

BRD7002K2

Rev.J Jan.-2024

描述 / Descriptions

SOT-363 塑封封装双 N 沟道 MOS 场效应管。

Double N-CHANNEL MOSFET in a SOT-363 Plastic Package.

特征 / Features

灵敏的控制级触发电流和很低的维持电流，内置静电保护二极管，无卤产品。

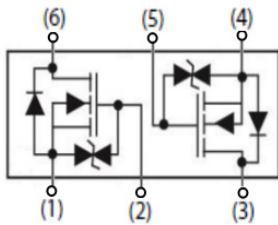
Sensitive gate trigger current and Low Holding current, ESD protected diode, HF Product.

用途 / Applications

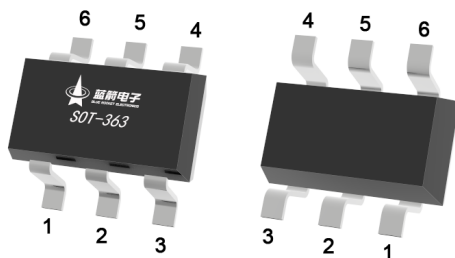
用作一般的开关和相位控制。

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、4 : S PIN 2、5 : G PIN 3、6 : D

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}	60	V
Drain-Gate Voltage	V _{DGR}	60	V
Maximum Drain Current - Continuous	I _D	320	mA
Maximum Drain Current - Pulsed	I _{DM}	1.5	A
Gate-Source Voltage - Continuous	V _{GSS}	±20	V
Maximum Power Dissipation	P _D	350	mW
Junction Temperature Range	T _J	150	°C
Storage Temperature Range	T _{stg}	-55~150	°C
Maximum Junction-to-Ambient(Note 1)	R ^θ JA(Steady State)	417	°C/W
	R ^θ JA(t≤5s)	300	

Note 1)Surface-mounted on FR4 board using 1 sq in pad size with 1 oz Cu.

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	V _{DSS}	V _{GS} =0 I _D =250μA	60			V
Zero Gate Voltage Drain Current	I _{DSS}	V _{GS} =0 V _{DS} =60V			1.0	μA
Gate-Source Leakage	I _{GSS}	V _{DS} =0V V _{GS} =±20V			±10	μA
Static Drain-Source On-Resistance	R _{DS(on)(1)}	V _{GS} =10V I _D =0.5A			2.3	Ω
	R _{DS(on)(2)}	V _{GS} =5V I _D =0.05A		1.7	2.7	Ω
Drain-Source Diode Forward Voltage	V _{SD}	V _{GS} =0V I _S =250mA			1.5	V
Gate Threshold Voltage	V _{GS(th)}	V _{DS} =V _{GS} I _D =250μA	1.0	1.6	2.5	V
Forward Transconductance	Y _{fs}	V _{DS} =10V I _D =0.2A	80			mS
Input Capacitance	C _{iss}	V _{GS} =0V, V _{DS} =20V f=1MHz,		25	50	pF
Output Capacitance	C _{oss}			11	25	
Reverse Transfer Capacitance	C _{rss}			2.5	5	
Total Gate Charge	Q _{G(TOT)}	V _{GS} =4.5V, V _{DS} =10V; I _D =200 mA		0.7		nC
Threshold Gate Charge	Q _{G(TH)}			0.1		
Gate-to-Source Charge	Q _{GS}			0.3		
Gate-to-Drain Charge	Q _{GD}			0.1		

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	$t_{d(ON)}$	$V_{GS} = 10V,$ $V_{DD} = 25V,$ $I_D = 500mA,$ $R_G = 25 \Omega$		6.0		ns
Rise Time	t_r			5.8		
Turn-Off Delay Time	$t_{d(OFF)}$			13.2		
Fall Time	t_f			8.9		

