

描述 / Descriptions

TO-251 塑封封装 N 沟道 MOS 场效应管。
N-CHANNEL MOSFET in a TO-251 Plastic Package.

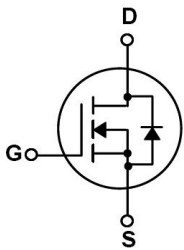
特征 / Features

低栅电荷,低反馈电容,开关速度快。
Low gate charge, low crss, fast switching.

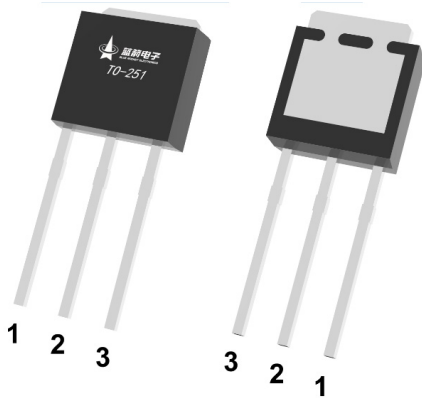
用途 / Applications

用于高功率 DC/DC 转换和功率开关。
These devices are well suited for high efficiency switching DC/DC converters and switch mode power supplies.

内部等效电路 / Equivalent Circuit



引脚排列 / Pinning



PIN 1 : 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 _{DSS}	650	V
Drain Current	I _D (Tc=25°C)	2.0	A
Drain Current	I _D (Tc=100°C)	1.3	A
Drain Current - Pulsed	I _{DM}	8	A
Gate-Source Voltage	V _{GS}	±30	V
Single Pulsed Avalanche Energy	E _{AS}	120	mJ
Repetitive Avalanche Energy	E _{AR}	5.4	mJ
Avalanche Current	I _{AR}	2.0	A
Power Dissipation	P _D (Tc=25°C)	28	W
Operating and Storage Temperature Range	T _J , T _{STG}	-55 to 150	°C
Junction to Ambient	R _{θJA}	110	°C/W
Junction to Case	R _{θJC}	4.46	°C/W

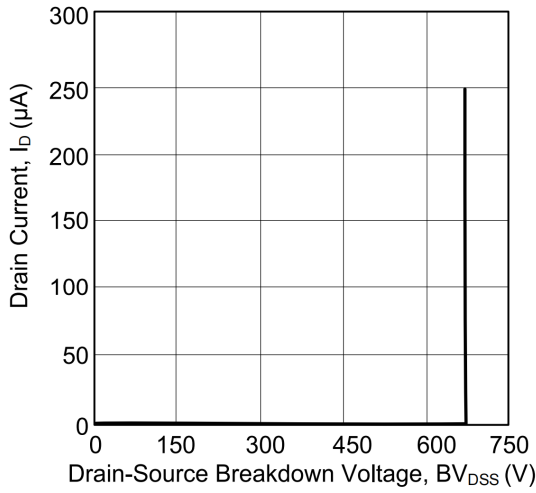
电性能参数 / Electrical Characteristics(Ta=25°C)

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} =0V I _D =250μA	650			V	
Zero Gate Voltage Drain Current	I _{DSS}	V _{DS} =650V V _{GS} =0V			1.0	μA	
		V _{DS} =480V T _C =125°C			100	μA	
Gate-Body Leakage Current Forward	I _{GSS}	V _{GS} =±30V V _{DS} =0V			±0.1	μA	
Gate Threshold Voltage	V _{GS(th)}	V _{DS} =V _{GS} I _D =250μA	2.0		4.0	V	
Static Drain-Source On-Resistance	R _{DS(on)}	V _{GS} =10V I _D =1.0A		4.3	6.5	Ω	
Input Capacitance	C _{iSS}	V _{DS} =25V V _{GS} =0V f=1.0MHz		325		pF	
Output Capacitance	C _{oSS}				30		pF
Reverse Transfer Capacitance	C _{rSS}				5		pF
Total Gate Charge	Q _G	V _{DS} = 520V, I _D = 2.0A, V _{GS} = 10V		46		nC	
Gate-Source Charge	Q _{GS}				4.2		
Gate-Drain Charge	Q _{GD}				8.5		

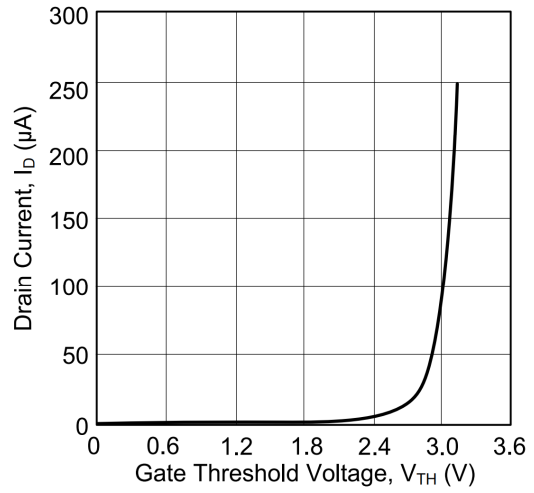
电性能参数 / Electrical Characteristics(Ta=25°C)

