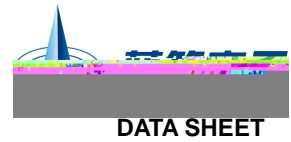




# BRCS150N12SRA

Rev.A Feb.-2022



## / Descriptions

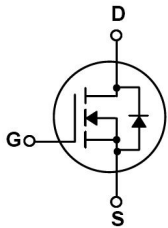
TO-220 N  
N-CHANNEL MOSFET in a TO-220 Plastic Package.

## / Features

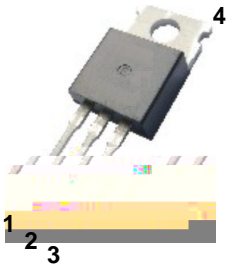
## / Applications

These devices are well suited for high efficient switched mode power supplies, Active power factor correction, electronic lamp ballast based on half bridge topology.

## / Equivalent Circuit



## / Pinning



PIN1 G      PIN 2 4 D      PIN 3 S

## / Marking

See Marking Instructions.

# BRCS150N12SRA

Rev.A Feb.-2022



DATA SHEET

参数 Parameter	符号 Symbol	数值 Rating	单位 Unit
Drain-Source Voltage	$V_{DS}$	120	V
Continuous Drain Current	$I_D$	46	A
Pulsed Drain Current	$I_{DM}$	184	A
Gate-Source Voltage	$V_{GS}$	$\pm 20$	V
Power Dissipation	$P_D(T_c=25^\circ\text{C})$	150	W
Avalanche energy(L=0.5mH)	$E_{AS}$	24.5	mJ
Avalanche Current(L=0.5mH)	$I_{AS}$	7.0	A
Junction and Storage Temperature Range	$T_j, T_{stg}$	-55 to 150	$^\circ\text{C}$
Maximum Junction-to-Ambient	$t \leq 10\text{s}$	$R_{\theta JA}$	$^\circ\text{C/W}$
	Steady-State		
Maximum Junction-to-Case	Steady-State	$R_{\theta JC}$	1

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	$BV_{DSS}$	$I_D=250\mu\text{A}, V_{GS}=0\text{V}$	120	129		V
Zero Gate Voltage Drain Current	$I_{DSS}$	$V_{DS}=120\text{V}, V_{GS}=0\text{V}$			1	$\mu\text{A}$
Gate-Body leakage current	$I_{GSS}$	$V_{DS}=0\text{V}, V_{GS}=\pm 20\text{V}$			$\pm 100$	nA
Gate Threshold Voltage	$V_{GS(th)}$	$V_{DS}=V_{GS}, I_D=250\mu\text{A}$	1.0	1.7	2.5	V
Static Drain-Source On-Resistance	$R_{DS(ON)}$	$V_{GS}=10\text{V}, I_D=20\text{A}$		13.8	15	m $\Omega$
		$V_{GS}=4.5\text{V}, I_D=10\text{A}$		15.5	25	
Diode Forward Voltage	$V_{SD}$	$I_S=1\text{A}, V_{GS}=0\text{V}$			1.2	V
Input Capacitance	$C_{iss}$	$V_{DS}=25\text{V}, V_{GS}=0\text{V}$ $f=1.0\text{MHz}$		2090		pF
Output Capacitance	$C_{oss}$			730		
Reverse Transfer Capacitance	$C_{rss}$			130		
Gate resistance	$R_g$	$V_{GS}=0\text{V}, V_{DS}=0\text{V}$ $f=1\text{MHz}$		3.0		$\Omega$
Total Gate Charge	$Q_{g(10V)}$			32.5		
Total Gate Charge		$V_{GS}=10\text{V}, I_D=20\text{A}$			$V_{DS}=50\text{V}$	nC

