描述 / Descriptions

TO-92 塑封封装 N 沟道 MOS 场效应管。N-CHANNEL MOSFET in a TO-92 Plastic Package.

特征 / Features

低栅电荷,低反馈电容,开关速度快.

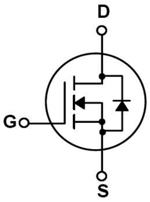
Low gate charge, low crss, fast switching.

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

PIN1 : S PIN 2 : D PIN 3 : G

放大及印章代码 / hFE Classifications & Marking

见印章说明。See Marking Instructions.

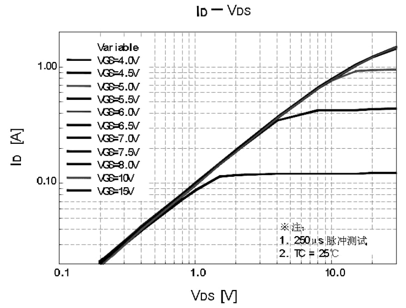
极限参数 / Absolute Maximum Ratings(Ta=25℃)

参数 Parameter	符号 Symbol	数值 Rating	单位 Unit
Drain-Source Voltage	V_{DSS}	700	V
Drain Current – Continuous	I_D(Tc=25℃)	1.0	A
Drain Current – Continuous	I_D(Tc=100℃)	0.6	A
Drain Current - Pulsed	I_{DM}	3.0	A
Gate-Source Voltage	V_{GSS}	±30	V
Single Pulsed Avalanche Energy	E_{AS}	50	mJ
Repetitive Avalanche Energy	E_{AR}	2.8	mJ
Avalanche Current	I_{AR}	1.0	A
Power Dissipation	P_D	1.0	W
Junction Storage Temperature Range	T_J,T_{STG}	-55 to 150	℃

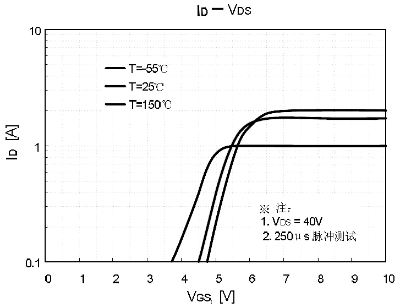
电性能参数 / Electrical Characteristics(Ta=25℃)

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-Source Breakdown Voltage	BV_{DSS}	V_{GS}=0V I_D=250μA	700			V
Zero Gate Voltage Drain Current	I_{DSS}	V_{DS}=700V V_{GS}=0V			25	μA
		V_{DS}=560V T_C=125℃			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=0.4A			15	Ω
Forward Transconductance	g_{FS}	V_{DS}=40V I_D=0.5A		0.97		S
Drain-Source Diode Forward Voltage	V_{SD}	V_{GS}=0V I_S=1.0A			1.25	V
Input Capacitance	C_{iss}	V_{DS}=25V V_{GS}=0V f=1.0MHz		155	200	pF
Output Capacitance	C_{oss}			20	26	pF
Reverse Transfer Capacitance	C_{rss}			3.0	4.0	pF
Turn-On Delay Time	$t_{d(on)}$	V_{DD}=300V I_D=1.2A R_G=50Ω		10	30	ns
Turn-On Rise Time	t_r			20	50	ns
Turn-Off Delay Time	$t_{d(off)}$			16	45	ns
Turn-Off Fall Time	t_f			25	60	ns

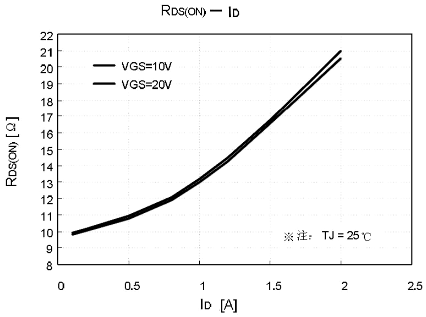
电参数曲线图 / Electrical Characteristic Curve


