

Product Summary

| BVDSS | RDSON | ID |
|-------|-------|-------|
| -20 V | 85 mΩ | -1.4A |

Application

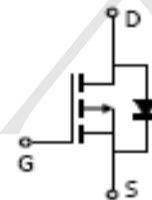
- Load/Power Switching
- Interfacing Switching
- Logic Level Shift

Package and Pin Configuration

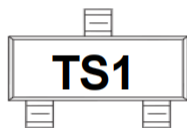
SOT-323



Circuit diagram



Marking:



Absolute Maximum Ratings ($T_A=25^{\circ}\text{C}$ unless otherwise noted)

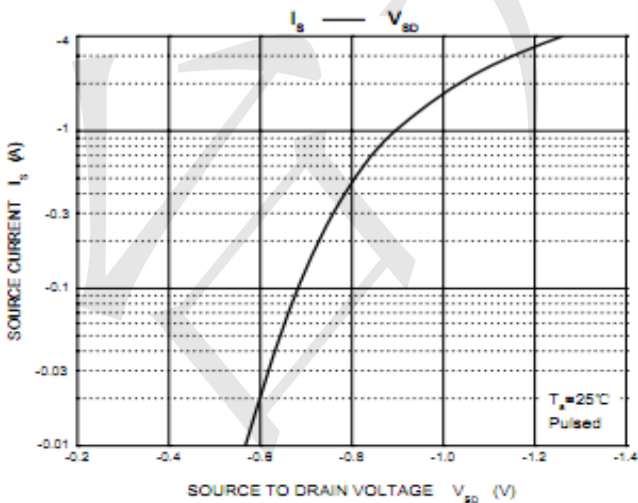
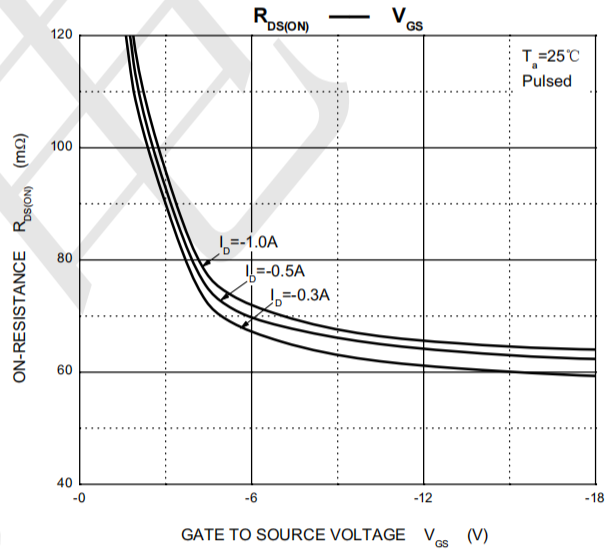
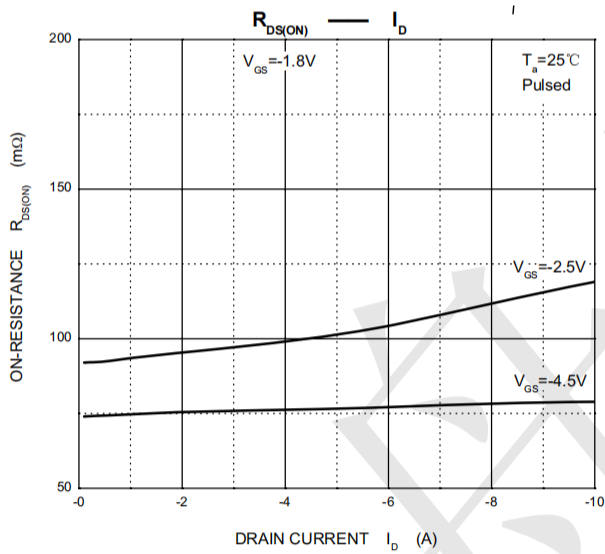
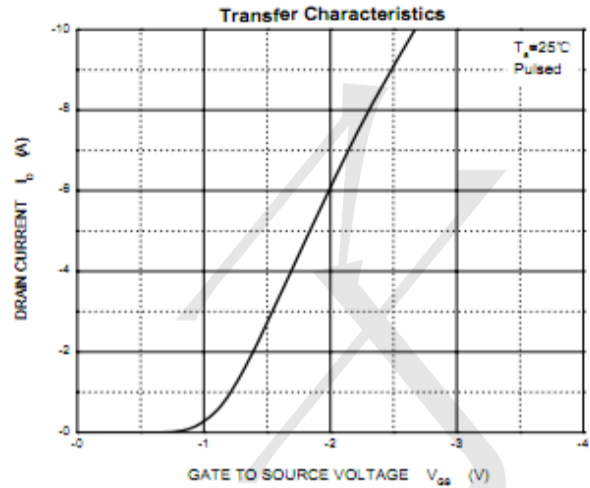
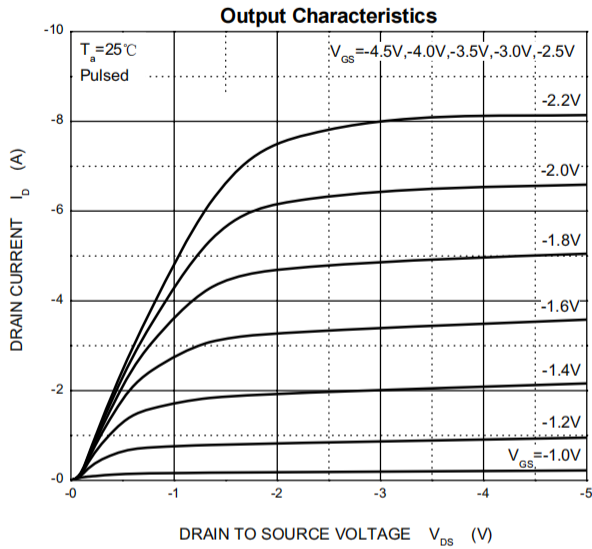
| Parameter | Symbol | Value | Unit |
|--|-----------------|-----------|-----------------------------|
| Drain-Source Voltage | V_{DS} | - 20 | V |
| Gate-Source Voltage | V_{GS} | ± 8.0 | |
| Continuous Drain Current | I_D | -1.4 | A |
| Pulsed Drain Current ($t_p=10\mu\text{s}$) | I_{DM} | -3.0 | |
| Power Dissipation | P_D | 0.29 | W |
| Thermal Resistance from Junction to Ambient | $R_{\theta JA}$ | 431 | $^{\circ}\text{C}/\text{W}$ |
| Junction Temperature | T_J | 150 | $^{\circ}\text{C}$ |
| Storage Temperature | T_{stg} | -50 ~+150 | |

