## / Descriptions

SOT-363 N MOS

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

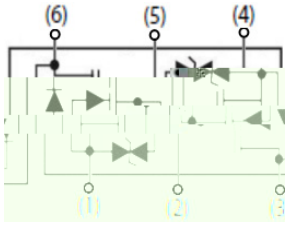
## / Features

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

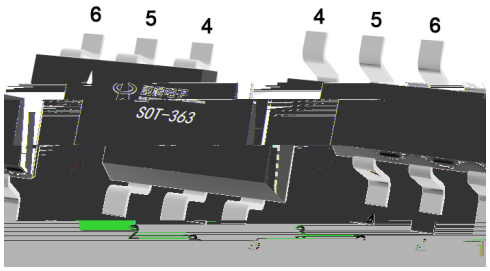
## / Applications

Intended for use in general purpose switching and phase control applications.

## / Equivalent Circuit




## / Pinning




PIN1 4 S PIN 2 5 G PIN 3 6 D

## / Marking

See Marking Instructions.

## / Absolute Maximum Ratings(Ta=25 )

| Parameter | Symbol | Rating | 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 | |
| Storage Temperature Range | $T_{stg}$ | -55～150 | |
| Maximum Junction-to-Ambient(Note 1) | $R_{\theta JA}$(Steady State) | 417 | ℃/W |
| | $R_{\theta JA}$(t≤5s) | 300 | |

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

## / Electrical Characteristics(Ta=25 )

| Parameter | Symbol | Test Conditions | Min | Typ | Max | 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 | $V_{GS(th)}$ | $V_{DS}$=$V_{GS}$ $I_D$=250uA | 1.0 | 1.6 | 2.5 | V |
| Forward Transconductance | $Y_{fs}$ | $V_{DS}$=10V $I_D$=0.2A | 80 | | | mS |
| Input Capacitance | Ciss | $V_{GS}$=0V, $V_{DS}$=20V f=1MHz, | | 25 | 50 | pF |
| Output Capacitance | Coss | | | 11 | 25 | |
| Reverse Transfer Capacitance | Crss | | | 2.5 | 5 | |
| Total Gate Charge | $Q_{G(TOT)}$ | $V_{GS}$=4.5V, $I_D$=200 mA $V_{DS}$=10V; | | 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 | | |

## / Electrical Characteristics(Ta=25 )

| Parameter | Symbol | Test Conditions | Min | Typ | Max | Unit |
|---|---|---|---|---|---|---|
| Turn_On Delay Time | $t_{d(ON)}$ | $V_{GS}$ =10V, $V_{DD}$=25V, $I_D$=500mA, $R_G$=25 Ω | | 6.0 | | ns |
| Rise Time | $t_r$ | | | 5.8 | | |
| Turn_Off Delay Time | $t_{d(OFF)}$ | | | 13.2 | | |
| Fall Time | $t_f$ | | | 8.9 | | |

