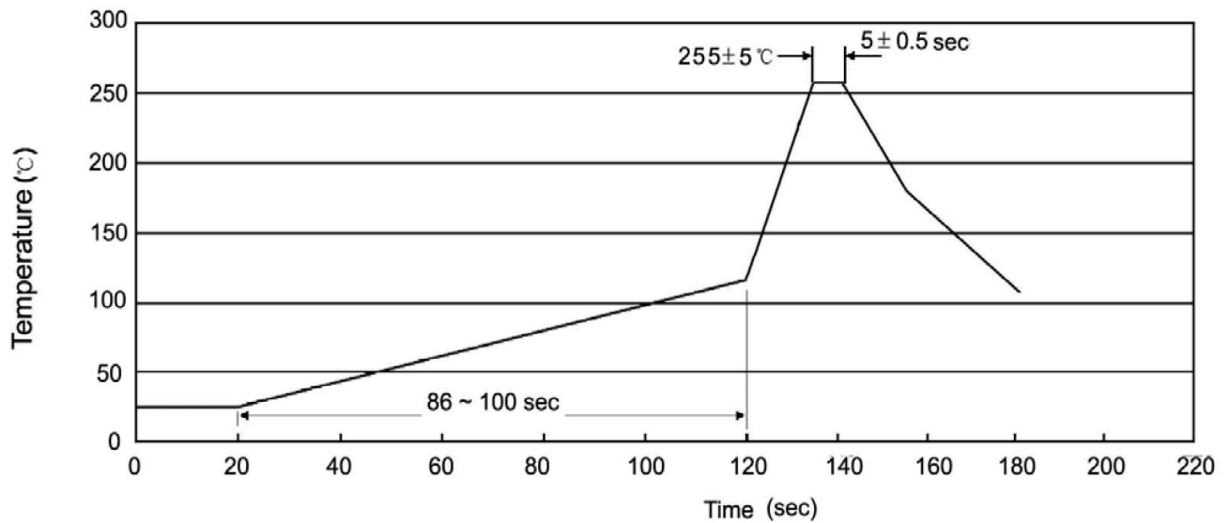
****： 为生产批号代码，随生产批号变化。

Note:

BR: Company Code

120N06: 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.

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
T0-247	30	15	450	5	2250	497.5×46×8	555×164×50	575×290×180

使用说明 / Notices