2N7000

Rev.E Mar.-2016

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.

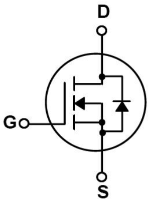
特征 / Features

灵敏的控制级触发电流和很低的维持电流。
Sensitive gate trigger current and Low Holding current.

用途 / Applications

用作一般的开关和相位控制。
Intended for use in general purpose switching and phase control applications.

内部等效电路 / Equivalent Circuit



引脚排列 / Pinning

PIN1 : S PIN 2 : G PIN 3 : D

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℃)

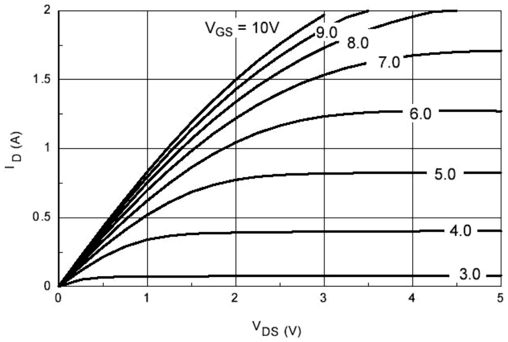
参数 Parameter	符号 Symbol	数值 Rating	单位 Unit
Drain-Source Voltage	V_{DSS}	60	V
Drain-Gate Voltage	V_{DGR}	60	V
Drain Current – Continuous	I_D	500	mA
Gate-Source Voltage	V_{GSS}	±20	V
Gate-Source Voltage	V_{GSS}(tp<50us)	±40	V
Power Dissipation	P_D	400	mW
Storage Temperature Range	T_{stg}	-55～150	℃

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

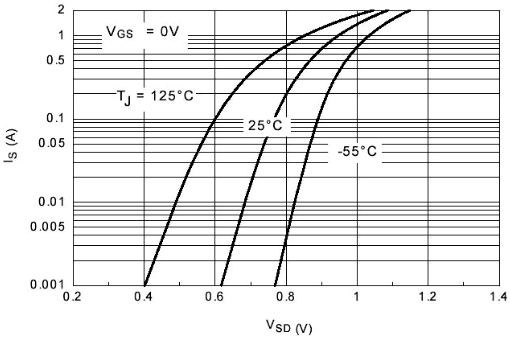
参数 Parameter	符号 Symbol	测试条件 Test Conditions	最小值 Min	典型值 Typ	最大值 Max	单位 Unit
Drain-Source Breakdown Voltage	BV_{DSS}	V_{GS}=0 I_D=10mA	60			V
Zero Gate Voltage Drain Current	I_{DSS}	V_{GS}=0 V_{DS}=48V			1	μA
		V_{GS}=0 V_{DS}=48V T_j=25℃			1	mA
Gate-Body Leakage Current Forward	I_{GSS}	V_{GS}=±15V V_{DS}=0V			±10	nA
Static Drain-Source On-Resistance	$R_{DS(on)}$	V_{GS}=10V I_D=500mA		1.2	5	Ω
	$R_{DS(on)}$	V_{GS}=10V I_D=500mA T_j=25℃		1.9	9	Ω
	$R_{DS(on)}$	V_{GS}=4.5V I_D=75mA		1.8	5.3	Ω
Forward Transconductance	g_{FS}	V_{DS}=10V I_D=200mA	100	320		mS
Drain-Source Diode Forward Voltage	V_{SD}	V_{GS}=0V I_S=115mA		0.88	1.5	V
Gate Threshold Voltage	$V_{GS(th)}$	V_{DS}=V_{GS} I_D=1mA	0.8	2.1	3	V
On-State Drain Current	$I_{D(on)}$	V_{DS}=10V V_{GS}=4.5V	75	600		mA
Static Drain-Source On-Resistance	$R_{DS(on)}$	V_{GS}=10V I_D=500mA		0.6	2.5	Ω
Static Drain-Source On-Resistance	$R_{DS(on)}$	V_{GS}=4.5V I_D=75mA		0.14	0.4	Ω
Turn-On Delay Time	$t_{d(on)}$	V_{DD}=15V R_{GEN}=25Ω R_L=25Ω V_{GS}=10V I_D=500mA			10	ns
Turn-Off Delay Time	$t_{d(off)}$				10	ns

