

Descriptions

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

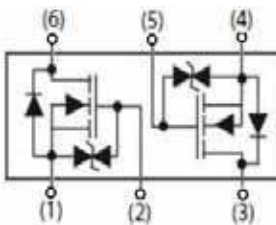
Features

- Sensitive gate trigger current and Low Holding current.ESD protected diode.
- ESD rating:2200V HBM
- Halogen-free

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

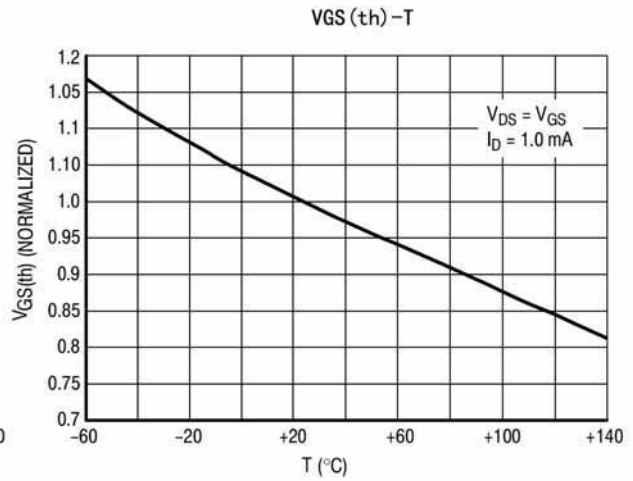
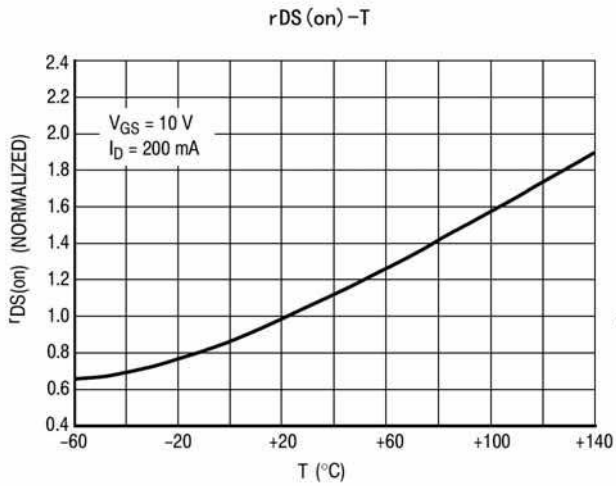
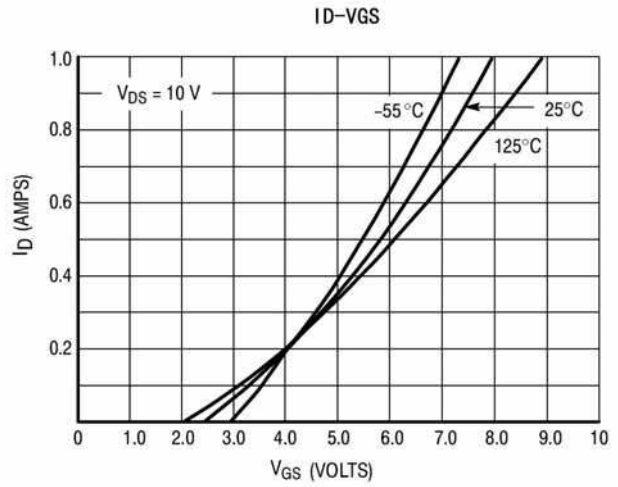
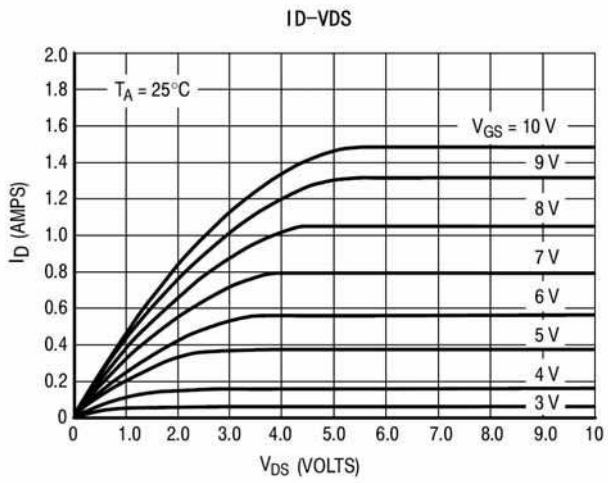
Absolute Maximum Ratings(Ta=25 °C)

| Parameter | Symbol | Rating | Unit |
|------------------------------------|-----------|---------|------|
| Drain-Source Voltage | V_{DSS} | 60 | V |
| Drain-Gate Voltage | V_{DGR} | 60 | V |
| Maximum Drain Current - Continuous | I_D | 250 | mA |
| Maximum Drain Current - Pulsed | I_{DM} | 800 | mA |
| Gate-Source Voltage - Continuous | V_{GSS} | ±20 | V |
| Maximum Power Dissipation | P_D | 350 | mW |
| Storage Temperature Range | T_{stg} | -55~150 | °C |