电参数曲线图 / Electrical Characteristic Curve

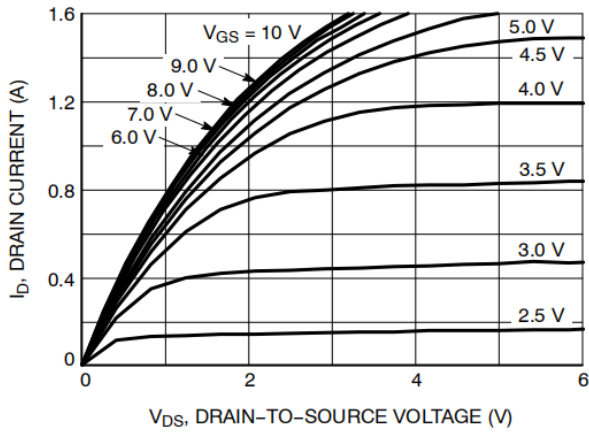


Figure 1. On-Region Characteristics

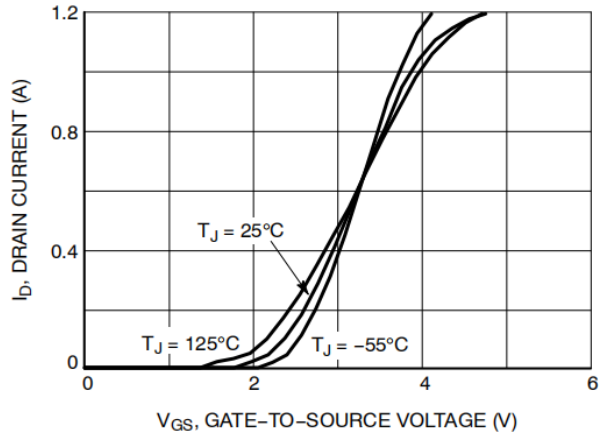


Figure 2. Transfer Characteristics

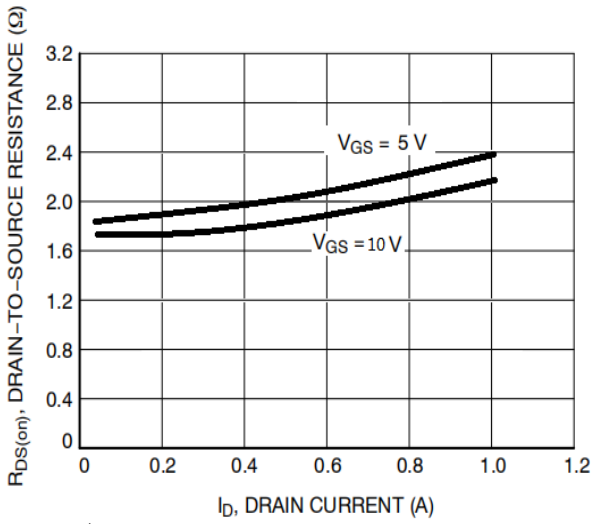


Figure 3. On-Resistance vs. Drain Current and Temperature

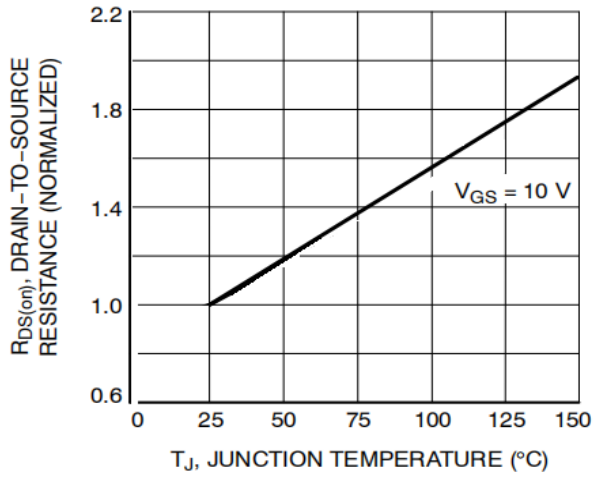