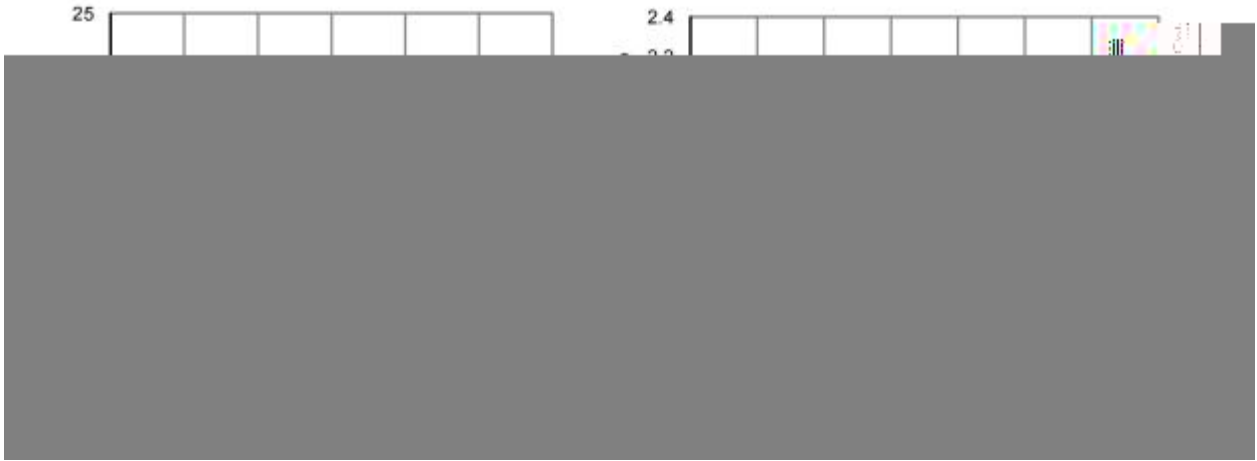


## / Electrical Characteristics(Ta=25 )

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
Turn-On Delay Time	$t_{d(on)}$	$V_{GS}=10V$ $V_{DS}=50V$ $R_L=2.5\ \Omega$ $R_{GEN}=3\ \Omega$		7		ns
Turn-On Rise Time	$t_r$			3		
Turn-Off Delay Time	$t_{d(off)}$			27		
Turn-Off Fall Time	$t_f$			4		