## / Electrical Characteristic Curve

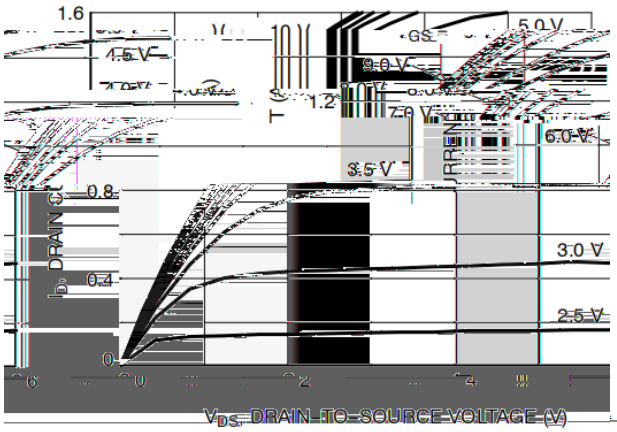



Figure 1. On-Region Characteristics

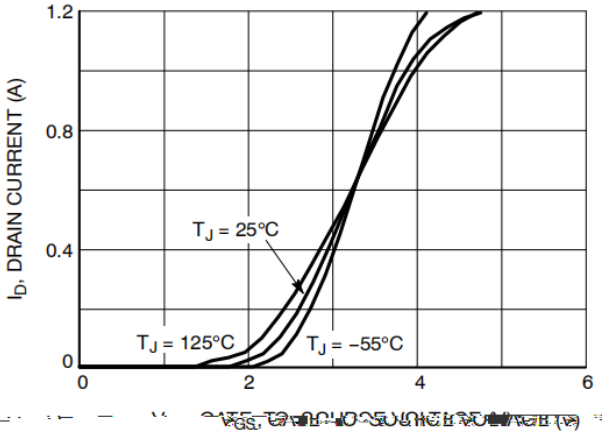
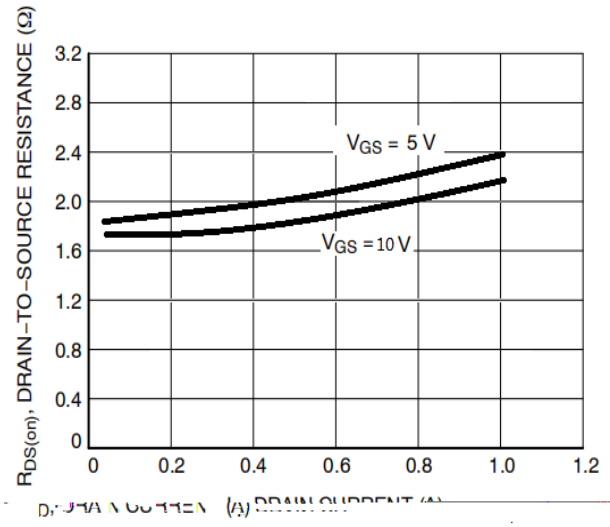



Figure 2. Transfer Characteristics




On-Resistance vs. Drain Current and Temperature

Figure 3.

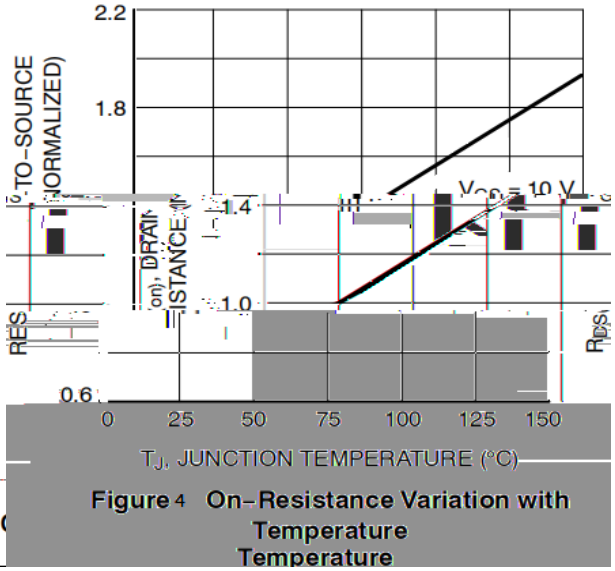



Figure 4 On-Resistance Variation with Temperature

Temperature

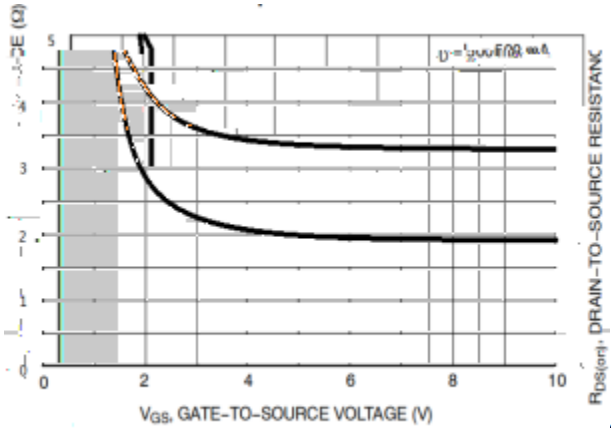
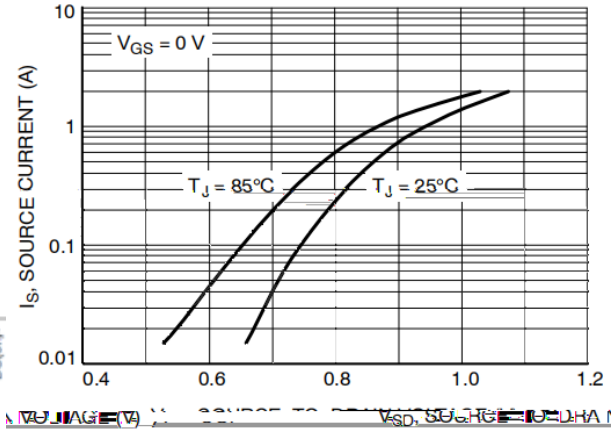