Electrical Characteristics(Ta=25 °C)

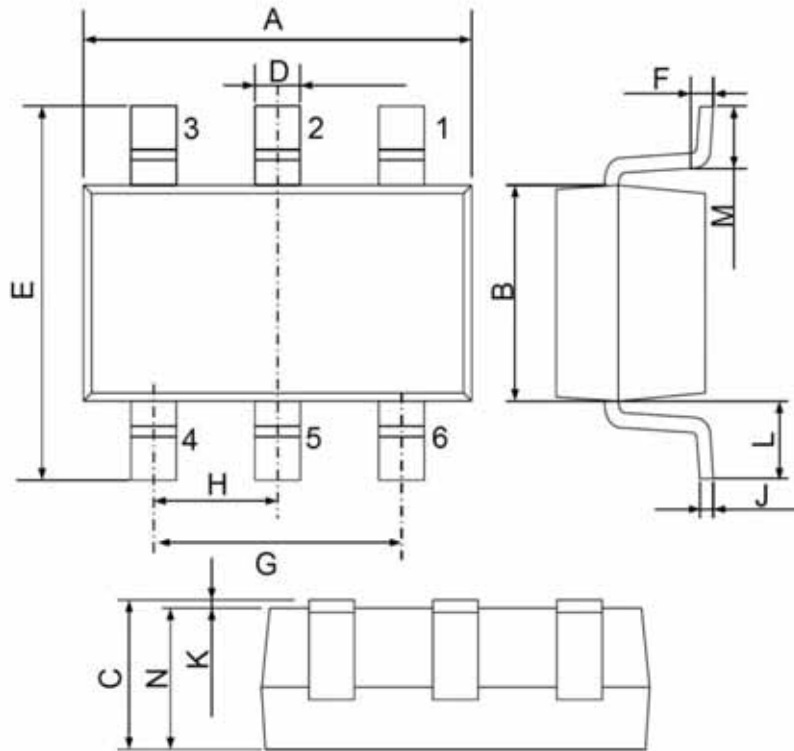
| Parameter | Symbol | Test Conditions | Min | Typ | Max | Unit |
|------------------------------------|-----------------|---|-----|-----|-----------|----------|
| Drain-Source Breakdown Voltage | $V_{(BR)DSS}$ | $V_{GS}=0$ $I_D=10\mu A$ | 60 | | | V |
| Zero Gate Voltage Drain Current | I_{DSS} | $V_{GS}=0$ $V_{DS}=60V$ $T_J=25^\circ C$ | | | 1.0 | μA |
| Zero Gate Voltage Drain Current | I_{DSS} | $V_{GS}=0$ $V_{DS}=60V$ $T_J=125^\circ C$ | | | 500 | μA |
| Gate - Body Leakage | I_{GSS} | $V_{GS}=\pm 20V$ $V_{DS}=0V$ | | | ±10 | nA |
| Static Drain-Source On-Resistance | $R_{DS(on)(1)}$ | $V_{GS}=5V$ $I_D=0.05A$ | | 1.5 | 5 | Ω |
| | $R_{DS(on)(2)}$ | $V_{GS}=10V$ $I_D=0.5A$ | | 1.3 | 5 | Ω |
| Forward Transconductance | g_{FS} | $V_{DS}=10V$ $I_D=0.2A$ | 80 | | | mS |
| Drain-Source Diode Forward Voltage | V_{SD} | $V_{GS}=0V$ $I_S=250mA$ | | | 1.5 | V |
| Gate Threshold Voltage | $V_{GS(th)}$ | $V_{DS}=V_{GS}$ $I_D=250\mu A$ | 1.0 | | 1.9 | V |
| On-State Drain Current | $I_{D(on)}$ | $V_{DS} \geq 2.0V_{DS(on)}$ $V_{GS}=10V$ | 500 | | | mA |
| Drain-Source On-Voltage | $V_{DS(on)(1)}$ | $V_{GS}=10V$ $I_D=500mA$ | | | 2.5 | V |
| | $V_{DS(on)(2)}$ | $V_{GS}=5.0V$ $I_D=50mA$ | | | 0.27 5 | V |
| Turn-On Time | $t_{d(on)}$ | $V_{DD}=30V$ $I_D=200mA$ $R_G=25\Omega$ | | 7.5 | 20 | ns |
| Turn-Off Time | $t_{d(off)}$ | $R_L=150\Omega$ $V_{gen}=10V$ | | 11 | 20 | ns |