Figure 4 On-Resistance Variation with Temperature

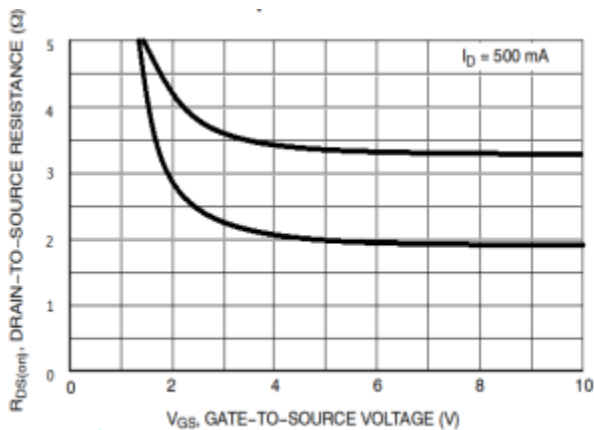


Figure 5. On-Resistance vs. Gate-to-Source Voltage

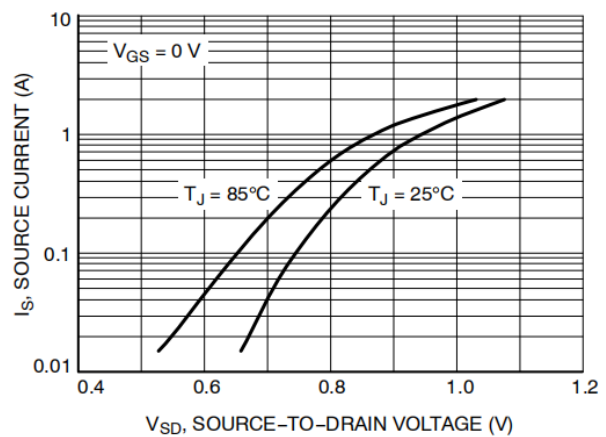


Figure 6 Diode Forward Voltage vs. Current

电参数曲线图 / Electrical Characteristic Curve

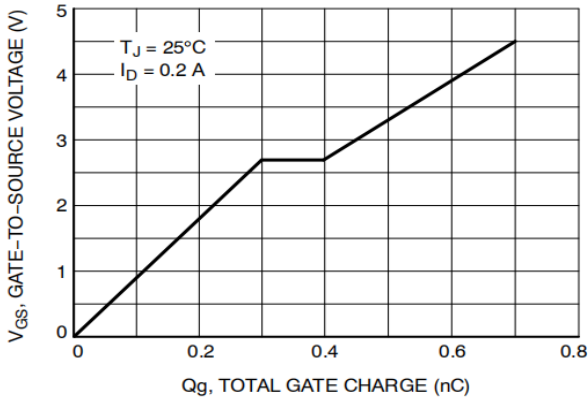


Figure 7. Gate-to-Source and Drain-to-Source Voltage vs. Total Charge