Figure 5. On-Resistance vs. Gate-to-Source Voltage




ltage vs. Current

Figure 6 Diode Forward Vo

## / Electrical Characteristic Curve

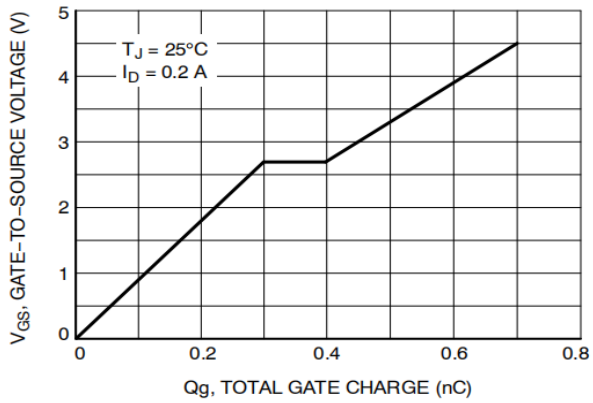



**Figure 7 . Gate-to-Source and Drain-to-Source Voltage vs. Total Charge**

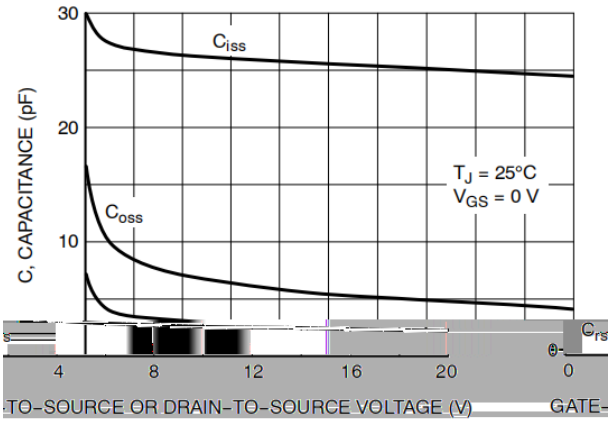