ID — VDS

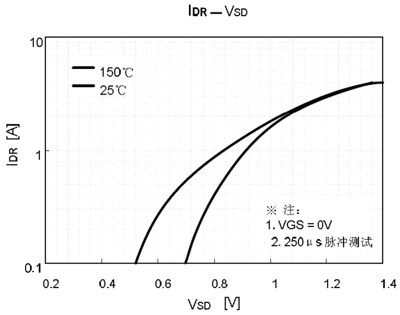
※注:
1. 250µs 脉冲测试
2. TC = 25℃


ID — VDS

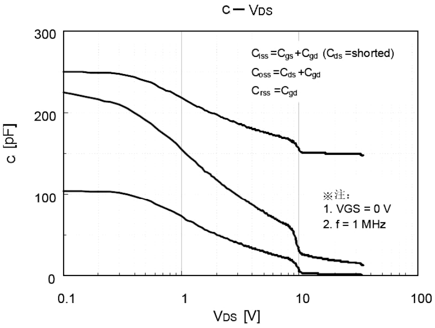
※ 注：
1. VDS = 40V
2. 250µs 脉冲测试


RDS(ON) — ID

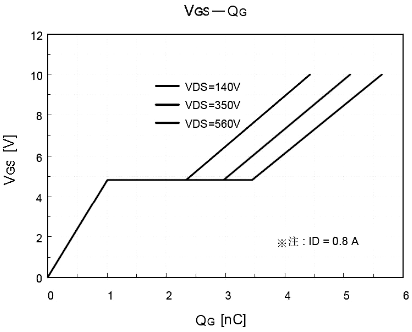
※注： TJ = 25℃


IDR — VSD

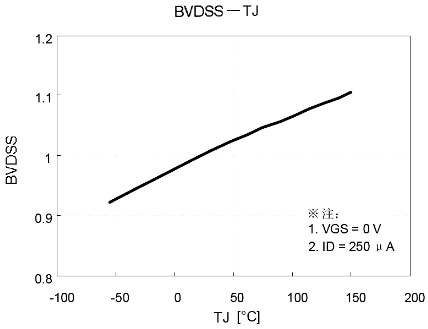
※ 注：
1. VGS = 0V
2. 250µs 脉冲测试


C — VDS

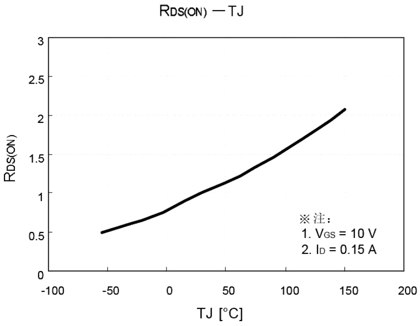
※注：
1. VGS = 0 V
2. f = 1 MHz


VGS — QG

※注 : ID = 0.8 A


BVDSS — TJ

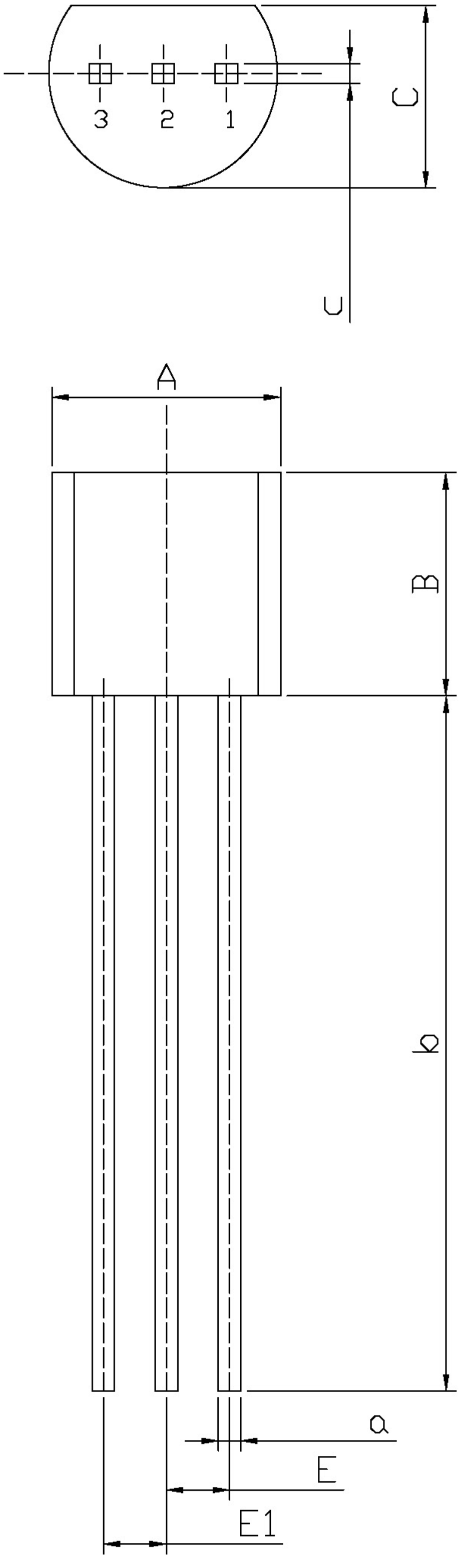
※注：
1. VGS = 0 V
2. ID = 250 µA


RDS(ON) — TJ

※注：
1. VGS = 10 V
2. ID = 0.15 A

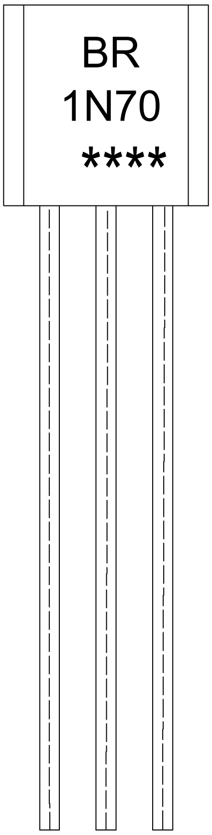
外形尺寸图 / Package Dimensions

TO-92 Unit: mm



Symbol	Dimensions In Millmeters	
	Min	Max
A	4.4	4.8
B	4.3	4.7
b	13	15
a	0.40	0.60
E	1.22	1.32
E1	1.22	1.32