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	$t_{d(on)}$	$V_{DD}=325V$ $I_D=2.0A$ $R_G=25\Omega$		36		ns
Turn-On Rise Time	t_r			42		
Turn-Off Delay Time	$t_{d(off)}$			132		
Turn-Off Fall Time	t_f			41		
Maximum Continuous Drain-Source Diode Forward Current	I_S				2.0	A
Maximum Pulsed Drain-Source Diode Forward Current	I_{SM}				8	A
Drain-Source Diode Forward Voltage	V_{SD}	$V_{GS} = 0V$, $I_S = 2.0A$			1.4	V
Reverse Recovery Time	t_{rr}	$V_{GS} = 0V$, $I_S = 2.0A$, $dI_F/dt = 100 A/\mu s$		182		nS
Reverse Recovery Charge	Q_{rr}			0.8		nC

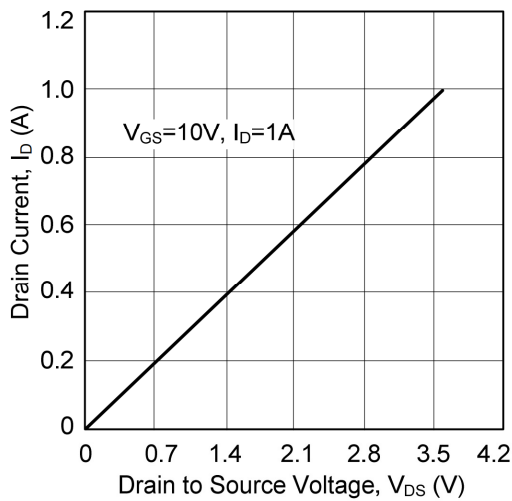
电参数曲线图 / Electrical Characteristic Curve



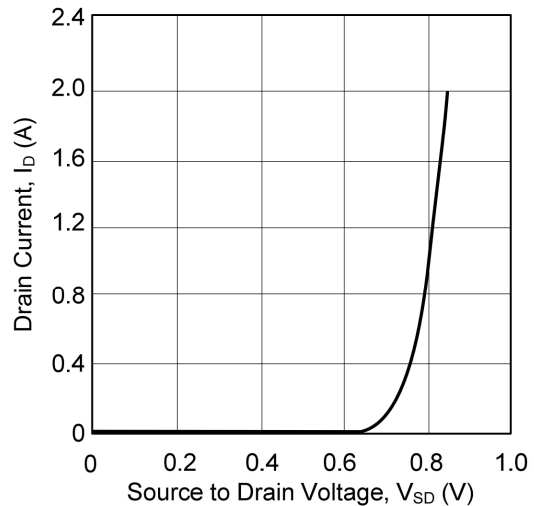
1. Drain Current vs. Drain-Source Breakdown Voltage



