

/ Revised record

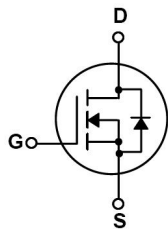
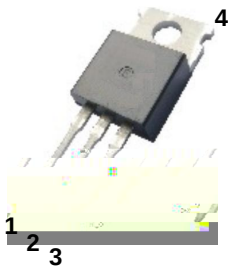
/ Descriptions

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.

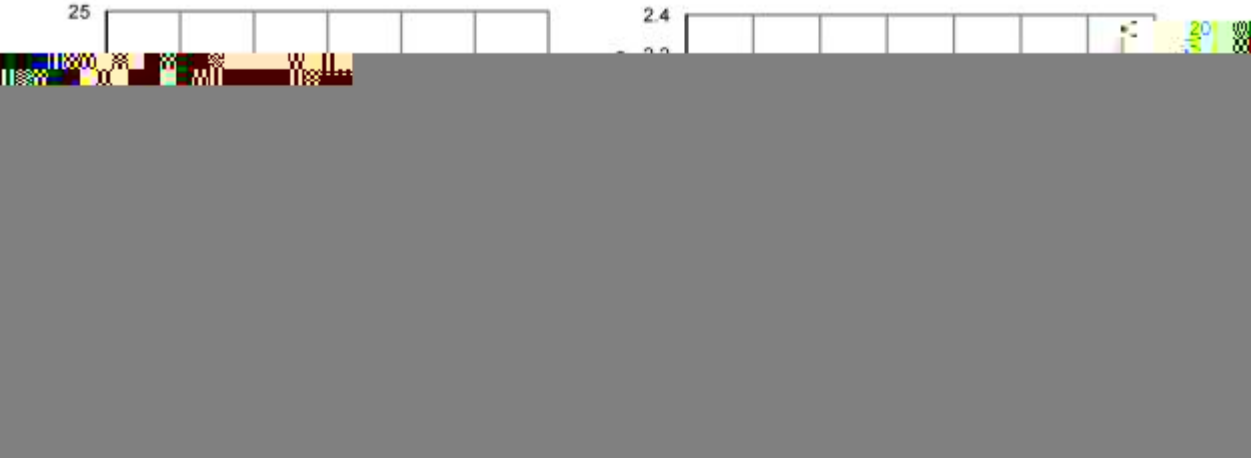
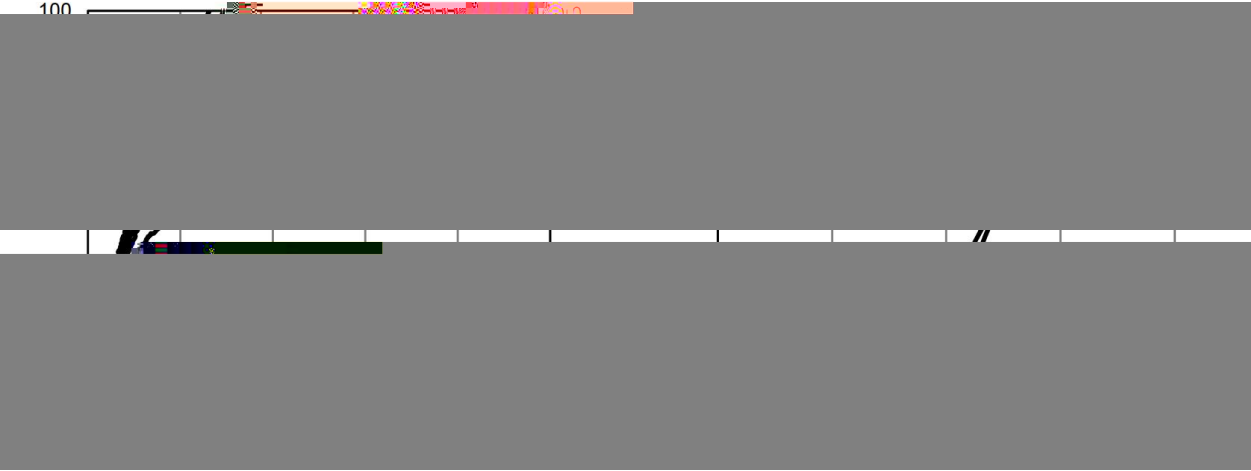
参数 Parameter		符号 Symbol	数值 Rating	单位 Unit
Drain-Source Voltage		V _{DS}	120	V
Continuous Drain Current		I _D	46	A
Pulsed Drain Current		I _{DM}	184	A
Gate-Source Voltage		V _{GS}	± 20	V
Power Dissipation		P _D (T _c =25℃)	150	W
Avalanche energy(L=0.5mH)		E _{AS}	24.5	mJ
Avalanche Current(L=0.5mH)		I _{AS}	7.0	A
Junction and Storage Temperature Range		T _j , T _{stg}	-55 to 150	℃
Maximum Junction-to-Ambient	t ≤ 10s	R _{θJA}	18	℃/ W
	Steady-State		48	
Maximum Junction-to-Case	Steady-State	R _{θJC}	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	μA
Gate-Body leakage current	I_{GSS}	$V_{DS}=0\text{V}, V_{GS}=\pm 20\text{V}$			± 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 Ω
		$V_{GS}=4.5\text{V}, I_D=10\text{A}$		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		Ω
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)