C	3.4	3.8
c	0.30	0.50

印章说明 / Marking Instructions



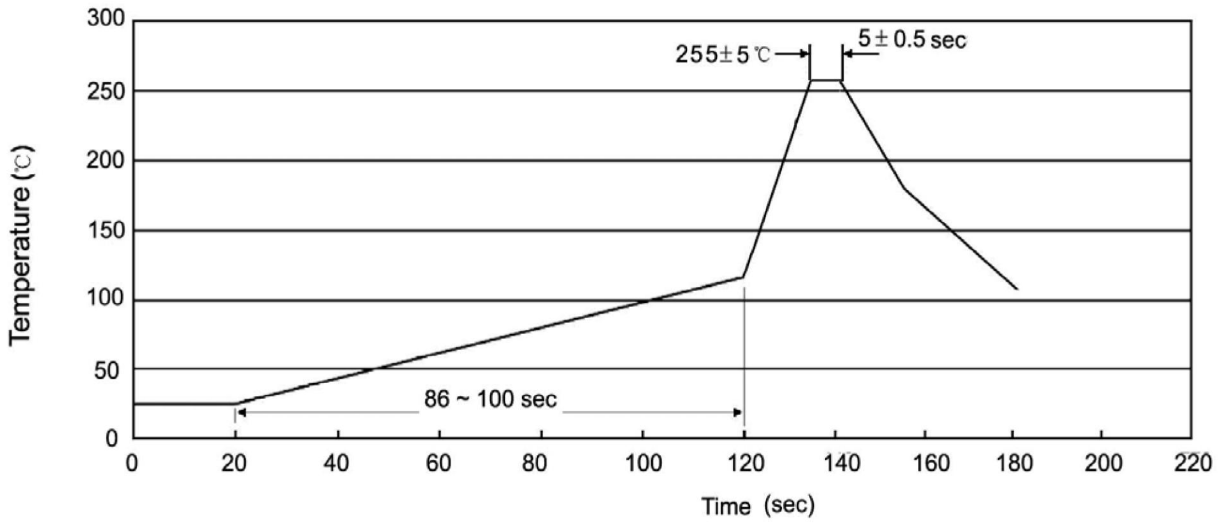
说明：

BR:	为公司代码
1N70：	为型号代码
****：	为生产批号代码，随生产批号变化。

Note:

BR:	Company Code.
1N70:	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.

散件包装 / BULK

Package Type 封装形式	Units 包装数量					Dimension 包装尺寸 (unit: mm3)		
	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-92	1,000	10	10,000	5	50,000	135×190	237×172×102	560×245×195
	1,000	10	10,000	10	100,000	135×190	237×172×102	560×245×375

编带包装 / AMMO

Package Type 封装形式	Units 包装数量					Dimension 包装尺寸 (unit: mm3)	
	Units/tape 只/纸带	Tape/Inner Box 纸带/盒	Rows/Inner Box 纸带层/盒	Inner Boxes/Outer Box 盒/箱	Units/Outer Box 只/箱	Inner Box 盒	Outer Box 箱
TO-92	3,000	1	120	10	30,000	328×230×42	小箱 480×346×235, 大箱 547×407×268

使用说明 / Notices