2. Drain Current vs. Gate Threshold Voltage

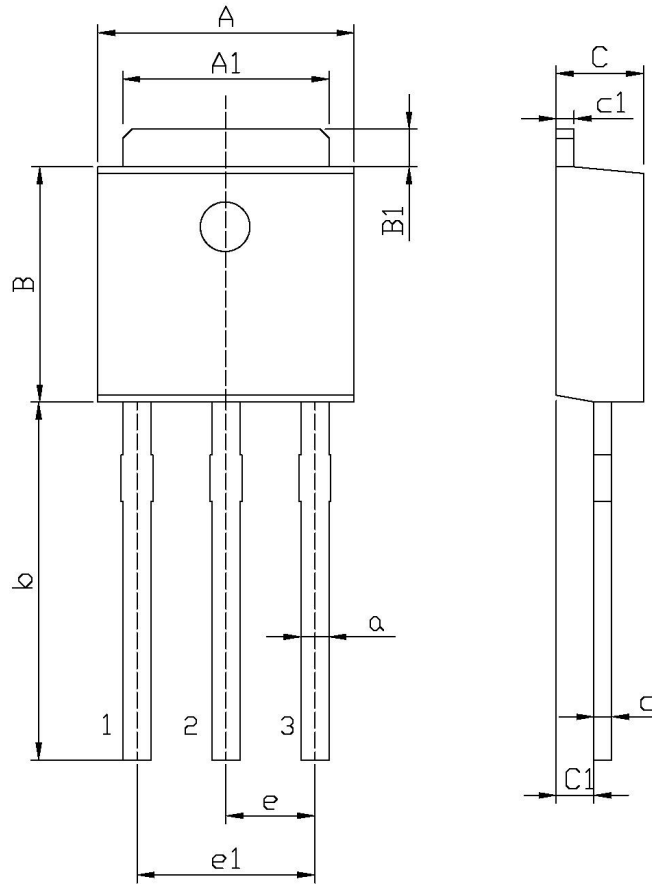


3. Drain-Source On-State Resistance Characteristics



4. Drain Current vs. Source to Drain Voltage

外形尺寸图 / Package Dimensions

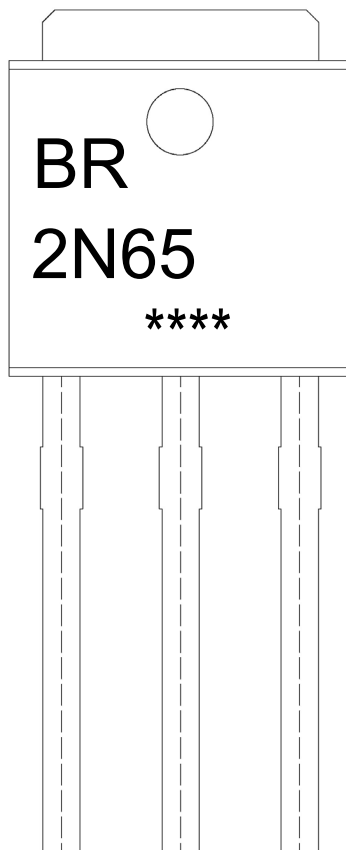


单位: mm

Symbol	Dimensions In Millimeters		Symbol	Dimensions In Millimeters	
	Min	Max		Min	Max
A	6.45	6.75	a	0.50	0.90
A1	5.10	5.50	b	9.00	9.40
B	5.95	6.25	c	0.45	0.55
B1	0.95	1.25	c1	0.45	0.55
C	2.20	2.40	e	2.24	2.34
C1	0.95	1.15	e1	4.43	4.73

TO-251

印章说明 / Marking Instructions



说明：

BR： 为公司代码

2N65： 为型号代码

****： 为生产批号代码，随生产批号变化

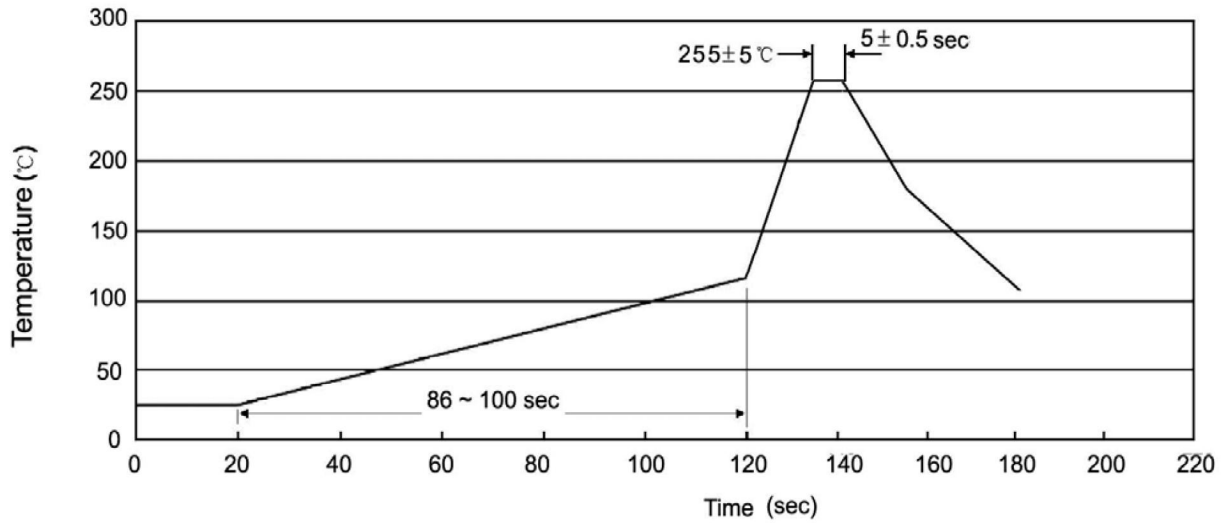
Note:

BR: Company Code

2N65: 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.

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-251	1,000	10	10,000	5	50,000	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-251/252	75	48	3,600	5	18,000	526×20.5×5.25	555×164×50	575×290×180

使用说明 / Notices