电参数曲线图 / Electrical Characteristic Curve

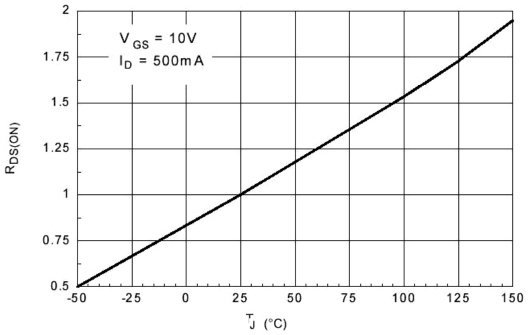
I_D — V_{DS}



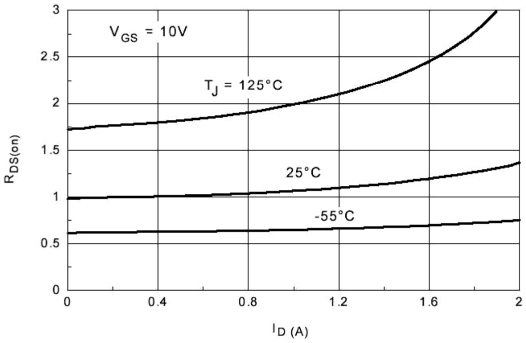
I_S — V_{SD}



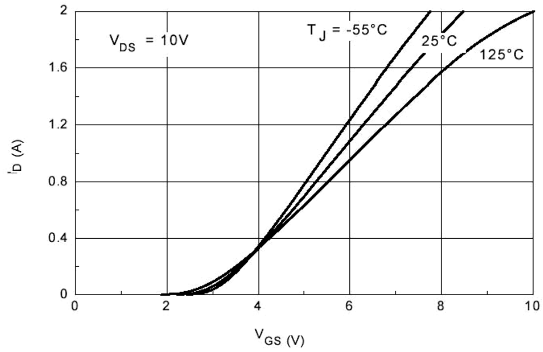
$R_{DS(ON)}$ — T_J

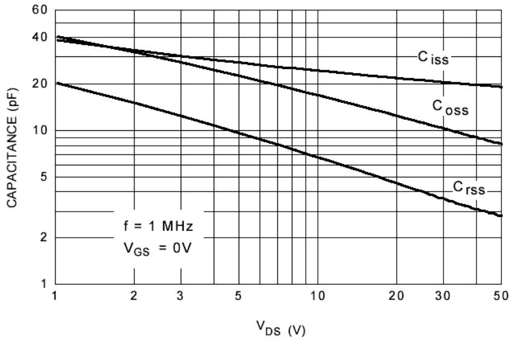


$R_{DS(on)}$ — I_D

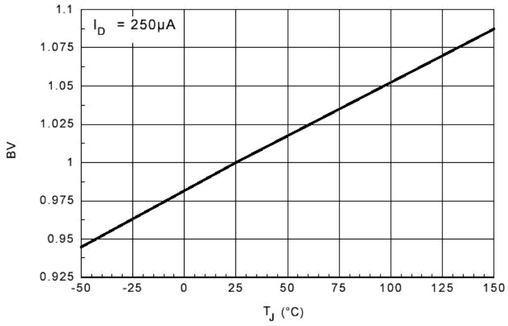


I_D — V_{GS}

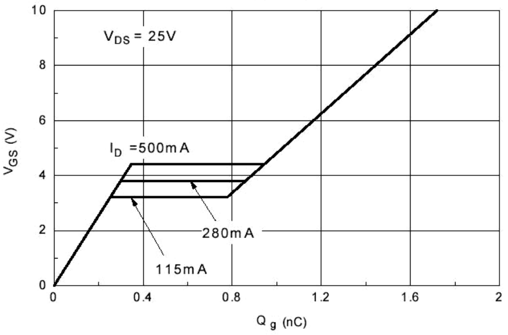




BV — T_J

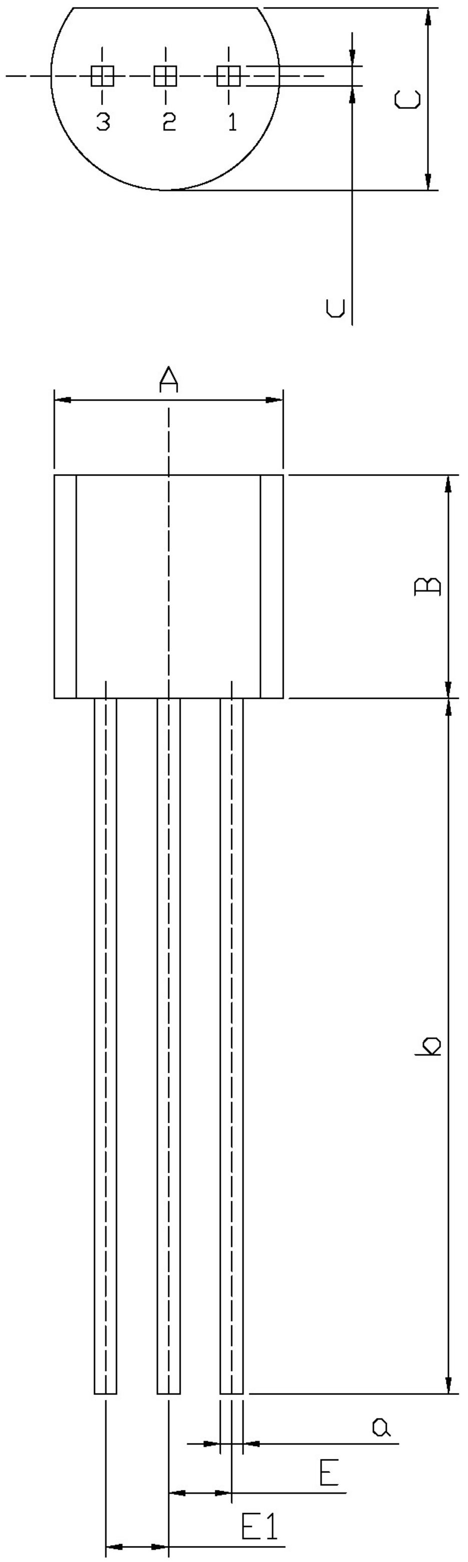


V_{GS} — Q_g



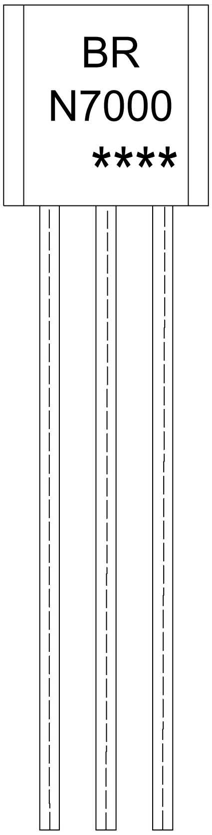