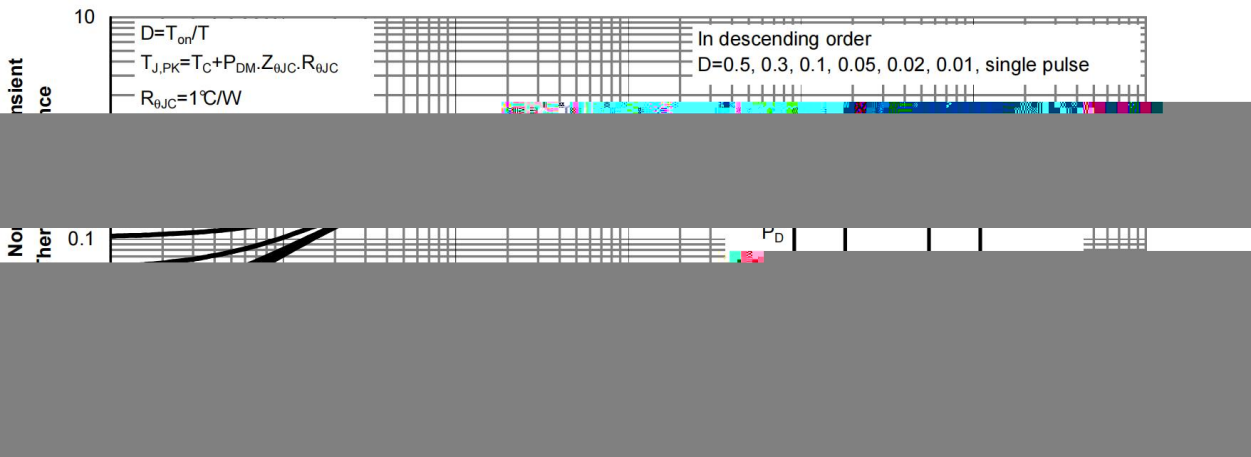
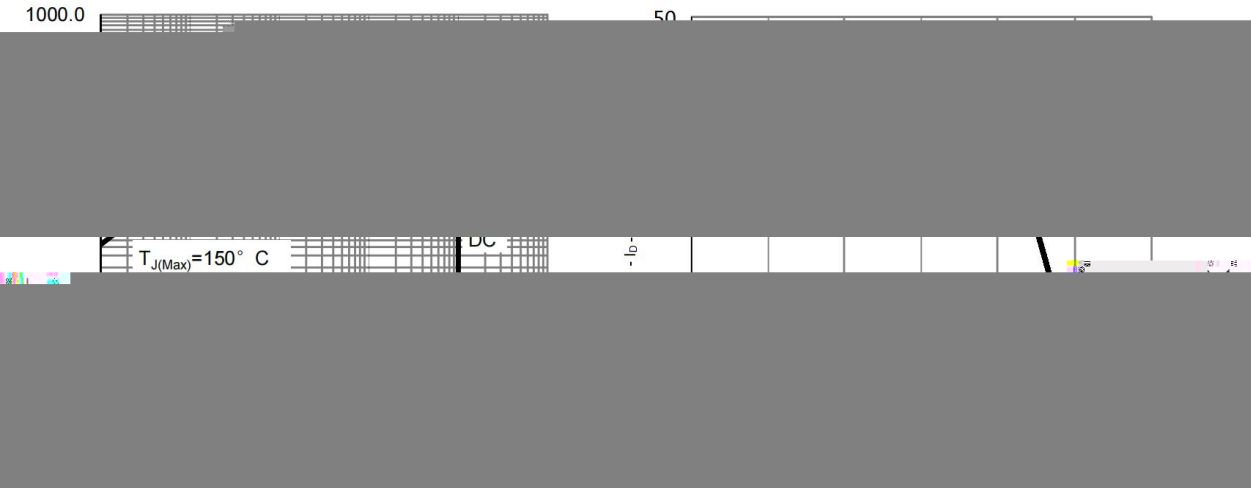
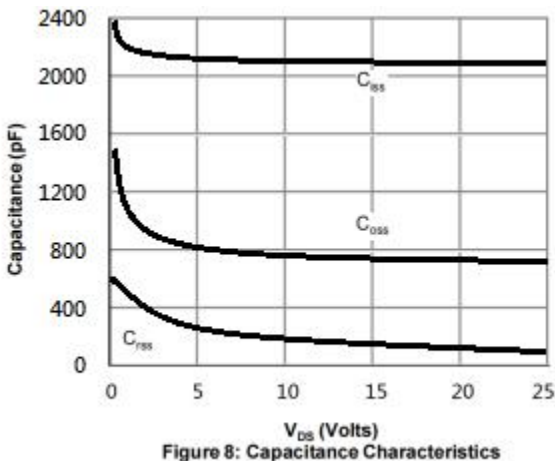
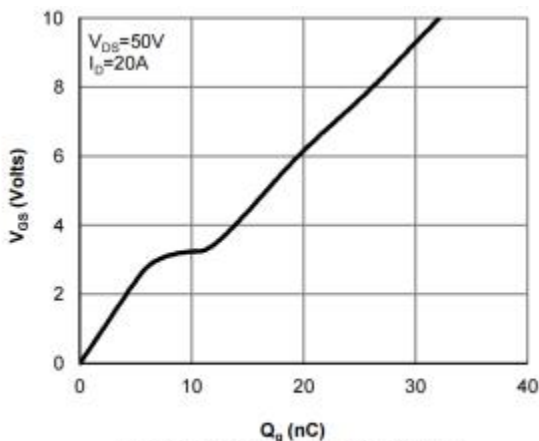
参数 Parameter	符号 Symbol	测试条件 Test Conditions	最小值 Min	典型值 Typ	最大值 Max	单位 Unit
Turn-On Delay Time	$t_{d(on)}$	$V_{GS}=10V$ $V_{DS}=50V$ $R_L=2.5\ \Omega$ $R_{GEN}=3\ \Omega$		7		ns
Turn-On Rise Time	t_r			3		
Turn-Off Delay Time	$t_{d(off)}$			27		
Turn-Off Fall Time	t_f			4		