Electrical Characteristics ($T_J=25\text{ }^\circ\text{C}$, unless otherwise noted)

| Parameter | Symbol | Test Condition | Min | Typ | Max | Unit |
|--|--------------|--|-------|-------|-----------|------------|
| OFF CHARACTERISSTICS | | | | | | |
| Drain-Source Breakdown Voltage | V_{DS} | $V_{GS} = 0V, I_D = -250\mu A$ | -20 | | | V |
| Gate-Source Leakage | I_{GSS} | $V_{DS} = 0V, V_{GS} = \pm 8V$ | | | ± 100 | nA |
| Zero Gate Voltage Drain Current | I_{DSS} | $V_{DS} = -20V, V_{GS} = 0V$ | | | -1.0 | μA |
| OFF CHARACTERISSTICS (note 1) | | | | | | |
| Gate-Source Threshold Voltage | $V_{GS(th)}$ | $V_{DS} = V_{GS}, I_D = -250\mu A$ | -0.45 | -0.7 | | V |
| Drain-Source On-State Resistance | $R_{DS(on)}$ | $V_{GS} = -4.5V, I_D = -1.0A$ | | 85 | 110 | m Ω |
| | | $V_{GS} = -2.5V, I_D = -0.5A$ | | 100 | 140 | |
| | | $V_{GS} = -1.8V, I_D = -0.3A$ | | | 210 | |
| CHARGES AND CAPACITANCES (note 3) | | | | | | |
| Input Capacitance | C_{iss} | $V_{DS} = -8.0V, V_{GS} = 0V, f = 1MHz$ | | 640 | | pF |
| Output Capacitance | C_{oss} | | | 120 | | |
| Reverse Transfer Capacitance | C_{rss} | | | 82 | | |
| SWITCHING CHARACTERISSTICS (note 2,3) | | | | | | |
| Turn-On Delay Time | $t_{d(on)}$ | $V_{GS} = -4.5V, V_{DD} = -4.0V, I_D = -1.0A, R_G = 6.2\Omega$ | | 6.2 | | ns |
| Rise Time | t_r | | | 15 | | |
| Turn-Off Delay Time | $t_{d(off)}$ | | | 26 | | |
| Fall Time | t_f | | | 18 | | |
| Drain-source Body diode characteristics | | | | | | |
| Forward Diode Voltage | V_{SD} | $V_{GS} = 0V, I_S = -0.3A$ | | -0.62 | -1.2 | V |