外形尺寸图 / Package Dimensions

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



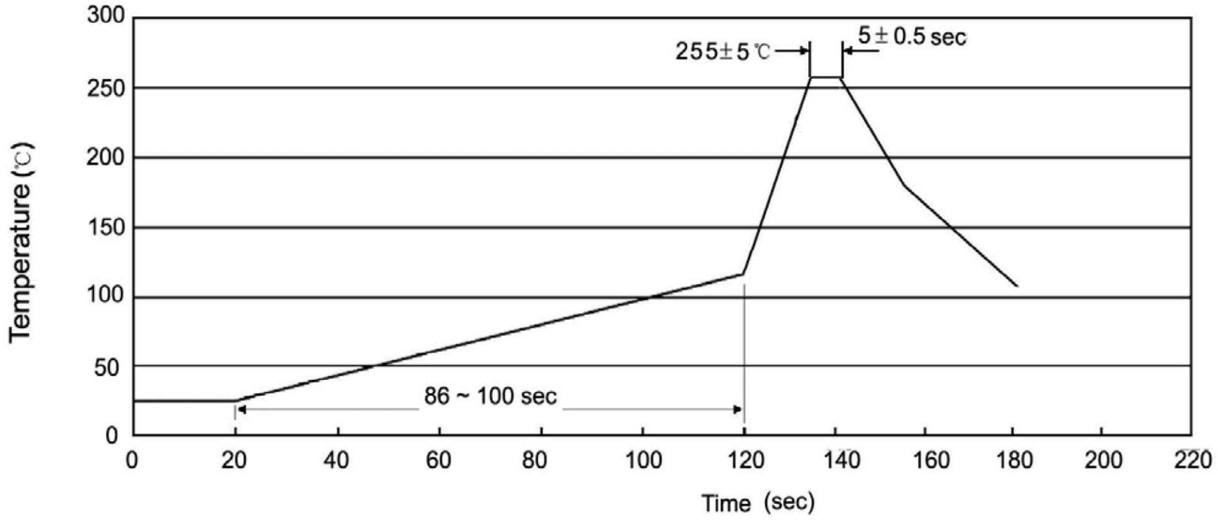
说明：

BR:	为公司代码
N7000：	为型号代码
****：	为生产批号代码，随生产批号变化。

Note:

BR:	Company Code.
N7000:	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：	Note:
1、预热温度 25～150℃，时间 60～90sec;	1.Preheating:25~150℃, Time:60~90sec.
2、峰值温度 255±5℃，时间持续为 5±0.5sec;	2.Peak Temp.:255±5℃, Duration:5±0.5sec.
3、焊接制程冷却速度为 2～10℃/sec.	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