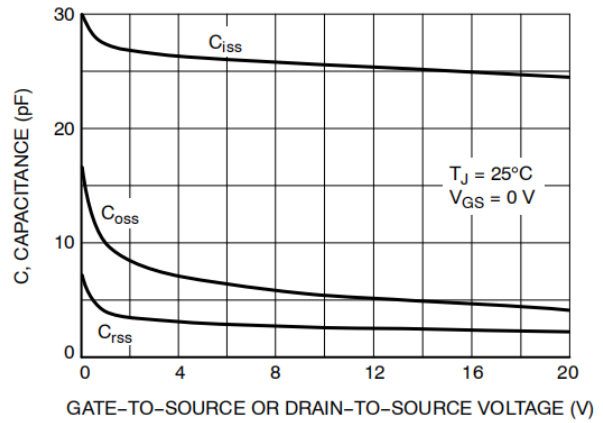


Figure 8. Capacitance Variation

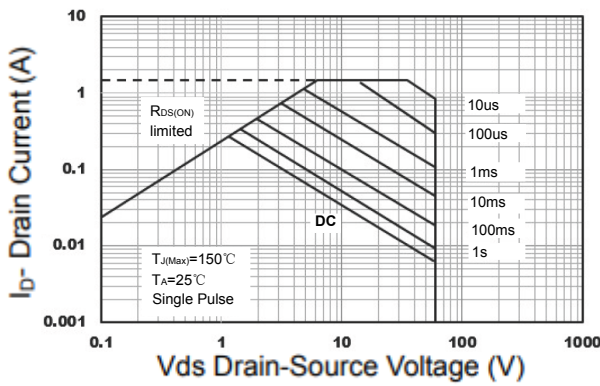


Figure 9 : Safe Operation Area

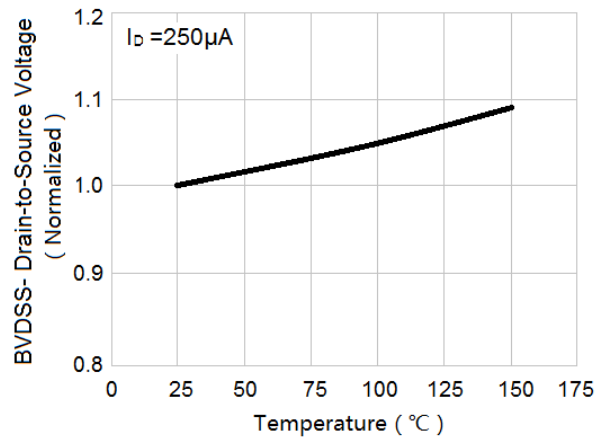


Figure 10 : Breakdown Voltage vs. Temperature

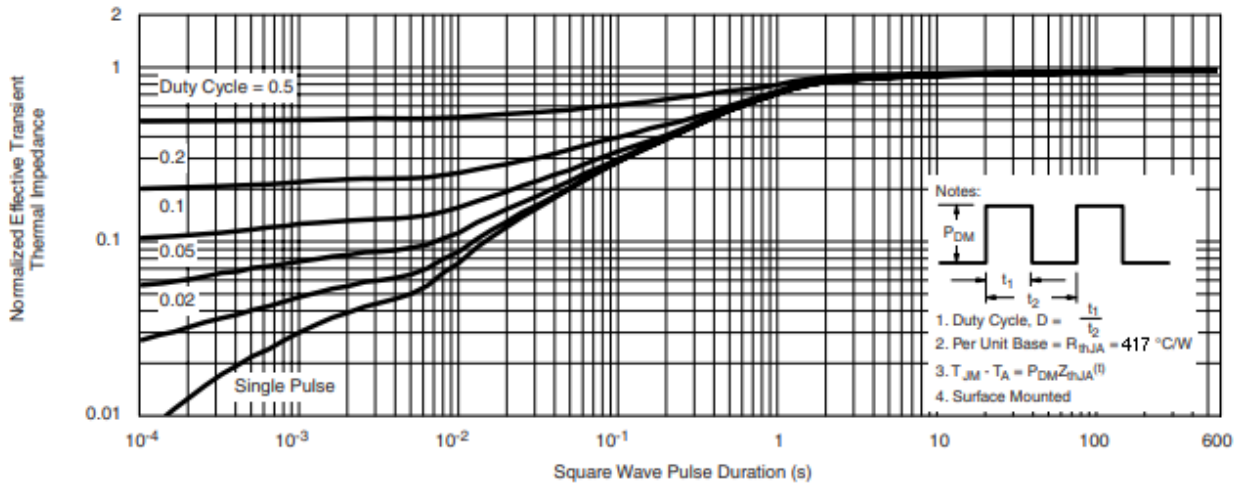
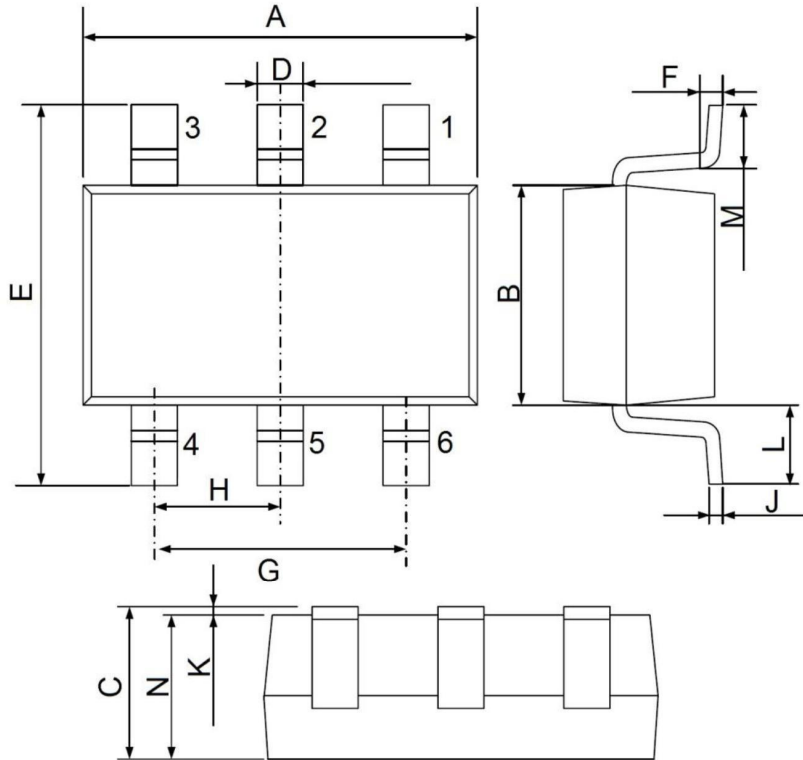