**Figure 8. Capacitance Variation**

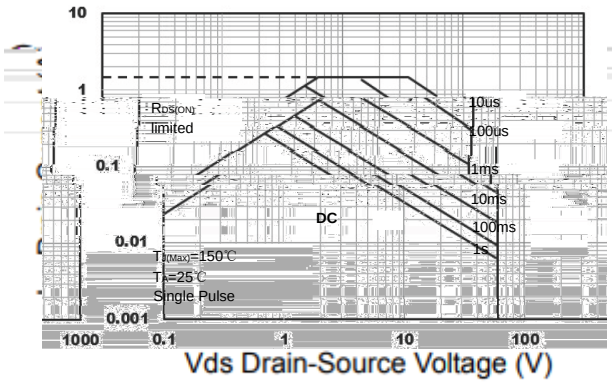



**Figure 9 : Safe Operation Area**

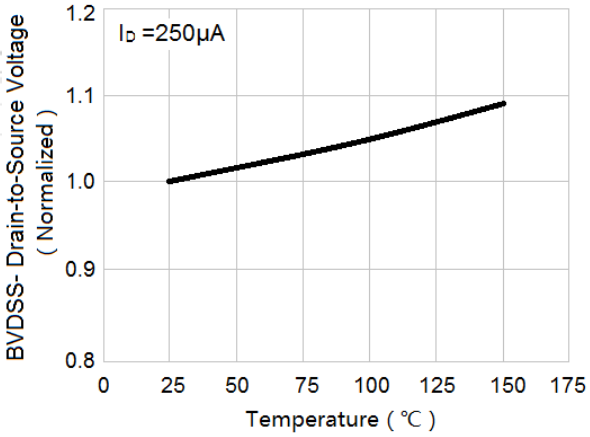
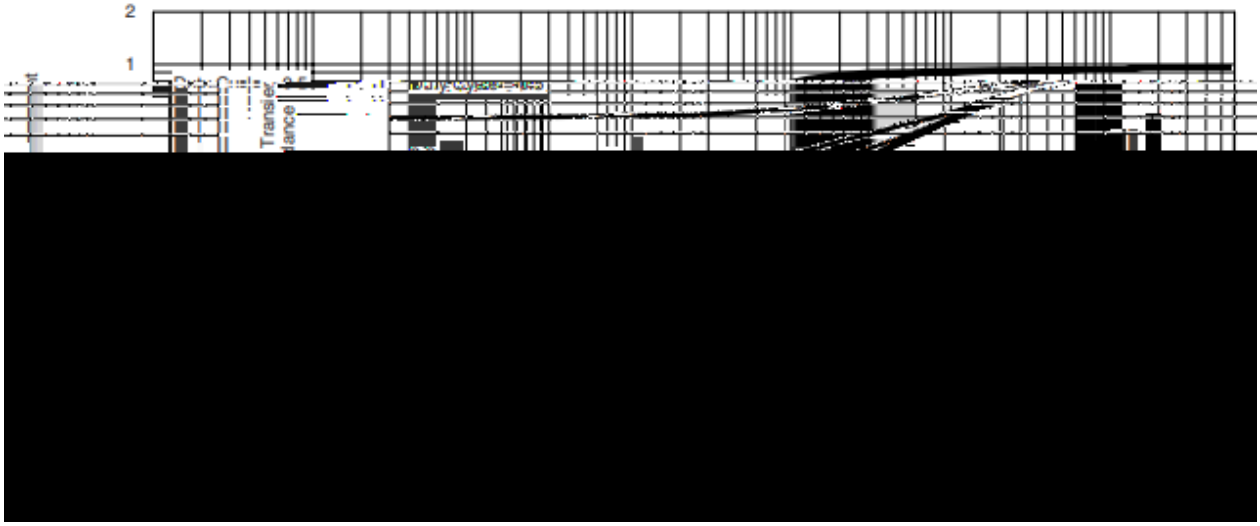
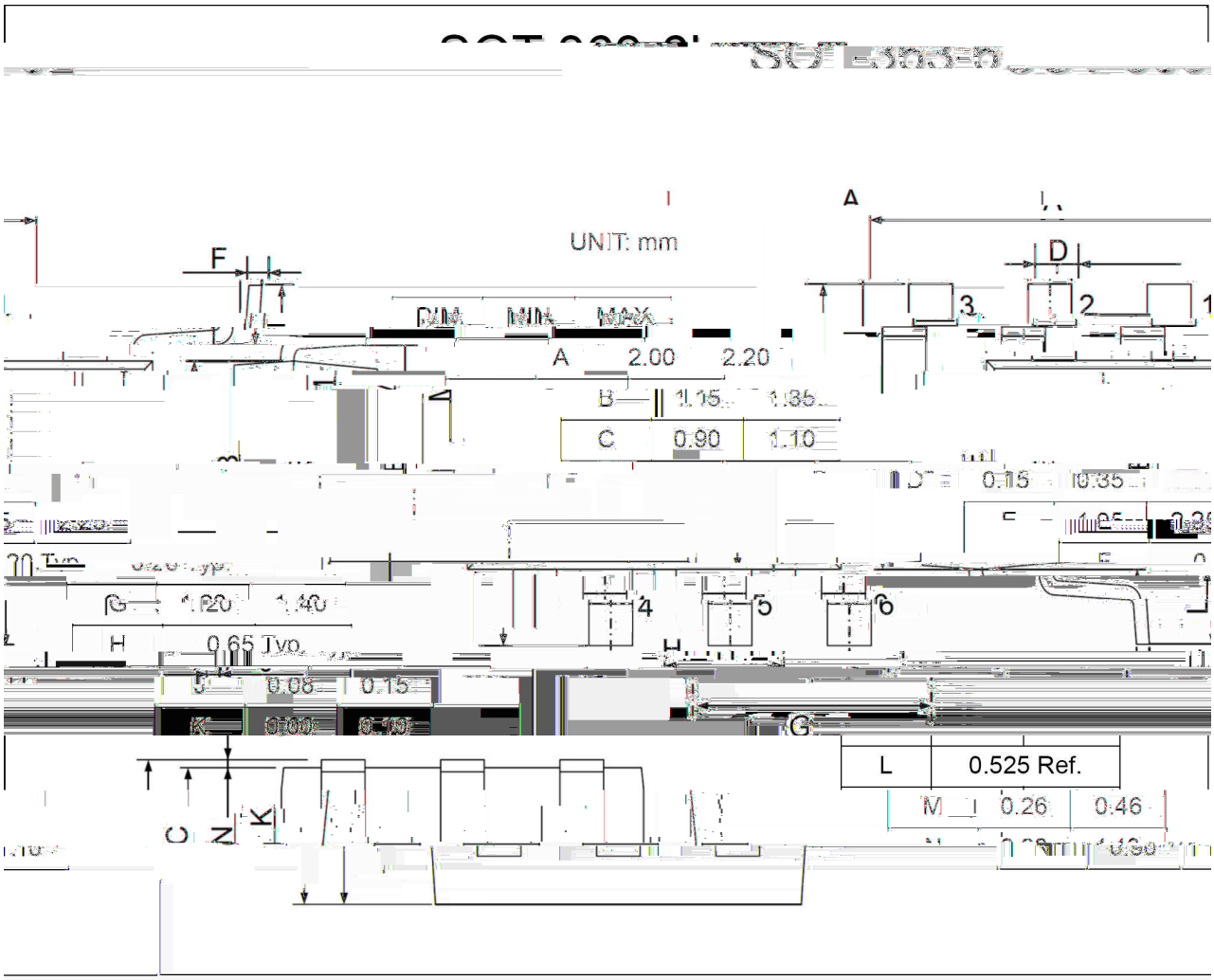