RATING AND CHARACTERISTICS CURVES (2N7002DS6)



Package Dimensions

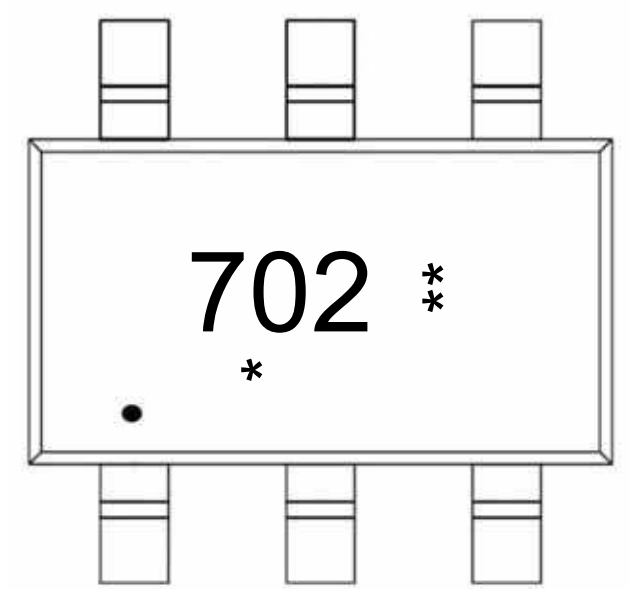
SOT-363-6L



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 | 2.15 | 2.45 |
| 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 | 1.00 |

Marking Instructions



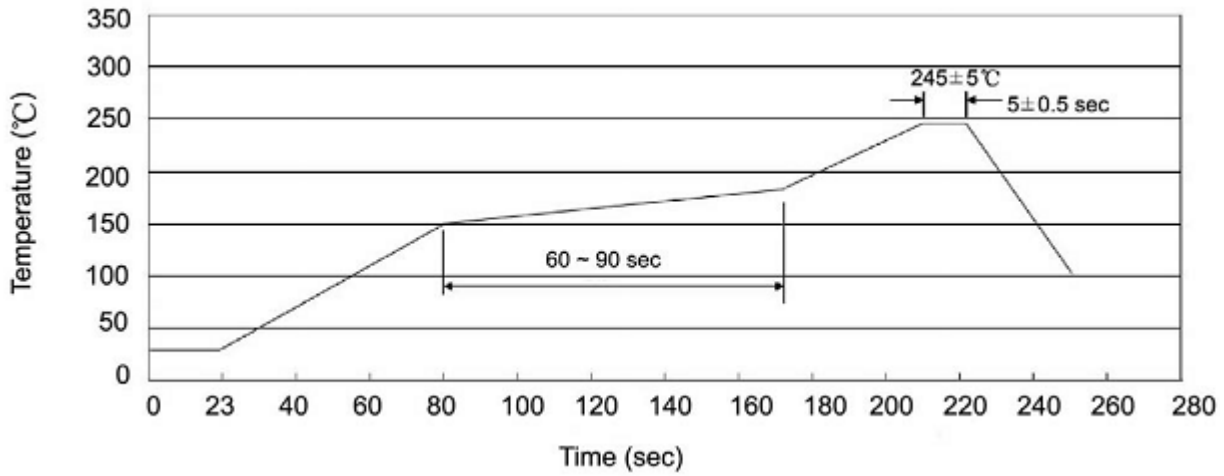
Note:

● : "1" Pin

702 : Product Type Code

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

Temperature Profile for IR Reflow Soldering(Pb-Free)



Note:

- 1.Preheating:25~150 °C, Time:60~90sec.
- 2.Peak Temp.:245 ±5°C, Duration:5±0.5sec.
- 3.Cooling Speed: 2~10°C/sec.

Resistance to Soldering Heat Test Conditions

Temp.:260±5°C Time:10±1 sec

Packaging SPEC.

| Package Type | Units | | | | | Dimension (unit: mm ³) | | |
|--------------|------------|-----------------|-----------------|-----------------------|-----------------|------------------------------------|-------------|-------------|
| | Units/Reel | Reels/Inner Box | Units/Inner Box | Inner Boxes/Outer Box | Units/Outer Box | Reel | Inner Box | Outer Box |
| SOT-363 | 3,000 | 10 | 30,000 | 8 | 240,000 | 7" x8 | 180×120×180 | 385×257×392 |

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