/ Electrical Characteristic Curve

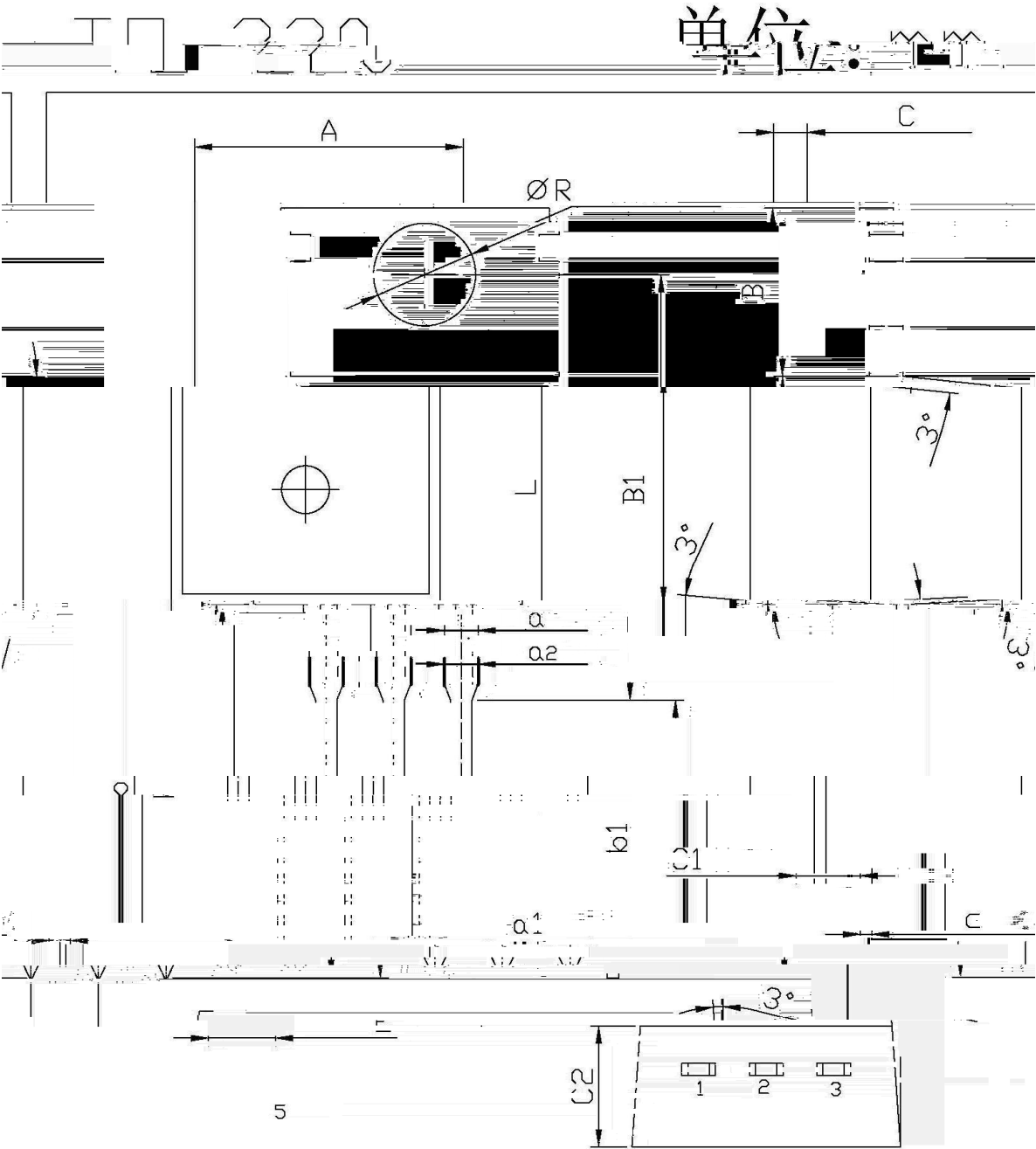




/ Electrical Characteristic Curve

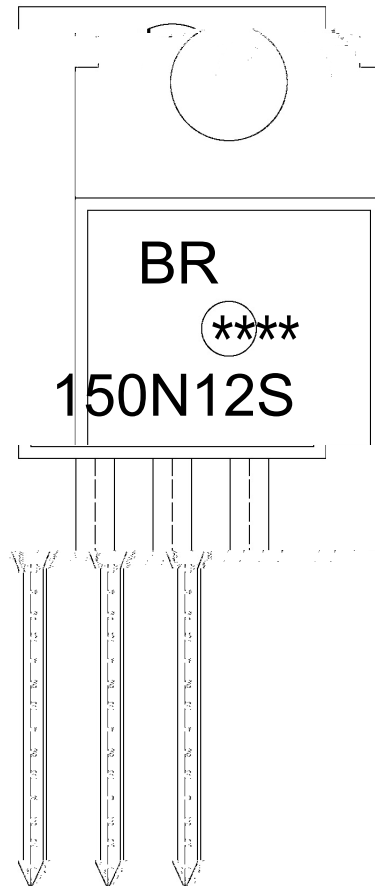


I Package Dimensions



Dimensions In Millimeters			Dimensions In Millimeters		
Symbol	Max	Min	Symbol	Max	Min
Δ	1.4	9.8	C	10.2	1.2
R	6.7	3.56	B	3.64	6.3
B1	15.7	16.1	B1	9.0	9.4
C1	12.6	13.6	C1	2.2	2.6
C2	9.6	10.6	C2	0.7	0.9