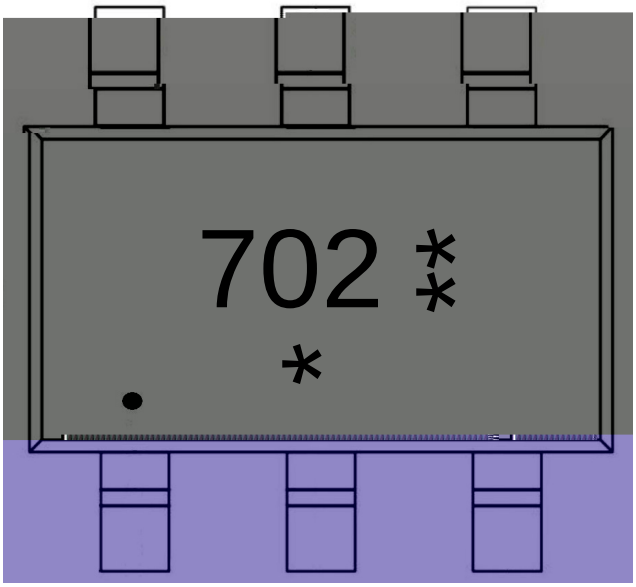

Figure 10 : Breakdown Voltage vs.Temperture



## / Package Dimensions



## / Marking Instructions




● “ 1 ”

702

***:

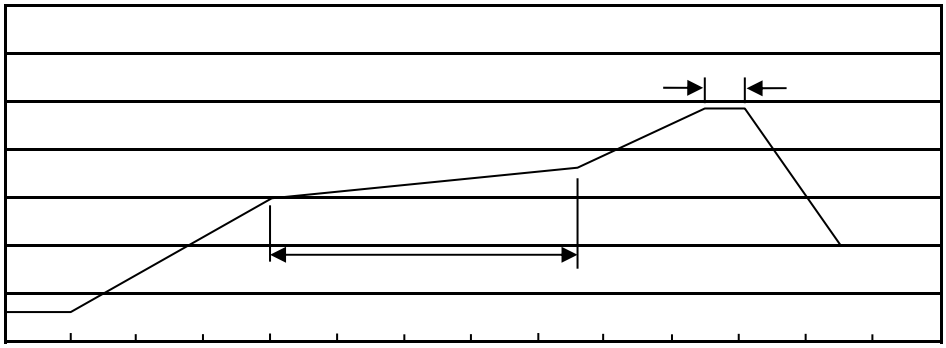
Note:

● “ 1 ” Pin

702 Product Type Code

***: Lot No. Code, code change with Lot No

## ( ) / Temperature Profile for IR Reflow Soldering(Pb-Free)



| | | | | |
|---|---|---|---|---|
| | | | | Note: |
| 1 | 150 | 180 | 60 90sec; | 1.Preheating:150~180 , Time:60~90sec. |
| 2 | 245±5 | | 5±0.5sec; | 2.Peak Temp.:245±5 , Duration:5±0.5sec. |
| 3 | | 2 10 | /sec. | 3. Cooling Speed: 2~10 /sec. |

## / Resistance to Soldering Heat Test Conditions

| | | | |
|---|---|---|---|
| 260±5 | 10±1 sec. | Temp.:260±5 | Time:10±1 sec |

## / Packaging SPEC.

/ REEL

| Package Type 封装形式 | Units 包装数量 | | | | | Dimension 包装尺寸 (unit：mm³) | | |
|---|---|---|---|---|---|---|---|---|
| | 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 |

## / Notices