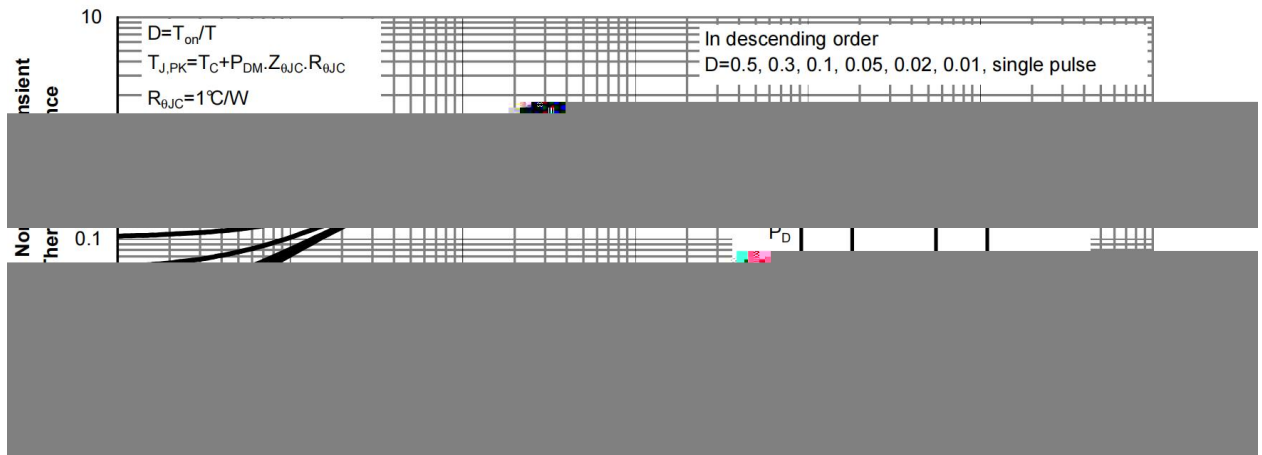
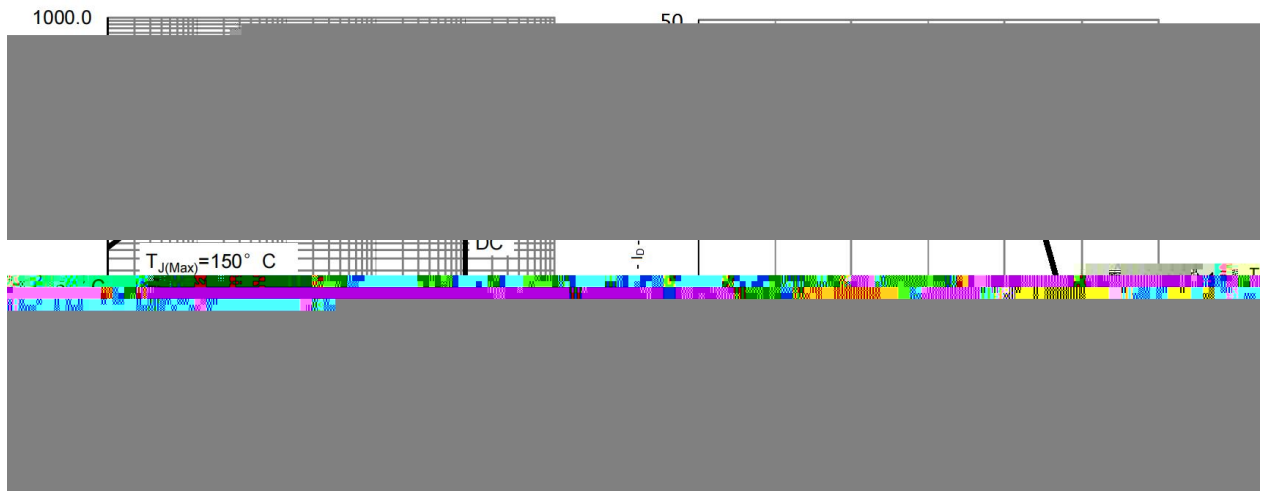
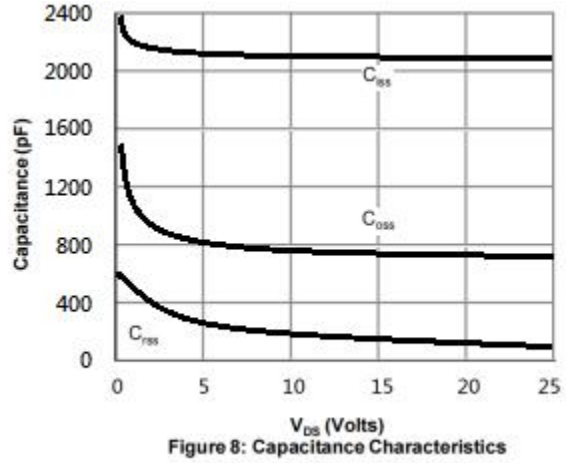
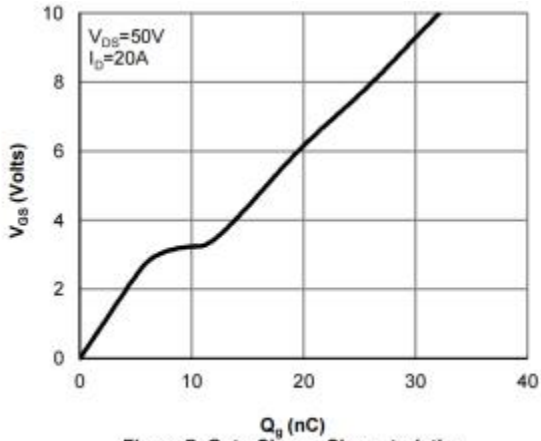