α	0.6	1.22	α	0.4	0.8
α_1	1.25	1.45	α_1	0.2	0.4

/ 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

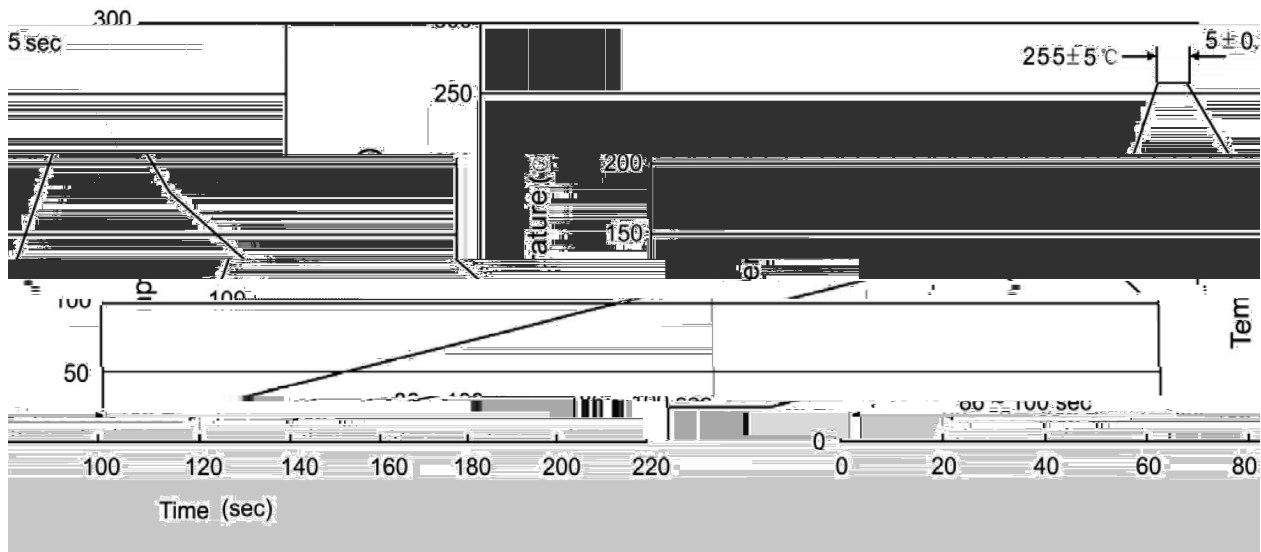
Note:

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±0.5sec; | | 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 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

/ 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

/ Notices