Figure 11 : Normalized Thermal Transient Impedance, Junction-to-Ambient

外形尺寸图 / Package Dimensions

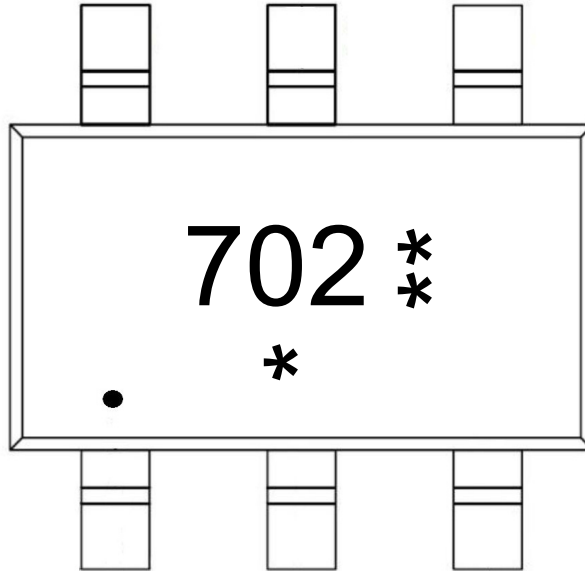
SOT-363-6L



UNIT: mm

DIM	MIN	MAX
A	2.00	2.20
B	1.15	1.35
C	0.90	1.10
D	0.15	0.35
E	1.95	2.25
F	0.20 Typ.	
G	1.20	1.40
H	0.65 Typ.	
J	0.08	0.15
K	0.00	0.10
L	0.525 Ref.	
M	0.26	0.46
N	0.90	1.10

印章说明 / Marking Instructions

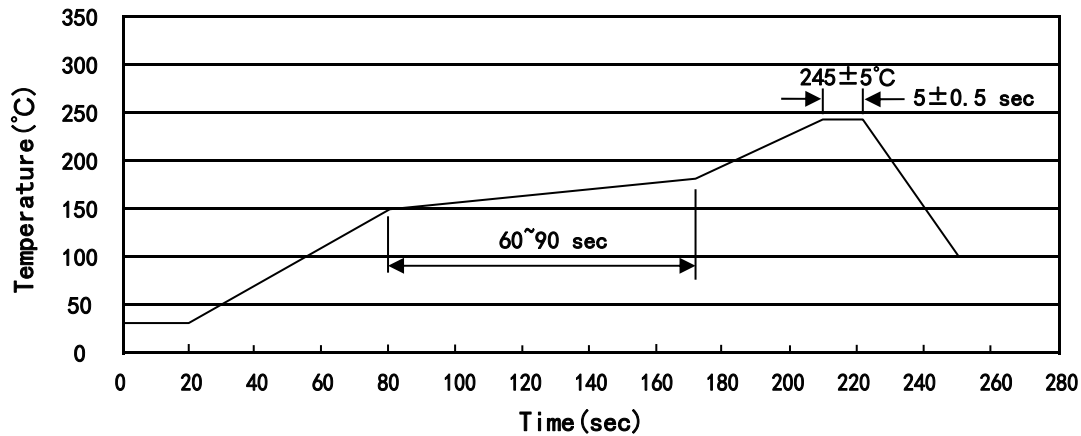


说明：

- ： 为“1”脚
- 702： 为型号代码
- ***： 为生产批号代码，随生产批号变化

Note:

- ： “1” Pin
- 702： Product Type Code
- ***： Lot No. Code, code change with Lot No

回流焊温度曲线图(无铅) / Temperature Profile for IR Reflow Soldering(Pb-Free)


说明：

- 1、预热温度 150~180°C，时间 60~90sec;
- 2、峰值温度 245±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:150~180°C, Time:60~90sec.
- 2.Peak Temp.:245±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：260±5°C

时间：10±1 sec.

Temp.:260±5°C

Time:10±1 sec

包装规格 / Packaging SPEC.

卷盘包装 / REEL

Package Type 封装形式	Units 包装数量					Dimension 包装尺寸 (unit: mm ³)		
	Units/Reel 只/卷盘	Reels/Inner Box 卷盘/盒	Units/Inner Box 只/盒	Inner Boxes/Outer Box 盒/箱	Units/Outer Box 只/箱	Reel	Inner Box 盒	Outer Box 箱
SOT-363	3,000	10	30,000	6	180,000	7" ×8	180×120×180	390×385×205

使用说明 / Notices