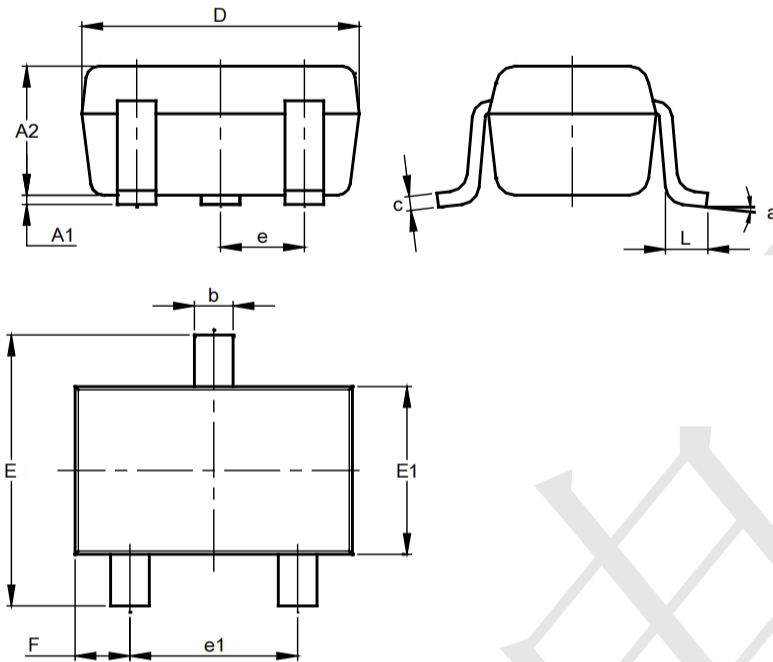


Typical Electrical and Thermal Characteristics



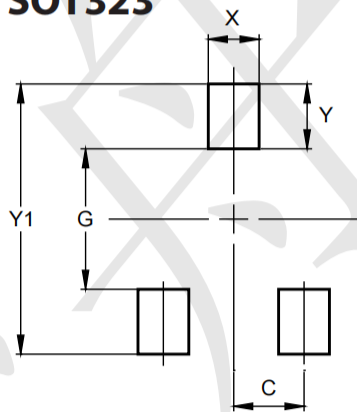


Outline Drawing - SOT323(SC70-3)



| SOT323 | | | |
|----------------------|-----------|-------|-------|
| Dim | Min | Max | Typ |
| A1 | 0.00 | 0.10 | 0.05 |
| A2 | 0.90 | 1.00 | 0.95 |
| b | 0.25 | 0.40 | 0.30 |
| c | 0.10 | 0.18 | 0.11 |
| D | 1.80 | 2.20 | 2.15 |
| E | 2.00 | 2.20 | 2.10 |
| E1 | 1.15 | 1.35 | 1.30 |
| e | 0.650 BSC | | |
| e1 | 1.20 | 1.40 | 1.30 |
| F | 0.375 | 0.475 | 0.425 |
| L | 0.25 | 0.40 | 0.30 |
| a | 0° | 8° | -- |
| All Dimensions in mm | | | |

Land Pattern - SOT323



| Dimensions | Value (in mm) |
|------------|---------------|
| C | 0.650 |
| G | 1.300 |
| X | 0.470 |
| Y | 0.600 |
| Y1 | 2.500 |