**/ Electrical Characteristic Curve**

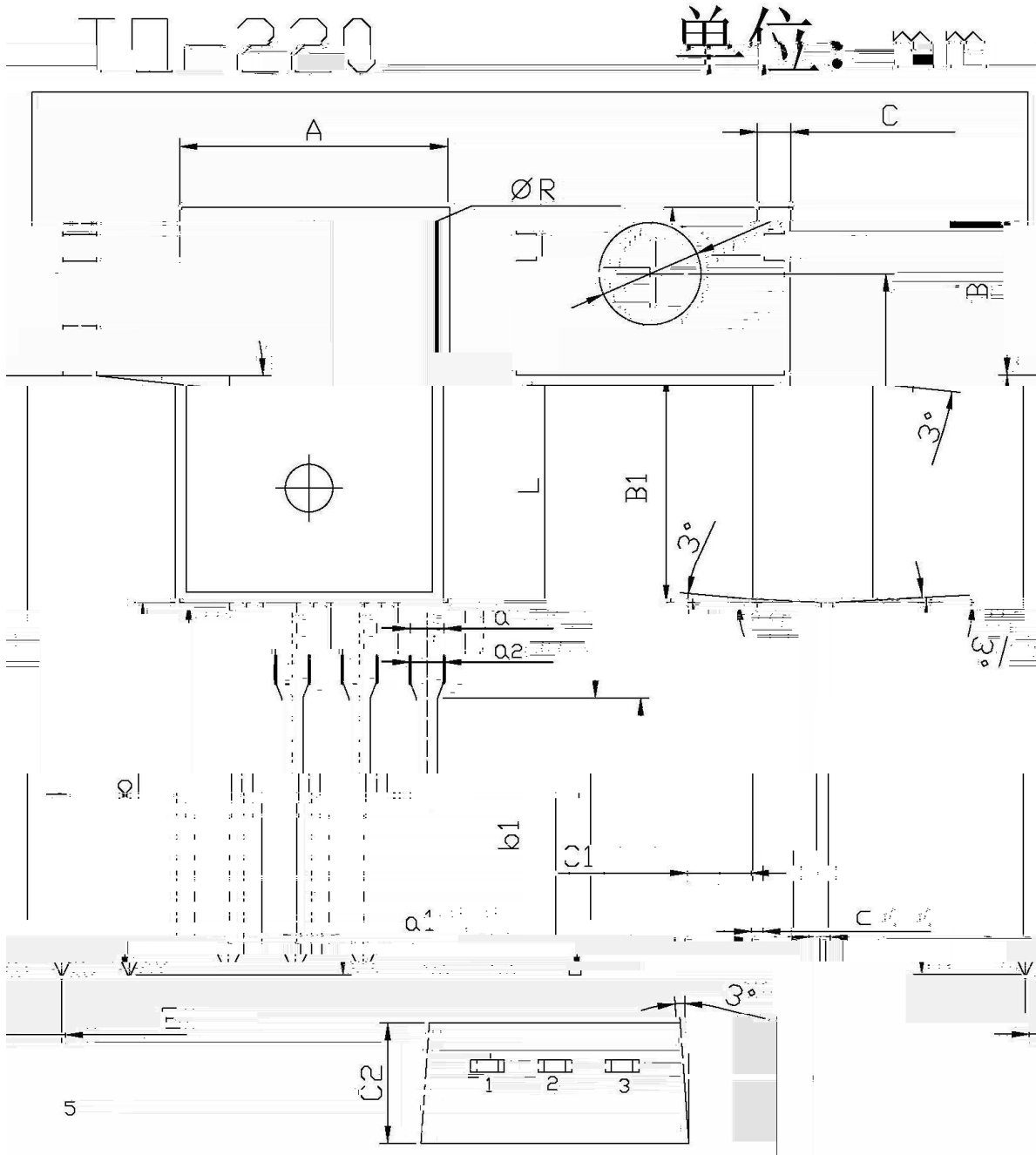




## / Electrical Characteristic Curve



**/ Package Dimensions**

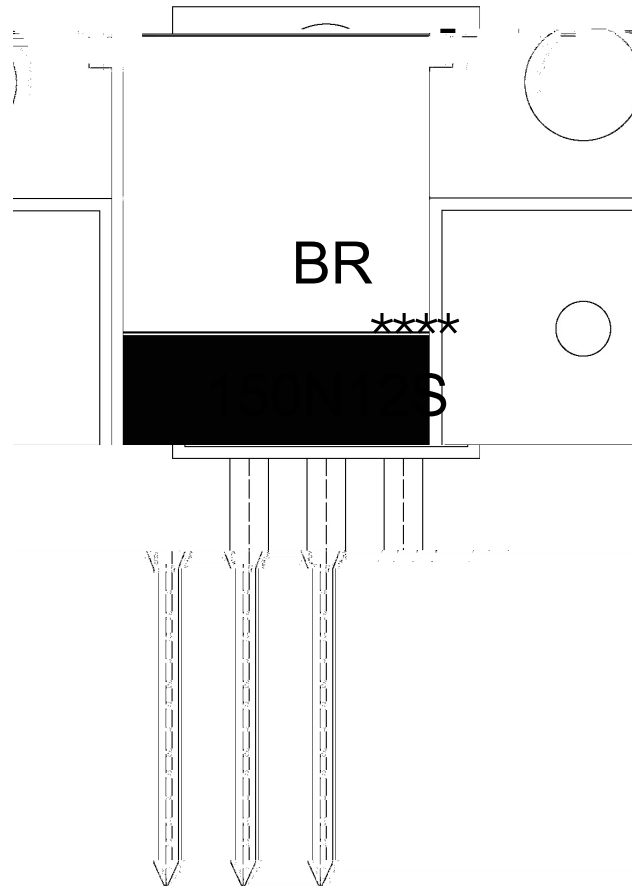


单位: 

Symbol	Dimensions In Millimeters		Symbol	Dimensions In Millimeters	
	Min	Max		Min	Max
A	9.8	10.2	C	1.2	1.4
R	3.56	3.64	B	6.3	6.7
15.7	16.1	B1	9.0	9.4	
12.6	13.6	C1	2.2	2.6	
9.6	10.6	a1	0.7	0.9	
1.22	1.32	b1	0.4	0.6	
4.7	5.2	C2	1.27	1.45	
			0.2	0.25	



**/ Marking Instructions**



说明：

BR： 为公司代码

150N12S： 为型号代码

\*\*\*\*： 为生产批号代码，随生产批号变化

Note:

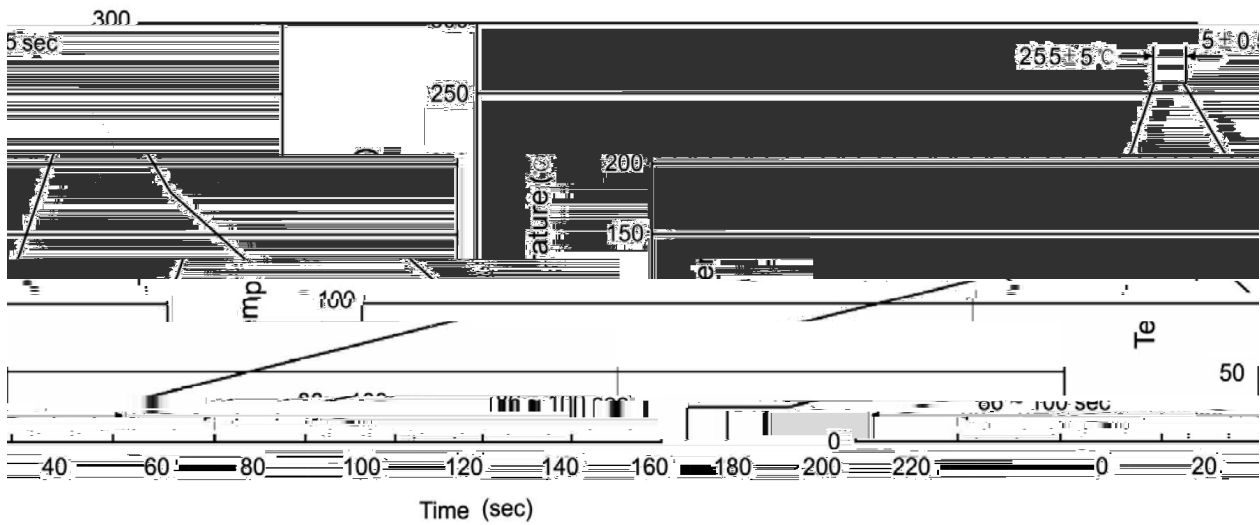
BR: Company Code

150N12S: Product Type

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



**( ) / Temperature Profile for Dip Soldering(Pb-Free)**



**Note:**

- |   |       |     |           |        |  |
|---|-------|-----|-----------|--------|--|
| 1 | 25    | 150 | 60        | 90sec; | 1.Preheating:25~150°C, Time:60~90sec.    |
| 2 | 255±5 |     | 5±0.5     | sec;   | 2.Peak Temp.:255±5°C, Duration:5±0.5sec. |
| 3 |       | 2   | 10°C/sec. |        | 3. Cooling Speed: 2~10°C/sec.            |

**/ Resistance to Soldering Heat Test Conditions**

270±5°C      10±1 sec.      Temp.:270±5°C      Time:10±1 sec

**/ Packaging SPEC.**

**/ BULK**

Package Type 封装形式	Units 包装数量					Dimension 包装尺寸 (unit: mm <sup>3</sup> )		
	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-220F	200	10	2000	5	10000	135×190	237×172×102	560×245×195

**/ 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-220F	50	20	1,000	5	5,000	532×31.4×5.5	555×164×50	575×290×180

**/ Notices**